I've Looked At Codes From Both Sides Now

by Tom Bender

Building codes have glibly been made the scapegoat for housing problems by developers and owner-builders alike. A different story has emerged, however, as I have explored the energetics and economics of housing over the last ten years, and worked with codes and construction as an owner-builder and as an architect.

To learn more, last year I took a job as a part-time building inspector. It has given me a chance to look more thoroughly at housing construction and codes in operation. I've had to deal with builder's and homeowner's constant code questions as well as my own. I've gotten an inside view of the people responsible for code writing and enforcement, and the good and bad of developers, contractors and owner-builders. I've probably asked them more questions than they have asked me. I've also seen the side of building that many people don't — the effects of inadequate foundations, roofs ripped off by high winds, houses ripped apart for expensive repair of rot and termite damage, and houses pushed into the ocean by landslides. My present feeling — still open to challenge — is that most codes and code requirements are pretty reasonable, and worth the hassle in 99% of the cases. Here's why.

The reasons for many code requirements are not obvious in everyday living. Houses have to be designed for extreme as well as everyday conditions. Clearance requirements for woodstove installations, for example, may seem excessive. You might feel differently, however, if you've ever had a chimney fire, or have ever gone into your kitchen for a couple of minutes and returned to find a visitor has unwittingly filled your woodstove with pitch logs. Having to sit up until three in the morning with all doors and windows wide open and a stove so hot you can't get within six feet of it makes you think differently about adequate clearance to combustibles.

Similarly, code-built houses are unquestionably overbuilt. They're not designed for the one 95 lb. macrobiotic Zen student living there this week, but for the oddball (there's a lot of us) with several tons of friends, books, antique cannons or waterbeds who may be the next occupant. They're also designed for the considerable abuse that most houses have to take over their lifetimes — accidental or purposeful construction errors, hacking up by plumbers, weekend remodelers or termites, and nudging by bad drivers. Real-life strength requirements are very different from laboratory theories.

Codes have major benefits to a community. Many code requirements, such as for foundations, have improved housing durability significantly and reduced the far more expensive periodic repair and replacement necessitated by less farsighted construction. Housing durability is by far the most important element in the economic costs of housing. A house lasting 400 years (not unreasonable), rather than 80 years, reduces the economic cost per year by 80%. Fire and life safety requirements also help prevent the premature loss of buildings as well as reducing emotional and economic losses resulting from fires.

Codes protect owners against unscrupulous or incompetent builders. They give builders equal performance specifications to bid against, and are a good source for

adequate construction practices. Codes help avoid causes of liability and lawsuits. They eliminate the need for detailed review of hidden parts of a building at each stage f its life: construction, financing, and resale. Most people ever look behind the walls of a home, and benefit from some assurance that the plumbing, wiring and structure are there, will work, and work properly.

Most complaints against building codes concern the one percent of the population wanting to be "experimental owner-builders." That experimentation is important, and some of these complaints are valid. My first experiences with the codes, as an owner-builder with little detailed knowledge of the codes, may be typical. I didn't know what *was* required, was intimidated at having to purchase an expensive, thick and difficult code reference, and had an underlying fear the codes would force me to do something I didn't want to do, couldn't afford, or hadn't made provisions for in my design. I didn't know that a small and readable booklet, *One and Two Family Dwelling Code* was available which covered the residential code requirements of all national codes. That would have helped a lot! I had heard a lot of horror stories and was afraid an inspector might accidentally or purposefully hassle me. One did. If I knew then what I know now, I could have more easily gotten him off my back. Looking back, I'm actually glad the codes forced me to do some things I didn't want to take time for in the press of construction.

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Most of the code restrictions resulting in the excessive building costs mentioned in Edmund Vitale and Ken Kern's books have been eliminated. Sheetrock, plastic plumbing, single top plates, owner-wiring and plumbing, romex wire, etc., are now generally permitted.

Owner-builder advocates say codes make no provision for alternative ways of building. This is only partly true. Most codes *require* approval of alternatives, but (I think rightly) require *you* to do a competent job of demonstrating that the alternative will perform adequately. In most cases, that merely means doing structural calculations that should have been done anyhow, or getting an architect or engineer to check out the design and approve it. Some structures, such as domes, can't be calculated easily, but should have been tested by the original designer and such information made available.

No code can satisfy everyone. If simplified structural tables are given only for douglas fir beams (most of what is sold), people complain that alternatives are not allowed. If tables are included for all strength/stiffness situations, people complain that the code is too complex to use. If inspectors are usually older, experienced builders, they're blamed for being conservative and considered rejects from the construction business. If they are young and technically trained, they're blamed for lack of maturity and practical building experience. One book complains in the same paragraph both that there are more than 2000 different codes in effect in the U.S. and that codes are too standardized and don't take into account local conditions!

Almost every code-reform book includes a standard tirade against flush toilets. Having been involved in development of compost toilets, their code approval, and having built and used one for five years, I've found many of the code concerns about materials, operation and health problems quite justified, and have found very few designs and installations that have performed adequately. After more than ten years, I still see no broadly acceptable alternative to the flush toilet on the market. In this case, the code reformers are the ones who have not measured up to their claims.

Codes have generally changed for the better over the last ten years. Oregon, whose code I know best, now has an owner-builder exemption which eliminates a number of code requirements. (It's buried, however, in the appendix, with no reference from the contents or index!) Recycled and ungraded lumber is permitted with visual inspection of the building inspector. Compost toilets and woodstoves are legal. Electricity is not required, and privys are not specifically outlawed. There is a little-known provision for seasonal homes permitting a hand-filled tank of water to qualify for a water supply, a pitcher and washbasin for a sink, a tin tub for a bathtub, and a compost toilet for toilet requirement. The Basic Building Code (BBC) specifically includes mortise and tenon woodframe construction. Domes, solar systems, demand water heaters and heat exchangers are now code-approved in many states. More widespread adoption of such changes can go a long ways to providing necessary code flexibility for experimentation and more varied lifestyles.

In addition to actual code changes, the way we approach codes and inspectors is an important element in how easy our building process becomes. Some pointers:

1. **Have your act together when you go to deal with your inspector.** When you don't know where your property lines are, have only a vague sense of what you want to build, or leave out posts or beams in your plans, you make it hard for your inspector to believe much of anything you try to convince them of.
2. **Deal one-on-one if at all possible.** It's easier for an inspector to bend a rule without others around. Try not to deal with more than one inspector at a time — together they try harder not to miss something that the other inspector might catch.
3. **Treat inspector. people.** Our often-negative attitudes towards them makes their attitudes more negative, and also keeps better people from doing the job. Draw them out, ask for their ideas on how to solve problems. You might find they have some good ideas, and it will certainly improve your relationship.
4. **Know your code.** Get the *One and Two Family*

Dwelling Code ($14.25 ppd. including supplement from Building News Inc., Northwest Division, 4306 SW Admiral Ct., Portland, OR 97221) or read the few sections of your local code dealing with housing. Ask questions. If told to do something you don't want, ask for the code reference for the decisions, ask what exceptions there might be or alternatives. READ that code section. Call the state code department and ask them what alternatives, interpretations or exceptions might apply.

5. **Find out if other codes allow what your code doesn't.** (See Vitale's book for a good overview of differences). That's the quickest and best support for a code challenge or appeal, or to give an inspector a basis to approve what you want as an alternative.
6. **Ask about the appeal process if you get a decision you don't like.** Ask about the inspector's authority. See if it is a code or zoning requirement, who can reverse the decision or who has final say in the department. Many decisions get rethought rather than go through the bother of appeal.
7. **An architect or engineer's stamp on your drawings is magic.** The engineer accepts liability, takes your inspector off the hook, and lets them know you've had some (supposedly) competent review of your project. It may be a justified necessity if you're doing something really oddball.
8. **Lay your cards on the table** (usually). If an inspector thinks you're not playing straight, you're liable to have everything gone over with a fine-toothed comb.
9. **Get a copy of Edmund Vitale's *Building Regulations*** ($12.95 from Charles Scribner's Sons, 597 Fifth Ave., New York, NY 10017). Many details are out of date, but it is an excellent source of how different codes cover different topics, how to challenge an inspector's decisions, how to read the code (what it really requires, doesn't require, or is really vague on), and lots of other good tips on dealing with inspectors and codes. It's the best detailed source on dealing with codes.
10. **Don't blame codes for a bad design.** Outstanding homes can be built with no code problems. Codes don't cause bad designs. But not dealing with safety, structural, and other valid concerns until too late *can* cause an expensive mess with any design.

Happy building!□□

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