



Consumption Data Analysis

Determine number of local historic winter Heating Degree Days (HDD)

NEAT/MHEA Weather File	Average Annual HDD
Detroit	5898
Flint	7005
Grand Rapids	6896
Alpena	8274
Traverse City	7550
Sault Ste Marie	9224
Duluth, MN	9724
South Bend, IN	6205
Fort Wayne, IN	6294

Energy Intensity (HHI - Home Heating Index) - Slash and Burn Technique

- Determine Heating Consumption (Winter consumption minus base-load consumption)
- Convert consumption to Btu's (consumption x conversion factor)
- Calculate Btu's per Heating Degree Day (Btu's divided by HDD)
- Calculate Energy Intensity (Btu's/HDD divided by square footage)

Energy Intensity = Btu/HDD/Sq.Ft

Example for natural gas: EI = therms x 100,000/(HDD x sq.ft)

Conversion Factors

<u>Natural Gas (Therms)</u>	<u>LP Gas (gallons)</u>	<u>Electric (watts)</u>	<u>Oil (gallons)</u>
100,000 Btu/therm	96,000/gallon	3.41 Btu/watt	140,000 Btu/gallon

Energy Intensity (Btu/HDD/Sq.Ft)	House Condition
19-22+	Older home with poor insulation, abundant air leakage, and very inefficient heating.
14-18	Worse than average homes with little insulation, high air leakage, and worse than average heating efficiency.
9-13	Average homes with average insulation, average air leakage, and average heating efficiency.
5-8	Better than average homes with good insulation, relatively low air leakage, and better than average heating efficiency.
0-4	Well insulated, low air leakage, efficient heating systems.

Source: J Krigger and C Dorsi, Residential Energy Auditing, Saturn Resource Mgmt, 2004