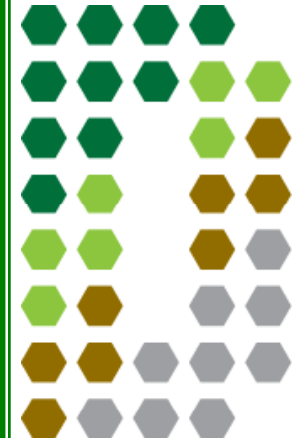
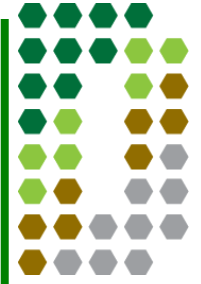




Project Profile

Side by side comparison of two identical floor plans, one insulated with foam and one with fiberglass and solar board

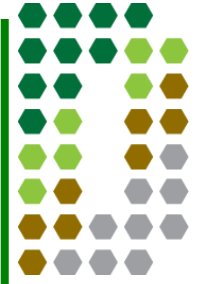




Project Specifics *(identical for each home)*

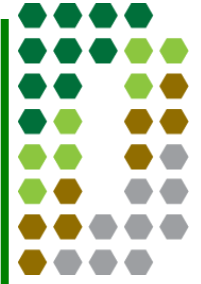
- Year Built: 2007
- Foundation: Slab on grade
- Floor Plan: Identical but reversed
- Square footage: 1,288, 4 Bedrooms
- Orientation: Northwest *(both homes)*





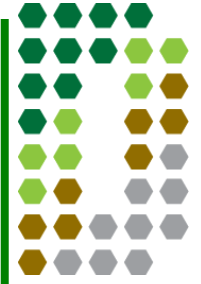
Monitoring Equipment *(identical for each home)*

- Hobo Micro Station Data Logger
- Hobo Temp/RH Sensor
- SolarStream Xceiver
- Website Access for Data;
 - Foam Insulated Home
 - <https://datagarrison.com/users/5083010645/5083010640/plots.php>
 - Fiberglass Insulated Home with Solar Board
 - <https://datagarrison.com/users/5083010645/5083010645/plots.php?plot=2>



Installation of Monitoring Equipment

- **Foam Insulated Home**
 - Hobo Data Logger – In attic near the access hatch
 - Sensor #1 – In hallway near door bell unit
 - Sensor #2 – Suspended approximately 12” from apex of roof deck
 - Sensor #3 – Installed between roof deck and foam
- **Fiberglass Insulated Home with Solar Board**
 - Hobo Data Logger – In attic near the access hatch
 - Sensor #1 – In hallway near door bell unit
 - Sensor #2 – Suspended approximately 12” from apex of roof deck
 - Sensor #3 – Installed under front porch (measures outside temperature)



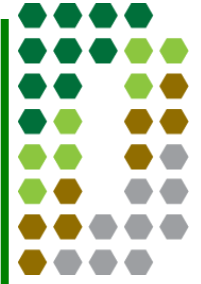
Insulation

- **Foam Insulated Home**
 - Exterior Wall: 3.5 Inches of Sealection 500, open cell foam for an R-Value of 13
 - Roof Deck: 5.5 Inches of Sealection 500, foam for an R-Value of 21
 - Insulating the attic's roof deck created a closed attic assembly placing the air handler and ductwork within the thermal envelope.



The Closed Attic system does not allow conditioned air to leak outside of the thermal envelope:

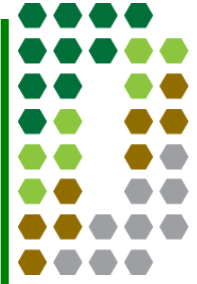
- Significantly reduces the thermal load on the HVAC system
- Allows the use of a smaller HVAC unit



Insulation

- **Fiberglass Insulated**
 - Exterior Wall: Fiberglass with an R-Value of 13
 - Attic Floor: Fiberglass with an R-Value of 38
 - Roof Deck: Solar Board





Blower Door Results



Fiberglass / Solar Board

Pascal's: -49.9

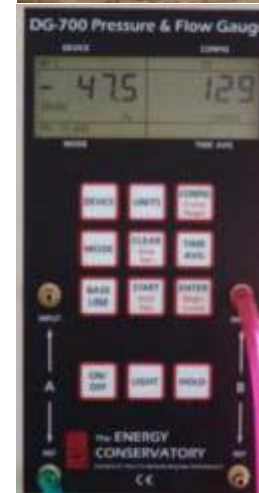
Home Leakage: 1,884 CFM



Foam

Pascal's: -47.5

Home Leakage: 129 CFM

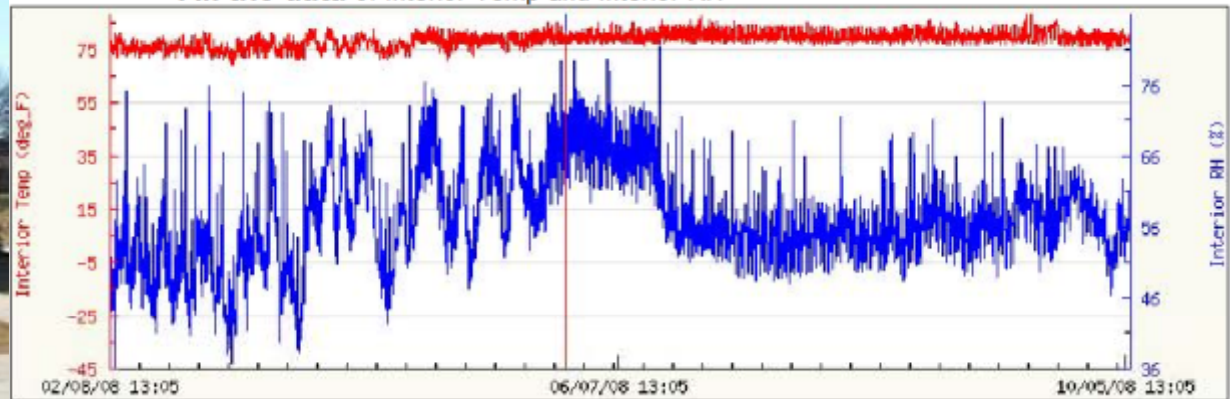


Foam



Interior

All the data of Interior Temp and Interior RH

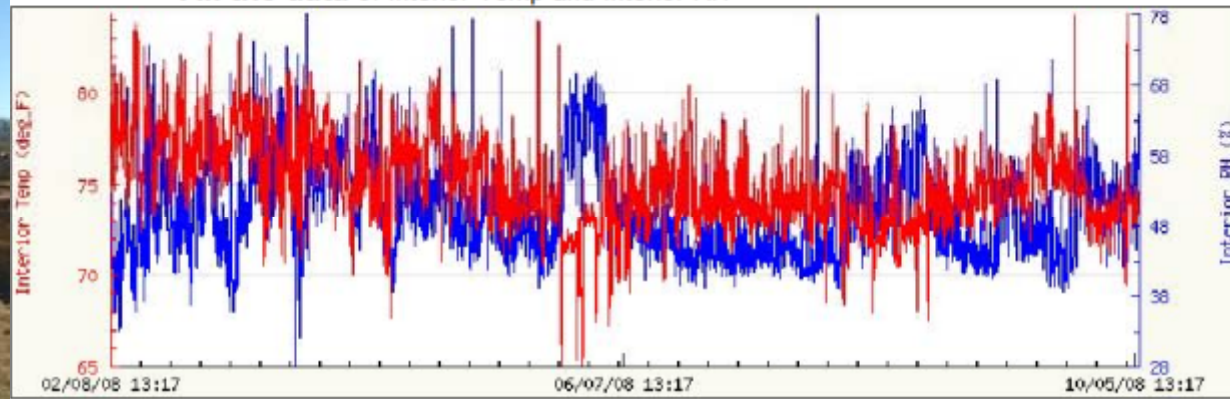


Fiberglass & Radiant Barrier



Interior

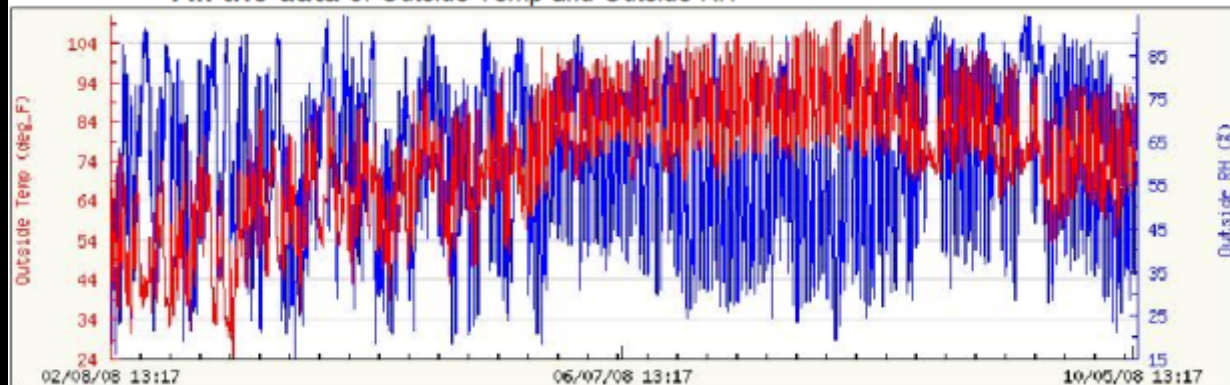
All the data of Interior Temp and Interior RH



Ambient Conditions

— Temperature
— Humidity

All the data of Outside Temp and Outside RH

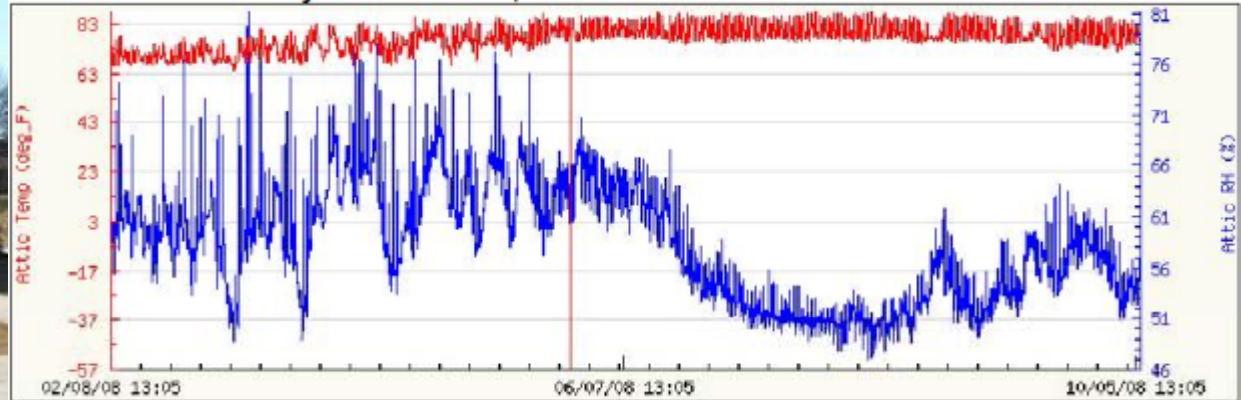


Foam



Attic

Last year of Attic Temp and Attic RH

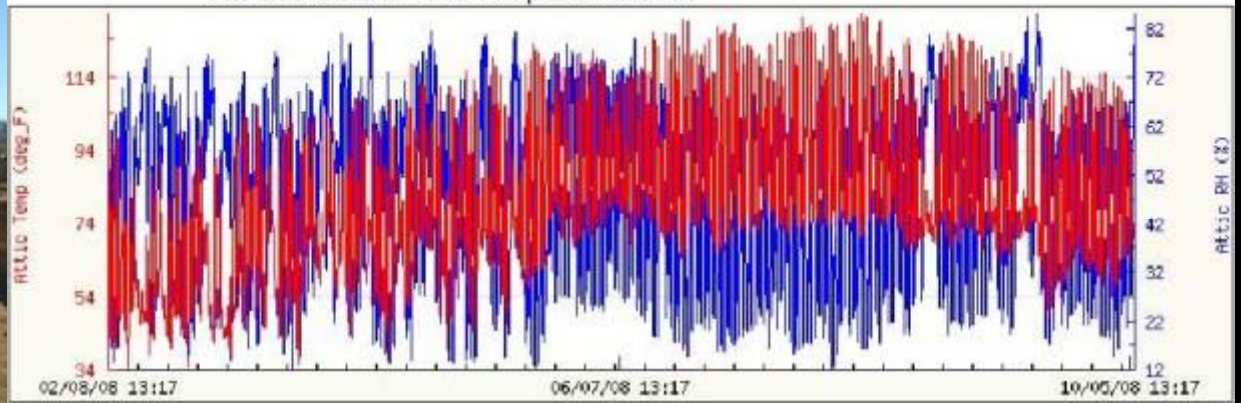


Fiberglass & Radiant Barrier



Attic

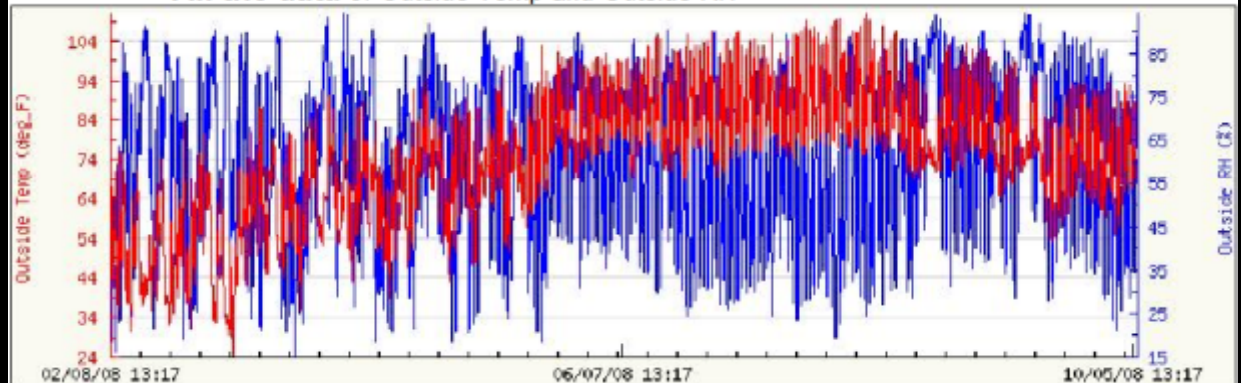
All the data of Attic Temp and Attic RH



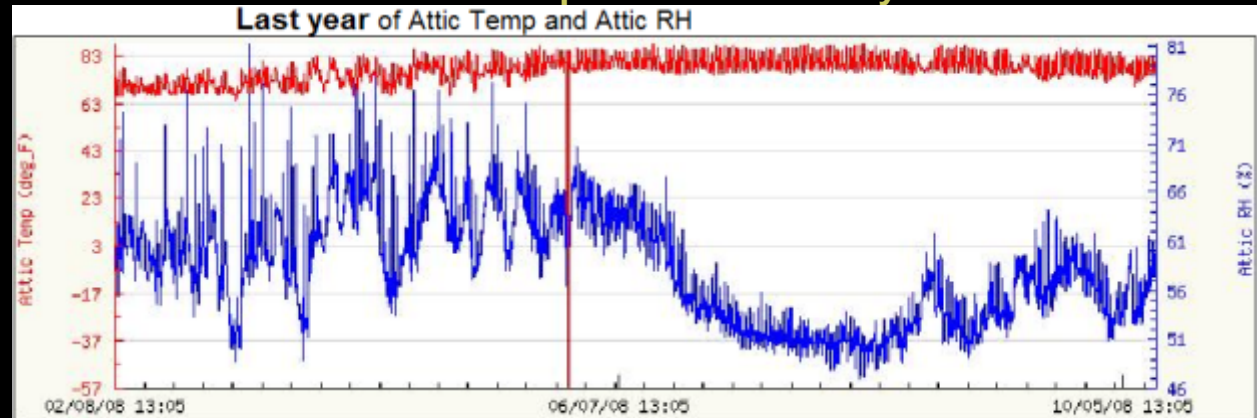
Ambient Conditions

— Temperature
— Humidity

All the data of Outside Temp and Outside RH



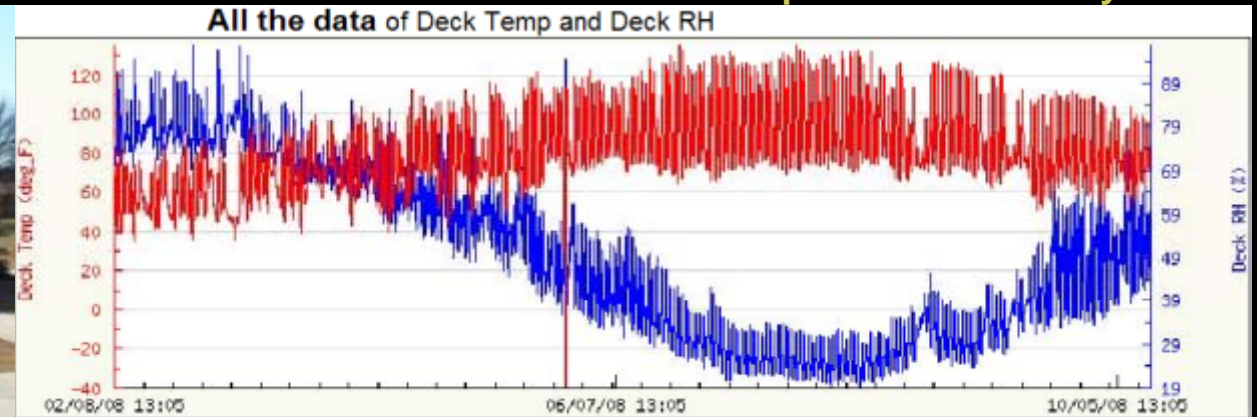
Attic - Temperature / Humidity



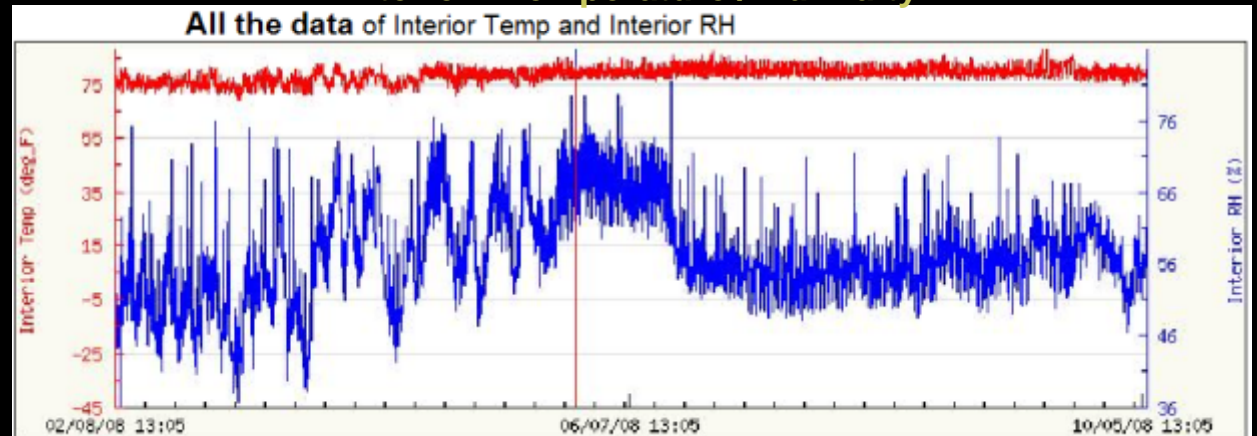
Foam Home



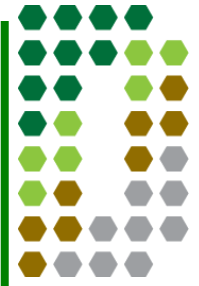
Between Roof Deck and Foam - Temperature / Humidity

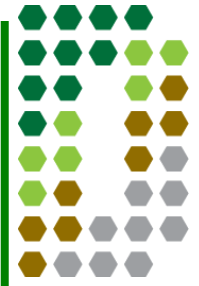


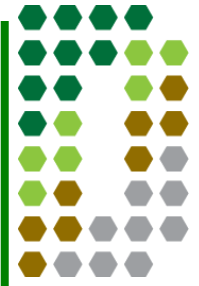
Interior - Temperature / Humidity

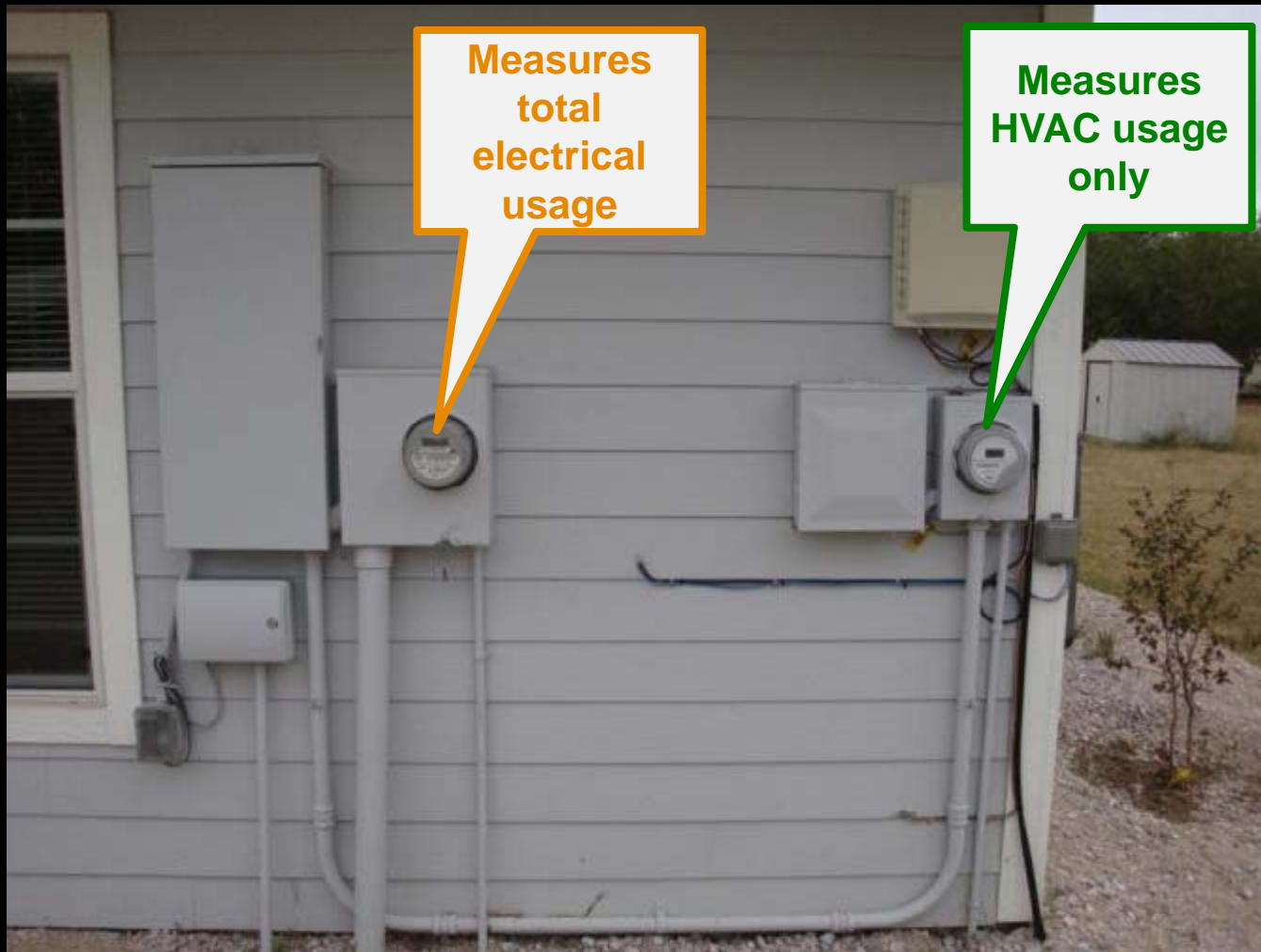
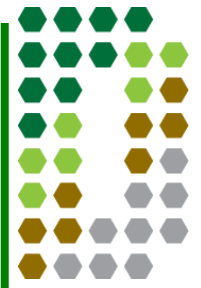


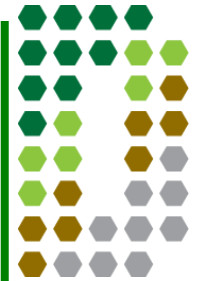
— Temperature
— Humidity











Standard HFH Energy Star Construction

Fiberglass Insulation

14 SEER A/C, Standard Lighting



HFH Energy Star Construction

Sealection 500 Foam Insulation

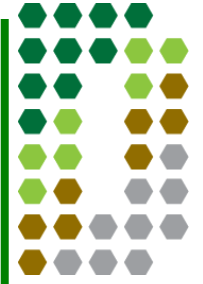
19 SEER A/C, 60% Fluorescent Lighting

Period	Total Kwh	Total Cost	A/C Kwh	A/C Cost	Total Kwh	Total Cost	A/C Kwh	A/C Cost	Difference Total Elect	Difference Heat, A/C
2/15 - 3/17	2433	189.78	356	27.77	1204	103.87	328	28.3	85.91	-0.53
3/17 - 4/16	1964	162.89	262	21.78	849	81.6	205	19.7	81.29	2.03
4/16 - 5/15	1703	159.5	314	29.41	824	84.39	211	21.61	75.11	7.8
5/15 - 6/16	2123	230.17	987	107.01	988	111.53	420	27.41	118.64	59.6
6/16 - 7/16	2373	285.89	1050	126.5	778	99.28	363	46.32	186.61	80.18

547.56 149.08

Habitat for Humanity

Denton, Texas



QUESTIONS

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