



Builders Challenge

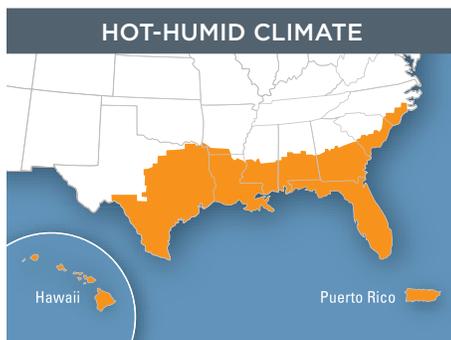
Recognizing Energy Leadership in Homebuilding

High Performance Builder Spotlight

Green Coast Enterprises

New Orleans, Louisiana

Volunteers planted trees in front of energy-efficient new homes in New Orleans built by Green Coast Enterprises and Project Home Again who partnered with DOE Building America's Building Science Consortium team and NREL researchers to develop the energy-efficient, storm-resilient house designs.



BUILDER PROFILE

Builder: Green Coast Enterprises
www.greencoastenterprises.com

Founded: 2007

Employees: 6

Development:

45 Builders Challenge-certified homes
Homes are 1,100 to 1,500 sq ft.,
2 or 3 bedrooms 1 or 2 bathrooms.

Price Range:

Traded for storm-damaged home.
Market value: \$140,000-\$160,000

Greening the Gulf Coast

Green Coast Enterprises, through its work on Project Home Again, is the largest developer of U.S. Department (DOE) of Energy Builders Challenge-qualified homes in Louisiana. By June 2010, the team had constructed 45 homes that meet DOE's Builders Challenge criteria, with an additional 55 homes in the forecast, including 25 begun in July 2010. The energy-efficient, storm-resilient, single-family homes achieve average Home Energy Rating System (HERS) scores of 66, and Will Bradshaw, president of Green Coast Enterprises, estimates that the efficiency features of the homes will save residents an average of 30%-40% annually in energy savings in comparison to their previous homes.

These homes are being constructed through a successful community-scale venture called Project Home Again, a nonprofit partnership established by the Riggio Foundation to help rebuild the Gentilly and St. Anthony neighborhoods of New Orleans following Hurricane Katrina, which hit the Gulf Coast in 2005. Green Coast Enterprises manages the construction project, along with local builder TKTMJ Inc., and architect Sustainable Architecture, LLC.

"At Green Coast, we see the 2005 hurricane season as a clarion call for innovation in the development industry and we see New Orleans as the crucible of this need for innovation in the United States," said Bradshaw.

Building America Best Practices Used in Project Home Again Homes

Green Coast Enterprises worked with Building America research partners at Building Science Corporation and the National Renewable Energy Laboratory on a whole-house approach, delivering energy efficiency, affordability, sustainability, comfort, and durability on each of the Project Home Again homes.

The team uses advanced framing, with 2 x 6 studs spaced at 24 inches, to reduce heat transfer through the wall assembly and decrease the amount of wood and labor needed to construct the homes. All homes are constructed on piers elevated at least one foot above minimum base-flood elevations. The piers were concrete on the first 20 homes and on the second and third phase (12 homes and 13 homes) the piers were made of pressure-treated wood driven 35 feet into the ground. The band joists were doubled 2x12 yellow pine and the floor



Advanced framing techniques including 2x6, 24-inch-on-center stud walls to reduce lumber use and thermal bridging. All framing was made of borate pressure-treated lumber, rendering it extremely termite, mold, and mildew resistant.

Energy-Efficient Features

- **HERS:** 64-67
- **Framing:** 2"x6", 24" on center, all borate pressure-treated lumber, framed on stilts
- **Air Sealing and Insulation:** high-density closed cell spray foam for R-20 in walls, R-24 in attic, R-13 under floor
- **Ducts:** R-8 flex ducts in unvented conditioned attic
- **Air Handler:** Variable-speed air handler in conditioned attic
- **HVAC:** 15 SEER/8.2 HSPF heat pump with variable-speed air handler
- **Windows:** Vinyl frame, Low E3, U=0.36, SHGC 0.21
- **Water Heating:** 0.92 EF 50-gallon electric
- **Ventilation:** Central Fan Integrated Supply system
- **Humidity Control:** Whole-house dehumidifier or energy recovery ventilator
- **Lighting:** 100% compact fluorescent lights
- **Appliances:** ENERGY STAR

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WILL BRADSHAW,

President, Green Coast Enterprises

joists were 2x10s spaced 16 inches on center. The homes were entirely framed with borate pressure-treated lumber, rendering them termite, mold, and mildew resistant. High-density spray foam was used to air seal and insulate, achieving values of R-20 in the walls, R-13 under the floor, and R-24 or better under the roof deck.

For future storm protection, hurricane strapping was used liberally. The roof was bolted to the walls and to the rim bands with strapping at the top and bottom of every stud. Floor joists were strapped to the rim bands and rim bands were bolted to the piles.

The HVAC equipment and R-8 flex ductwork were installed in the unvented, spray-foam-insulated attic space. A high-efficiency heat pump that functions at 15 SEER/8.2 HSPF with a variable-speed air handler provides heating and cooling. Manual J calculations were run to right size the HVAC equipment. The homes use either a whole-house dehumidifier or energy recovery ventilator to improve occupant comfort and control humidity. Transfer grills and door undercuts allow for effective airflow when bedroom doors are closed, while independent ventilation provides fresh air to the homes intermittently when heating/cooling systems are not operating. Screened-in porches and double-hung windows provide cross ventilation.

Daylighting is provided through the highly efficient low-emissivity double-hung, double-glazed windows. The double-pane vinyl windows are highly efficient with an extremely low solar heat gain coefficient (SHGC) of 0.21. ENERGY STAR appliances and lighting further reduce electrical loads.

Green products that were incorporated with occupant health in mind included low- or no-VOC paints, sealants, flooring, and cabinetry products. Flooring surfaces are either wood or tile.

Green Coast Enterprises provides each family with a training and home walkthrough to educate them on the unique features of their home, showing them how to use the various appliances and systems it contains, and answering any questions or concerns they might have. Green Coast also provides homeowners with a comprehensive illustrated owner's manual that contains all necessary contact, warranty, and product information in the event that a repair or service visit becomes necessary.

Project Home Again has also entered into a partnership with Hike for KaTREEena to provide at least one tree for every home they build. The homes are otherwise fully landscaped with low-maintenance species.

Dollars and Sense

A unique aspect of the project is a gifting program that allows eligible residents to exchange their storm-damaged house for a new Project Home Again house. Applicants must meet family size and income requirements, and commit to living in and maintaining the home for 5 years. Ownership of storm-damaged homes is transferred to the New Orleans Redevelopment Authority. Green Coast Enterprises and others in collaboration with the Authority are working to focus redevelopment efforts on one neighborhood at a time, so that infrastructure, homes, and services can be restored together.

While the homes are provided essentially free through the Riggio Foundation (in exchange for the damaged homes and a commitment to maintain the home for 5 years), the market value of these homes is approximately \$140,000-\$160,000 each. Bradshaw estimates construction costs at \$125-140 per square foot and said the energy efficiency features added approximately 1% to the cost over the cost of building code minimum.

“They are doing something that is very replicable from an affordability standpoint. Using their model, builders throughout the Gulf Coast could afford to build energy-efficient housing,” said Philip Voss, senior project leader with the National Renewable Energy Laboratory (NREL).

Building America Provides Building Science Expertise

Green Coast Enterprises has partnered with DOE and Building America since the company’s founding in 2006. Bradshaw credits DOE and its research partners at NREL and Building Science Corporation with providing the guidance that has motivated Green Coast to pursue numerous other energy-efficiency projects in the Gulf Coast.

In addition to Project Home Again, Green Coast is also a key partner in the Salvation Army’s EnviRenew program, which is building 125 new construction and 125 renovated energy-efficient homes. Beyond that, EnviRenew will fund the installation of 125 solar thermal water heating installations and 250 do-it-yourself energy-efficiency kits, called eco-baskets. Green Coast Enterprises is also the green building technical assistance provider for the New Orleans Redevelopment Authority on a Neighborhood Stabilization Program II consortium. This consortium of 12 not-for-profit developers plans to build 380 new homes around New Orleans; every home will meet the Builders Challenge level.

“Through these efforts we have the potential to leverage what we’ve learned from Building America to touch over 500 homes,” said Bradshaw.

NREL researchers advised Green Coast Enterprises on one of its earliest projects, a four-unit condominium project called the Arabella at Fortin Street designed to capture some of the best details of New Orleans historic architecture in steel-framed, energy-efficient construction.

Green Coast is also pursuing major commercial redevelopments using civic infrastructure (health centers, school buildings, libraries, public offices) to anchor long-term redevelopment of blighted corridors. Green Coast is in the planning stages on its most ambitious project to date, a 120,000-sq. ft. commercial park, combining office, industrial, and retail space for green businesses, located three blocks from the major mid-city intersection of Carrollton and Canal streets.

Bradshaw hopes this complex will become a hub for green business and industry not only for New Orleans but for the whole Gulf Coast area. While acknowledging the opportunity that hurricane restoration efforts have provided to build anew in a sustainable way, Bradshaw noted “it’s not just about the opportunity being there, but the responsibility is there. We can’t continue to develop in ways that put people in harm’s way when we understand the risk. We have to do better.”



(top) Building America’s Building Science Consortium team recommended insulating the attics with high-density closed-cell spray foam, which gives excellent air sealing and thermal performance while providing conditioned space for the high-efficiency HVAC equipment and ducts (Courtesy of Green Coast Enterprises)

(middle/bottom) The homes were elevated at least one foot above the base flood elevation on piers. In phase 1 (the first 20 homes) the piers were concrete block. In phase 2 and 3 (12 and 13 houses) the piers consisted of pressure-treated 2x12 wood beams banded together and driven 35 feet into the ground (New Orleans has no bedrock). The band joists were doubled 2x12 yellow pine boards. The floor joists were 2x10 boards, set 16 inch on center. After construction, the underside of the flooring was sprayed with 2.5 inches of closed cell foam to air seal the floor and insulate it to R-13.

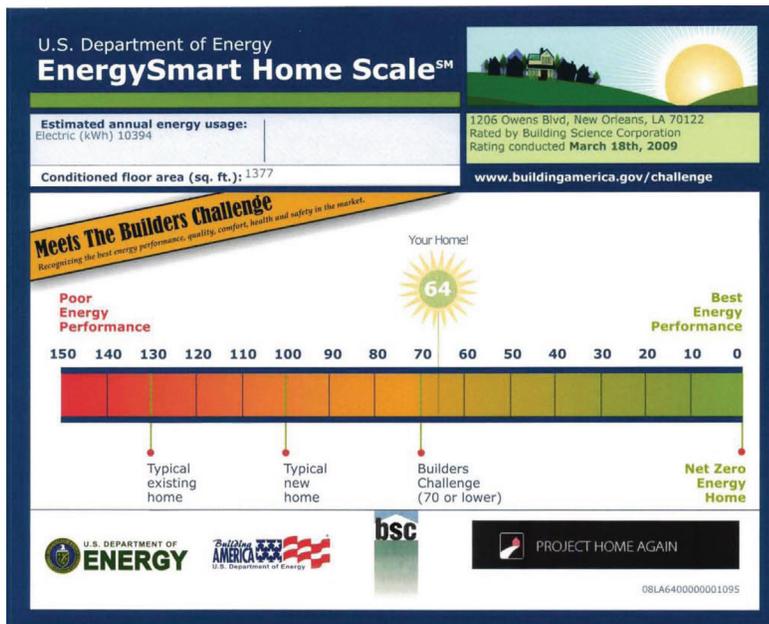
The Bottom Line

“We can and must build better buildings that are responsive to our climactic and energy limitations while also creating spaces and places that inspire and that people will love. Our triple-bottom line (people, planet, and profit) reflects this approach, as do the projects we take on,” said Bradshaw.

Bradshaw encourages other builders to follow Green Coast’s lead in building with energy efficiency and the environment in mind because “if they do not, we will continue to waste our vast natural resources by building inefficient boxes for people to live in and we will continue to disrupt our climate” said Bradshaw, adding, “we will supplant them (our competitors) in the market place as the old way of building becomes unprofitable and obsolete.”

U.S. Department of Energy Builders Challenge

The U.S. Department of Energy (DOE)’s Builders Challenge gives participating homebuilders an easy way to differentiate their energy-performing homes from other homes in the marketplace, and to make the benefits clear to buyers. Homes that qualify for this Builders Challenge must achieve a 70 or less on the EnergySmart Home Scale (E-Scale), which is based on the Home Energy Rating System (HERS) index (www.natresnet.org). The E-Scale allows homebuyers to understand—at a glance—how the energy performance of a particular home compares with others.



To learn more about the Builders Challenge and find tools to help market your homes, visit www.buildingamerica.gov/challenge.



(top) Green Coast Enterprises and partners built over 100 new homes for displaced New Orleans residents as part of Project Home Again, a nonprofit partnership established by the Riggio Foundation. (Courtesy of Green Coast Enterprises)

(bottom) The Riggio family, founders of the Barnes and Noble bookstore chain, established Project Home Again Foundation to help rebuild the Gentilly and St. Anthony neighborhoods of New Orleans. Here, Leonard Riggio (in jacket) is shown speaking with (from left to right) Oji Alexander of Project Home Again, Michael Tubre of TKTMJ (the builder), and Will Bradshaw, president of Green Coast Enterprises, as they tour the first 20 homes completed as part of Project Home Again.

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Energy Efficiency &
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EERE Information Center
1-877-EERE-INF (1-877-337-3463)
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