

Will Building an Energy Efficient House Drain Your Bank Account?

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Far Reach House under construction December 2010

The point of building a house with extreme energy efficiency in mind is to, well ... save money. The thing is that an energy efficient house – like a Passive House® – costs considerably more to build. Or, at least it did.

This year we found a way to build a home to Passive House® standards for the same cost as the custom home I usually build.

Until recently, the way builders achieved the Passive House® standard was to use a specially designed double wall construction. This is a very elaborate, very complicated, and very time consuming wall system to construct. It requires a much more labor and materials compared to conventional stick built procedures. Of course, this also means a lot more time and costs to building the home.

Last winter I had thoughts on how a house could be built to passive standards without all the extra time and materials. What I was lacking was a client who was willing to partner with our innovative process.

In the spring of 2010, Matt and Eileen came to me. They were interested in building a house that could be as efficient as their budget would allow. Matt and Eileen had done their research and wanted to explore building a house that was extremely well-insulated, air-tight and with no central heating system. Ah, the perfect client!

We held charrettes with our designers, suppliers, field managers, and engineers to solve challenges in building something low cost yet approaching the Passive House® standard. We succeeded! It turned out that building a passive heated house with SIPs costs less money than our typical radiant heat custom home.

In building our normal, award winning, super energy efficient and green homes, we use six-inch SIPs (structurally insulated panels) with radiant heat floors. Through creative thinking and our knowledge of building science, we tweaked our building systems to give a house that does not need the expensive \$14,000 radiant heat system.

On paper, our energy rater predicts this house will use about \$67 per year for heating. That's not much now, is it? Especially since the cost of the home has now been reduced.

Now, did the house cost a little more than a tract, stick-built house? Yes, it did. However, the computer models also project that Matt and Eileen will “earn” this money back through energy bill savings within 5 to 7 years (assuming energy costs stay at the current rates).

If you'd like to see Matt and Eileen's house in progress, check out [their frequently added-to album](#) on our Facebook page.