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March 30, 2015

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Mr. Michael Manieri, Principal Safety Engineer
Occupational Safety and Health Standards Board
2520 Venture Oaks Way, Suite 350
Sacramento, CA 95833

Re: Reinforcing Steel and Post-Tensioning in Concrete Construction

Dear Mr. Manieri,

We appreciate the time and effort that the Board has put forth in trying to build consensus among stakeholders regarding the proposed reinforcing steel and post-tensioning in concrete construction regulations. Thank you for giving us the opportunity to provide additional comments before the Board begins the formal rulemaking process. As controlling employers, our members are always interested in promoting safe construction sites. However, we are concerned by the many controlling contractor requirements that remain in this latest draft. Just as a successful construction project relies on the specialized skills and cooperative efforts of all contractors on the project, a safe construction site also requires the specialized knowledge and cooperative safety efforts of all the contractors performing work on the project.

While we understand the intent of the proposed changes, we are troubled by the necessity for and the feasibility of implementing many of the proposed controlling contractor obligations. Specifically,

3800 Watt Avenue, Suite 215
Sacramento, CA 95821
Telephone (916) 978-8510
Fax (916) 978-8505

2175 N. California Blvd., Suite 420
Walnut Creek, CA 94596
Telephone (925) 930-8184
Fax (925) 930-9014

1. Proposed Section 1711(c)(2) states:

A firm, properly graded, drained area, readily accessible to the work with adequate space for the safe assembly, rigging and storage of reinforcing and post-tensioning materials and the safe operation of the reinforcing contractors equipment.

Pursuant to Section 1710(c)(3)(B), a controlling contractor is already required to provide and maintain, "A firm, properly graded, drained area, adequately compacted to support the intended loads, readily accessible to the work with adequate space for the safe storage of materials and the safe operation of the erector's equipment." In order to meet the existing requirements of CCR Section 1710(c)(3)(A) and (B), significant planning and coordination occurs well before bids are submitted and continues throughout the project's duration. However, the controlling contractor may not be able to provide adequate space for storage of materials under existing regulations on projects in densely developed metropolitan areas. In some circumstances, trucks may need to enter one at a time and the materials are "picked" right off of the truck into the job.

Even though considerable thought, effort and coordination by all crafts performing work on the project occurs in order to maximize the limited space and ensure a safe work environment, the proposed requirement for controlling contractors to provide separate areas for assembly, storage and unloading of the reinforcing and post-tension material is not feasible.

2. Proposed Section 1711(c)(3) requires that exterior platforms be provided for the purpose of landing materials.

While we appreciate that exceptions have been added to address design, structure, or space constraints and the infeasibility of providing the exterior platforms, it is unclear why the platforms for landing materials are always necessary in the first place. The current language requires that exterior platforms be provided regardless of necessity. We are concerned that disagreements will arise between the reinforcing steel subcontractor, the controlling contractor and Cal/OSHA as to whether the design, structure or lack of space precludes the installation of these exterior platforms.

In addition, cantilevered exterior platforms are unnecessary for the safe construction of elevated concrete decks. Not only would the cantilevered platforms be difficult to engineer in order to support point loading of heavy rebar material, they would also likely increase construction costs. More importantly, despite the

potential for enhanced production, safety issues would actually increase under the proposed provision because of the ease at which the platform could be overloaded.

The construction industry has managed to construct thousands of structures safely without the requirement for these platforms.

3. Proposed Section 1711(c)(4)

This section should include language requiring that the reinforcing steel contractor have a competent person onsite to check excavations throughout the day prior to entering them to ensure the safety of their employees. It is every employer's responsibility to provide a safe working environment. Even though the controlling contractor does its best to identify unsafe conditions and requires that unsafe conditions be corrected when they are identified, every employer on a multi-employer site has the responsibility for the safety of their employees. Furthermore, the reinforcing steel contractor has certain responsibilities as the exposing employer under CCR Section 336.10.

4. Proposed Section 1711(d) requires the controlling contractor to provide written notice to the reinforcing steel subcontractor as a prerequisite to the installation of reinforcing steel on a vertically supported deck structure.

There is already a requirement to perform a documented inspection of the shoring system prior to the placement of concrete upon the deck. This is typically performed a day or two prior to concrete placement. The requirement for the controlling contractor to provide written notice each and every time reinforcing steel is commenced on a deck formwork system places an unnecessary requirement upon the controlling contractor. It is unnecessary for the formwork/falsework contractor to reinspect during and immediately after the installation of reinforcing steel and placement of concrete since the formwork/falsework contractor would have already provided notice before the reinforcing contractor begins installation.

In addition, without taking into consideration the use of motorized carts, Section 1717(a)(2) requires as a minimum that any deck structure be designed to carry 100 lb/ft² combined live and dead load, with no less than 20 lb/ft² as live load. In addition ACI 347-14, which is a referenced guide states, "The formwork should be designed for a live load of not less than 50 lb/ft² (2.4 kPa) of horizontal projection." This is already the universally applied minimum, and is greater than the requirements of CCR Section 1717. On a related note, lateral forces are similarly specified by ACI 347-14. Consequently, horizontal concrete formwork is designed for loads which greatly exceed any which would be imposed by the reinforcing steel subcontractor, unless they fail to distribute load on the deck system as required by the design.

If the notification requirement cannot be struck, we would like to see language added that requires the steel erecting contractor to develop and submit to the controlling contractor an engineered laydown plan with weights of all loads and their locations prior to the reinforcing materials being staged on the falsework deck.

To help us better understand the need for this requirement, it would also be helpful if specific cases involving deck failures that would have been prevented as result of this proposed section were cited.

5. Proposed Section 1711(e) requires that reinforcing steel for walls, piers, and columns be guyed, braced or supported to prevent collapse.

This language should clarify that the reinforcing contractor is responsible for making this determination and for its support systems, installation and removal. In addition, we propose that the reinforcing steel subcontractor be required to perform an analysis for the purpose of determining whether or not the vertical reinforcing assemblies for walls, piers and columns are capable of sustaining wind and construction loads, free-standing, and if they are not capable to design the bracing or guying system to be used. We also propose that this analysis and any required bracing or other form of support be designed by a licensed engineer.

Proposed Section 1711(e)(5) requires the controlling contractor to prohibit all other construction processes from taking place in the vicinity of vertical steel erection without specifics concerning the weight, dimension, or any other factors regarding the steel elements being erected. The proposed language would provide exclusive access to the reinforcing steel subcontractors to the erection level for the purpose of setting any and all vertical reinforcing elements. The proposed requirement is unreasonable due to the nature of high rise construction and the floor to floor construction cycle time. Many trades perform a variety of work, including hoisting, with considerable coordination, safe practices and efficiency. With this in mind, we would like to see language added requiring the reinforcing steel contractor to flag specific areas of the erection level for their work activity in order to warn other trades of the hoisted vertical elements. We would also like to see added language that the guying or bracing shall be in place before the release of the reinforcing assembly from the hoist rigging.

6. Proposed Section 1711(f) should unequivocally state at the beginning that the contractor who creates the hazards associated with working around or over exposed, projecting reinforcing steel or other similar projections is principally responsible for mitigating the hazard. We propose the following changes to 1711(f)(2):

If the reinforcing steel contractor chooses to provide protective covers in lieu of troughs, they shall remain in place after reinforcing steel activities have been completed to protect workers from other trades and the reinforcing steel contractor shall be responsible for maintaining the protective covers.

7. We propose striking “controlling contractor” from Section 1711(g)(6) to ensure the reinforcing steel contractor ensures safe work practices during the hoisting, unloading and staging of its materials.
8. Proposed Section 1711(h)(1) requires the controlling contractor to provide written notice to the reinforcing subcontractor that the minimum specified initial concrete compressive strength has been achieved prior to their commencement of stressing operations. Communication regarding achieved compressive strength of elements which are to be post-tensioned must be clear and unambiguous. We support this language.

9. We propose striking “controlling contractor” from Section 1711(h)(4).

If the signs, and more importantly the barricades, have been sufficiently provided as required by 1711(h)(3), then Section 1711(h)(4) is unnecessary. According to the Merriam-Webster online dictionary, a barricade is defined as, “a temporary wall, fence, or similar structure that is built to prevent people from entering a place or area.”

10. Proposed Section 1711(h)(5) requires a minimum deck extension beyond the edge form of 3’-0” for stressing operations.

Because of the modularity of formwork systems, existing structures, shoring access and other constraints, it is not always possible to achieve 3’0”. This requirement will also be difficult to meet while transitioning to a perimeter climbing screen system, so that other means of safely stressing post-tensioned decks will need to be implemented during this project phase. We propose the following changes to 1711(h)(5):

(5) Where tensioning operations are above grade, the controlling contractor shall ensure there is an adequate safe work platform for stressing tendons, cutting tendon tails, and grouting unless the adjoining structure or other space constraint precludes the extension of the soffit formwork.

We also propose adding language that requires the reinforcing steel subcontractor, while stressing beams during the construction of parking garages, provide access to cables below the elevated slabs in the Cunningham beams by mobile equipment such as aerial boom lifts, scissor lifts or scaffolding.

11. For clarification, we propose adding the following underlined language to Section 1713(d):

The application of form release or oil to horizontal form work shall not be done until the carpentry work on the form has been completed and must be applied prior to the reinforcing steel being installed.

We would welcome the opportunity to meet with all stakeholders to further refine the proposed language. Once again, thank you for the opportunity to provide these additional comments.

Please contact CEA staff member Cindy Sato at (916) 978-8510 if you have any questions.

Sincerely,



Michael Walton
Secretary

cc: Marley Hart