

High Performance Builder Spotlight Centex Corporation

San Ramon, California



Immediate Energy Savings

Dallas-based Centex Corporation is one of the nation's largest home builders, operating in 25 states with an annual production of over 33,000 homes a year. With guidance from Building America partner ConSol, Centex has been in the forefront of energy-efficient construction in Northern California, building more than 450 ENERGY STAR® homes by 2005. Centex now leads the way to even more energy savings with two building packages: PowerSave and PowerSave Plus. Available in the San Ramon, California development of Windemere, the PowerSave option meets the 30% Building America goal for new home construction energy savings as well as ConSol's ComfortWise ENERGY STAR standards, while PowerSave Plus actually exceeds the goal by reaching energy savings greater than 39%.

Innovations

The PowerSave option was developed with help from the U.S. Department of Energy (DOE) Building America and Zero Energy Home programs and supported by research funded by the California Energy Commission. With home buyers interested in shielding themselves from rising energy costs, Centex knew that energy-efficient homes would be in demand and began to explore both high and low tech methods for saving energy. The result was a synthesis of construction techniques, innovative systems, and cutting edge products, resulting in an economical energy savings package.

Zero defect wall insulation was developed by packing the walls with loose R-13 insulation instead of fiberglass batts, improving the wall thermal performance and reducing heat loss. R-38/49 insulation in the ceiling and attic, plus careful caulking and sealing of all joints and penetrations further reduced leakage. This deeper insulation also surrounds the heating and cooling ductwork, improving the energy efficiency by more than 10%.

Instead of solid wood headers, Centex worked with the manufacturer to create properly sized, "engineered" headers with an insulated core. These headers do not shrink or warp, and the cost of the made-to-order headers was less than standard Laminated Veneer Lumber (LVL) wood headers, making them a cost-effective alternative.

A tankless water heater design supplies hot water on demand. When a faucet or other water source is opened, the system instantly heats the water. Because it is not limited by tank capacity, hot water is always in supply for showers, dishwashing and other activities. The compact size frees up

BUILDER PROFILE

Centex Homes, No. California Division
www.visitwindemere.com

Founded: 1950, Dallas, TX

Employees: Approximately 200

Houses: Aventura and Lunaria at Windemere in San Ramon, CA

Square footage: 2,230 to 2,740 sq. ft.
(3 to 4 bedrooms, 2.5 to 3.5 bathrooms)

Price range: \$959,000 – \$1,071,000

Centex Homes was named by Fortune Magazine as "America's Most Admired Company" in the Home building industry (2007). For more awards see www.centex.com/awardsrecognition.asp.

This builder is described in Building America's Solar Best Practices.



U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

“ Strong, sustainable building practices can...help a builder differentiate themselves in a competitive marketplace, while still keeping focused on the bottom line. ”

JEFF JACOBS CENTEX HOMES

The neighborhoods of Aventura and Lunaria were selected to showcase these building options, with a total of 25 homes pre-plotted with the basic PowerSave option. The plan features a variety of energy saving improvements that add value and comfort without unreasonable cost.



A PowerSave Plus Model Home in the Lunaria Development. Photo courtesy of David Springer, Davis Energy Group

KEY FEATURES

Continuous air barrier

Advanced framing with 2-by-6 walls, allowing for R-23 blown-in insulation in the walls and R-38 in the ceiling

Sealed ducts with mechanical ventilation

Transfer grilles for air distribution

Low-e spectrally selective windows

Combo unit for hot water and forced hot air

Properly sized air conditioning equipment

additional storage space, and the energy used to operate the tankless system is 33% less than a typical storage tank, a significant savings of both energy and money.

Savings in the Details

A great deal of the energy savings found at the Windemere development are generated by many small changes. For example, choosing high performance windows helps keep the home cooler in hot weather conditions. The low-emissivity spectrally selective windows also prevent fading furniture and carpets, an added bonus for homeowners, and they are more comfortable to sit near, compared to standard windows. Outfitting the lighting fixtures

with warm white fluorescent bulbs not only saves energy and emits very little heat, they can last up to ten years, depending on usage.

The Bottom Line

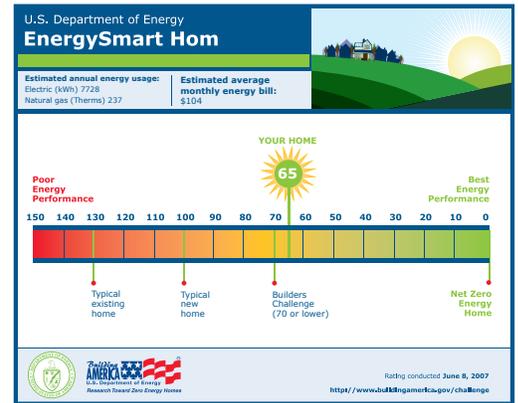
As noted by Jeff Jacobs, project manager for the Windemere development: “There are strong environmental and societal reasons for building energy-efficient homes. But strong, sustainable building practices can also help a builder differentiate themselves in a competitive marketplace, while still keeping focused on the bottom line. Simple inclusions like additional attic insulation and tankless water heaters are immediately cost effective for our homeowners.”

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.