

2015 IBC has significant fire safety code changes

Three significant fire-related code changes that benefit the precast/prestressed concrete industry will be in the 2015 *International Building Code* (IBC). The first two reduce the technical burden for precast concrete floor assemblies in open parking structures and precast concrete insulated sandwich wall panels. The third expands the flexibility of using precast concrete to meet fire resistance design requirements in the IBC.

Section 722.2 in the 2012 IBC covers procedures for calculating fire resistance ratings of concrete elements to satisfy the building code requirements for fire resistive construction. Of particular interest are the requirements in section 722.2.2.2 for precast/prestressed concrete floor and roof assemblies. There, the provisions establish the fire resistance rating for floor assemblies based on two primary factors: minimum slab thickness depending on the type of aggregate used for the concrete mixture (for example, siliceous, carbonate, or lightweight) and minimum concrete cover to the positive moment reinforcement for the slab. The first requirement is to minimize the heat transmission through the slab in the event of a fire for the specified time. The second requirement is to minimize heating of the reinforcement (prestressed tendons) to maintain load-carrying capability and prevent collapse of the structure for the specified time.

However, in parking structures (both open and enclosed) the building code does not place a high importance on floor systems serving as fire barriers to prevent smoke and hot gases from moving upward through the structure. This is evidenced by the code permitting floor assemblies to have openings for ramps to allow vehicle movement between parking levels. Therefore, the primary factor governing fire resistance for floor assemblies in open and enclosed parking structures is the structural stability governed by the concrete cover to the reinforcement.

PCI submitted a code change to section 722.2.2.1, which was accepted for inclusion in the 2015 IBC, that exempts floor slabs in open and enclosed parking structures from the minimum slab thickness in determining the fire resistance of the floor assembly. Instead, the minimum concrete cover to the reinforcement will be the factor used in determining what the calculated fire resistance of the concrete floor system will be to meet the building code.

Chapter 26 of the IBC regulates the use of foam plastics in building construction. Section 2603.5 contains specific requirements for foam plastics used in exterior walls to minimize the spread of fire on the exterior of buildings due to vertical or lateral flame propagation. One of the methods for determining whether foam plastics can be used in an exterior wall assembly is to subject the assembly to National Fire Protection Association standard 285, *Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components*. For many years, the *Uniform*

Building Code (UBC) had an exception that did not require exterior wall assemblies containing foam plastics, such as precast concrete insulated sandwich wall panels, to be subjected to this test requirement if the foam plastic was covered by at least 1 in. (25 mm) of concrete or masonry. This exception was not included in the provisions of the IBC.

PCI worked with the masonry industry to submit wording for section 2603.5.5 of the 2015 IBC that reestablishes this exception to testing for these exterior wall assemblies. The new language requires the minimum 1 in. (25 mm) of concrete or masonry covering the foam plastic. In addition, there can either be no air space between the foam plastic and the concrete or masonry or there can be a maximum 1 in. air space provided that the foam plastic has a flame spread index of 25 or less. These new provisions, which benefit precast concrete insulated sandwich wall panels, will be in the 2015 IBC.

The first edition of PCI's *Design for Fire Resistance of Precast/Prestressed Concrete*, MNL 124, was introduced into the model codes arena shortly after its publication in 1977. Acceptance was accomplished through issuance of evaluation reports by the legacy code groups. The use of MNL 124 in the building codes evolved and today it is directly referenced in the IBC as an alternative for the fire resistance design of floor slabs in section 720.2.2.3.1. However, the 1989 edition is referenced in the 2012 IBC. The third edition of MNL 124, published in 2011, was not completed in time to introduce it into the code development cycle for the 2012 IBC. To facilitate its acceptance by code officials, PCI presented it to the International Code Council Evaluation Services as an

update to evaluation report ESR 1997 and received approval in March 2012. In addition, PCI submitted the documentation to the ICC to support updating the reference in the IBC to the third edition of MNL 124 when the 2015 edition is published. The 2011 edition of MNL 124 will be referenced in the 2015 IBC and can be presented as an acceptable fire resistance design method based on that IBC reference or through use of ESR 1997.

OSHA issues proposed silica standard

The Occupational Safety and Health Administration (OSHA) has issued its proposed standard for silica. The permissible exposure limit (PEL) is proposed to be lowered to 50 $\mu\text{g}/\text{m}^3$ averaged over an eight-hour day from 100 $\mu\text{g}/\text{m}^3$. The exposure is to be determined outside the respiratory hood.

There is also an action level of 25 $\mu\text{g}/\text{m}^3$. If the exposure cannot be decreased to 25, exposure monitoring is required every three months. Regulated or controlled access areas need to be established so that only the sandblaster is in the area. Engineering controls and work practices must first be used to reduce PEL before respirators are used. OSHA has requested responses to a series of questions and needs to determine the potential costs. An additional OSA publication on the preliminary economic analysis provides a complete picture of OSHA's reasoning on various statements.

PCI staff will be collecting information to respond to questions raised by OSHA. To obtain a copy of the proposed rule go to <http://www.federalregister.gov> and search for proposed silica standard.

If you have questions, contact Sid Freedman at sfreedman@pci.org.

CTLGroup names Nixon president/CEO



Brent Nixon

W. Brent Nixon has been named CTLGroup's new president and chief executive officer.

Nixon will take over the responsibilities held by Timothy Tonyan, who has served as interim president and chief executive officer since June 14, 2013. Tonyan will serve as senior vice president of CTLGroup. In his new role, Tonyan will report directly to Nixon and will focus his attention on

business development, project management of multidisciplinary teams, promoting CTLGroup's expertise within the industry, and managing major client accounts.

Nixon is a 30-year engineer and military veteran in the construction industry and brings executive management, operational, and business development expertise with highly technical professionals and mission-focused teams in operational, professional service, and academic organizations.

In the past 11 years as a corporate officer and vice president of science and engineering at Environmental Chemical Corporation (ECC), he was instrumental in the evolution of ECC from a small remediation company into a global design-build, disaster response, and remediation firm of 600 employees with annual revenues of \$700 million.

—Source: CTLGroup

Pankow Foundation releases special moment frames research product

The Charles Pankow Foundation has released the research product *Effect of Hoop Reinforcement Spacing on the Cyclic Response of Large Reinforced Concrete Special Moment Frame Beams* (Research Grant Agreement #02-10). The product was produced by Marios Panagiotou, Tea Visnjic, Grigorios Antonellis, Panagiotis Galanis, and Jack P. Moehle from the University of California at Berkeley. It is available for download at no cost at <http://www.pankowfoundation.org/>.

—Source: Pankow Foundation


ICC, CALBO identify significant changes to California Codes

Two new publications from the International Code Council (ICC) and California Building Officials (CALBO) offer key insights into the changes and implications of the 2013 California Building Code and California Residential Code that take effect January 1, 2014. The 2013 editions of *Significant Changes to the California Building Code* and *Significant Changes to the California Residential Code* discuss the most important updates and familiarize code users with the application of those changes.

In-depth discussions in the books cover key changes made to structural and nonstructural provisions in a way that follows the layout of the California codes, including chapter, section number, and title format. Each change analysis features the affected code sections and identifies the change as newly added text, a modification of the existing language, or deleted text. Accompanying each change is a detailed illustration or example to provide further clarification of how to apply the change.

Authors Doug Thornburg, John Henry, Jay Woodward, and Stephen A. Van Note are ICC staff members and code experts. Each has taught seminars and written numerous textbooks, including multiple editions of *Significant Changes to the International Codes*. Paul Armstrong has worked in both the private and public sectors and lectured on many code-related topics.

Significant Changes to the California Building Code and *Significant Changes to the California Residential Code* are available for purchase in hardcopy for \$46.95 each (\$37.95 for ICC members) directly from the ICC bookstore. The publications are also included as part of CALBO's 2013 Education Weeks.

—Source: International Code Council 

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Industry Calendar

Events

For the most current information on events, visit <http://www.pci.org/events>.

2014 World of Concrete	January 20–24, 2014
Las Vegas, Nev.	
National Precast Concrete Association's The Precast Show	February 13–15, 2014
George R. Brown Convention Center, Houston, Tex.	
American Concrete Institute Convention Concrete Endures	March 23–27, 2014
Grand Sierra Resort, Reno, Nev.	
Structural Engineering Institute Structures Congress	April 3–5, 2014
Sheraton Boston Hotel and Hynes Convention Center, Boston, Mass.	
Society of American Military Engineers Joint Engineer Training Conference and Expo	May 20–23, 2014
Orlando/Orange County Convention Center, Orlando, Fla.	
International Parking Institute Conference and Expo	June 1–4, 2014
Gaylord Texan Resort & Convention Center, Grapevine, Tex.	
Concrete Innovation Conference	June 11–13, 2014
Hotel Royal Christiania, Oslo, Norway	
ASTM International C-9 Spring	June 22–29, 2014
Toronto, ON, Canada	
American Institute of Architects	June 26–28, 2014
Chicago, Ill.	
Society for College and University Planning	July 12–16, 2014
Pittsburgh, Pa.	
International Code Council Annual Conference	Sept. 28–Oct. 1, 2014
Greater Fort Lauderdale Broward County Convention Center, Fort Lauderdale, Fla.	
Deep Foundations Institute 2014 Annual Conference	October 21–24, 2014
Marriott Marquis, Atlanta, Ga.	
Greenbuild	October 22–24, 2014
New Orleans, La.	
National Precast Concrete Association Annual Convention	October 22–25, 2014
Montreal, QC, Canada	
American Concrete Institute Convention Spanning the Globe	October 26–30, 2014
Hilton Washington, Washington, D.C.	
ASTM International C-9 Fall/Winter	December 7–10, 2014
New Orleans, La.	