

**the
evolution
of**

GREEN

Building



Energy-efficient home building, booming in Central Texas, has become both art and science.

By Sharon Jayson

Having emerged from another sweltering Central Texas summer of multiple triple-digit temperatures, energy efficiency and high utility bills are still on homeowners' minds.

Bluebonnet Electric Cooperative is adding an average of more than 300 meters a month. Many members are buying new homes, some of which are custom designed.

For those thinking about building a home, being "green" has evolved far beyond simple energy efficiency into a holistic approach called "building science."

It starts before plans are drawn, taking the

home's design beyond the physical structure.

How will the residents interact with the space indoors and the surrounding outdoors? Is the house placed on the site in a way that is the wisest use of the land? Is it too big? Is it built to be both energy and water efficient? Which materials are appropriate for our climate and region?

New techniques and technologies, coupled with this desire to build green, mean vast changes are under way in construction basics — materials for walls and roofs; attic insulation; heating ventilation and air-conditioning systems; natural and electrical lighting; the placement of windows and more.

The growing movement toward higher efficiency and sustainability got its start in Central Texas. In 1990, the Austin Energy Green Building program was the nation's first to focus on efficient energy and water use. A statewide energy code and national standards followed, and today,

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The green elements of this house include a northern orientation to protect it from summer heat and provide passive solar heat in winter, a metal roof that won't transfer heat inside and native live oaks to provide shade.
Home design by Oliver Custom Homes



HOW MANY ARE BUILDING GREEN?

Single-family homebuilders currently building most of their homes to be green:

33%

Of those,

58% build green homes exclusively

Source: Dodge Data & Analytics



OF ALL U.S. HOMEBUILDERS

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green building materials are the talk of the trade.

Consumers may be lured by flashy, innovative products — ductless, mini-split air conditioners, tankless water heaters and anything solar — but experts caution homebuyers not to get caught up in appliances or systems.

“It’s not about materials. It’s about enlightened choice or informed choices,” said Ray Tonjes, a Texas and national leader in energy-efficient home construction. “The basic premise of green building really starts with a good design.”

Tonjes has been a proponent of energy-efficient construction for decades. The president and founder of Austin-based Ray Tonjes Builder Inc., he also chairs the sustainable and green building committee of the National Association of Home Builders, a position he has held several times.

Last year, the national organization, along with Dodge Data & Analytics, surveyed 342 American homebuilders about green buildings, which they defined as having a focus on environmentally sensitive site planning, resource efficiency, energy and water efficiency, improved indoor environmental quality and the education of homeowners about those things.

The survey found that 33 percent of single-family homebuilders currently build most of their homes to be green. Of those builders, 58 percent build green homes exclusively.

Though not all that flashy, a so-called game changer in energy-efficient building circles is spray polyurethane foam (SPF) insulation. Its chemical reaction forms a continuous barrier that seals cracks, seams and joints from heat, which reduces unwanted humidity, mold, pollen and air infiltration.

It’s not all about energy and water efficiency. “Green building is about using local materials and (a) focus on buying things that are sustainable. Don’t think about buying things from Italy or getting wood floors from China. That is not



Don’t build a bigger house than you really need ... I spend a lot of time visiting with people about what they want and why they want it.

— Peter Pfeiffer
Co-founder, Barley/Pfeiffer Architecture

home is sited wrong, where there’s a tremendous amount of solar heat coming into the house, you’re just working against the curve.”

Energy efficiency isn’t only about construction. “You have to do preventive maintenance of all the energy systems in your home,” said Ross Britton, a managing partner at U.S. Ecologic, which provides energy-efficient and green-building consulting to builders and homebuyers in Central Texas.

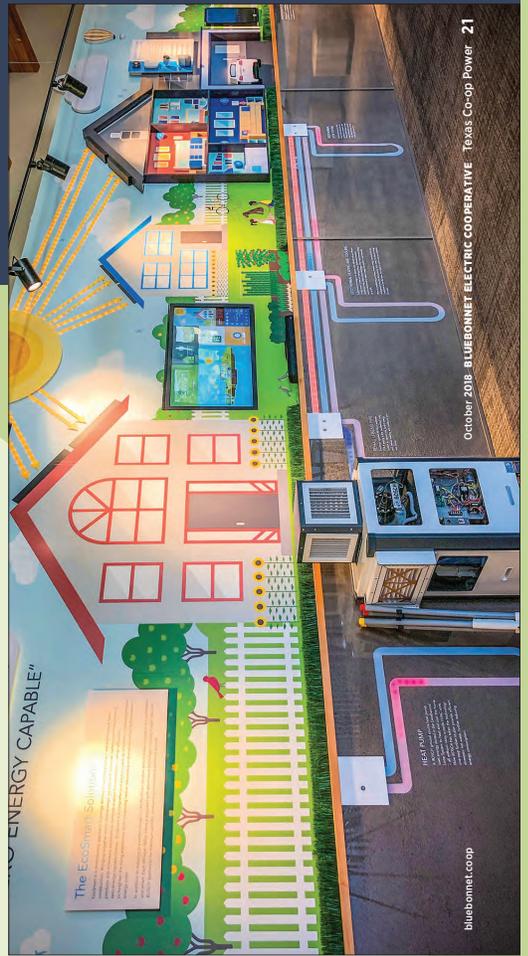
“Whether it’s a tankless water heater, HVAC system, a solar system — anything mechanical needs maintenance and upkeep in order to perform at its optimal level and keep your energy efficiency as high as possible,” he said.

“Landscaping is amazingly important,” added Stearns, the College Station builder. “A western tree fairly close to the house will save a tremendous amount of energy by providing good shading.”

In the past 15 years, building science and the research associated with it have provided new insight into energy efficiency and home construction, Stearns said.

“People are beginning to snap to the idea that a home is a living, breathing thing,” he said, “and its health depends on how it’s put together and the parts used in it.”

A wall at the Whisper Valley amenity center, below, illustrates how the community’s geothermal system works to heat and cool homes.



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The basic premise of green building really starts with a good design.

— Ray Tonjes
President of Ray Tonjes Builder Inc.

energy efficient, it’s important not to build an excessively large structure.”

Builders and architects say solar panels may be more in demand as prices have dropped, but they suggest you first build the envelope of the house (roof, floor, exterior doors, windows and exterior walls) to be as energy efficient as possible before adding solar panels.

“People put on solar panels or things that show a lot — and they may be energy efficient — but they make that investment before they’ve done everything in the house,” said Hugh Stearns, owner and founder of Stearns Design-Build in College Station. “When people add solar panels so their neighbors can see they’re cool, that’s what we call ‘eco-bling.’”

It’s often difficult to convince homebuyers of the best bang for their buck, Oliver said. “Did I, as builder, talk my clients into spending a bit more money on something sustainable that will last longer, such as synthetic decking that uses recycled plastic from

The high-efficiency water heater, at left, automatically drains for maintenance. The light gray bottom of the AC unit, far left, holds a filter that is changed just once a year. The silver pipe between the two units pulls air from the foam-insulated attic into the home. Even on a hot summer day, that air is only slightly warmer than the home’s interior.



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