

DEPARTMENT OF INDUSTRIAL RELATIONS
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
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Juliann Sum, Chief

June 24, 2015

Ralph Morales, Safety & Security Manager
Safework, Inc.
ralph.morales@safeworkinc.com

Re: Title 8 Section 1712(c) Protection from Reinforcing Steel and Other Similar Projections

Dear Mr. Morales;

This letter is provided in response to your inquiry to the Division of Occupational Safety and Health (Cal/OSHA) regarding the impalement hazards at a multi-employer construction worksite. The content and conclusions of this letter are based only on the facts described below and responsive only to the initial requester. They may not be construed as a statement of general Division policy or general interpretation of the regulations referenced in this letter.

Scenario Presented:

You provided the following scenario in your letter:

Rodbusters are installing vertical rebar reinforcement that protrudes upward alongside walking working surfaces (rebar mat, subgrade or any other areas) as well as other worksite areas ranging from 4 inches up to 6 feet above grade on a Multi-Employer Worksite. Carpenters, Form-Setters, Laborers and other project craftsperson's are also working alongside and or in near proximity to these operations. Wooden plywood walkways are also routinely placed alongside these areas (within a few feet) where vertical rebars are installed to provide a stable walking working surface while working atop of rebar slab mats. The work areas are predominantly open area and are not flagged off nor barricaded leaving access to any worker.

MEP crafts are also installing rigid conduit and other rigid projections in similar areas alongside active walkways as well as other areas in the project footprint ranging from 4 inches up to 6 feet above grade on the Multi-Employer Worksite.

Question 1:

At what time does a work in progress end (the installation of reinforcement rebar or other similar projections) and the need to protect begin for these types of operations on a Multi- Employer Worksite?

Response to Question 1:

Title 8 Section 1712 does not provide any exemption from the duty to provide impalement protection regardless of the work in progress. Construction activities constantly change and employers must remain aware of and provide protection from impalement hazards. Whenever employees are exposed to protruding reinforcing steel and other similar projections, they must be protected against the impalement hazard by means described in Title 8 section 1712(c):

1712. Reinforcing Steel and Other Similar Projections.**(c) Protection from Reinforcing Steel and Other Similar Projections**

(1) Employees working at grade or at the same surface as exposed protruding reinforcing steel or other similar projections, shall be protected against the hazard of impalement by guarding all exposed ends that extend up to 6 feet above grade or other work surface, with protective covers, or troughs.

(2) Employees working above grade or any surface and exposed to protruding reinforcing steel or other similar projections shall be protected against the hazard of impalement. Protection shall be provided by:

(A) The use of guardrails, or

(B) Approved fall protection systems meeting the design requirements of Article 24, or

(C) Protective covers as specified in subsection (d).

(3) Protective covers shall not be used to protect against impalement where the maximum height of fall exposure, to the top of the protective cover, exceeds 7 1/2 feet, unless the protective covers meet the requirement of subsection (d)(4)(D).

In those instances where the protective cover interferes with work, thus necessitating the removal of the protective cover, it should be removed only when the worker progresses to that particular rebar rather than removing all the protective covers at once. In addition, access to the areas from which employees could trip or fall and be impaled on unguarded rebar must be limited to only those employees needed to be there to perform this work.

Question 2.

Is it compliant for other workers on the work site (non-installers of exposed protruding reinforcing steel or other similar projections) to be allowed nearby non protected vertical protruding reinforcement or other similar projections prior to protecting with an approved trough or protective cover?

Response to Question 2:

No. All employees regardless of their trade must be protected from protruding reinforcing steel and other similar projections and should not be allowed in the areas from which employees could trip or fall and be impaled on unguarded rebar.

Question 3.

On vertical rebar; is it compliant to just install rebar couplers without placing approved covers or troughs atop of vertical rebars that protrude less than 6 feet above grade?

Response to Question 3:

No. Rebar couplers cannot be used in lieu of approved covers or troughs unless it meets the protective cover requirements specified in Title 8, section 1712(d):

1712. Reinforcing Steel and Other Similar Projections.

(d) Protective Covers, Specifications, Testing and Approval.

(1) Protective covers shall be made of wood, plastic, or other materials of equal or greater strength.

(2) Protective covers shall have a minimum 4-inch by 4-inch square surface area, or if round, a minimum diameter of 4 1/2 inches.

(3) Manufactured protective covers shall meet the following requirements:

(A) Manufactured protective covers shall be approved as provided for in Section 1505 and be legibly marked with the manufacturer's name or logo.

(B) Manufactured protective covers made before October 1, 2000 shall, at the minimum, be capable of withstanding the impact of a 250-pound weight dropped from a height of 10 feet without penetration failure of the cover.

(C) Manufactured protective covers made on or after October 1, 2000 shall meet the testing requirements of Section 344.90.

(4) Job-built protective covers shall meet the following requirements:

(A) Job-built protective covers shall be designed as specified by an engineer currently registered in the State of California. A copy of the engineering drawing(s) depicting the job-built protective covers shall be kept at the worksite and made available to the Division upon request.

Exception: Job-built troughs as depicted in Appendix Plate C-25 may be used as a substitute for engineered or manufactured protective covers when employees are working at heights not greater than 6 feet above grade or other working surface.

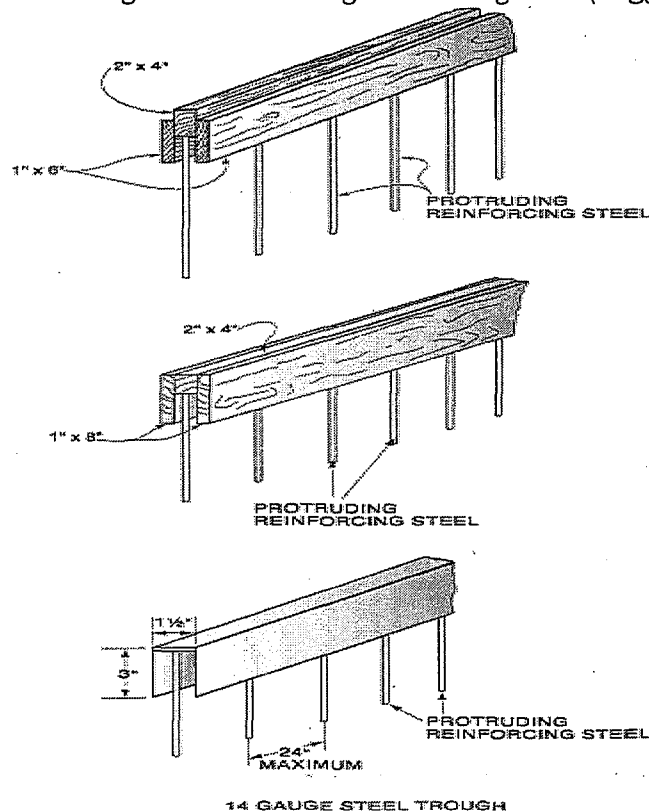
(B) Job-built wood protective covers and troughs shall be constructed of at least "Standard Grade" Douglas Fir, as graded by either the Western Lumber Grading Rules 98, handbook, effective March 1, 1998, published by the Western Wood Products Association, or the Standard No. 17 Grading Rules for West Coast Lumber, handbook, effective September 1, 1991 and revised January 1, 2000, published by the West Coast Lumber Inspection Bureau, which are hereby incorporated by reference.

(C) Job-built protective covers, except for troughs as depicted in Appendix Plate C-25, shall, at the minimum, be capable of withstanding the impact of a 250-pound weight dropped from a height of 10 feet without penetration failure of the cover.

Note: The drop test requirement in subsection (d)(4)(C) applies to protective covers used to prevent employee impalement where the employee is exposed to fall heights of up to 7 1/2 feet.

(D) Drop test specifications for job-built protective covers listed in subsection (d)(4)(C) shall be modified where fall heights greater than 7 1/2 feet are anticipated, to ensure that the protective cover can withstand increased impact loading.

Appendix Plate C-25
Protective Troughs for Protruding Reinforcing Steel (Suggested)

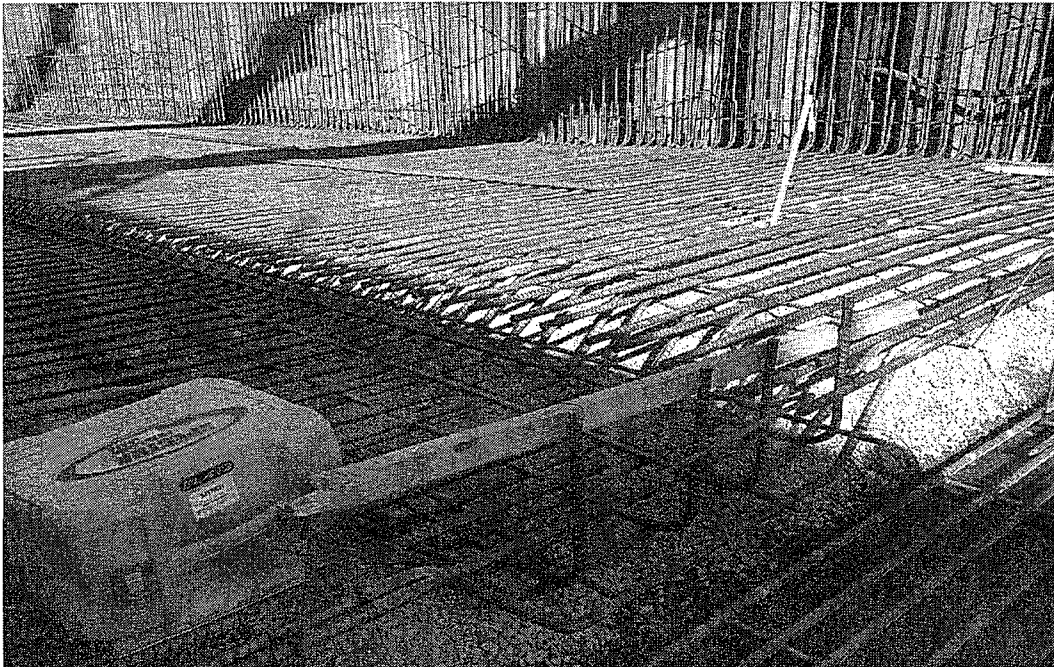


Question 4.

Is it compliant to just tie-wiring a horizontal rebar or 2X4 alongside the top of vertical rebars that extend up to 6 feet above grade or other work surface as an approved form of impalement protection, and can this be considered an approved trough or cover?

Response to Question 4:

No. Just tie-wiring a horizontal rebar or 2x4 alongside the top of vertical rebars as shown below on the photograph you provided will not be considered as an approved form of impalement protection. Job-built protective covers and troughs must meet the requirements of section 1712(d)(4).

**Question 5.**

Is there a vertical threshold as to when vertical projections need to be protected?

Response to Question 5:

There is no minimum height that reinforcing steel can protrude before guarding is required. Reinforcing steel or other similar projections of any length must be guarded when there is the hazard that an employee could fall onto the projection and be impaled. There was a comment submitted during the 2003 rulemaking process regarding at what length rebar or similar projections need to be covered and the Occupational Safety and Health Standards Board responded as follows:

However, the Board believes that in accordance with the proposal, length at which rebar or similar projections would need to be covered is determined by whether or not the projection constitutes an

impalement hazard. The Board recognizes that the regulation cannot possibly identify each and every worksite impalement hazard and, being a performance-based standard, gives discretion to the employer to make this determination.

Question 6.

Are any of the questions above citable by CAL-OSHA for non-compliance and if yes, what type of violation(s) would be issued to the Contractor?

Response to Question 6:

Yes, all conditions described in questions 1 through 4 are not compliant with the Title 8 regulations. If these conditions are observed during an inspection, the employer could be issued serious citations for violating the requirements of section 1712(c) and/or (d).

Please note that additional citations may be issued if other violations are observed during an inspection by the Division.

We hope this provides you with information you need. If you have any further questions regarding this or related safety concerns, please contact me at 925-270-9791 or eberg@dir.ca.gov.

Sincerely,



Eric Berg
Acting Deputy Chief
Research and Standards