



**REBUILD GREEN EXPO**  
*Build your healthy, low-carbon future*

Friday, February 22, 2019 11-7  
Santa Rosa Veteran's Memorial Building  
FREE to the public

Presented by:  
Rebuild Green Coalition and  
Ecological Building Network

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## **How You Can Save Energy and Money with Efficient Framing**

Many factors go into building a home with an eye towards lowering your energy bill and your impact on the climate, both in the construction and the ongoing operation. One factor that can have a very large impact is how you frame the house. Tradition dictates 16"-on-center stud walls, but it is possible to achieve savings in labor, material and energy costs by moving to 24"-on-center, as long as a few basic rules are followed

Bruce King, director of the Ecological Building Network, is a structural engineer and author specializing in sustainable building practices. We asked him to tell us a bit more about efficient wood framing.

### **Question: What part does framing play in a home's construction and operation?**

In so many ways, if you get the framing right, everything else follows smoothly. That's true in general, and especially true for anyone interested in lowering their energy costs. You can make a badly-framed house energy efficient, but not nearly as easily, effectively, or inexpensively as it would have been if you got it right from the start.

A frame that's efficiently designed and built means that less wood is needed to carry the structural loads. That leaves more room in the walls, roof, and floors for insulation - and it's easier for the construction crew to install that insulation correctly, completely filling all the cavities.

### **Question: 16"-on-center is the way it's always done, according to many contractors. Why consider changing to 24"-on-center?**

Your builder is both right and wrong. Yes, most everyone has been building homes in California that way for a long time, but neither the building code nor engineering require it. The industry is just accustomed to doing certain things in habitual ways. Framing with studs at 24"-on-center, along with single top plates and other little tricks of "advanced framing" can make a

much better-insulated wall – one that doesn't bleed your money out into the sky in the form of wasted heat and air conditioning.

**Question: Does 24"-pn-center framing make a home less safe in an earthquake, with fewer studs in the walls?**

Nope. Any home will have to pass muster with local building officials, who will make sure that the safety requirements are met. You just need to make sure the engineering is done with an eye to efficiency as well as to meeting seismic code.

**Question: Does this approach save money?**

Careful attention to efficiency can mean buying as much as 20 to 30 percent less lumber, with proportionally less labor to frame the house. There are no added hidden costs – except for paying attention and getting the construction team to break old habits.

**Question: How can a builder or homeowner know whether this is something that might work with their building project?**

It's all in the building code – but most engineers and builders don't know that because they're so used to the standard practices they *do* know. But it's there for anyone willing to look it up.

**Question: We've heard that some designers and builders are highly resistant to this idea. Where can we point them for the information they need to try this?**

PG&E has created a free guide that's available on their website, <https://www.pge.com/zne>. Scroll down to the bottom of the right hand corner and click on "Download for the ZNE Resource Guide (PDF 1.7MB)". That guide, in turn, includes references to a host of additional resources for anyone who wants to know more.

Bruce King will be presenting an education session on advanced framing at the upcoming Rebuild Green Expo.

### **About the Rebuild Green Expo**

Come get answers on how to build more sustainably, with an eye towards resilience at the Rebuild Green Expo, February 22, 2019, at the Santa Rosa Veterans Memorial Building. The Expo will be open from 11am to 7pm. See the possibilities, meet the professionals and learn about green made easy. There will be something for everyone, from homeowners seeking clarity about what green building is, to professionals looking to learn about the nuts and bolts.

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