



Builders Challenge

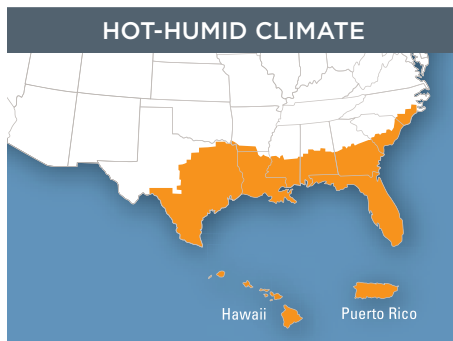
Recognizing Energy Leadership in Homebuilding

High Performance Builder Spotlight

David Weekley Homes

Eagle Springs and Waterhaven Communities
Houston, Texas

David Weekley Homes' Houston Division has qualified over 1,100 homes in DOE's Builders Challenge with help from Building America's Building Science Consortium team.



BUILDER PROFILE

Builder: David Weekley Homes
Houston Division
www.davidweekleyhomes.com
Mike Funk, Quality Coach
(281) 249-7777, mfunk@dw homes.com

Location: Houston, Texas

Founded: 1976

Employees: 620 in U.S.

Developments: Eagle Springs (36 homes)
and Waterhaven Communities (19 homes)
Humble, Texas, 1,800-3,500 sq. ft., \$200K +



David Weekley Homes' Houston Division has met the stringent requirements of the U.S. Department of Energy's Builders Challenge on over 779 homes in 2010, more than any other U.S. home builder.

David Weekley Homes' Houston Division has qualified over 1,100 homes since signing on as a Builders Challenge partner in December 2008. The Houston division worked with Building America's Building Science Consortium team to develop and analyze design details and construction methods, with the result that all of the division's homes now achieve HERS scores between 59 and 68, below the HERS 70 required to meet DOE's Builders Challenge. The homes also qualify for ENERGY STAR and Environments for Living platinum level.

David Weekley Homes' Waterhaven and Eagle Spring-Princeton Park communities are typical of the Houston Division's high-performance methods. Working with Building Science Consortium, the division implemented advanced framing and air sealing, which included training crews to learn the new methods and hiring third-party evaluators to test air tightness and confirm quality installations on every home in the 19- and 36-unit developments in the hot, humid south-east Texas' climate.

The 2x6 24-inch on-center framed walls are filled with R-20 worth of damp sprayed cellulose then covered with one inch of rigid XPS sheathing for an R-5 layer of insulation and air barrier. A one-inch air space separates the sheathing from the home's exterior brick cladding to prevent solar-driven vapor diffusion through the brick and into the wall cavities. Any rain that gets through the brick from Texas' intense rain showers can drain through vents at the bottom of the wall. One inch of R-5 rigid XPS also covers the garage and attic knee walls. Blown cellulose blankets the ceiling deck for R-38 of insulation in the vented attic, which is protected from solar gain by a reflective radiant barrier.

An airtight interior is achieved by caulking at all openings, wall corners, and top and bottom plates; using expanding foam to seal between the sill plate and the slab; draft stopping in building chases and behind bathtubs and showers; and gluing sheetrock to the framing (which is one of the new criteria in ENERGY STAR Version 3). David Weekley Homes Houston division is achieving whole house air tightness of 3.0 ACH at 50 Pascals and duct leakage of 2.8 cfm per 100 ft.² which exceeds the requirements of the IECC 2012.

A central fan-integrated supply (CFIS) with fresh air intake, fan cycling, and motorized damper to prevent over-ventilation plus exhaust fans provide ventilation to the tight homes. A 95% AFUE natural gas furnace, 15 SEER air conditioner, ENERGY STAR appliances and lighting, and high-performance windows add to energy performance.

Building Science Corporation calculated that all of these measures combined save David Weekley homeowners an average of \$1,200 annually on their utility bills.

“Overall, with a better wall system leading to increased long-term energy savings for our home buyers, it’s a win-win for both our customers and David Weekley Homes,” said Mike Funk, Quality Coach for David Weekley Homes.



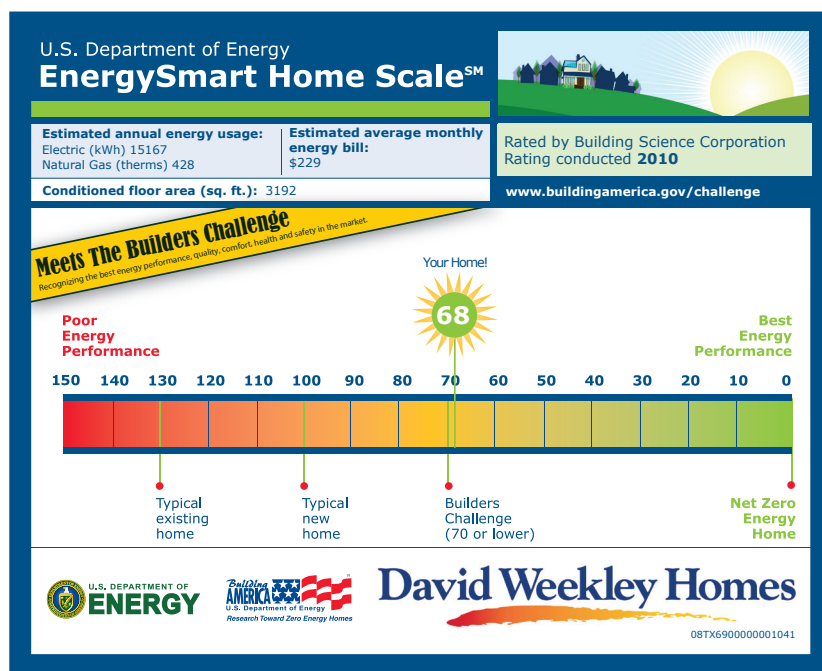
David Weekley Homes covers the building exterior with 1-inch of rigid foam XPS providing a continuous air barrier and thermal break for the building envelope.

Key Features

- **HERS Score:** 59-68
- **Attic:** R-38 blown in cellulose at ceiling plane, vented attic with radiant barrier
- **Walls:** 2x6 24-in. on-center, R-20 cellulose, + 1-in. R-5 XPS; brick and fiber cement siding
- **Windows:** Vinyl low-e, U=0.34-0.35, SHGC=0.30-0.34
- **HVAC:** 15 SEER AC; 95% AFUE gas furnace
- **Ventilation:** Central fan-integrated supply with fan cycling and motorized damper; exhaust fans, jump ducts in all bedrooms
- **Appliances:** ENERGY STAR dishwashers, refrigerators, lighting
- **Air Leakage Testing:** Whole house 3.0 ACH; Ducts 2.8 cfm/100 ft² @ 25 Pa

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). 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.

“In this part of the country you have to start with a good AC system. We use a 15 SEER unit with a variable speed motor and MERV 11 filter.”

MIKE FUNK,
Quality Coach, David Weekley Homes,
Houston Division

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
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For information on **Building America** visit www.buildingamerica.gov. The website contains expanded case studies, technical reports, and best practices guides.