Changing Building Codes

Are They Really That Bad?

By David Pierson, S.E., SECB

In discussing my profession with a friend recently, I explained how we are bound (and protected) by building codes. I mentioned that it is a bit of a challenge keeping up with code changes, since a new code comes out every three years. I was a bit taken aback by his response. "Wow", he said, "Can't someone write a building code that lasts longer than three years?"

His response prompted immediate reflection. That conversation has led me to re-think my stance on the necessity of such short code cycles. Considering that we measure the age of the Bible, the Torah and the Quran in centuries, it seems reasonable to question the need for a new building code every three years.

Before I go any further, let me clarify something. I am not going to argue here against the complexity of the building codes. On this issue I sit silently on the sideline and applaud (with quiet golf applause) the fact that the code is too complex to be understood by someone without proper training and experience. In our profession, we have few barriers to entry better than a complex code. Strong barriers to entry are needed to keep demand for our services higher than the supply. That results in higher pay, and of that I am a proponent.

But why do we need a new building code every three years?

A popular answer to this question is that organizations promulgating codes need the revenue stream to stay in business. Surely it is necessary for those organizations to sell codes occasionally, and nobody begrudges them that. However, this motivation may cloud their ability to judge impartially the value of publishing a new code. Organizations should not exist for the sole purpose of selling codes and standards; they should be able to provide value to the design community (and be compensated for it) in other ways.

Probably the most relevant response to the question of short code cycles relates to our increasing body of knowledge. For instance, new technology enables advanced numerical methods to be utilized in design. Research, both academic and industrial, provides new options for structural systems. And natural disasters provide lessons regarding the performance of structural systems, thus presenting opportunities for improvement.

Such advances should indeed be reflected in the building codes. But on what basis can we make the assumption that every three years we will have a sufficient increase in knowledge to justify changing the codes?

Before a code is changed, there should be a requirement for a cost/benefit analysis. Too often the significant costs are ignored. Recently a person I know decided to estimate the cost of a complete building code. Starting with the IBC, she tallied the cost to acquire every referenced standard, plus the references in those standards. She stopped when she got to $100,000. Of course, nobody spends that much on these documents, but the point is still valid. Beyond that, time for learning a new code is a large cost to design firms, hidden somewhere deep in the overhead multiplier.

Determining the benefits of a new code is a subjective endeavor, but the following question ought to be asked: If we do not adopt a new code and instead continue with the one currently in place, will the public still be adequately protected, and will the designs still result in economically feasible buildings?

For example, I do not have any heartburn about the buildings that I designed using the 1997 UBC. Whatever improvement there has been in the codes since then, it has not been significant enough to cause concern about those previously designed buildings. I would ask anyone claiming to be concerned: Are you going back to the owners of the buildings that you designed under the 1997 UBC to tell them that they need to have their structures upgraded?

Another issue is the academic research that creeps into the codes. While research is certainly necessary and vital, many researchers seem to depend upon getting code changes incorporated in order to justify their work. It is not clear that they adequately consider whether such modifications are really improvements. Too few of those involved in the code development process ask the right questions. If a proposed provision indicates a 3% change in a calculated capacity, is that significant enough to justify a code change? How does it relate to the level of uncertainty still present on the demand side? Are the building codes supposed to ensure that the behavior of structures is accurately modeled with ultimate precision? Or are they intended to allow engineers to design safe, cost-effective structures within a reasonable time frame? How many different ways can we calculate 20 psf wind pressure on a building?

There may be other reasons offered for the short code cycles, such as unintended consequences arising from previous changes. Upon serious reflection, however, I think we would find that most proposed changes can wait a few more years until the next code is published. For critical issues that cannot wait, addenda and supplements could be utilized.

My questions to those involved in the development of new codes and design standards are as follows. If the code that you are now proposing to be adopted is so much better than the one that we are currently using, why will it be obsolete in just three years? Is the 2009 edition so problematic that we cannot wait until 2015 to replace it? If so, why did we adopt it? Are the codes to which we design really that bad?

Five-year cycles would be better. What would be best? Do I hear six or eight?▪

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