

April 27, 2016

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Dear Sandra –

I recently contacted you by email to find out if the Commercial Building Code Council would be evaluating IBC 2015 Chapter 17 requirements for Special Inspections and Tests as part of the next update to the state commercial building code. I appreciate your responsiveness in providing information regarding the current status of this issue. My understanding right now is that the code council has already discussed Chapter 17 to some extent and may or may not revisit it for the current cycle of state code updates. Respectfully, I ask that the code council revisit this issue in more detail before making any final decisions.

My background includes experience in structural testing and inspections, as well as structural engineering. In 2010, I helped the Structural Engineers Association of Wisconsin (SEA-WI) draft a Code Change Proposal in favor of Chapter 17 (archived here: [http://seawi.org/images/downloads/code\\_change\\_proposal.pdf](http://seawi.org/images/downloads/code_change_proposal.pdf)). At that time, Wisconsin was in the process of updating to IBC 2009. The letter from SEA-WI noted that the organization was “willing to invest the time and energy needed to clear any perceived obstacles to the implementation of special inspections in our state” and the group offered “to help with efforts to educate relevant project stakeholders regarding the special inspections provisions.” Five and a half years later, I’m not aware of any efforts to engage SEA-WI on this topic. While that organization was fairly new at the time of the 2010 Code Change Proposal, they now have a considerable membership base that could be accessed for comments, insight, and opinions on what the Chapter 17 requirements entail.

I’m writing at this time not as a representative of SEA-WI or under the aegis of my current employer, simply as someone with an interest in Chapter 17 who has followed the issue for the last several years. To begin, I’d like to dispel the notion that “special” inspections are something that are only necessary on certain “special” types of projects; rather, the word “special” refers to the qualifications required of the person or agency performing the inspections. In IBC 2009 Section 1702, the following definition is given for the term Special Inspection: “Inspection as herein required of the materials, installation, fabrication, erection or placement of components and connections **requiring special expertise** (emphasis added) to ensure compliance with approved construction documents and referenced standards.” This clarification as to what makes special inspections “special” is essential to understanding the intent of the code.

First, the required tests and inspections themselves are not “special”, they are basic industry standards. Accordingly, there’s been an effort by ICC in recent code updates to move the testing and inspection requirements out of Chapter 17 and have those be defined by standards created by other entities more directly accountable for those particular materials. Specifically, Chapter 17 of IBC 2015 references the following external industry standards for clarifying what tests and inspections are appropriate:

- 1705.2.1 Structural Steel—Per AISC 360 (Chapter N)
- 1705.2.2 Cold-formed Steel Deck – Per SDI QA/QC
- 1705.3.1 – Welding of Reinforcing – Per AWS D1.4
- 1705.3.2 – Concrete Material Tests – Per Chapters 19 and 20 of ACI 318-14
- 1705.4 – Masonry Construction – Per TMS 402/ACI 530/ASCE 5 and TMS 602/ACI 530.1/ASCE 6

Using the first item listed above as an example, Section 1705.2.1 of IBC 2015 says to look in AISC 360 (which is the American Institute for Steel Construction’s Specification for Structural Steel Buildings) for testing and inspection requirements. Specifically, IBC 2015 refers to the 2010 edition of AISC 360 which can be found within the 14th Edition of the AISC Steel Construction Manual; the 2010 edition includes Chapter N: Quality Control and Quality Assurance which is now where the “special inspections and testing” requirements related to steel are housed. I prefer the terminology that AISC chooses to use, e.g. they stress that these requirements encompass “quality control” and “quality assurance”, and Section N5’s “**Minimum Requirements** for Inspection of Structural Steel Buildings” (emphasis added) more correctly positions the required tests and inspections as being industry norms rather than the exception.

In the event that the commercial building code council does not incorporate Chapter 17 during this cycle, I anticipate confusion about what that means for the testing and inspection requirements that now exist separately from IBC 2015, since these external standards seem to require Chapter 17 to reference them in order for the requirements to apply. For steel framing, it makes logical sense to have the commercial building code linked to the steel industry’s standard, as ICC has done in Chapter 17. Without Chapter 17, it’s not clear on what basis the engineers, architects, or code officials in the state could insist that any steel construction conform to the **minimum requirements** promulgated by AISC for steel construction. Similar issues arise with the other standards listed above for concrete, masonry, and so on, because ICC’s intent is that IBC Chapter 17 would work in coordination with those external industry standards.

Secondly, although the tests and inspections that Chapter 17 describes are not actually “special” per se, they do require **special expertise** in order to execute. Registered Architects or Professional Engineers may be qualified to perform some of the visual inspections that fall under Chapter 17 requirements, but the bulk of the testing and inspection work requires additional education, experience, and equipment that is specific to the category of work being inspected. The good news on this front is that there is already a fairly deep pool of talent to draw from within Wisconsin, as many of the tests and inspections that fall under the umbrella of Chapter 17 are already routinely performed on projects even without a clear legal requirement to do so. Additionally, ICC offers certifications in welding, bolting, masonry, and concrete special inspections which could be used as a means of further distinguishing qualified practitioners.

Beyond the obvious arguments in favor of Chapter 17 on the basis of the safety and welfare of the public, the reduction in potential liability for project stakeholders, or the need to keep up with industry standards, there's an argument in terms of economic fairness that should not be overlooked. Suppose A/E Team A and A/E Team B are competing for a project and the Owner, in the absence of direction from Chapter 17, defers to the A/E teams to determine what level of testing and inspection to require; the proposed fees from each team may differ significantly based on the increased or decreased level of effort associated with how much time they intend to commit to defining the scope of required inspections and testing, reviewing inspection reports and test results, and responding to non-conforming items noted during construction. Firms that are trying to keep up with the standard of care as set forth in the external standards listed on the previous page of this letter could then be at a competitive disadvantage compared those that would take a more relaxed approach to testing and inspection. If the local code official wants to weigh in, it's unclear what ability they would have to mandate adherence to Chapter 17 requirements. My understanding is that 2013 Wisconsin Act 270 would prevent a local municipality from trying to make projects follow any specific requirements beyond what's directly adopted within the state code.

Not having any knowledge of the substance of the code council's recent discussions, I apologize if these concerns have already been reviewed and put to rest. My hope is that whatever the code council chooses to do on this issue would clarify the minimum requirements the State of Wisconsin wants to see; if that can be done with less than the full adoption of IBC Chapter 17, then so be it. Perhaps the full adoption of Chapter 17 could be rolled out first for buildings and structures classified as Risk Category III and IV per IBC 2015 Table 1604.5, and then expanded to Risk Category II at a later time. Another approach would be to start with facilities requiring storm shelters per IBC 2015 423.3 and 423.4; design of these storm shelters is controlled by ICC-500 which indicates that the locally applicable testing and inspection requirements should be followed. Without IBC Chapter 17 in place, it would be possible to construct a storm shelter with a relatively limited degree of inspection and testing, even while Section 106.4 of ICC-500 requires the registered design professional to ultimately issue a statement that everything is in conformance with the design requirements. Having participated in the design of the Highland Manor Community Safe Room ([http://www.rasmith.com/portfolio/bridgesstructural/portfolio\\_HighlandManorCommunity\\_detail.htm](http://www.rasmith.com/portfolio/bridgesstructural/portfolio_HighlandManorCommunity_detail.htm)), I feel that IBC Chapter 17 requirements should be mandatory for storm shelters in order to ensure the intended level of protection. It also seems logical that buildings that would need to have storm shelters within them per IBC 2015 423.3 and 423.4 should themselves be subject to Chapter 17 requirements.

Feel free to contact me at [davidboldt@tds.net](mailto:davidboldt@tds.net) if you have any questions regarding these comments.

Respectfully submitted,



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