

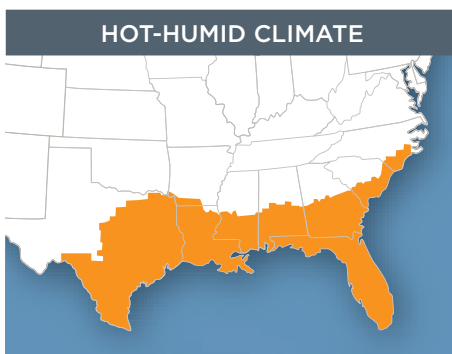


# Deep Energy Retrofit

## Central Florida Prototype

North Port, Florida

Part of the Neighborhood Stabilization Program, this North Port, FL home was retrofitted with energy-efficient appliances and a tighter duct system to reduce energy costs.



HOT-HUMID CLIMATE

### Sarasota Retrofit Partners

Sarasota Office of Housing and Community Development

The Florida House

Community Housing Trust of Sarasota County

Sarasota County Government

HUD Neighbor Stabilization Program

Southwest Florida Water Management District



### Overview

The Florida Solar Energy Center (FSEC), a research institute of the University of Central Florida, leads the Building America Industrialized Housing Partnership (BAIHP) funded by the U.S. Department of Energy (U.S. DOE). In 2009, BAIHP began providing technical assistance to organizations interested in exploring the practicality and cost effectiveness of deep energy retrofits. Initial funding was provided by the Florida Energy Systems Consortium (FESC) and continued with support from Building America.

### Sarasota Partnership

BAIHP formed a partnership with government and non-profit entities in Sarasota, Florida who purchase, renovate, and resell foreclosed homes with funding from HUD's Neighborhood Stabilization Program (NSP). The homes usually need extensive general repair (roofs, windows, etc.) and HUD encourages recipients to incorporate energy efficiency improvements.

The Sarasota NSP team (see partners, left) set a goal of achieving a Home Energy Rating System (HERS) Index of 70 – roughly equivalent to 20-25% more efficient than Florida's Energy Code for new construction. The HERS Index gauges whole house energy efficiency. In the 30 existing homes audited by BAIHP, the pre-renovation HERS Index ranges from 94 to 184. Dropping the HERS Index to 70 in these homes would constitute 21% - 54% energy savings.

To achieve this significant improvement, a package of improvements (see back page) was selected to address the four major components of energy use: heating and cooling (roughly 40% of typical annual energy use), water heating (~20%), refrigerator/range/dryer (~20%), and lighting/plug-loads (~20%).

### Mission Accomplished

The first Sarasota NSP home to meet the HERS Index 70 goal is a 1995 three-bedroom home with 1217 square feet of living space in North Port, Florida. The house already had some energy features, such as tinted windows and a new high efficiency (SEER 15) heat pump. The pre-renovation HERS Index was 100 with an estimated annual energy cost of \$1521. The post-retrofit HERS Index is 66 with an estimated annual energy cost of \$972 – an annual savings of \$549 or 36%. The total cost of the improvement package is approximately \$3,800. This equates to a seven-year simple payback at the current utility rate (\$0.13/kWh).



Duct System Sealed and Tested



ENERGYSTAR® Appliances

## Sarasota HERS Index 70 – Improvement Package

### Energy Efficiency and Indoor Air Quality

- Reduced duct leakage
- Drywall repair (reduces infiltration)
- R-38 attic insulation
- ENERGY STAR® shingles (new roof was needed)
- Mechanical system servicing
- Programmable thermostat installation
- ENERGY STAR® appliances
- Heat pump water heater installation
- Compact fluorescent bulbs in 100% of lighting fixtures
- Ducted bathroom fans
- Ducted and dampered, passive outside air ventilation system

### Water Efficiency

- Low-flow faucets and fixtures
- High efficiency, 1.28 gallons/flush toilet
- No garbage disposal
- ENERGY STAR® dishwasher
- No permanent irrigation system
- First NSP to achieve Florida Water Star<sup>SM</sup> Gold



Compact Fluorescent Lighting



Outside Air Ventilation



Refurbished Duct System

## Tips for Homeowners Considering Deep Energy Retrofit

As energy-related items in your home need replacement, select higher efficiency models (i.e. windows, heating and cooling equipment, etc.). Consider hiring a certified home energy rater to calculate your home's HERS Index and recommend energy saving strategies. Florida homeowners will benefit from reviewing the Florida Homeowners Manual for Energy Efficiency (Publication FSEC-EN-20-92 online at [www.fsec.ucf.edu](http://www.fsec.ucf.edu)). Many of the improvements incorporated are consistent with the U.S. DOE's Builders Challenge program: [www.buildingamerica.gov](http://www.buildingamerica.gov). Homeowners can access an interactive decision-making tool for energy efficiency online at <http://hes.lbl.gov/consumer>. Combustion safety testing is an important precaution for homes with gas water heaters and furnaces. Contact a certified home energy rater for information.

## Recovery Through Retrofit

This Building America activity supports Vice President Joe Biden's Recovery Through Retrofit plan by providing technical assistance to contractors involved in deep energy retrofits. The federal government has tax credits in place that help offset the cost of energy improvements. There may also be other incentives available for homeowners listed in the Database of State Incentives for Renewables and Efficiency: [www.dsireusa.org](http://www.dsireusa.org).

### For more information on NSP:

[www.scgov.net/](http://www.scgov.net/)  
[www.hud.gov/nsp](http://www.hud.gov/nsp)

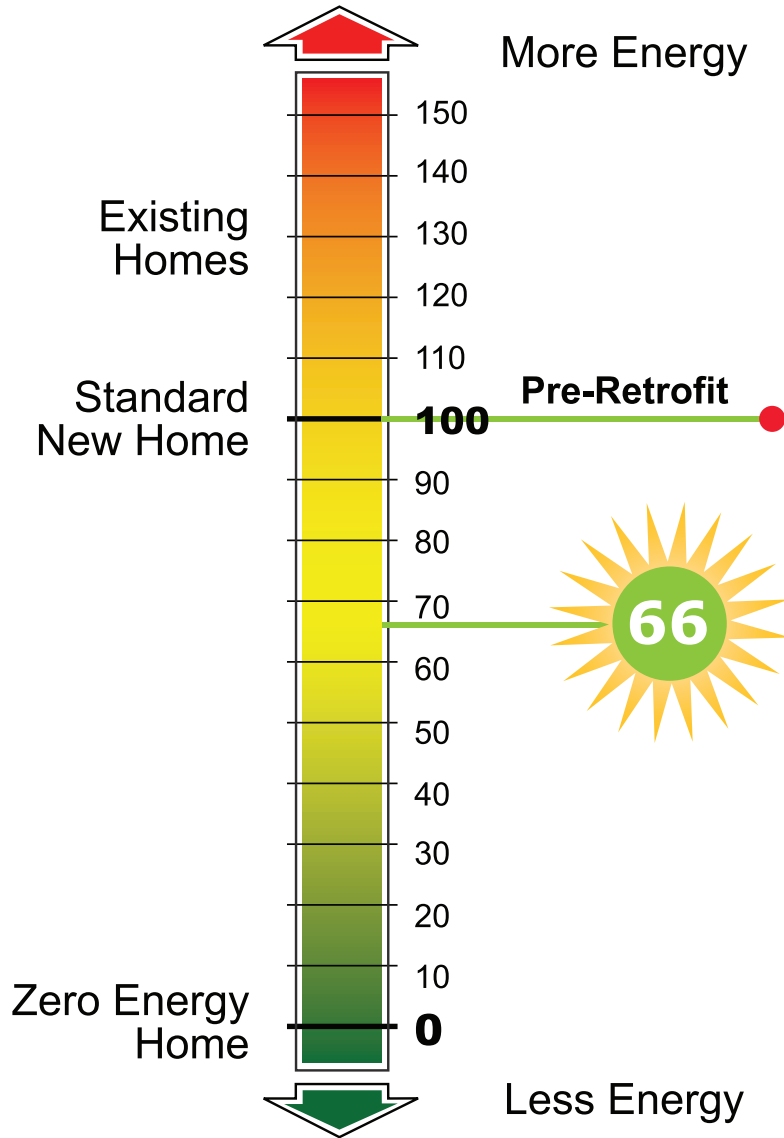
Home Energy Efficiency:  
Building America: [www1.eere.energy.gov/buildings/building\\_america/](http://www1.eere.energy.gov/buildings/building_america/)

### Contact Information:

Janet McIlvaine  
Florida Solar Energy Center  
E-mail: [janet@fsec.ucf.edu](mailto:janet@fsec.ucf.edu)  
Florida Solar Energy Center  
1679 Clearlake Road  
Cocoa, FL 32922  
<http://www.fsec.ucf.edu/en/>  
U.S. DOE Building America  
Program: <http://www.baihpor.org/>

# HOME ENERGY RATING CERTIFICATE

## HERS® Index



1352 Hartsdale Street  
New Port, FL 34287

Annual Estimates*:	Pre	Post
Electricity (kWh):	11,700	7,477
CO <sub>2</sub> Emissions (Tons):	6.91	4.0
Savings		36%

Date of Rating: **04/29/2010**

Rater: Florida Solar Energy Center

*\*Based on standard operating conditions*



EnergyGauge  
1679 Clearlake Road  
Cocoa, FL 32922-5703

321-638-1492  
energygauge.com

*This Home has been inspected  
and performance tested in  
accordance with Chapter 3 of  
the RESNET Standards.*

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www.resnet.us