

High Performance Builder Spotlight

Coastal Habitats

Hilton Head, South Carolina



Eco-friendly Cottages

Bryant Park Cottages are situated near protected freshwater wetlands on the island of Hilton Head, South Carolina. Consisting of twelve 1, 2 & 3 bedroom cottages designed to combine privacy with neighborly closeness, Bryant Park projects a feeling of both security and charm. Better yet, every home was built with state-of-the-art, eco-friendly techniques and materials, so that owners are assured that their new home is not only a pleasant place to live, it is environmentally responsible as well.

“The biggest obstacle in a builder’s mind is that it’s expensive to build green, but it isn’t that hard to meet these standards with just a little more expense—plus the ultimate savings are great.”

HOWARD FELDMAN COASTAL HABITATS

Energy Saving Innovations

Howard Feldman, owner of Coastal Habitats, learned about Building America at the 2006 EEBA Conference. He met a representative from the Building Science Consortium (BSC), a Building America team member, during a presentation about HVAC systems.

“I was very curious about what I heard at the conference,” says Feldman. “After talking to the

Building America rep, I knew I wanted to do this.” Coastal Habitats was already building to high ‘green’ standards, but BSC was able to help them achieve even greater energy savings by recommending various efficiencies.

HVAC Systems

As Feldman notes, “In the environment we live in, the HVAC units are often oversized and it was hard as a builder to unlearn this conditioning.” BSC was able to offer onsite instruction to subcontractors on right-sizing HVAC units and other energy-saving techniques. Eventually, says Feldman, all the subs came to understand the benefits. “Now my mechanical subcontractor takes what he’s learned working on custom homes for me to his work on production sites, which I think is great.”

The properly sized HVAC system includes high-efficiency heat pumps, mastic-sealed ducts within the building envelope, along with compact duct run lengths, and advanced filtration and dehumidification equipment. Duct leakage to the outside tested at not more than 5% of the high speed flow rate, with total duct leakage not more than 10%.

Programmable thermostats further save energy by automatically adjusting temperatures when everyone is sleeping or out of the house. A fan switch allows homeowners to circulate air as necessary.

Water Heating and Framing

A prototype house at Coastal Habitats, included a solar domestic hot water (SDHW) system integrated with a tankless water heater. The integral collec-

BUILDER PROFILE

Coastal Habitats
Construction & Development
bryantparkcottages.ieasysite.com

Founded: 2000

Employees: 1

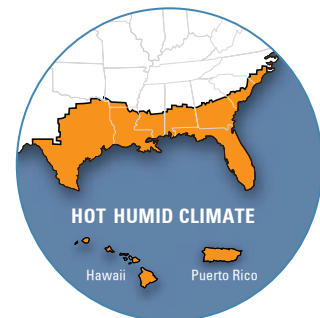
Development: Bryant Park Cottages

Size: 12 homes

Square Footage: 709 sq. ft. to 1,734 sq. ft.

Price Range: \$277,000 to \$477,000

Building America's Hot-Humid Best Practices has more information on building in this climate.



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Brian Shaner of Horizon Mechanical and Armin Rudd of BSC performing the duct blast/blower door testing in the Molly Cottage.

KEY FEATURES

Sealed combustion gas fireplace with outside combustion air

Tankless water heaters

Low-e windows, U 0.32 and SHGC 0.33

R-22 wall and R-30 cathedral ceiling Demilec spray foam insulation

Right-sized heat pump SEER 15.1 / HSPF 8.05

Properly sized and sealed ducts in conditioned space

Electronic air filter and an electronic dehumidifier

Non-vented roof, all hoods and fans exhausted outside

Hardi-Plank siding and Hardi-Trim trim boards

Integrated SDHW in prototype

Recycled carpet, bamboo or cork flooring

tor-storage (ICS) solar system gathers energy from the sun and transfers the heat directly to potable water. The preheated water then flows to a storage tank. An instantaneous water heater provides hot water on demand in all the homes and backs up the solar system in the prototype.

All cottages were built using engineered lumber from fast growing farm trees. Coastal Habitats chose to use engineered lumber for the beams, joists and headers. Using I-joists created from engineered wood resulted in a stronger structure with straighter walls and ceilings.

The Bottom Line

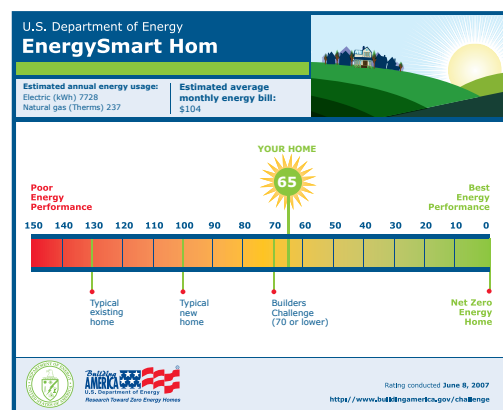
All Bryant Park homes are certified under the EarthCraft House and ENERGY STAR programs. The Cottages typically achieved 46% whole-house savings and the prototype house achieved 50% savings over the Building America benchmark. Builder costs for all energy saving measures amounted to about \$5,000. With the solar system added in, costs for the prototype jumped to about \$9,800, but there were enough total annual savings to make the total package cost effective—homeowners are estimated to save more in utility bills than what they would pay in increased mortgage payments.

U.S. Department of Energy Builders Challenge

DOE has posed a challenge to the homebuilding industry—to build 220,000 high performance homes by 2012. Homes that qualify for this Builders Challenge must meet a 70 or better on the EnergySmart Home Scale (E-Scale). The E-scale allows homebuyers to understand—at a glance—how the energy performance of a particular home compares with others. Through the Builders Challenge, participating homebuilders will have an easy way to differentiate their best energy-performing homes from other products in the marketplace, and to make the benefits clear to buyers.

The figure to the right shows an E-Scale example. The E-scale is based on the well-established Home Energy Rating System (HERS) index, developed by the Residential Energy Services Network. To learn more about the index and HERS Raters visit www.natresnet.org.

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



For more information visit www.buildingamerica.gov. The website contains expanded case studies, technical reports, and best practices descriptions.

The Building America Program

Building America is a private/public partnership sponsored by DOE that conducts systems research to improve overall housing performance, increase housing durability and comfort, reduce energy use, and increase energy security for America's homeowners. Building America teams construct test houses and community-scale projects that incorporate systems innovations. The teams design houses from the ground up, considering the interaction between the site, building envelope, mechanical systems, and other factors, and recognizing that features of one component in the house can greatly affect others. More than 40,000 energy-efficient houses have been built by the seven teams to date.