



## Cracking the Code - Homebuilder Recruits Scientists in Seeking the Greenest Crawlspace Design

**Stockton, CA (March 2007)** - Taken from a recent article (March 2, 2007) in the *Vancouver Business Journal*, by Neil Zawicki, VBS Staff Reporter regarding BIRA builder partner, New Tradition Homes.

There's an old expression in the construction trade that is used to counter the tendency toward over complication. It goes like this:

"We ain't building pianos."

To the contrary, at the New Tradition Homes main office Feb. 23, one might think they were planning to build space stations. A panel of experts talked about energy infiltration, temperature variances and stacked energy masses while presenting spreadsheets and charts filled with complex mathematical formulas and data groups.

*The topic: crawlspaces.*

The home builder last year partnered with the Washington State University Building Sciences Department to test four versions of crawlspace design for maximum energy efficiency. For years, New Tradition Homes included design methods and philosophies from Energy Star and Earth Advantage in its homes, but this study marks a foray into a federal Department of Energy-sponsored program called Building America that emphasizes systems engineering in developing energy efficient designs. Company Vice President Kelly Helmes said this approach presented a new challenge for him, so he was happy to get the help from the university for the study.

"They were looking for something to study just as bad as we were looking for someone to help us, so it was really awesome how it worked out," Helmes said.

Helmes said he met WSU Building Science Specialist Michael Lubliner last year at the Energy Efficient Building Association Conference in Colorado Springs, Colo. The study was co-funded by the Northwest Energy Efficiency Alliance and Building America.

*The experiment*

New Tradition Homes built four houses for the study; two of them featured ventilated crawlspaces - the building code-driven norm in Washington - and two featured sealed crawlspaces. In each test group, one home ran heating and air conditioning duct work through the crawlspace and one ran the ducts through the home itself. What researchers were looking for was the arrangement that produced the minimum amount of energy loss. While the experiment will continue for another year, researchers so far understand that a sealed crawlspace does little to increase energy efficiency over a ventilated one, and is entirely dependent on the type of climate in which the home sits. A vented space is valuable for wet climates, while a sealed space is good for a dry place. The problem is that water tends to accumulate in the sealed spaces and creates mold and rotting.





Helmes said this information will help his company determine how to design homes in the future.

"We really do have a passion for learning how to build a better home," he said. "And bringing these experts in really helps."

### *Duct placement is the key*

Beyond the data for how to design a crawlspace, researchers said the real find is in where to locate the ducts. Lubliner said he found that moving the ducts from the crawlspace and into the home with a ventilated crawlspace makes all the difference in energy cost. This is due to the fact that ducts in the crawlspace have energy sapped from the surrounding ground temperature, while ducts in the climate controlled area between the floor and ceiling do much better.

"That is by far the biggest energy saver," he said. "A vented crawlspace with ducts in the house is a lot more energy efficient."

Builders who spend the estimated \$600 to design and run the duct work through the home stand to receive a \$2,000 tax credit, not the mention the energy cost benefit to the consumer.

"The cost to do it is certainly worth it," Lubliner said. "What we're really doing is working with New Tradition to help them show their consumers how much it would cost to build homes with duct work in conditioned spaces, and how much it will save them."

### *Changing the codes*

As the study progresses, it is possible the sealed crawlspace or some version of such a design will become a viable design option. But for that to happen, the state would have to change the building codes. This, says Lubliner, would likely not be too large of a hurdle.

"Our department provides input to the state building code council," he said, "so we would have a hand in changing the building codes to allow new designs."

### **New Tradition Homes wins energy efficiency award**

New Tradition Homes on Feb. 21 received the Energy Star Homes Northwest 2007 award for Large Home Builders in Washington.

The annual award honors one large home builder and one small home builder in the state for their efforts in building homes that incorporate significant energy efficiencies into homes.

The selection committee noted that New Tradition Homes' target of building 100 percent of their homes to ENERGY STAR standards, their commitment to training all of their staff on the benefits of ENERGY STAR, and their production of a televised feature on ENERGY STAR homes at the Clark County Home and Garden Idea Fair made them an outstanding candidate for this award.

