

# Energy Star Homes Evaluation

**Location:** Houston, TX

**Energy Star Rating:** 85.9



## Energy Related Characteristics For Hot Climates Typical 3 Bedroom Frame House

**Heating System**  
Gas Furnace, 80 AFUE

**Cooling System**  
A/C, 10 SEER

**Water Heating System**  
Gas Water Heater, 0.56 EF

**Duct Leakage**  
10% (CFM25<sub>Total</sub>=105)

**Estimated Infiltration**  
7.0 ACH @ 50 pascal's

**Areas (sq.ft.)**  
Condition floor - 1050  
Windows - 126  
Ceiling Area - 1050  
Insulated Ex. Wall - 1010 (net)

**Insulation**  
Ceiling: R-30  
Walls: R-13+1" Rigid  
Floor: Slab, Un-insulated  
Ducts: R-6

**Windows**  
Double Clear-Vinyl Frame  
U-Value=0.49  
SHGC=0.56

## **Energy Evaluation Results**

Estimated Annual Energy Use: 50.7 MBtu  
Estimated Annual Energy Cost: \$775

The Energy Star program awards the "Energy Star Home" designation to homes scoring 86 points or more on the Home Energy Rating Scale (HERS). A score of 86 indicates that a home is 30% more efficient than a standard reference home which scores an 80. Implementing one of the Energy Star packages below would bring this home's score up above 86. You may also request evaluation of other improvements or packages of improvements. Annual energy costs are calculated using an electric rate of \$0.08/kWh and a gas rate of \$0.50/Therm.

## **Energy Star Single Proposed Changes**

1. Wall: R-13+2" Rigid Insulation
2. Windows: Double Pane/LowE/Argon Fill/Vinyl Frame#2,  
U=0.32 SHGC=0.3
3. Heating Equipment: Gas Furnace, 95AFUE
4. Cooling Equipment: Increase to 12 SEER

## **HERS Score**

1. 86.2
2. 86.9
3. 86.2
4. 87.3

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# General Guidance for ENERGY STAR Homes for Habitat for Humanity

Location: Houston, TX (Hot)

HDD = 1,548; CDH = 30,474

Building Component	Base Case House <sup>1</sup> HERS Rating = 85.9	Proposed Changes	Potential Point Value <sup>2,3</sup> of proposed Change	Cost
Wall Insulation	R-13+1" Rigid Insulation	R-11 No Rigid Insulation	-0.4	
		R-11+1/2" Rigid Insulation	-0.2	
		R-13 No Rigid Insulation	-0.3	
		R-13+1/2" Rigid Insulation	-0.2	
		R-13+2" Rigid Insulation	0.3	
		R-15 No Rigid Insulation	-0.2	
		R-19 No Rigid Insulation	0	
Windows	Double Pane Clear-Vinyl Frame	Single Pane Clear-Vinyl Frame, U=0.9 SHGC=0.63	-0.9	
		Single Pane High Performance, U=0.9 SHGC=0.54	-0.6	
		Double Pane/LowE/Argon Fill/Vinyl Frame#2, U=0.32 SHGC=0.3	1	
Attic Insulation	R-30	Increase to R-38	0.1	
		Increase to R-50	0.2	
		R-30 + Radiant Barrier	0.2	
Heating Equipment	Gas Furnace, 80AFUE	Furnace, 95AFUE	0.3	
Cooling Equipment	A/C, 10 SEER	Increase to 12 SEER	1.4	
Water Heating Equipment	Gas Water Heater, 0.56EF	Gas Instantaneous, 0.65EF	1.6	
		Gas Tank, 0.56EF, R-5	0.4	
		Elec Tank, 0.9EF	0	
Duct Leakage	10% (CFM25 <sub>Total</sub> = 105) <sup>(4)</sup>	3% (CFM25 <sub>Total</sub> = 31.5) <sup>(4)</sup>	0.5	

<sup>1</sup> Typical 3 bedroom home described on the "Energy Star Homes Evaluation" for this location.

<sup>2</sup> Indicates change in HERS ENERGY STAR rating with each enhancement incorporated individually into the Habitat Home. A score of 86 qualifies a home for ENERGY STAR status and indicates 30% saving in combined heating, cooling, and water heating energy use compared to a standard Reference Home.

<sup>3</sup> **IMPORTANT: Potential Point Values are not additive. Combinations must be evaluated by a Certified Rater to verify effective score.**

<sup>4</sup> Duct leakage is shown as a % of conditioned floor area. For example, if CFM25=65, then leakage = 65/1050 = 6.2%.

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