

# Structural Tests and Special Inspections

Overview of the Changes in the 2006 IBC Chapter 17

By Greg Schindler, P.E., S.E.

Since the International Codes Council's (ICC) *International Building Code (IBC) 2000* was not adopted by many jurisdictions, few engineers became familiar with its provisions. The 2003 *IBC* has now been adopted in most areas of the United States, and structural engineers are using it regularly. As with any totally new code document, there are provisions that may not have been thoroughly coordinated in earlier versions. One example is Chapter 17, *Structural Tests and Special Inspections*. This chapter codifies requirements for inspection and testing of the structural elements of buildings and other structures. The chapter, as written in the 2003 *IBC*, tends to be confusing, especially to engineers and building officials in areas where special inspection was not routinely done in the past.

The *IBC* was crafted out of the three model building codes previously in use in the United States. Chapter 17 was mostly derived from provisions of BOCA's *National Building Code*, which included requirements for a "Statement of Special Inspections". The Statement of Special Inspections is a plan and other provisions for mandatory inspections of a project by a special inspector. Added to that language were provisions from previous National Earthquake Hazard Reduction Program (NEHRP) documents requiring development of a "Quality Assurance Plan" for seismic elements of a project. The NEHRP provisions appear in Sections 1705, 1707 and 1708 of the *IBC*. Similar requirements were developed for wind resisting elements of the structure and placed in *IBC* Section 1706.

Inclusion of both a Statement of Special Inspections (SSI) and a Quality Assurance Plan (QAP) seemed to be confusing, and contradictory in some cases. So, the Quality Assurance and Special Inspection Subcommittee of the NCSEA Code Advisory Committee undertook the task of trying to clean up the chapter and reorganize it to be more coherent and consistent. The subcommittee decided not to attempt any major change of the provisions for the 2006 code cycle, but just focus on reorganization of the chapter. In that process, the subcommittee recommended deleting the Quality Assurance Plan term from the *IBC* since the requirements of the QAP could easily be included as part of the Statement of Special Inspections. Most of the NCSEA code change proposals for reorganization of *IBC* Chapter 17 were accepted by ICC, along with other specific changes proposed by other organizations and individuals.

In the 2006 *IBC*, Section 1705 now more clearly outlines requirements of the Statement of Special Inspections, which includes requirements for inspection of seismic and wind resisting systems. Required general special inspections are still listed in Section 1704. Additional special inspections and testing for seismic resistance also remain in Sections 1707 and 1708 as in the 2003 *IBC*.

One somewhat controversial provision of the code is the Contractors Statement of Responsibility. This provision was previously included in the section on the QAP; however, since the QAP is prepared by the registered design professional and the statement of responsibility is prepared by the contractor, it has now been moved to a separate section, 1706 in the *IBC*. A future version of the code may revise this requirement.



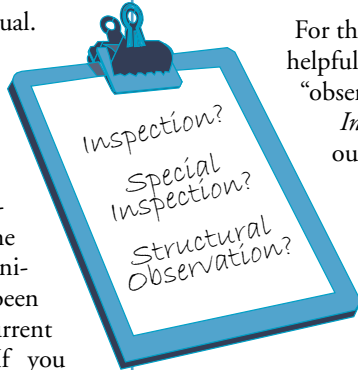
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## Other IBC Chapter 17 Revisions of Note

1. In Section 1708.5, the code now requires that the "registered design professional in responsible charge shall state the applicable seismic qualification requirements for designated seismic systems on the construction documents."
2. A definition of Designated Seismic System has been added to Section 1702.
3. The code has typically only mandated structural observation for lateral force resisting systems. Section 1709 has been reorganized to outline more clearly requirements for observation of wind and seismic elements.
4. Provisions for inspection of soils, and pile and pier foundations were expanded in Section 1704.7
5. Section 1704.1.1 now includes two exceptions to the requirement for a Statement of Special Inspections.

## Conclusion

The practice of special inspection varies greatly around the country. Some areas have a well developed system of special inspection with qualified inspectors, while in other areas there is little, if any special inspection done at all. It is hoped that with improved code requirements all major construction throughout the United States will have at least some level of special inspection by a qualified individual. The NCSEA Quality Assurance and Special Inspection Subcommittee continues to work to improve Chapter 17 of the IBC and will likely submit additional revision proposals for 2009 code cycle. The subcommittee is currently monitoring proposals that have been submitted by others for the current interim amendment cycle. If you would like to offer comments or suggestions regarding IBC Chapter 17, please send them through NCSEA at [www.ncsea.com](http://www.ncsea.com). ■



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## Terminology

For those still getting familiar with the concepts of special inspection, it may be helpful to understand the difference between “inspection,” “special inspection,” and “observation”. In simple terms, they can be described as follows:

*Inspection* is done by the building official at various stages of a project, as outlined in IBC Section 109, to ensure compliance with the building code.

*Special Inspection* is done by owner’s inspector as required by IBC Chapter 17 for structural components and connections that require “special expertise to ensure compliance with the approved construction documents...” as defined in Section 1702.

*Structural Observation* is done by the “registered design professional for general conformance with the approved construction documents...” as defined in IBC Section 1702. In general, structural observation is a much less detailed examination of the construction and is not meant to ensure that everything is being constructed properly but is meant to generally review construction relative to the design intent. ■

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