



NEWS YOU CAN USE

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So What Exactly is Green Remodeling?

“Green remodeling” seems to be an unstoppable trend, but the dirty little secret of the movement is that nobody really can say what “green” means. LEED ratings could be a start, but the LEED program (LEED stands for “Leadership in Energy and Environmental Design”) does not currently have an established rating system for residential renovations. Trade organization such as the National Association of the Remodeling Industry are putting together “green” training and certification programs, but at first glance they seem to be pretty feeble—not all that demanding, and at times based on dubious building science.

At a recent planning retreat the Byggmeister crew reached quick consensus that despite (or because of) the superficial and unreliable pace of the industry in general, as a company we need to accelerate our own efforts to develop a quantifiable, verifiable approach to “green,” and that the focus of that effort needs to be on performance—minimizing the energy your house requires for heating, cooling, lighting, and maintenance over time.



Photovoltaic roof shingle installation

The first challenge we face—one I’ve been working on for some time, in fact—is how best to measure the impact of our “green” efforts—in other words, how can we develop a reliable way to keep score? Any effective metric needs to be able to answer these questions:

- 1) How does your house currently rate in terms of energy-efficiency?
- 2) What are the best, highest-leverage opportunities for energy improvement that we can identify in the course of designing your project?
- 3) In the course of construction, are we actually meeting those goals that we set during the design phase?
- 4) What’s the difference between how your house rated pre-project and how it rates post-project? How big an impact were we able to make?
- 5) Is that difference theoretical—based only on computer modeling—or is it borne out by actual energy usage data?

These questions may seem really obvious and basic, but the alarming fact is that pretty much *nobody* in the remodeling industry is even attempting (let alone able) to quantify their impact in this way—not general contractors, not insulation contractors, not building officials, not even the utilities who are mandated by law to spend a certain amount each year to subsidize and facilitate weatherization work for their ratepayers.

So even as we’re riding this wave of growing interest in green remodeling, inspired by a deepening concern about the carbon footprint of our economy, the whole residential remodeling industry is flying blind with regard to whether we’re making any progress.

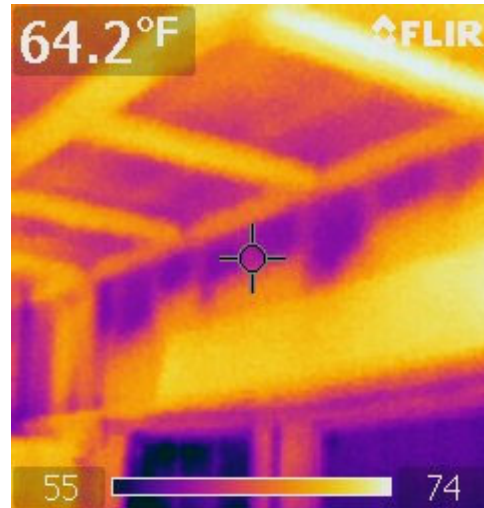
The Tools We Use...

Byggmeister is starting to use the following tools to try to answer the critical questions posed and begin to actually put a number to the impact of our “green” efforts.

- 1) HERS ratings. “HERS” stands for “Home Energy Rating System.” Using a modeling software (REMRate), we enter a range of information about your house to generate a number. A score of 100 means the house meets the 2004 international energy code. A score of 85 means the house is 15% better than code (the Energy Star Home standard). A score of 0 means the house has achieved zero net energy status. Most older homes in the neighborhoods where we work score well over 100—meaning there’s lots of room for improvement. One of the most useful aspects of this software is its capacity to help us do “what-if” scenarios during the design phase so that we can target a certain result.
- 2) BTU/square foot/year calculations. We’re able to take your past energy consumption (oil, gas, electricity, fire-wood), and the size of your house, and turn that data into a number we can compare with various benchmarks and with other similar houses. If you e-mail me at paul@byggmeister.com I can send you a simple spreadsheet that will tell you roughly how your house ranks. Unlike HERS ratings, which is a computer model that tries to predict energy consumption, the BTU/sf/yr number is based on actual usage. The two approaches used in tandem provide a more complete picture than either used alone.
- 3) Blower door and infrared camera test results. It is practically impossible to achieve high levels of energy efficiency without testing a project with a blower door and infrared camera at various phases during the process. The blower door tests for air-leaks; the infrared camera checks for insulation voids. Used together they give a very reliable picture of where the biggest thermal weaknesses of a house are. Our current policy is to test every project before we start, just prior to applying drywall—which is the best time to fix any problems in the air or thermal boundary of the house, and then again at the end of the project as a means of both quality control and of keeping score. We recently acquired a theatrical fog machine which when used in tandem with the blower door allows us to check for and fix large-scale air leaks.



Blower Door Set-Up



Infrared Camera Image

We realize these new techniques and tools are extremely useful for helping current clients reduce their carbon footprint dramatically over the course of a remodeling project. To help past clients whose major renovations may already be completed identify next opportunities for energy savings, we’re offering energy audits that include a blower door test, infrared scan, and BTU/sf/yr benchmarking. We do not charge for these audits for past clients, but we do request that you make a free-will donation to the Natural Resources Defense Council—my college roommate is the executive director as of last year, and so I know first-hand that the NRDC is doing great work on behalf of the environment.

—Paul Eldrenkamp

In an effort to further enable Byggmeister to accurately assess energy efficiencies and measure our green impact efforts, we welcome the newest member of our consulting team, Mike Duclos. Mike’s background is in designing integrated circuits for data and telecommunications industries. Influenced by both the Peak Oil and Greenhouse Gas issues, Mike made a career change to the area of residential energy efficiency when he founded Energy Efficiency Associates. He is now focused on improving energy efficiency of new and existing buildings by the application of building science principles and the use of computer modeling techniques. For more information about our team, please visit us at www.byggmeister.com.