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Building Industry Research Alliance

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.