



MAR 27 2006

Fred H. Coddling
10382 Main Street
P.O. Box 280
Fairfax, Virginia 22030

Re: Worker exposure to impalement hazards while constructing upper rebar mats over rebar protrusions from lower levels; 1926.701(b)(1)

Dear Mr. Coddling:

This is in response to your March 16, 2005, letter to the Occupational Safety and Health Administration (OSHA). You ask for clarification of Subpart Q, *Concrete and Masonry Construction* regarding the exposure of workers to impalement hazards while tying rebar. We apologize for the long delay in providing this response.

We have paraphrased your question as follows:

Question: *Scenario: In some cases a poured upper concrete slab is tied to vertical rebar protrusions from a lower slab to ensure that the two slabs act as an integral unit. Examples of this are pictured as follows:*



In this scenario, if a top layer of rebar (mat) is required in the design, it is impossible to tie the upper mat to the vertical rebar without removing the protective caps and covers. But if the protective caps and covers are removed while the upper mat is actively being constructed, the worker positioning and tying the upper mat of rebar will be exposed to the impalement hazard presented by the rebar protruding from the lower layer.

I note that the preamble to Subpart Q, [53FR 22621] states, " No additional requirements were needed in this subpart to protect employees while they erect reinforcing steel." Does OSHA agree that, in this scenario, when this work necessitates removing the rebar caps, it is infeasible to protect workers from the impalement hazard while they are positioning and tying the rebar?

Answer

In 29 CFR 1926 Subpart Q, §1926.701(b)(1), *Reinforcing steel*, states:

All protruding reinforcing steel, onto and into which employees could fall, shall be guarded to eliminate the hazard of impalement.

For an employer to establish that compliance with this provision is infeasible, it must prove:

(1) the means of compliance prescribed by the applicable standard would have been infeasible under the circumstances in that (a) its implementation would have been technologically or economically infeasible, or (b) necessary work operations would be technologically or economically infeasible after its implementation, and (2) either (a) an alternative method of protection was used, or (b) there was no feasible alternative means of protection.¹

In addition, where an employer cannot fully comply with the literal terms of a standard, it must nevertheless comply to the extent that compliance is feasible.²

We do not agree that in all cases involving a top (horizontal) rebar mat layer that is, per the design, required to be tied for strength to vertical rebar protrusions from a lower slab, it is infeasible to tie the rebar without first removing the impalement protection caps.³ An underlying assumption in your question is that rebar impalement protection can only be achieved by the use of caps or similar devices. In the type of scenario you are describing, the rebar coming up from the lower slab can often be designed so that it has a 90 degree bend, which normally obviates the need for caps or other devices. Therefore, where the employer has authority over the design of the rebar, and the use of caps or other devices is infeasible, use of a 90 degree bend would be required unless the employer demonstrates that a 90 degree bend is also infeasible.

¹Secretary of Labor v. A.J. McNulty & Company, Inc., 2000 WL 1490235 (O.S.H.R.C. Oct. 5, 2000).

²Secretary of Labor v. Peavey Co., 16 BNA 2022, 2027 (O.S.H.R.C., 1994).

³ The language you cite from the preamble in volume 53 of the Federal Register, page 22621, is not a discussion regarding a limitation of the applicability of §1926.701(b)(1). That language is from a discussion of Issue #5 of the proposed rule, which asked whether it was necessary to include *additional* requirements for workers who must climb erected rebar to perform their duties. It was considered that a fall hazard might be created where the weight of the worker, with tools and the materials needed to perform the job, might cause the erected rebar (that was being climbed) to fail. The language you reference explains that after careful consideration of the comments received regarding Issue #5, OSHA decided that no additional requirements, such as platforms, were needed to protect workers from the hazard of falling while they tied elevated sections of erected rebar.

Where an employer has no control over the rebar design or can demonstrate that a 90 degree bend is infeasible, there are some instances where the vertical rebar cannot be tied to the horizontal rebar without first removing the cap. We address two versions of such a scenario below.

Scenario A: rebar mat constructed in place

Our understanding is that, in this type of situation, a problem can arise that relates to the extent to which the vertical rebar extends (if at all) above the upper (horizontal) rebar. If the top of the vertical rebar is level with the horizontal rebar, they cannot be tied together without first removing the cap. The reason for this is that the cap would cover the portion of the vertical rebar with which the tie must be in contact. Also, if the vertical rebar extends only a minimal distance above the horizontal rebar, the lower portion of the cap would similarly be in the way. Therefore, in such instances, it would be infeasible for an employee to tie a vertical rebar to the horizontal rebar without first removing its cap. However, we note that if the vertical rebar extends far enough above the horizontal rebar so that the cap is not in the way of the tie, the cap would not prevent the vertical and horizontal rebar from being tied together.⁴

In those instances where the employer can show that the cap prevents the tie from contacting the rebar, thus necessitating the removal of the cap, the employer would be required to use the next most protective alternative means/methods to protect the employees. An example of a set of measures that could be used in such a situation would be:

- (1) The caps would be removed sequentially as the worker got to each rebar to make the tie. In other words, rather than removing all the caps at once, the cap would be removed only as the worker progressed to that particular piece of rebar; and
- (2) In addition, access to the areas from which employees could trip or fall, and be impaled on, unguarded rebar would be limited to only those employees needed to be there to perform this work.

Scenario B: rebar mat prefabricated and hoisted into place

We are also aware that, in situations where the upper rebar mat is prefabricated and hoisted into place as a unit, the rebar protection for the vertical rebar that will intersect with it (and, per design, be tied to it) typically has to be removed before the upper mat can be set into place. The reason for this is that otherwise the caps would catch on the mat and prevent the mat from being properly seated. In that situation the caps/protection for the rebar that will intersect with the mat will have to be removed all at once before the mat is placed. An example of measures that could be used in such a situation would be:

⁴ We cannot tell from the pictures you submitted (see above) if the caps are at a level that would prevent the tie from being made.

(1) The caps for the affected rebar would not be removed until immediately before the prefabricated mat is to be installed.

(2) Access to the areas from which employees could trip or fall and be impaled on the unguarded rebar would be limited to only those employees needed to be there to perform the work of placing and tying the mat.

If you need additional information, please contact us by fax at: U.S. Department of Labor, OSHA, Directorate of Construction, Office of Construction Standards and Guidance, fax # 202-693-1689. You can also contact us by mail at the above office, Room N3468, 200 Constitution Avenue, N.W., Washington, D.C. 20210, although there will be a delay in our receiving correspondence by mail.

Sincerely,



Russell B. Swanson, Director
Directorate of Construction

NOTE: OSHA requirements are set by statute, standards and regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretation of the requirements discussed. Note that our enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult OSHA's website at <http://www.osha.gov>.