

California Building Standards Commission Selects NFPA Over IBC

As most structural engineers probably know, the California Building Standards Commission has made its selection – the NFPA 5000 will become California’s next building code. The long-fought and politically charged battle was finally settled when the Commission voted 8-2 on July 29th in favor of the NFPA over the IBC. The NFPA selection occurred in spite of the fact that testimony at the public hearing was strongly in favor of the IBC. SEAOC took a position in favor of the IBC, and representatives from each of the four SEAOC sections testified at the hearing. Joining SEAOC in support of the IBC were such organizations as the California AIA, CALBO, AGC, BOMA, CBIA and the Silicon Valley Manufacturers Association. The key NFPA proponents were the fire departments from San Francisco, Los Angeles, and Alameda County and the unions representing the plumbing and mechanical contractors.

*“SEAOC took a position
in favor of the IBC ...”*

In keeping with the current spirit of things in Sacramento, politics is suspected to be behind the NFPA selection. The battle between the ICC and NFPA dates back to 1998 when NFPA informed the ICC that it would not be a part of the effort to develop a single US model building code. In 1999, NFPA signed memos of understanding with the International Association of Plumbing and Mechanical Officials (IAPMO) and the Western States Fire Chiefs Association (WCFA) and announced its intent to develop its own suite of codes, including for the first time its own building code (NFPA 5000). From that point, it was generally felt that the NFPA suite of codes would be preferred over the I-codes in locations where organized labor is strong, due to the influence of the mechanical contractors and fire fighters and code provisions that are considered more favorable to their interests. Given the current makeup of the Building Standards Commission, there was speculation by

many participants in the process that technical arguments by structural engineers and building officials would not be sufficient to outweigh political influence. That apparently was the case.

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SEAOC had favored the IBC for a number of technical reasons including superior seismic provisions on foundations, engineered wood and masonry construction, concrete flat plate design, prescriptive (conventional) construction and superior quality assurance provisions. In addition, a companion to the IBC is the International Existing Buildings Code (IEBC), which is referenced from Chapter 16 of the IBC. The IEBC references FEMA 356 Prestandard for Seismic Rehabilitation of Buildings and the Guidelines for Seismic Retrofit of Existing Buildings (GSREB) which contains requirements for retrofit of unreinforced masonry, tilt-ups and other structures. NFPA will need to catch up with the IBC in adopting provisions such as these. Finally, and perhaps most important to SEAOC, the IBC provided a greater opportunity to make the amendments needed from time to time that serve California’s needs related to lessons learned from earthquakes or research.

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structural engineers will have at
their disposal on a daily basis...”*

In spite of all of the above, it is likely that the structural provisions in the two codes will eventually be similar. That is because both codes adopt standards by reference to a much greater degree than was ever done in the UBC. Both codes reference ASCE 7-02 for their structural (Chapter 16) provisions, including seismic, wind and gravity loads and load combinations; and both reference the latest

provisions from ACI for concrete, AISC for steel, TMS for masonry and AFPA for wood. These reference standards are the documents that practicing structural engineers will have at their disposal on a daily basis, and the building code itself will be more of an occasional reference to cover administrative issues. However, it will take another ASCE 7 code cycle (ASCE 7-05) before the various gaps and inconsistencies are resolved, so there will need to be significant adjustments made in our State Building Code in the meantime.

Of interest to practicing structural engineers is the recently evolved ASCE 7 seismic code development process. While ASCE 7 had previously been a little-used reference standard relative to seismic provisions, it has quickly moved beyond that. The ASCE 7 Seismic Task Committee (STC) was reformulated for the 2002 cycle and has taken over the task once held by the SEAOC Seismology Committee in seismic code development. The STC is much larger than the Seismology Committee and has a greater national emphasis, though SEAOC engineers are still very influential. The committee also has members who are researchers, building officials and industry representatives. Where ASCE 7 had previously been the most referenced standard for wind provisions, it will now hold that position in the seismic area as well.

Regardless of the selected building code, we’ve moved into a new era in structural design requirements, one that is more driven by national standards than by our own Blue Book and UBC. Finally, it should be noted that the 1997 UBC will remain our code in California for a few more years in any case, since there are numerous administrative issues to be handled before the next code becomes the State Building Code. Then there is a period of up to 18 months before local jurisdictions need to adopt it.

*David Bonneville
President, Structural Engineers
Association of Northern California*

Simplifying the Building Codes

November 2003 Issue

Mr. Tawresey deserves support for his editorial recommending simplification of our building codes. The codes adopted by governmental units often cite and adopt codes established by segments of the construction industry, such as ACI, AISC, ITC, etc. A cursory review of the history of ACI Code 318 shows unreasonable increases in design procedures by the sheer volume of the published documents.



It is my judgment that the true advances in our knowledge of the structural performance and properties of reinforced concrete have been obfuscated with micro-details that do not serve any valid application in our design procedures.

My long and satisfying career has been guided by a paragraph in “the Philosophy of Structures” by Toroja:

“We must never feel overconfident and vain about the exactness of our calculations: They always carry a congenital stigma of our dubious theories.”

Professor “Shorty” Miller once told the class that they should be able to check the design of a concrete beam on the job, using a slide rule and the back of an envelope. I believe that should still be true.

W. Saia, P.E.
Midland, MI

Visit the Events page at www.structuremag.org for information on upcoming seminars, meetings and other events of interest to structural engineers. See you there!

- In 1913, Mr. L.J. Mensch published “The Reinforced Concrete Handbook”. My copy is 4-by-6 inches and 216 pages.
- In 1951, the ACI 318 code was a booklet 6-by-9 inches and 63 pages.
- In 1951, the Portland Cement Association published “Ultimate Design of Reinforced Concrete”. It is 8.5-by-11 inches and 18 pages.
- In 1963, the ACI 318 was 6-by 9 inches and 144 pages.
- In 1968, ACI published “The Ultimate Strength Handbook”, SP-17; 8.5-by-11 inches and 176 pages.
- In 1972, Rice and Hoffman published “Structural Guide to the ACI Building Code”, a book of 437 pages.
- By 1999, the ACI 318 publication is 8.5-by-11 inches and 391 pages.
- PCA publishes “Notes on ACI 318 99 Building Codes Requirements for Structural Concrete”. It is 8.5-by-11 inches, and two inches thick.

Late Breaking News!

The elections in California may bring about changes to the makeup of the California Building Standards Commission. SEAOC Executive Director Lee Adler reported to the SEAOC Board in October that he feels there is a good chance that the decision to favor NFPA 5000 over IBC may be overturned. In addition, a recent appointment to the Commission will seat a structural engineer. SEAOC member, Kent Sasaki, S.E., was appointed.

SEAOC continues to work with the Codes Coalition (SEAOC, CBIA, CALBO and AIA) in strategizing next steps.



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"Off-Shore" Engineering

The following are excerpts of portions of an email received recently.

"Dear Sir,

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"North American Architect References and Samples shall be emailed on your response. We request you to try our services and assure you that you shall not be disappointed."

The email also lists specific projects performed for architecture and engineering

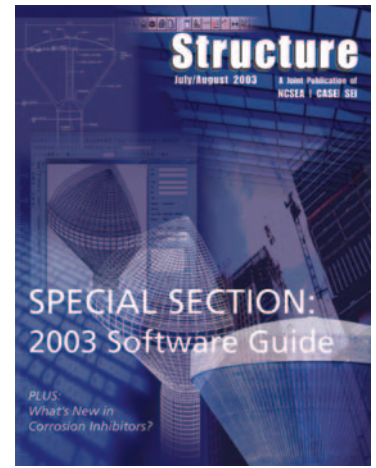
firms in the United States.

Is this the future for professional design services? Based upon the email message, some US professionals have already taken advantage of the overseas services. Will more architects and engineers be tempted by the cheap rates? How long will it be before these same cheap rates will be offered for structural engineering services?

"Is this the future for professional design services?"

Due to cheap labor and less environmental restrictions available overseas, the US manufacturing sector is vanishing. New technology, often developed in the US, is now providing the means for the services sector to be performed overseas. Already, some major US corporations have their customer service centers staffed in Asian countries. What lies ahead for structural engineers?

David T. Biggs, Troy, NY



Structural Forum July/August 2003 Issue

I read the Structural Forum on pages 16 and 17 with great interest. The authors present interesting views on two major structural accidents. Structural failures have been one of my interests for many years. They teach important lessons, and should be properly reported and analyzed because of the opportunity to avoid similar failures. Sometimes the investigating engineer has to wait until the matter is settled until becoming free to discuss or report on what has been discovered. Once the timeliness has passed, there is less interest in the event.

I spent many years doing forensic failure investigations and often could not discuss them at the time. However, in most cases, I saved my reports. Now I have written a book titled: "Locomotive in the River and Other Stories", based on 50 years investigating structural failures. In final editing, it will be published by Portland State University and serve as a text for a new course in Forensic Structural Engineering.

Keep up the good work... you are doing a real service to our profession.

Arthur M. James P.E., S.E.

Mr. DeStefano – I enjoyed reading your article and heartily agree with your thesis. I keep a copy of the 1927 UBC right next to my AISC manual, so that I don't lose sight of our basis. We've become fatter and more detailed, with an aura of pseudo-rationality, but I don't know that we've become a whole lot "better." In addition, I would submit that this trend has directly caused the diminution of our professional judgment, responsibility, and status.

*Michael Johannes Paul, Senior Vice President
LZA Technology/
Thornton-Tomasetti Engineers*

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