

Finding the MPG of our Homes

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With spring weather here and home projects taking center stage, folks are leafing through info from events like last weekend's successful Green Home Fair at Cunningham Hall organized by Sustainable Milton. A good place to start in greening your home is figuring out what you are using in energy per year, or setting your homes's MPG (miles per gallon) for your home, except that the measuring stick is called BTU/SF (British Thermal Unit per square foot). One BTU equals the heat of a kitchen match. As with cars and your MPG, the less energy you use in a home, the further your money goes as energy costs rise. While lower energy use in cars increases our MPG number (i.e., 40 mpg is better than 30), lowering our energy use in our homes results in a lower BTU/SF number while also providing a more comfortable home, both in the heating and cooling seasons.

All forms of energy like therms of heat, kilowatts of electricity, or cords of wood that provide energy to your home can be converted quite readily to BTU's (conversion charts available online). That BTU number is then divided by 1000 to get K/BTU, and then divided once more by the square feet of living space in your home to get the K/BTU/SF. This number includes fuel usage for cooking, bathing, and all electrical devices as they may vary. Through a number of studies in the Boston area, the energy use in an average existing home of 2,500 SF per year, has been determined to be about 70 K/BTU/SF/YR.

The official way to measure energy use is to enroll the services of a HERS Rater (Home Energy Rating System). Developed by the Residential Energy Services Network, this rating provides a comprehensive comparison of energy efficiency. A standard newly constructed home built to code gets a HERS reference score of 100 and a house that scores zero (0), produces as much energy as it uses, called a Zero Net Energy Home. The home with a score of 100, if operated with typical behaviors will use about 55 K/BTU of energy per year in Boston. This is a pretty good score and a good point of comparison as a lot of older un-insulated drafty homes can be as high as 130 K/BTU per year.

Deep energy retrofits on the other hand are new demonstration homes that show how we can reuse our existing homes and get as low as the mid 20s for a HERS score, and down to an energy use of 14 K/BTU/ SF/YR. One of which was recently completed in Milton and another in Quincy, being sponsored by the utility companies like NSTAR as pilot projects. Meanwhile the city of Boston just announced another pilot program to construct new Energy Positive homes (or E+ Homes) that actually export more energy than they consume!

The targets for the near future have been set by the climate scientists and are now embraced by State and Federal officials; 80% carbon reductions across the board by 2050. Homeowners here in Milton, like millions more across the country who collectively consume close to 25% of our energy nationally, are starting to see the value of knowing how efficient their homes are. With this 1st step taken and your home's MPG (BTU/SF) in hand, you can go on to employ all the greening techniques out there, from insulating, air sealing, mechanical efficiency to solar, and watch how that number fall along with your bills, while the comfort of your home continues to rise.