

## Energy Model Specifications

Wall Construction & Insulation	Baseline	Improved	Optimized
2x6 Wall with 5.5" Fiberglass Batt (R-19)	X		
2x6 Wall with 7" Hempcrete + MgO (R-20)		X	
2x4 Wall with 12" Hempcrete (R-30)			X
Roof Construction and Insulation			
2x12 Roof w/11.25" Fiberglass Batt (R-38)	X		
2x12 Roof w/11.25" Icynene (R-38)		X	X
Windows			
U-Value	0.5	0.35	0.19
Solar Heat Gain Coefficient	0.35	0.26	0.25
Infiltration			
0.45 Air changes per hour	X		
0.25 Air changes per hour		X	X
Thermostat			
Non-Programmable	X		
Programmable		X	X
Heating			
AFUE 78 Gas Furnace	X		
AFUE 90 Gas Furnace		X	
AFUE 95 Gas Furnace			X
Cooling			
SEER 13 Air Conditioner	X	X	
SEER 19 Air Conditioner			X
Ventilation			
System without Energy Recovery	X		
Heat Recovery Ventilator		X	
Energy Recovery Ventilator			X
Water Heating			
0.54 EF 50 Gallons	X		
0.85 EF Tankless		X	X
Lighting			
All Incandescent Bulbs	X		
1/3 Incandescent, 2/3 Compact Fluorescent		X	X
Appliances			
Conventional	X		
Energy Star		X	X
Solar Array			
2.4kW PV array (200 sq.ft.)			X

### Assumptions:

1. Set point for non-programmable thermostat: 70° F heating, 75° F cooling
2. Set points for programmable thermostats: heating: 70° F occupied, 62° F unoccupied  
– cooling: 75° F occupied, 83° F unoccupied (14 hours per day occupied)
3. Ventilation: 75 cubic feet per minute, 16 hours per day
4. Hot Water Use: 100 gallons per day
5. Baseline defined as 2006 International Energy Conservation Code
6. Fuel Cost: Natural Gas: \$1.439/therm, Electricity: \$0.106/kWh