

NEWS YOU CAN USE



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- Energy Performance
- Design & Planning
- Additions
- Kitchens
- Bathrooms
- Landscape
- Masonry
- Decks

(we also offer philosophy & psychology upon request)

Where do you stand?

Written by Lori Segall, Byggmeister Energy Auditor

Have you ever wondered how energy efficient your home is compared to other homes of in the Boston area? You can easily calculate your home's energy intensity and compare it to the ranges below. All you need is a year's worth of heating bills that include the fuel usage, your electric bills and the square footage of the heated living space of your house.

If you heat with gas, your fuel usage will be measured in 'therms.' Total the therms used for 12 months, ideally in a calendar year. Your gas bill will

have your usage history. Multiply by 100,000 to convert to BTU.

If you heat with oil, add up the number of gallons used in a year (you might want to use the average of gallons used in 2 years to reduce possible errors with fuel already in the tank). Multiply by 13900 to convert to BTU.

Then add your electric usage, as it adds to the heat load. Total your kwh for the same 12 months and multiply by 3413 to convert to BTU. Then add this figure to your heating BTU total.

Month	Therms/gas	kWh/electricity	Gals./fuel oil
January		425	145
February		250	209
March		269	121
April		201	111
May		212	0
June		273	0
July		471	9
August		403	163
September		233	0
October		199	127
November		235	136
December		256	231
TOTALS		3427	1252

Total BTU = [(3427 x 3413) + (1252 x 139000)]/2850 = 65,166 BTU/sq. ft./year

- Under 25,000 BTU/sq.ft./year Very good!
- Between 25,000 – 50,000 BTU/sq.ft./year Below average energy use - probably some air leakage
- Between 50,000 – 75,000 BTU/sq.ft./year Average range – probably could improve substantially
- Over 75,000 BTU/sq.ft./year Very inefficient house

Energy Efficiency with a side of Vegetables

Q&A With Byggmeister Energy Specialist Kerry Koskinen

Want to reduce your home's energy usage by as much as 50%? According to Byggmeister Energy Specialist Kerry Koskinen, the first thing you have to do is eat your brussel sprouts.

Q. So, what exactly is an “energy specialist?”

K.K. What I do as an energy specialist is analyze a home's energy usage and then develop plans for reducing energy losses and consumption.

Q. Why does Byggmeister have an energy specialist on staff?

K.K. Evaluating energy efficiency has been an element of our building and remodeling process the nine years I've been with the firm. Whenever we do any kind of project, even a kitchen or a bath remodel, we evaluate what state the house is in now, how much energy it uses, and what we can do to improve it during our stay in your home.

Q. Can you really reduce a home's energy usage by 50%? That's a high number.

K.K. We can, and we actually sometimes aim for even 80%.



Use of spray foam insulation provided a tightly insulated attic

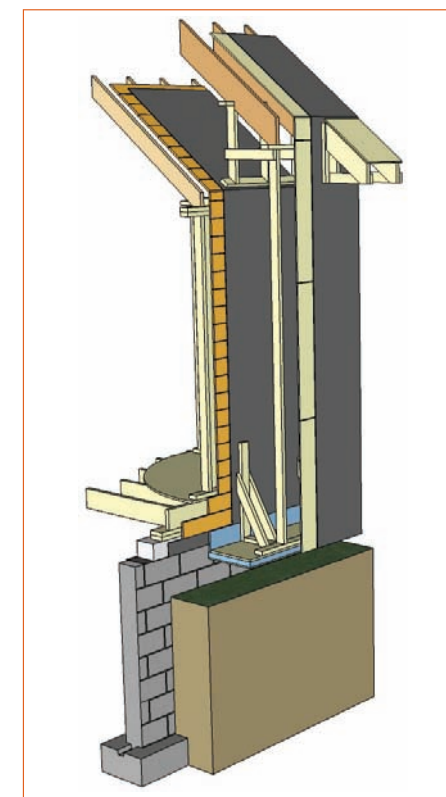
There are a lot of popular approaches to reducing energy consumption that every magazine or website recommends – things like vacuuming your fridge coils and putting insulation blankets around the hot water heater. Those little measures may save 5%, which certainly helps, but we think bigger. The biggest part of home energy consumption here in New England is heating, so this is where we can make the most significant impact and reduce consumption by 50% or more. A lot of it is about dealing with the ‘stack effect.’

Q. What is stack effect?

K.K. Stack effect is the outside air flowing into the house, being heated, then flowing out. Hot air rises, so if there are holes or a lack of insulation in your attic (and there always are), heat goes right out. But, what most people don't realize is that the air volume is going to equalize, so once that air goes out, new air is being sucked in to replace it, usually from the basement. In winter, let's say it's 32 degrees outside and your home is trying to maintain 68 degrees, it is heating that 32-degree air continuously as it flows in. If the walls aren't properly insulated, the heat is going to be seeping out that way too. You want an airtight house with good mechanical ventilation.

Q. What are the most effective measures Byggmeister takes to address heat consumption?

K.K. We can reduce heating energy consumption by 20 to 30% just by doing the attic, sealing holes and insulating properly. Blowing cellulous insulation into the walls is fairly inexpensive and can save another 20%. It is easy, non-invasive, and much of it can be paid for with energy company rebates. Then, we would want to air-seal the basement. The leakiest



A Drawing of a Super Insulated Retrofit Building

area is often the sill, where the floor meets the foundation, so we would expose that area and spray foam insulation to seal it. But, before you do insulation work, we want to deal with any moisture issues. You absolutely don't want to be trapping moisture in. That might cause mold and air quality problems. Ten percent of the homes I look at need moisture mitigation work first. It is the first incremental step – like eating your brussel sprouts before you get your dessert.

Q. You haven't mentioned window replacements. Why not?

K.K. Windows are the weak link in energy efficiency. They are usually 15% of the wall area, and they contribute a lot to heat loss. But, it is a common misconception that replacement windows are much more energy efficient. Windows should be replaced if they are rotten. The old windows versus the new windows, even the double paned, are just not that much more efficient. Triple-paned are better, but you are paying a price premium for those, at least until greater demand brings costs down.

Q. So, what kind of ROI can homeowners expect from Byggmeister's energy efficiency measures?

K.K. Bringing a remodeling project or new construction well beyond



A Blower Door Diagnostic Test

current building code levels in terms of insulation and air sealing may add about 10% to the cost. Even building a net-zero energy new home may add 15% to the costs, but you would get that back in energy consumption savings within a decade or so, depending on the rate of energy inflation. When we approach an old home, we do the energy audit and then create a master plan with incremental steps, so the homeowner can do everything at once, or phase it in over time. If you have a large home, spending between \$4,000 and \$10,000 a year on heating, we can often cut that by a quarter with just the first few steps. Ironically, at current relatively low energy costs, the more you do the less return you get. Maybe I shouldn't say that, but it's true.

Q. That kind of honesty might make you unpopular around the office, right?

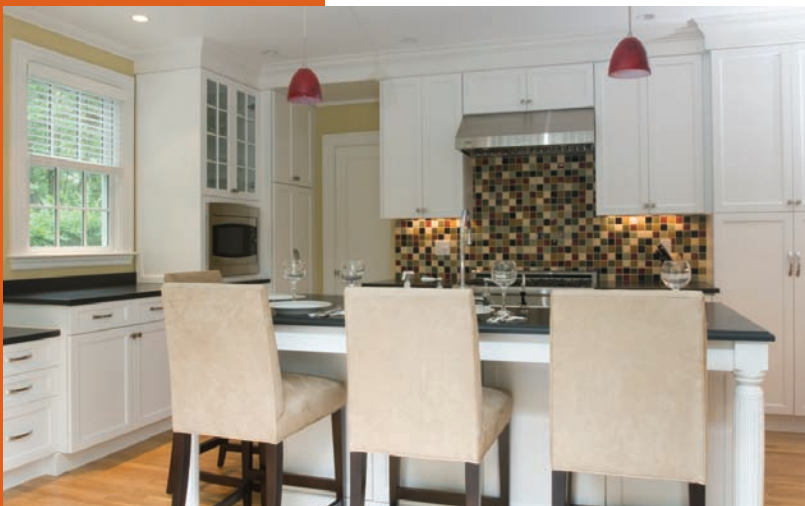
K.K. (Laughs) Nah, we're a pretty honest group.



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A sincere thank you to all our repeat clients.

Written By Paul Eldrenkamp



A favorite client in Brookline recently celebrated his tenth anniversary as a Byggmeister customer by letting us do a glorious kitchen and master suite. We have a surprisingly loyal group of clients—there are some who have stuck with us for over 20 years now. Either we’re doing something right, or they’ve just taken pity on me.

In any event, I want to acknowledge that we particularly appreciate those



who have asked us to do second, or third, or fourth, or even tenth or eleventh projects for you. It’s nice to go back to your houses and see how your kids have grown, or meet the new dog, or see how you’ve rearranged the furniture, or note all the ways in which you haven’t changed a bit.

We are grateful for your loyalty, and you keep it fun for us to go to work in the morning – and that is no small thing these days.

