

CODES & STANDARDS

How the Job Gets Done...

Building Codes: How Structural Engineers Can Get Involved

Christopher M. Hewitt • NCSEA Code Advocacy Committee

The day that my current boss called me and asked me to come to Chicago for a job interview at an organization that develops structural standards, I was excited. I expected the company to occupy a 40-story building, filled to the brim with brilliant engineers who were studying structural analysis techniques, testing beam strengths on huge testing machines, and poring through pages of calculations; the oldest, wisest and most respected of them carefully double-checking strengths and load factors on slide-rules with their spectacles poised gracefully on the end of their noses as they sat at the stools of their drafting boards.

So, I traveled to Chicago and the taxi carried me to the entrance of a 40-story building; obviously my expectations were about to be fulfilled! I spoke with the security guard at the door and I was surprised to learn that this organization occupied only one floor! I was floored when I found that the employee roster held only 45 names, of which only about 15 were in their Engineering Department. I thought, "What is this, a joke? How can only 15 engineers possibly do all of this work? They must never sleep! I'm surely not going to be taking THIS job!" A year later as I sit at my desk among those 15 engineers, I now understand that the process of developing building standards uses these technical people as facilitators to develop a dialog across the profession. The process involves hundreds, if not thousands, of experts, academics, and practitioners.

Building codes adopt much of their content from independent standards. Standards are developed by three primary sources: suppliers of building materials, technical institutes and professional societies. Various technical groups representing the steel, concrete, wood, and masonry industries produce structural material standards. Each of these groups publishes their standards independently, and most of them have manuals of commentary to help practicing professionals apply or understand the background of the provisions in the standards. When topics arise that affect all structural materials, they may be developed by professional societies such as the Structural Engineering Institute of the American Society of Civil Engineers, or any number of Structural Engineers Associations. Each group develops standards with the hope that they will be adopted by both of the two principal model building codes, produced by either the International Code Council or the National Fire Protection Association. In most cases, these standards are adopted in whole or in part by reference in the model codes, which allows the model codes to stay up-to-date with the most current and accurate materials information available. From there, it is up to local code authorities to adopt the most recent version of the model code for use in the areas where they have jurisdiction.

The NCSEA Advocacy Codes and Regulators Sub-Committee asked representatives from the five largest structural standard producers, "How can interested engineers become involved in your part of the code development process." Here is what each one had to say:



*The American Concrete Institute
(ACI)*

Daniel Falconer • www.concrete.org

What are the opportunities for involvement in the code development process within your organization?

ACI has well over 100 technical committees that deal with a wide range of subjects related to concrete. Every ACI committee document, not just those pertaining to codes, represents the consensus position of the committee and the Institute, and input and participation in the work of ACI committees is encouraged.

What are the requirements for participation?

At a minimum, participants must have an interest in technical issues related to concrete. Voting members of technical committees need to have competency in that particular field. ACI technical committee meetings are open to the public. A listing of ACI committees can be viewed on the website, www.concrete.org. ACI membership is not required for voting membership on ACI technical committees, but is encouraged.

What is the time commitment?

ACI committees meet two times per year, in the spring and fall. Voting members of technical committees are expected to attend at least one meeting per year. All members of a committee are expected to actively participate in the development or revision of the committee's documents as required throughout the year.

How does your organization allow for public review?

ACI standards have a 90-day public comment period. The proposed standard is published either in *Concrete International* or posted on the ACI web page, with a notice on *Concrete International's* Standardization page. After the 90-day period is over, the committee responds to the comments. The committee's response is given an independent technical review. The committee's final response is then published either in *Concrete International* or on the web page, with a notice in *Concrete International*.

Who should people contact to get involved?

Anyone can contact ACI Headquarters via e-mail (webmaster@concrete.org), by phone (248-848-3700), or by directly contacting members of ACI committees. Perhaps the best way to become involved is to attend an ACI convention and go to some of the committee meetings.



What are the opportunities for involvement?

Participation in the various committees of SEI is open to all interested individuals. SEI has over 100 technical committees and more than 25 structural standards committees in which individuals can become involved. Individuals do not have to be a member of SEI to participate. Descriptions of the activities of each of these committees, along with applications to join any of the various committees, may be found on the SEI website at www.seinstitute.org

In addition, SEI is in the process of having the entire balloting process for our standards committees accessible via the web. Over the past 18 months, SEI has developed and tested our web-based balloting system, which provides an alternative method for individuals to participate as opposed to everything being conducted by letter ballot.

What are the requirements for participation?

The model procedures developed by ANSI make it pretty clear that standards development processes should be as open as possible. The founders of ASCE's standards program took this to heart and, in essence, there is no requirement for participation other than requiring that an individual actually participate. The way this is embodied in our *Rules for Standards Committees* is that standards committee membership is automatically terminated for failure to return two consecutive ballots. When this happens, though, it is relatively easy for that individual to be reinstated. However the message is clear: if you're going to be on a standards committee you are expected at a minimum to return your letter ballots. Beyond requiring that people actually participate, our process is intentionally constructed to be very open. There is no requirement for attendance of meetings, an individual does not have to be a member of SEI, and there is no upper limit on the size of the committee.

What is the time commitment?

The time commitment will depend on the committee and the on the individual. Extremely active committees may have 6 or more ballots in a year, whereas others may only have one. In addition, some particular issues that are being addressed by the standard may necessitate a greater amount of an individual's time to study and understand in order to cast an informed ballot.

How does your organization allow for public review?

ASCE's public review process is open to any and all individuals. Our process works like this: once committee balloting is complete, a press release announcing the public review period is sent out to approximately 300 publications. In addition, an announcement is placed in *ASCE News*, which goes out to more than 130,000 members of ASCE. Anyone who requests to participate in the public comment period receives a public comment form and a copy of the draft document. The public comment period is typically 45 days, at which point comments are due. All comments received from the public are treated in the same manner as comments submitted by committee members: they are reviewed by the chair, a proposed resolution report is

prepared and distributed to the committee members, and then if needed a ballot of the committee is conducted regarding the resolution of the comments. If a comment from the public results in a substantive change to the standard, a second public comment period is conducted on the particular change. Once all comments have been addressed, anyone who submitted a comment is informed on the resolution accorded to their comment.

Who should people contact to get involved?

Any one is welcome to contact me, any member of the SEI staff, or any member of one of our standards committees to learn more about the activities of the committee and how to get involved. The application form to join any SEI standards committee may be found on the SEI website at www.seinstitute.org



What are the opportunities for involvement?

AISC maintains the *Specification for Structural Steel Buildings*, the *Seismic Provisions for Structural Steel Buildings*, and the *Specification for the Design, Fabrication and Erection of Steel Safety-Related Structures for Nuclear Facilities*. This is accomplished through the main Committee on Specifications, as well as 15 task committees.

What are the requirements for participation?

Membership on the Committee on Specifications, or any of its 15 task committees, requires involvement in the design, fabrication or erection of structural steel buildings as a consulting engineer, industry participant (fabricator or detailer or steel producer), or educator. AISC membership is not a requirement.

What is the time commitment?

Our task committees meet approximately two times per year.

How does your organization allow for public review?

We post our standards in ANSI's Standards Action for 45 days when available for public review, and also publicize the review period in *Modern Steel Construction* and on our web site (www.aisc.org).

Who should people contact to get involved?

Interested parties should contact Cynthia J. Duncan, Director of Specifications, at Duncan@aisc.org or call 312-670-5410. The consideration process begins with the completion of an application. A two-year roster cycle is maintained, with the next cycle beginning in 2004.

CODES & STANDARDS



The Masonry Society (TMS)

Phillip J. Samblanet • www.masonrysociety.org

What are the opportunities for involvement?

The Masonry Society (TMS) has several committees and joint committees that write specifications, codes, standards and guidelines. Standards that TMS develops independently or jointly with other groups (ACI and ASCE) include standards on the structural design of masonry, specifications for masonry, fire resistance, noise control, existing masonry (evaluation, repair, rehabilitation, upgrading), stone cladding (curtain walls), and potentially items on fireplaces, chimneys, etc. (although there is currently no active work going on in these areas). Listings of TMS committees along with brief mission statements are posted on the TMS website (www.masonrysociety.org).

What are the requirements for participation?

Anyone can be involved in on TMS committees. Obviously, those wishing to be added as voting members of committees should have technical expertise on masonry. Attendance at meetings is strongly urged, and is required by some of our joint committees based on the rules of the other co-sponsoring societies (i.e., see ACI rules above related to attending one meeting per year for consideration of membership on ACI/TMS Joint Committees).

What is the time commitment?

Most committees meet twice per year during our spring and fall business meetings. In addition, development of draft provisions, balloting, and other correspondence occurs throughout the year. Our most active committee, the Masonry Standards Joint Committee which develops *Building Code Requirements for Masonry Structures* (ACI 530/ASCE 5/TMS 402) and *Specification for Masonry Structures* (ACI 530.1/ASCE 6/TMS 602), is a joint committee between The Masonry Society, the American Concrete Institute, and the American Society of Civil Engineers, and that committee can have several multi-item ballots each year.

How does your organization allow for public review?

After a TMS committee achieves consensus on a standard through formal balloting, the proposed standard undergoes a rigorous review by TMS's Technical Activities Committee. After responding to TAC's comments, the committee then prepares the standard for a 90-day public comment period. The proposed standard and public comment period is then announced on the TMS web site at www.masonrysociety.org and in *TMS News*. Proposed new standards, and proposed changes to existing TMS standards are posted on the TMS web site. Hard copy of the proposed changes can be obtained for a nominal shipping and handling fee. After the 90-day public comment period is over, the committee responds to comments, and TAC reviews the proposed responses. The committee's final response is then posted on the TMS website and the commenter receives a copy of the response.

Who should people contact to get involved?

Anyone interested in working on any of these topics should contact TMS directly (303-939-9700, www.masonrysociety.org). Interested individuals will be required to fill out a committee membership application. Decisions on committee appointments are made by the committee chairs to ensure proper balance and representation.



National Council of Structural Engineers Associations (NCSEA)

Jim Delahay • www.ncsea.com

What are the opportunities for involvement?

NCSEA is not a standards-producing organization, but is very active in the development of building codes through our Code Advisory Committee. We propose changes to the codes, and take positions on other proposals for code changes. NCSEA has voting representation on both the IBC and NFPA Structural Committees. Interested structural engineers from the state Structural Engineers' Associations within NCSEA form the Code Advisory Committee. It has 4 subcommittees: Seismic, Quality Assurance, Existing Buildings, and General Engineering.

What are the requirements for participation?

The main requirement for participation is enthusiasm for the mission of improving the practice of structural engineering through better codes and standards.

What is the time commitment?

Typically, each sub-committee meets three times during each code cycle. Those meetings are typically between one and two days long. If you then include the preparation time for those meetings and the time spent preparing code change proposals, the average committee member probably spends between 40 and 60 hours per code cycle. Certainly, the subcommittee chairs and the voting delegates to the two Code groups spend significantly more time.

How does your organization allow for public review?

Since we do not produce any standards, our work takes the form of code change proposals, which are reviewed by the same processes as everyone else.

Who should people contact to get involved?

Jim Delahay – Chairman of the NCSEA Code Advisory Committee; LBYD, Inc. – Civil and Structural Engineers; 716 South 30th Street, Birmingham, AL 35233; 205-488-0210; JDELAHAY@LBYD.COM

What are the opportunities for involvement?

AF&PA recently changed from the ANSI Canvass method to the ANSI Organizational method for standards development. In the past, each standard had a separate canvass committee. In the new process, there is one standards committee, the AF&PA Wood Design Standards Committee (WDSC), which has multiple task committees, as needed, to work on different standards.

The WDSC maintains two major wood design standards, including the *National Design Specification® (NDS®) for Wood Construction* and the *Wood Frame Construction Manual (WFCM) for One- and Two-Family Dwellings*, and several smaller specifications.

What are the requirements for participation?

At a minimum, an interest in wood design. Voting members should have a good working knowledge of wood design. AF&PA membership is not required.

What is the time commitment?

All AF&PA wood design standards are developed through the WDSC; however, not all standards are in revision at the same time. Meetings are held on an "as-needed" basis. Participation in development of a specific standard could average as many as three ballots/standard/year.

How does your organization allow for public review?

Announcements are made in ANSI's Standards Action and various industry media providing for public comment.

Who should people contact to get involved?

They should make contact with AF&PA staff at 202-463-4713 or at AWCINFO@afandpa.org. The WDSC votes on new membership periodically, about every four to six months.

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