



## Building America Efficient Solutions for New Homes

# Case Study: Green Coast Enterprises

Project Home Again | New Orleans, LA

### PROJECT INFORMATION

**Construction:** New home

**Type:** Single-family, affordable

**Builder:** Green Coast Enterprises,  
New Orleans, LA

[www.greencoastenterprises.com](http://www.greencoastenterprises.com)

**Size:** 1,200 to 1,300 ft<sup>2</sup>

**Price Range:** \$140,000 to \$160,000  
(market value)

**Date Completed:** 2011

**Climate Zone:** Hot-humid

**Team:** Building Science Corporation

### PERFORMANCE DATA

**HERS Index:** 66-69

**Projected annual energy  
cost savings:** \$719

**Incremental cost of energy-  
efficiency measures:** \$7,925

**Annual mortgage  
payment increase:** \$632

**Annual net cash flow  
to homeowner:** \$86

**Billing data:** Not available

Since 2008, developer Green Coast Enterprises has worked with the U.S. Department of Energy's Building America and its research team lead Building Science Corporation to build 100 new homes for displaced families returning to New Orleans after Hurricane Katrina. The construction is funded by a nonprofit, Project Home Again, founded by Leonard Riggio, president of Barnes and Noble bookstores. These high-performance homes achieved HERS scores of 66 to 69. Also, all the homes were designed and constructed to weather future storms.

For future storm resistance and durability, each home is built on a pier foundation with flooring elevated one foot above the base flood foundation, borate pressure-treated lumber, wind-resistant OSB structural sheathing, hurricane strapping, butyl tape flashing of roof sheathing seams, and a fully adhered roofing membrane at the eaves and gable ends. Floors are covered in water-resistant tile or hardwood. Closed-cell high-density spray foam air seals and insulates the building envelope, while gluing components together to better withstand hurricane-force winds.

The central fan-integrated supply ventilation system draws fresh air through a duct from outside to the return plenum of the HVAC system whenever the heat pump is running. A mechanical damper on the outside air duct is controlled by the fan cyclor to close automatically during periods of consistent space conditioning to prevent over-ventilation of the living space. Bathroom exhaust fans and a kitchen hood provide spot ventilation and continuous exhaust in compliance with ASHRAE 62.2. Transfer grilles and door undercuts allow airflow when bedroom doors are closed. Screened-in porches and double-hung windows provide additional cross ventilation.

## KEY ENERGY-EFFICIENCY MEASURES

### HVAC:

- 14 SEER/8.25 HSPF heat pump with variable-speed air handler and R-8 flex ducts in unvented conditioned attic
- Central fan-integrated supply ventilation, transfer grilles for pressure balancing, bathroom and kitchen exhaust fans for continuous and spot ventilation
- Dehumidifier ducted to air handler in phase 1 and 2 homes with controllers provided to occupants.

### Envelope:

- 2x6 24-inch on-center, all borate pressure-treated lumber, framed on stilts
- High-density closed-cell spray foam for R-20 in walls, R-21 in attic, R-13 under floor
- Air leakage: 1.5 in<sup>2</sup>/100 ft<sup>2</sup> @ 50 PA
- Double-pane, low-e3, vinyl windows. U = 0.36, SHGC = 0.23

### Lighting, Appliances, and Water Heating:

- 100% CFLs and ENERGY STAR® refrigerators, dishwashers, and clothes washers.

For more information, please visit:  
[www.buildingamerica.gov](http://www.buildingamerica.gov)



High-density closed-cell spray foam was sprayed between the 2x10 floor joists, in the 2x6 stud wall cavities, and along the underside of the roof decking to air seal and insulate. It also glues the components together to help the homes better withstand hurricane-force winds. All lumber is borate pressure-treated to resist rot and wall cavities are treated with an in-wall pest defense product.

## Lessons Learned

- Construction costs have decreased in each phase of this six-phase project as the developer simplifies designs, trains subcontractors, and streamlines purchasing.
- Insulated attics, light-colored roofing, and low-solar-heat-gain windows (SHGC 0.23) and trees planted on home sites minimize solar heat gain.
- Central fan-integrated supply ventilation, screened porches, transfer grilles, kitchen and bath exhaust fans, and double-hung windows all encourage ventilation and reduce dependence on air conditioning. Low- and no-volatile organic compound (VOC) cabinets, paints, and finishes add to indoor air quality. Each home is tested for pressure balancing and HVAC performance along with blower door and duct blaster testing when the building is completed.
- Homeowners receive a detailed owners' manual complete with all product warranty and contact information and a one-hour walk through to educate them on their home's energy features when they move in.

"The biggest lesson for us is that once you develop a working model, you can really reduce the costs."

*Will Bradshaw, president, Green Coast Enterprises*