

DESIGNER'S NOTEBOOK - SERIES # 52

"Honey, Who blew up the Building Code?"

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Memo to the International Code Council: Please stop increasing the size of the residential code – it is now so thick I can barely fit it into a carrying case.

When I received our copies of the 2009 I-Codes the other day it hit me – the residential code (IRC) is now THICKER than the commercial code (IBC). For the paperback editions, the residential code is 1-3/4 inches thick versus 1-3/8 inches for the commercial code. Doing a spot check on code growth since the 2000 editions, the IRC grew from 1-1/4 inches to 1-3/4 inches, or 40%, while the IBC actually shrank from 1-1/2 inches to 1-3/8 inches -- an 8% decrease in thickness. What's going on here?

How can it be that the code governing construction of single family houses and townhouses can be thicker than the code book governing hospitals, concert halls, libraries and other places of public assembly? Part of the answer is that the residential code is a “prescriptive” code based on “cook book-type” descriptions of what is required, while the commercial code is a “performance” code, which calls for standards to be met instead of providing specific solutions. Another reason is that over the years the residential code has incorporated new building technologies such as light steel framing, insulated concrete forms and frost-protected shallow foundations in its prescriptive standards. However, a large part of the growth in the residential code is due to increasingly complex regulatory requirements.

Wall Bracing

The poster child for increased code complexity is the “wall bracing” requirements found in section R602.10. This section has evolved from what was less than one page in the 1995 CABO code -- to 27 pages of text and diagrams in the 2009 IRC. There are also additional requirements for foundation systems that support braced walls in the foundation chapter. Increases in these sections are in large part due to the property losses that have occurred in wind and seismic events over the past several decades, most notable of which were Hurricanes Andrew and Hugo. After these storms, wall bracing became one

of the top priorities for revisions to the code. This is understandable -- but I question if the requirements of this section have, at this point, gone too far.

Concrete Foundation Walls

Other sections have increased in scope as well. The section governing foundation walls, for example, is another place to find more complexities in the code. The 1995 CABO code devotes three pages to this section, while the 2009 IRC provides 19 pages. Some of the growth in this section is due to adding standards for pre-cast concrete foundation walls, however the bulk of the added material is much more detailed charts and notes for reinforcing requirements of foundation walls based on soil types.

Other Sections

Many other sections of the code have grown – “Location on Lot” formerly Section 302, was one-half of a page – has evolved into “Fire-Resistant Construction”, which is 4-1/2 pages long. OK, this section was combined with “Dwelling Unit Separation”, 320, so add another page to the base. “Design Criteria” section 310, went from 8 pages to 15. I could go on but I am sure you get the point.

Code Complexity – Enough is enough

It strikes me that the residential building code has become somewhat like the tax code – far, far too complex for the purpose it serves. After all, the building type it governs is a house. At each code cycle hearing the National Association of Home Builders and other industry groups represent the interests of builders, however, every year the code becomes more and more difficult to comprehend and comply with. This added complexity results in confusion and misunderstandings between designers, code officials and builders, and of course, added costs to our housing stock.

Note that here I am only discussing the increasing complexity of previously adopted code sections, not additional new standards to meet safety, durability, energy consumption and sustainability concerns which are also being added in each code cycle. The most significant addition to the 2009 IRC is Section R313, which requires fire sprinklers to be installed in townhouse construction, and by January 1, 2011, single-family dwellings. But that is a topic for another time.

I would hope that 2009 residential code represents a high water mark for complexity and thickness -- and that in 2012 we will see a more streamlined, understandable, and simplified document for the benefit of designers, code officials and builders alike. Next time you get to speak with someone who attends to code development congresses - remind him or her that the code has increased 40% in the past three editions, and now is the time for simplification, not more regulatory complexity.

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Photo Captions:

1. Code Books – “With each code cycle the residential code has grown in thickness – and complexity”.
2. Wall Bracing – “The wall bracing requirements of the code has made fully sheathed exterior walls more common.”
3. Foundation – “Requirements for foundation walls have increased become more comprehensive and detailed.”
4. End Wall Bracing – “Wall bracing becomes more complex in high wind zones where additional structural reinforcing is required”.



