

**OCCUPATIONAL SAFETY
AND HEALTH STANDARDS BOARD**

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**INITIAL STATEMENT OF REASONS****CALIFORNIA CODE OF REGULATIONS****TITLE 8: Sections 1711, 1712, 1713, 1717 and 1721
of the Construction Safety Orders****Reinforcing Steel Concrete Construction and Post-Tensioning Operations**

This rulemaking is initiated as the result of Occupational Safety and Health Standards Board (Standards Board) Petition File No. 537 submitted by Mr. Walter Wise, General President of the International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers, dated September 11, 2013. In the Standards Board's Decision dated February 20, 2014, the Petitioner's request was granted to the extent that Standards Board staff convene an advisory committee (committee) to consider amending Title 8 construction industry standards to address the Petitioner's concerns that Construction Safety Orders (CSO) Section 1712, contain limited references to rebar in conjunction with post-tensioning operations.

This regulatory action pertains to safe work practices for the installation and placement of rebar in conjunction with post-tensioning operations and intends to reduce the number of injuries, accidents attributable to rebar impalement, falls from elevation, improper landing of materials, and injuries experienced during the post-tensioning of concrete prior to placement of the concrete mix. It will also serve to avert accidents that can result from the lack of communication between workers performing these operations and controlling and site contractors, by ensuring that reinforcing steel and post-tensioning operation is performed safely in a coordinated manner. It will inform and instruct employees to a higher level of competence through training to ensure the safest possible work procedures are carried out and used from the planning stages through the completion of the project.

As stated by the Petitioner, there is a relationship between the hazards and injuries to workers in concrete reinforcing steel and post-tensioning operations. "Post-tensioning operation" is a method for reinforcing concrete involving the placement of steel cables inside plastic ducts or sleeves and placing them in concrete forms prior to placement of the concrete. This proposal is intended to reduce material handling related accidents due to site conditions, structural collapse of vertical formwork and decks, collapse of vertical and horizontal columns due to improper or faulty guying and bracing, insufficient, cramped working spaces and platforms from which to position heavy equipment, impalement, and post-tensioning accidents in post-tensioning operations attributable to lack of training. The Petitioner suggested proposed language to address his concerns which was discussed and considered by the committee convened by Board staff on October 27, and 28, 2014, in Sacramento, California.

As stated in the minutes of the committee meeting, consensus was reached on proposed amendments that would address a number of issues including but not limited to: definitions, site access and layout, notification and approval prior to the commencement of rebar installation, impalement protection, hoisting and rigging operations, post-tensioning operations, fall protection and employee training. Portions of the proposal pertaining to rebar and post-tensioning operations is based on provisions from the American National Standard (ANSI)/American Society of Safety Engineers (ASSE) A10.9-2013 consensus standard "Safety Requirements for Concrete and Masonry Work," Section 10.3 standards for post-tensioning work.

This proposed rulemaking action is not inconsistent or incompatible with existing state regulations. This proposal is part of a system of occupational safety and health regulations. The consistency and compatibility of that system's component regulations is provided by such things as: (1) the requirement of the federal government and the Labor Code to the effect that the State regulations be at least as effective as their federal counterparts, and (2) the requirement that all state occupational safety and health rulemaking be channeled through a single entity (the Standards Board).

The proposal contains consensus document-based regulatory text specifically addressing post-tensioning operations in greater detail than that addressed by Federal OSHA in its 29 CFR 1926.701(c) standards which consist of minimal provisions similar to those contained in CSO Section 1721. The proposal contains a list of defined terms that are not addressed by current federal OSHA standards, more detailed post-tensioning specific site access requirements, written notification before commencing work provisions, placement of support system design responsibility upon the controlling contractor (CC), and expanded rebar impalement protection standards than what is addressed in 29 CFR 1926.701(c)(1).

SPECIFIC PURPOSE AND FACTUAL BASIS OF PROPOSED ACTION

The specific changes are as follows:

Section 1711. Oiling Forms.

This section currently addresses the oiling of floor panels used to protect employees conducting rebar operations and requires that such panels not be removed until carpentry work on the form has been completed. This proposal relocates the current text to subsection (d) of Section 1713, and changes the title of Section 1713 to read, "Framed Panels and Concrete Forms" for the sake of clarity and consistency with the revised text.

Section 1711 is retitled "Reinforcing Steel and Post-Tensioning in Concrete Construction" and consists of several new subsections, as explained below.

A proposed subsection (a), entitled "Scope and Application," establishes the application of the proposed provisions relating to the use of reinforcing steel used in concrete and masonry construction including post-tensioning operations. This subsection also establishes the duties of the CC. The proposed amendments are necessary to clarify to the employer where the pertinent

rebar and post-tensioning requirements are located and where the CC duties/responsibilities are located. This subsection also contains two Notes that further clarify to the employer where additional rebar and concrete construction requirements may be found and provide information to the employer that other relevant General Industry Safety Orders (GISO) and CSO provisions may apply to concrete and masonry construction operations.

A proposed subsection (b), entitled “Definitions,” clarifies to the employer the application and meaning of 16 new definitions that are used in the subsequent proposed rebar and post-tensioning standards. Of the 16 proposed definitions, five originate from Section 3, and the definition of controlling contractor is taken from the ANSI definition of project constructor. Remaining definitions are terms already defined elsewhere in Title 8 (e.g. competent person) or were developed with advisory committee assistance (e.g. reinforcing steel assemblies).

A proposed subsection (c), entitled “Site Access and Layout,” establishes responsibilities of the CC.

The proposed amendments are necessary to ensure that the responsibilities of reinforcing steel and post-tensioning will be consolidated under the responsibility of the CC. The proposed amendments are necessary to ensure safe access, site conditions and means are provided to perform reinforcing and post-tensioning work safely.

A proposed subsection (d), entitled “Written Notification Prior to Commencement of Reinforcing Steel Activities,” requires the CC to ensure that the reinforcing steel contractor has received notification that the formwork and falsework have been inspected by a competent person prior to, during and immediately after the installation of rebar and concrete placement. Subsection (d) also requires that all elevated platforms are structurally sound and stable, and all related excavation benching and shoring have been inspected by the competent person. The proposed subsection (d) is necessary to ensure that the systems and equipment critical to performing rebar and post-tensioning activities, both on and above the ground, and the site conditions where the work is to be done are such that the work can be conducted safely, thus minimizing the risk of collapse, or catastrophic failure which could result in serious employee injury or fatality. Standards for written notification prior to commencement of reinforcing steel activities come from Section 10.3.2. While falsework and excavation inspections are not new, the written verification requirement is new.

A proposed subsection (e), entitled “Stability Requirements for Vertical and Horizontal Columns, Walls and Other Reinforcing Assemblies,” consists of procedural safe practice steps. These amendments are necessary to ensure that the assemblies and supporting structures erected for reinforcing steel and post-tensioning operations will not be subject to catastrophic failure and collapse which could result in serious employee injury or fatality. Stability standards for vertical and horizontal columns, walls, and other reinforcing assemblies come from Section 10.3.3 with cross reference to existing Title 8 stability standards. Portions of this subsection come from existing Section 1712 requirements.

A proposed subsection (f), entitled “Requirements for Impalement Protection and Custody of Protective Covers,” requires employees to be protected in accordance with CSO Section 1712, impalement protection standards and procedures, to ensure that rebar protective covers provided by the reinforcing steel contractor remain in place after reinforcing steel operations have been completed. This is necessary to protect workers of other trades under specific CC discretionary conditions: provides that the CC must accept transfer from the reinforcing steel contractor of responsibility for rebar protective covers remaining in place after completion of reinforcing steel operations, and provides for subsequent transfer of responsibility for the rebar protective covers from the CC to another contractor. The CC, who already has oversight of the actions of the various trades, is in the best position to oversee this issue and take appropriate action. It is imperative that a sufficient number of approved reinforcing steel (rebar) caps be provided and used to protect workers from impalement. An employee who falls or is pushed onto an exposed rebar end is at risk of potentially disabling or fatal impalement. The effect of these requirements is to make clear the necessity of carefully securing rebar caps to each and every exposed rebar end, and of keeping those end caps securely in place over the entire period of time the rebar end is exposed.

A Note is proposed following subsection (f) and is necessary to clarify that the CC’s responsibility to maintain control and custody of the protective covers does not relieve other contractors from their responsibility to ensure all employees are protected from impalement hazards. The proposed requirements are necessary to ensure that protection from impalement hazards is provided to all employees working on jobsites where reinforcing steel and post-tensioning work is done (not just those working on reinforcing steel, post-tensioning operations). Standards for impalement protection and custody of covers come from Section 10.3.4 with cross reference to existing Title 8 impalement protection standards.

A proposed subsection (g), entitled “Requirements for Hoisting and Rigging Reinforcement Assemblies,” addresses the use of qualified riggers to regularly inspect rigging, and precluding work under suspended loads through layout of roads by pre-work planning except when employees place or connect the initial assembly or when employees must hook or unhook the load. The proposed amendments provide criteria that must be met when employees work under suspended loads, use of a qualified rigger and proper rigging hardware. The proposal also requires that all lifting devices used to lift and suspend pre-assembled cages, walls and columns must be rated to suspend the intended loads and fabricated under the direction of a California professional engineer. Finally, the proposal requires the controlling contractor to prohibit any activity in the hazardous hoisting area including loading and unloading and staging areas for reinforcement assemblies. Standards for hoisting and rigging of reinforcement assemblies come from Section 10.3.5 with cross references to existing Title 8 load handling standards.

The proposed amendments are necessary to ensure that employees work on or near suspended loads which are secured and rigged for hoisting with equipment safe for its intended use as verified by qualified rigging personnel and thereby providing protection against inadvertent contact with reinforcing steel and post-tensioning assemblies that could become unstable/unsecured if the requirements of subsection (g) are not implemented. The proposal, requiring that no employee work under a suspended load or one that is unloaded for staging is

necessary to ensure that such hazardous and potentially catastrophic contact is avoided which could result in serious employee injury or fatality. It should be noted that the proposed requirements reflect long standing (in State and Federal standards) provisions reflective of a fundamental safety practice of prohibiting the suspension of loads above workers.

A proposed subsection (h), called “Post-Tensioning Operations,” addresses various post-tensioning safety issues/procedures. The proposal relocates existing language from Section 1721(a) and (b) relating to prohibiting employees from being behind the jack during post-tensioning and use of signs and barricades to proposed subsection (h), the remainder of the proposed text comes from Section 10.3.6.5 with cross references to existing Title 8 standards for guardrails and toeboards.

The proposed amendments are necessary to ensure that properly stressed concrete is used and that employees are protected from being injured during concrete stressing and tensioning operations whether caused by inadvertent contact or catastrophic failure of the stressing equipment or failure of the support systems to secure and stabilize the various stressing and post-tensioning components and systems. Providing the specified platform ensures that employees gain access to perform post-tensioning operations in a manner that accommodates tools while working from a secure and stable working surface with sufficient room to prevent inadvertent contact with machinery and equipment and prevent falls to the level below.

A new subsection (i), entitled, “Fall Protection,” proposes to address fall protection and establishes a six foot trigger height for employees who place or tie reinforcing steel in piers and columns above an adjacent surface unless a personal fall protection system in accordance with CSO Section 1670 or other method providing equivalent fall protection is used. An exception to this requirement is provided for reinforcing iron workers who may be permitted limited point-to-point travel horizontally or vertically on reinforcing steel up to 24 feet above the surface below in the absence of impalement hazards. Standards for fall protection come from Section 10.3.7.1 with cross references to existing Title 8 fall protection standards.

These proposed amendments are necessary to control the fall risk to all jobsite employees involved in various reinforcing steel placement operations including point-to-point travel. The exception for point-to-point travel is taken from CSO Section 1710. For consistency it is repeated in this vertical standard as many of the same point-to-point travel scenarios occur with this proposal. Falls from elevation during reinforcing steel operations could result in serious injury or fatality.

A proposed subsection (j) requires that formwork and falsework stability and securing be provided in accordance with CSO Sections 1713 and 1717. This requirement is necessary to clarify to the employer that the formwork and falsework used in conjunction with reinforcing steel and post-tensioning operations are subject to existing Title 8, Sections 1713 and 1717 scaffolding (aka falsework) and formwork requirements. Standards for formwork and falsework stability cross reference Sections 1713 and 1717, which are based on Section 10.3.8.1.

A proposed subsection (k), "Training Requirements," addresses the need to train employees who perform reinforcing steel and/or post-tensioning operations, with training in the hazards unique to these operations in addition to that already required by Section 1509 (injury and illness prevention program for construction). The training is to be conducted by a qualified person and addresses: post-tensioning and reinforcing steel hazards, and the proper procedures and equipment to perform the aforementioned operations. Standards for training are based on existing Title 8 injury and illness prevention standards and Section 10.3.9.

These amendments are necessary to ensure that employees involved in the various reinforcing steel and post-tensioning, stressing operations understand how to perform those operations safely, how to take precautions to safeguard themselves and others and be able to recognize an unsafe condition that could result in serious employee injury or fatality.

Section 1712. Reinforcing Steel and Other Similar Projections.

This section contains various requirements that apply to all worksites where employees are exposed to the hazards of impalement by exposed reinforcing steel. An amendment is proposed to revise the section title for clarity to read, "Requirements for Impalement Protection."

Subsection (e) Fall Protection.

This subsection prohibits employees from placing or tying the reinforcing steel in walls, piers, columns, etc., more than 6 feet above the adjacent surface unless some form of personal fall protection system or equivalent is used. It excludes limited point-to-point, horizontal or vertical travel on reinforcing steel up to 24 feet above the surface providing there are no impalement hazards.

An amendment is proposed to delete this subsection in its entirety as it has been relocated to Section 1711 as new subsection (i).

The proposed deletion and relocation of fall protection requirements is necessary to clarify by way of consolidating these requirements under the proposed Section 1711, which contains the relevant requirements pertaining to reinforcing steel and post-tensioning operations.

Subsection (f) Securing Reinforcing Steel.

The regulatory text of subsection (f) is relocated and placed under new Section 1711(e) as they are issues that are recognizably connected to the use of rebar for walls, piers, columns, prefabricated reinforcing steel assemblies and similar vertical structures which are to be guyed, braced or supported. The clarifying relocation of this text consolidates issues for easy recognition and access by the regulated public.

Section 1713. Framing and Concrete Forms.

This section addresses the securing of framed and formed panels against movement and requires panels in excess of 500 pounds to utilize lifting attachments with a safety factor of 4. It also prohibits nailed lifting attachments. A proposed amendment revises the section title to read, “Framed Panels and Concrete Forms” for clarity and consistency with the regulatory text that follows. A proposed amendment to subsection (b)(1) adds the words “and forms” after “panels,” thus rendering the requirement inclusive of forms. This requirement is necessary to ensure that forms will be safely hoisted in a manner that will prevent falling or collapse onto employees resulting in serious employee injury or fatality. Subsection (c) prohibits reinforcing steel from being used as a guy attachment, for which an amendment is proposed to delete the word “attachments” and adds language to read, “...as a guy or brace to support framed panels or concrete forms from falling.” This amendment is necessary to improve and assure the stability of reinforcing steel by making sure employees do not use reinforcing steel as a guy or brace which could lead to instability and catastrophic failure.

A proposed subsection (d) prohibits the application of form release oil to horizontal formwork until the carpentry work is completed and the form is able to support the loads imposed upon it. The proposed language is necessary to ensure that the form is not released prematurely which could cause the form to come in contact with carpenters.

Section 1717. Falsework and Vertical Shoring.

This section contains requirements to assure the safety of falsework and vertical shoring from an engineering and design standard. A proposed subsection (f) requires the CC to prohibit employees from accessing the bridge decks during the jacking and grading operations. The CC has a commanding administrative view of the entire jobsite operation and its overall forward progress to completion including accountability for authorized personnel on site and site security. The advisory committee and the American Society of Mechanical Engineers both reached the same conclusion that the CC would be best able to secure bridge decks during the jacking and grading operations. This amendment is necessary to ensure that employees will be protected from coming in contact with deck equipment, materials and debris that could be accidentally released during these operations and result in serious injury or fatality.

Section 1721. Post-Tensioning Operations.

This section consists of two subsections pertaining to prohibiting employees behind the jack during tensioning operations and signs and barricades to limit employee access to the post-tensioning area during tensioning operations. It is proposed that these two subsections be deleted and relocated for clarity and consistency to new Section 1711(h), which contains the relevant requirements pertaining to post-tensioning operations. This is proposed and necessary to consolidate post-tensioning requirements into a vertical set of standards so that the employer’s duty to comply will be clearer and the respective standards easier to locate with regard to reinforcing steel and post-tensioning operations.

TECHNICAL, THEORETICAL AND/OR EMPIRICAL STUDIES, REPORTS OR DOCUMENTS RELIED ON BY THE BOARD

1. Letter from Mr. Walter Wise, General President, International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers, dated September 11, 2013, and Memorandum from Steven L. Rank, Executive Director of Safety and Health, Iron Workers International containing the proposed text and amendments to Section 1712, dated September 11, 2013, constituting the petition request.
2. California Division of Occupational Safety and Health, Evaluation of Petition File No. 537 dated December 31, 2014.
3. State of California, Occupational Safety and Health Standards Board, Petition File No. 537 from Mr. Walter W. Wise, General President, International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers, Decision dated February 20, 2014.
4. Advisory committee minutes from October 27, and 28, 2014, member roster and attendance sheets.
5. Letter from Mr. Michael Walton, Secretary, Construction Employers' Association (CEA), Regarding Reinforcing Steel and Post-Tensioning in Concrete Construction dated March 30, 2015.
6. Letter from Mr. Steven L. Rank, Executive Director of Safety and Health, International Association of Bridge, Structural, Ornamental and Reinforcing Ironworkers (IABSORI), Re: Fiscal/Economic Information - Proposed Reinforcing Steel and Post-Tensioning Standards, dated August 12, 2015.
7. American National Standard Institute (ANSI)/American Society of Safety Engineers (ASSE), A10.9-2013, Safety Requirements for Concrete and Masonry Work, American National Standard for Construction and Demolition Operations.

These documents are available for review Monday through Friday from 8:00 a.m. to 4:30 p.m. at the Standards Board Office located at 2520 Venture Oaks Way, Suite 350, Sacramento, California.

PETITION

Petitioner: Mr. Walter Wise, General President, International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers File No: 537.

The Standards Board received a petition on September 11, 2013, to amend Section 1712 of the CSO contained in Title 8 of the California Code of Regulations regarding reinforcing steel and post-tensioning activities. On February 20, 2014, the Standards Board granted the petition to the extent that the Petitioner's proposal would be referred to a representative advisory committee for consideration.

A copy of the petition, the Division's evaluation and the Standards Board's petition decision are included as Documents Relied Upon.

ADVISORY COMMITTEE

This proposal was developed with the assistance of an advisory committee. (A list of advisory committee members, attendance sheets, and minutes are included as Documents Relied Upon.)

FIRE PREVENTION STATEMENT

This proposal does not include fire prevention or protection standards. Therefore, approval of the State Fire Marshal pursuant to Government Code Section 11359 or Health and Safety Code Section 18930(a)(9) is not required.

SPECIFIC TECHNOLOGY OR EQUIPMENT

This proposal will not mandate the use of specific technologies or equipment.

ECONOMIC IMPACT ANALYSIS/ASSESSMENT

The proposed regulation will not have any effect on the creation or elimination of California jobs or the creation or elimination of California businesses or affect the expansion of existing California businesses.

The proposal contains a provision in proposed Section 1711(h)(5) which requires an adequate work platform of at least three feet for post-tensioning operations. In testimony received at the October 27, and 28, 2014, advisory committee meeting, it was learned that certain types of building construction, such as those constructed with “flying deck” forms, might present a challenge for the employer to provide such platforms. This was an isolated comment by a member of the advisory committee that led to an in-depth discussion. The committee reached the realization that manufactured flying deck systems, which provide the required safe space, are available for use and have been used by contractors. The implementation therefore, of a flying deck system was judged by the committee to not be an insurmountable issue for the employer. However, it should be noted that many manufacturers are providing space for safe work platforms on their flying deck systems. Therefore, the committee reasoned that any challenge to the use of such platforms as prescribed by subsection (h)(5) could be easily overcome by planning for the use of the platforms during the project’s design and contract stage. In fact, one stakeholder testified that many of the large concrete form suppliers in Southern California have the added space allowed for in their flying deck form systems.

The committee also reasoned that use of a three foot working platform in post-tensioning operations would reduce accidents, increase productivity and ultimately result in a cost savings for all employers; the committee agreed that many costly serious and fatal accidents would be prevented by the proposal. It can be seen from the advisory committee minutes that the sum total response of stakeholders is focused on the belief that the remainder of the proposal does not appear to present any concerns related to new or added costs since the proposal in large part addresses procedures and practices that should already be taking place, such as those procedures and practices described in California’s existing Section 1710 Steel Erection standards, providing

a safe worksite, providing impalement protection, fall protection and providing safe and secure working surfaces (i.e. reinforcing steel formwork, falsework) from which post-tensioning is performed.

In terms of an estimate of total statewide costs for training, exterior material handling platforms (unless as excepted) and/or the three foot exterior formwork for access that CC's must provide (unless as excepted) the Board determined the total statewide estimate to be \$3,528,800. Specific cost breakdowns are outlined in the attachment to the Economic and Fiscal Impact Statement.

In their letter to the Board dated August 12, 2015, Steven Rank, International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers on behalf of the District Council of Ironworkers, stated that their ironworkers, who perform the vast majority of reinforcing steel and post-tensioning operations in California completed 8,343,731 hours of such work from May 2012 to May 2015. It was noted that during this time period poured-in-place concrete structural work increased in the state by 12% each year. Based on the information provided by the District Council of Ironworkers and reinforcing steel contractors, the Board does not believe that the proposal will create an adverse fiscal/economic impact on construction employers or project owners. Even though some contractors may experience costs generated by platform and training requirements, these are expected to be offset by accident and fatality prevention, recycling platform systems and materials and an increase in productivity. Much, if not all, of what triggers the need for training in the procedures set forth by this proposal are arguably addressed by existing Section 3203 Injury and Illness Prevention Program standards and employers are therefore already required to provide training and instruction when they perform post-tensioning work.

BENEFITS OF THE PROPOSED ACTION

This regulatory action pertains to safe work practices for the installation and placement of rebar in conjunction with post-tensioning operations and intends to reduce the number of injuries, accidents attributable to rebar impalement, falls from elevation, improper landing of materials, and injuries experienced during the post-tensioning of concrete prior to placement of the concrete mix. The proposal addresses the accident potential created by the impalement hazards, misuse of material handling equipment, inadequate work space and insufficient work platform area which could result in contact between workers and such equipment. It will also serve to avert accidents resulting from the lack of communication between workers performing these operations, their immediate supervisors and the CC in charge of the overall operation. It will inform and instruct employees to a higher level of competence through training to ensure the safest possible work procedures are carried out and used from the planning stages through the completion of the project. This rulemaking proposal has no effect on the state's environment. According to the District Council of Ironworkers, the proposal will help prevent workplace fatalities and injuries to workers, help reduce overall operating costs to California employers including project owners, controlling contractors and reinforcing steel contractors.

EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT STATEWIDE ADVERSE ECONOMIC IMPACT DIRECTLY AFFECTING SMALL BUSINESSES

The Board has determined that the proposed amendments may affect small businesses. However, no economic impact is anticipated. The proposal contains a provision in proposed Section 1711(h)(5), which requires an adequate work platform of at least three feet for post-tensioning operations except where building spatial constraints render the use of such platforms infeasible. In testimony received at the October 27, and 28, 2014, advisory committee meetings, it was learned that certain types of building construction, such as those constructed with “flying deck” forms, might present a challenge for the employer to provide such platforms. However, many manufacturers are providing space for safe work platforms in their flying deck systems. The committee reasoned that any challenge to the use of such platforms as prescribed by subsection (h)(5) could be overcome by planning for the use of the platforms during the project’s design and contract stage. In fact, one stakeholder testified that many of the large concrete form suppliers in Southern California have added the platform space necessary in their flying deck form systems.

The committee also reasoned that use of a three foot working platform in post-tensioning operations would reduce accidents, increase productivity and ultimately result in a cost savings for all employers; the committee agreed that many costly serious and fatal accidents would be prevented by the proposal. The need for engineered “safety-by-design” exterior platforms for safe landing of materials on multi story buildings is quite clear. Any cost impact these platforms might create is softened by the fact that they can be used for several purposes and trades other than reinforcing steel contractors. It can be seen from the advisory committee minutes that the sum total response of stakeholders is focused on the belief that the remainder of the proposal does not appear to present any concerns related to new or added costs since the proposal in large part addresses procedures and practices that should already be taking place such as providing a safe worksite, providing impalement protection, fall protection and providing safe and secure working surfaces (i.e. reinforcing steel formwork, falsework) from which post-tensioning is performed.

In addition, issues were raised by the CEA over increased responsibility of controlling contractors to ensure safe site conditions which includes safe access for reinforcing steel contractor employees. These proposed requirements as stated in Section 1711(c)(1) and (2) are substantially similar to site access requirements found in existing Title 8, Erection of Structures standards which have proven effective in preventing material handling and musculoskeletal injuries. Project owners and controlling contractors have not reported any instances of adverse or onerous costs associated with similar site access requirements existing in Title 8 erection of structure standards. Those standards apply to steel erection contractors, not reinforcing steel contractors. Any notion that Section 1711(c)(1) and (2) is not needed because of the erection of structure standards is incorrect and a misapplication.

Portions of the proposal are administrative in nature in that they assign the controlling contractor with specific responsibilities which through the course of the development of the national consensus standard, (ANSI A10.9-2013) upon which this proposal is largely based, were deemed to have merit by the ANSI committee and the advisory committee which prepared this proposal.

The administration of various types of written notifications by the controlling contractor which may appear concerning, is a common and daily practice on most construction projects and the requirement that the controlling contractor provide the reinforcing steel contractor with something in writing stating the formwork and falsework have been inspected will not create adverse fiscal or economic impact. They will yield positive, measureable safety results to prevent structural collapse just as similar erection of structures (Section 1710) notification requirements have.

Other proposed provisions address the controlling contractor's responsibility to:

- Accept the control and custody of protective covers.
- Prohibit employees of other trades to be under the loads hoisted by the reinforcing steel contractor.
- Prohibit other trades from working in areas barricaded by the reinforcing steel contractor during post-tensioning (stressing) operations.
- Provide a minimum three foot formwork extension deck for safe access when post-tensioning of beams and joists takes place at their termination on the exterior of the building.
- Provide fall protection.
- Provide employee training specific to post-tensioning operations in accordance with existing GISO 3203 and CSO 1509 Injury and Illness Prevention Program requirements.

None of the preceding controlling contractor, reinforcing steel contractor responsibilities are expected to result in significant adverse economic or fiscal impact as they are either administrative in nature, already required by existing Title 8 standards (impalement and fall protection, and employee training) or are already being implemented at jobsites such as the case of the minimum three foot deck extension. The impact is further diminished because the proposal carries an exception to that requirement allowing the controlling contractor to waive provision of the platform extension when the adjoining structure or other structural space constraints precludes the installation of such platforms. The platform extensions are not exclusive for the use of the reinforcing steel contractor employees and are intended to provide a safe working surface for other trades. In addition, the extension materials may be recycled and erected at other jobsites as needed. All employers regardless of size have the option to recycle, reuse and reconfigure the materials used to construct the platforms that are required by the proposal from site to site.

REASONABLE ALTERNATIVES TO THE PROPOSAL AND THE BOARD'S REASONS FOR REJECTING THOSE ALTERNATIVES

No reasonable alternatives to the proposal were identified or brought to the Board's attention. The reason the proposal is the best alternative to protecting workers involved in reinforcing steel on concrete structures is because: 1) the proposed language is for the most part already being implemented by employers who perform this type of work statewide, 2) the work practices prescribed by the proposal are consistent with industry practice and are state of the art in worker safety, and accident prevention for these types of operations and 3) the portions of the proposal that concern specific post-tensioning operations work practices were taken from the ANSI/ASSE

A10.9-2013 standard which is a national consensus standard representing the considered agreement of labor and management stakeholders involved in post-tensioning operations. The ANSI/ASSE A10.9 standards represents the accumulated knowledge of workers and construction companies involved in post-tensioning operations during a span of years in which associated work practices, safety protocols, and technology have advanced to the point where the post-tensioning standards contained in this proposal which were based on that accumulated knowledge have proven to be both effective in preventing accidents and practical to implement.