Bob Ward Companies

- Energy Star Builder since 1997
- 2249 homes certified as Energy Star
- Numerous awards of Excellence
- 2007 Builder Partner of the year
Why Energy Star

Set ourselves apart from the competition
Brand recognition
Marketing
  
  this year 15 visitors to our web site from Energy Star

Affordable housing is being regulated out of existence – we try to provide affordable living.

Third Party verification
Bob Ward Companies
Transition to Energy Star V3

- Cost will be dependent on the starting point
- Training is key
  - Supervisors
  - Sub Contractors
  - Sales team
Where did we start from??????

- Standard construction details
Standard framing

- SIS + Sheathing
  - Provides continuous R-3 insulation on the outside of the wall
  - Meets structural requirements
  - Meets WRB requirements
  - Properly flashed windows and doors
Not a Standard Detail

- House wrap or not
Standard framing

- Insulated Corners
- Ladder backers at intersecting walls
Standard Framing

- Insulated Headers
Standard Framing

- Raised heel roof trusses
- R-38 attic insulation
Standard Details

- Air Barriers
- Air sealing
Right sized HVAC equipment

(We hoped)
Standard Details

- Sealed Ductwork
  - Joints taped
- Low E windows
V 3 Additional

- Transfer Grilles above bedroom doors for more balanced air flow and reduced streaks in carpeting under the doors
V3 Additional

- Broan Smart Sense bath fans for ventilation

- Fresh air intake with Cape Damper
V3 Additional

- Programmable Thermostat
- Energy Star light fixtures or CFL bulbs
- Recessed lights in the second floor ceiling are minimized.
V3 Additional

- Gas filled Low E windows
- We went from a U value of .34 to .30
- More in keeping with an Energy Star rated window
Checklists insure performance and quality of construction

Moisture management and indoor air quality added
Training is Key

- Field supervisors
- Sub Contractors
- Sales Team
HVAC Contractors

- Have the toughest adjustment
- Checklists required should have been filled out previously but were not
- Performance of the system is now verified and tested
- Training is needed

---

<table>
<thead>
<tr>
<th>Energy Star Qualified Homes HVAC System Quality Installation Contractor Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HVAC System Quality Installation Contractor Checklist</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Contractor Approved</th>
<th>Contractor Approved</th>
<th>Contractor Approved</th>
<th>Contractor Approved</th>
<th>Contractor Approved</th>
<th>Contractor Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Heat Loss / Gain Method</td>
<td>Other</td>
<td>Other</td>
<td>Other</td>
<td>Other</td>
<td>Other</td>
<td>Other</td>
</tr>
</tbody>
</table>

---

**Notes:**
- All calculations must be supported by appropriate documentation.
- All calculations must be supported by appropriate documentation.
- All calculations must be supported by appropriate documentation.
- All calculations must be supported by appropriate documentation.
- All calculations must be supported by appropriate documentation.
- All calculations must be supported by appropriate documentation.
Duct Design

- Now has to be done up front
- No longer using panned framing spaces as ducts
- More mastic used and less tape
- Duct runs are not as leaky
- Air gets to where it was designed to go
Problems with Implementation

- **Cost vs. ROI**
  - No value given for energy efficiency by banks appraisers or the real estate community
  - Code changes are driving up the price to remain Energy Star
Another Problem

- Buyers don’t realize the benefits of energy efficiency until it is too late.
- Buying based on the base price not the cost to live.
- We need to be able to explain not only PITI but PITI +Utilities.
Even when given the figures, buyers still doubt the savings.
Going Forward

- Lobby for a standardized energy rating system
- Help the mortgage and real estate industry understand the difference and benefits of energy efficient construction
# MPG Rating for Energy Efficiency

## Home Energy Rating Certificate

![Home Energy Rating Certificate](image)

### Uniform Energy Rating System

<table>
<thead>
<tr>
<th>Star Rating</th>
<th>Energy Efficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Stars Plus</td>
<td>Based On Plans</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>1 Star</strong></th>
<th><strong>1 Star Plus</strong></th>
<th><strong>2 Stars</strong></th>
<th><strong>2 Star Plus</strong></th>
<th><strong>3 Stars</strong></th>
<th><strong>3 Star Plus</strong></th>
<th><strong>4 Stars</strong></th>
<th><strong>4 Star Plus</strong></th>
<th><strong>5 Stars</strong></th>
<th><strong>5 Star Plus</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1-20</td>
<td>21-250</td>
<td>251-300</td>
<td>301-350</td>
<td>351-400</td>
<td>401-450</td>
<td>451-500</td>
<td>501-550</td>
<td>551-600</td>
<td>601-650</td>
</tr>
</tbody>
</table>

### HERs Index: 66

### General Information

- **Conditioned Area:** 2288 sq. ft.
- **Conditioned Volume:** 3252 cubic ft.
- **Bedrooms:** 3

### Mechanical Systems Features

- **Heating:** Fuel-fired air distribution, Natural gas, 92.0 AFUE.
- **Cooling:** Air conditioner, electric, 13.0 SEER.
- **Water Heating:** Conventional, Electric, 0.90 EF, 40.0 Gal.
- **Duct Leakage to Outside:** 50.00 CFM.
- **Ventilation System:** Exhaust Only, 40 cfm, 15.0 watts.
- **Programmable Thermostat:** Heating: Yes  Cooling: Yes

### Building/Shell Features

- **Ceiling Flats:** R-38  Exposed Floor: R-38
- **Vaulted Ceiling:** R-38  Window Type: U=0.5, SHGC: 0.29
- **Above Grade Walls:** R-16, R-13  Insulation: R-11.0
- **Foundation Walls:** R-11.0  Rate: Ht=1500 Clg: 1500 CFM#1 R-10.0 Edge, R-8.0 Under Method: Blower door test

### Lights and Appliance Features

- **Percent Fluorescent Pin-Based:** 10.00  Clothes Dryer Fuel: Electric
- **Percent Fluorescent CFL:** 80.00  Range/Oven Fuel: Electric
- **Refrigerator (W/Whr):** 775.00  Ceiling Fan (cits/Whr): 0.00
- **Dishwasher Energy Factor:** 0.46

### Estimated Annual Energy Cost

<table>
<thead>
<tr>
<th>Use</th>
<th>MMThs</th>
<th>Cost</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating</td>
<td>34.8</td>
<td>$545</td>
<td>23%</td>
</tr>
<tr>
<td>Cooling</td>
<td>4.3</td>
<td>$174</td>
<td>7%</td>
</tr>
<tr>
<td>Hot Water</td>
<td>11.9</td>
<td>$489</td>
<td>21%</td>
</tr>
<tr>
<td>Lights/Appliances</td>
<td>24.2</td>
<td>$954</td>
<td>43%</td>
</tr>
<tr>
<td>Photospace</td>
<td>-0.0</td>
<td>$0</td>
<td>0%</td>
</tr>
<tr>
<td>Service Charges</td>
<td></td>
<td>$120</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$2323</strong></td>
<td><strong>100%</strong></td>
<td></td>
</tr>
</tbody>
</table>

This home meets or exceeds the minimum criteria for all of the following:

<table>
<thead>
<tr>
<th>TIE #</th>
<th>Company</th>
<th>Address</th>
<th>City, State, Zip</th>
<th>Phone #</th>
<th>Fax #</th>
</tr>
</thead>
</table>

**The Home Energy Rating Standard Disclosure for this home is available from the rating provider.**

**REMaRae - Residential Energy Analysis and Rating Software V12.93**

This information does not constitute any warranty of energy cost or savings.

Training needed

- For Builders
- Contractors
- Sales
Bob Ward Companies