



## Builders Challenge

Recognizing Energy Leadership in Homebuilding

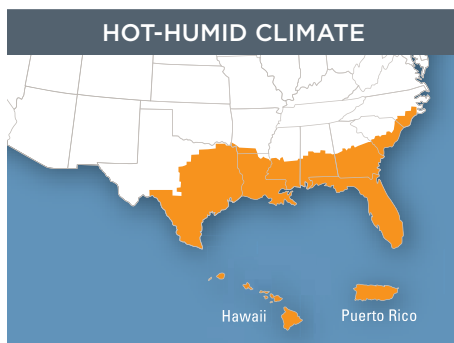
## High Performance Builder Spotlight

# Tommy Williams Homes

Gainesville, Florida

Tommy Williams Homes of Gainesville, Florida, built two zero-energy homes with help from DOE's Building America team members, the Florida Solar Energy Center® and Florida HERO.

Tommy Williams Homes has been building progressively more advanced homes since partnering with the U.S. Department of Energy's Building America program in 2004. In 2010 they hit the mark with two true zero-energy homes in Gainesville, Florida. Tommy Williams Homes is the first production builder in Florida to build true zero-energy homes.



## BUILDER PROFILE

**Builder:** Tommy Williams Homes  
www.tommywilliamshomes.com  
Todd Louis, vice president  
(352) 331-8180

**Website:** **Founded:** 1980

**Where:** Gainesville, FL

**Employees:** 11, not including subcontractors

**Zero-Energy Homes:** 1,546 to 2,248 ft<sup>2</sup>  
3 bedrooms, 2 bathrooms; \$261,000 to \$367,000

The 30-year old company, which began working with Building America in 2004, also built 40 Builders Challenge homes in 2010 with HERS scores under 60. But thanks to a photovoltaic power and a solar hot water system, two of the homes have HERS scores of -2, which means they produce more energy than they consume. The homes are in the Longleaf Village and Belmont developments in the hot-humid climate of Gainesville, Florida.

Tommy Williams Homes' innovation and expertise have been developed in partnership with two Building America team members: Florida HERO, an energy consulting firm, and the Florida Solar Energy Center® (FSEC). The team provided systems engineering support, energy simulations with cost data, and hands-on construction education.

Both zero-energy homes have been sold: the 1,546 ft<sup>2</sup> home with a 5 kWp photovoltaic system sold for \$261,000; the 2,248 ft<sup>2</sup> home with a 6.75 kWp system sold for \$367,000. Company vice president Todd Louis said these prices are \$30,000 to \$40,000 more than a homebuyer would have paid for one of their standard energy-efficient homes, although current state rebates reduced that premium by one-third to one-half, and homeowners benefit by paying no electric bill. The company believes it should continue building the more expensive zero-energy homes, even in today's tough market.

Tommy Williams Homes hopes to bring zero-energy homes into the mainstream of American residential construction. "It's just the right thing to do for our kids and grandkids, to harness the power of the sun and produce less greenhouse gases. We'll continue efforts to make them more affordable," said Louis.

The builder already has its third ZEH under construction. The strategies the team developed can be used in homes in a hot-humid climate at any price point with similar energy savings. The builder has developed a series of net-zero-energy "ready made" home plans.

The zero-energy homes take advantage of features already built into Tommy Williams Homes' standard designs, such as the tight thermal envelope, compact duct design, and efficient HVAC systems. The vented attic has a radiant barrier, the ceiling is insulated to R-30, and attic knee walls are insulated to R-19. The roof trusses include 10-inch raised heels for uniform insulation depth in the attic.

The ducts and air handler are installed in conditioned space using a compact duct design consisting of a main trunk line, located in a dropped soffit in the main hallway, that is air-sealed above with sheetrock. The high-efficiency heat pump has ratings of SEER 16 and HSPF 9.5.

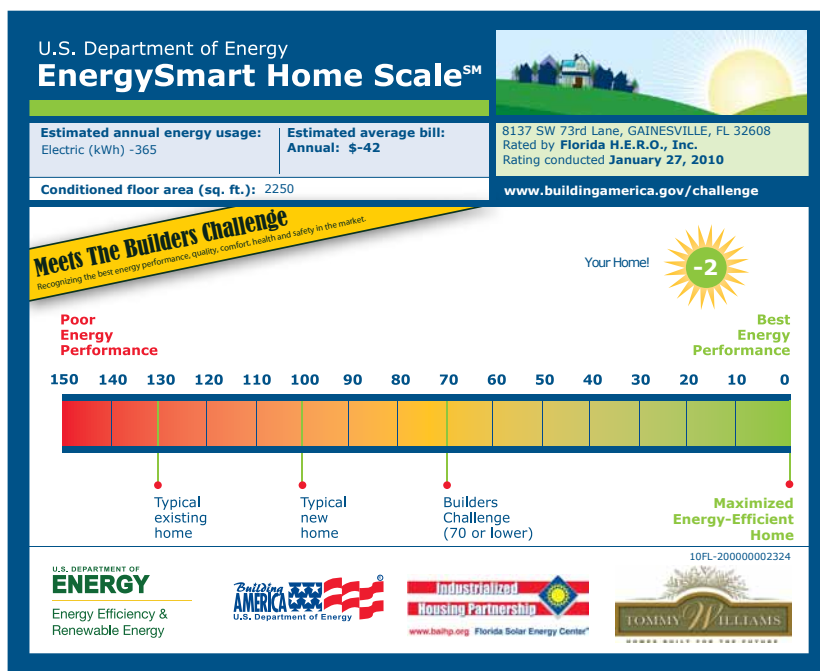
The solar water heater has a 64-ft<sup>2</sup> collector, 120-gallon storage tank, and an electrical backup system. Passive design strategies to protect the large window areas from solar heat gain include a recessed alcove and 24-inch overhangs all around the house. The windows also have low-emissivity coating.



Blown fiberglass wall insulation and advanced framing details like ladder blocking and two-stud corners help Tommy Williams Homes achieve high energy performance on all of its homes.

## U.S. Department of Energy Builders Challenge

DOE seeks to give every consumer the opportunity to buy a cost-neutral, net-zero energy home anywhere in the U.S. by 2030. 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](http://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](http://www.buildingamerica.gov/challenge).

## Key Features

- **HERS Score:** -2
  - **Attic:** R-30 ceiling; R-19 knee wall; vented attic with radiant barrier; 10-inch raised-heel trusses
  - **Walls:** R-15 blown fiberglass
  - **Windows:** Low-e, vinyl frame, U=0.35, SHGC=0.25
  - **Air Sealing:** ENERGY STAR Thermal Bypass Checklist; blower door 2.3 ACH @ 50 Pa
  - **HVAC:** Right-sized; 2.8 ton SEER 16, HSPF 9.5 heat pump; ducts and air handler in conditioned space, zero duct leakage to outside
  - **Ventilation:** Filtered fresh air ventilation system, MERV 8 whole house filter
  - **Water Heater:** Solar hot water heater with 120-gallon storage and drain-back tank
- Appliances:** ENERGY STAR rated dishwasher, clothes washer, refrigerator; 100% CFL lighting, efficient ceiling fans
- Solar:** 6.75kWp Sunpower 225 PV System