



Zero-Energy Housing: Low-cost measures to achieve 50% energy savings *Questions + Answers from the Webinar*

Q: Why not install under slab insulation in ZNETH 2?

A: It was a cost issue, in attempting to stay within the \$100/sq. ft. we had to make some difficult choices.

Q: Why did you choose blown-in batt for the walls? Is there a concern of settling in the future and having some infiltration?

A: Our analysis showed that this was the best cost/Rvalue of the eight different wall types investigated. We could achieve an R-18 vs. the R-11 of typical batt adding only \$3,000 to the cost of the wall assembly.

Q: For the double wall, did you stagger the studs or were they back-to-back?

A: They were staggered.

Q: Why didn't you use spray foam insulation through-out the project stud-walls and attic?

A: We used spray foam to seal the back-side of the sheathing only, full spray foam was \$5,000 more than the blown-in for our project.

Q: did you use a heat exchanger for fresh air?

A: Not for the ZNETH II project due to costs, the Madison and ZNETH both use an ERV for the fresh air intake.

Q: At what site can the brochure in this presentation be accessed?

http://digitalcommons.unl.edu/arch_facultyschol/23/

Q: Why did the project not foam the stud walls?

A: We used spray foam to seal the back-side of the sheathing only, full spray foam was \$5,000 more than the blown-in for our project.

Q: ERV capped? is furnace FAI capped?

Q: was double exterior framing worth the trouble and expense?

A: In my opinion yes, learning is important and there was really no additional cost (+/- \$1,000) for the framing.

Q: What was the thickness/R-value of exterior foam sheathing insulation used on various homes?

A: Across the projects there was no exterior insulation used, all within the stud cavities, except the ZNETH did have some areas of EIFS with 1.5" of exterior foam.

Q: What is the s.f. of the Madison - including daylight basement?

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Q: Did you model the savings of passive solar for any of the homes? If so, with Energy Plus other method?

Q: Were these all zero energy? did they sell energy back to the grid to bring usage to zero?

A: Only the Madison is currently operating with a net metering set up to accomplish this.

Q: you mentioned a double stud wall to reduce transfer and increase continuous insulation. was single sill and top plate used or was there another system incorporated?

A: No, double stud top plate although we did investigate a single plate where strap anchors could be used to tie together the plate.

Q: Which approaches to energy saving did you find to have the highest ROI?

*A: We did not do an ROI analysis per se, we did a number of costing analysis early on and some Rvalue simulations of various assemblies to optimize the project. Look for our LCA analysis, **Life Cycle Energy Analysis of Production Scale Residential Energy Efficient Features** in the spring 2014 of the AIC Journal, The Professional Constructor.*

Q: How does what you described differ from the current Energy Star requirements for thermal performance?

A: In the ZNETH II it doesn't vary much from the key items outlined in the Energy Star program. For many of the projects reviewed it was a matter of technology and construction techniques to achieve HERS ratings of 50 or lower. Energy start only required a HERS of 85 to quality.

Q: What are the take-aways from your research for a typical practitioner?

Refer to http://digitalcommons.unl.edu/arch_facultyschol/23/

Q: Double Wall versus the use of 2 by 6 studs; is one more efficient than the other?

A: We found that the double wall had the best net present value of the eight walls we investigated. In other words, for the Rvalue it was the best cost. Keep in mind that this was for our market, may not directly translate to other cities.