On the premise that prefinished woods minimize exposure to chemicals, cabinetry selected for the upscale kitchen was a prefinished Birchwood by Bertch Cabinets. The decorative hand-hammered copper behind the stovetop was created by Utah artist, Ken Emerson.

frisco's zero energy home

A striking look was achieved on the staircase with a Newel post and treads made of recycled pine and American Tile stonework insets beneath each step. The oak leaf ironwork was created by Ft. Worth artisan Barry Wenger.

EXEMPLARY ENERGY EFFICIENCY MEETS GREENBUILT

by elaine rogers
photography by terri glanger

If not for the signs in the front yard noting its unusual status, the Metroplex's first zero energy home might seem just another newly constructed, visually pleasing model home, one with a wide variety of extra features and modern touches mixed in with an attractive, contemporary design.

It soon becomes clear, however, that there's far more here than what first meets the eye.

Initially unveiled to the public in September during the 2004 Dallas Parade of Homes, the zero energy home was one of eight new residences showcased in Frisco's 4,000-acre master planned community, Lone Star Ranch. A joint offering of Jim Sargent of AndersonSargent Custom Builder LP of Waxahachie and BarleyPfeiffer Architects of Austin, the two-story, four-bedroom home was also built as a demonstration project for the U.S. Department of Energy's Zero Energy Home Building program and intended to inspire both builders and homeowners to consider the merits and possibilities of building homes that make more sense both environmentally and fiscally. Evidence of its success and popularity came with "Best Overall House" and "Best Interior Design" awards received during the prestigious fall event.

A major player in the process of introducing this trend-setting showpiece of Building America Program's energy-efficient systems to the North Texas area was Chris Miles, homebuilder and host of House Talk, a radio home show on KSKY AM660. After meeting with Sargent on the show and becoming intrigued by his energy and environmental building practices and the almost unbelievable cost savings possibilities of Building America's so-called "systems thinking" concepts, Miles eventually signed on as project manager for Frisco's zero energy home.

The beauty of this property, Miles says, is that it provides a tangible example of what he and others believe our future homes are going to look like while visually disputing the common misperception that going green with your construction means building an ugly or bizarre-looking house.

"The truth is, when people think about a green home, they think about something that looks weird," he explains. "So part of our challenge was

What makes it so different:

The home you live in probably produces more pollution per year than the car you drive, and our nation's buildings consume more energy than either the transportation or industry sectors of the economy. Similarly disturbing, the U.S. Environmental Protection Agency claims the air in most new homes is likely to be 10 times more polluted than the air outside. Unfortunately, few of us consider issues like indoor air quality or the environmental impacts of the construction process when making our building or remodeling decisions, but experts say it's high time we did.

As food for thought, here's a brief run-down of some of the energy and environmental building systems that were implemented in Frisco's inspirational zero energy home.

Insulation: a non-toxic foam insulation product called Icynene sprayed on the underside of the roof and on some exterior walls blocks even the smallest possible source of heat loss or humidity gain.

Hydronic Heating: A water-based heating system recirculates hot water to a super-insulated, large capacity Polaris water heater, and a radiant floor heating system runs warm water through the concrete floor, keeping it warm and comfortable year round.

Exterior Construction: Walls are made of recycled wood pallets filled with concrete and James Hardie fibercement siding adds to the durable, energy-efficient structure. A green metal roof cleverly hides the photovoltaic panels placed on the west and south sides.

Utilizing the old-fashioned concept of natural ventilation, a simple screened patio takes advantage of cross breezes and overlooks a small yard accented by a generous outdoor grilling area and drought-tolerant vegetation.

Ducting: A duct system of sealed, unlined sheet metal evens out room-by-room temperatures and reduces accumulation of dirt or mold in addition to minimizing duct leakage—a major source of energy waste.

Xeriscaping and Drip Irrigation: Landscaping with native plants and using drought-tolerant sod and low water use vegetation means less watering. Rainwater collected in a large barrel outdoors handles the yard's irrigation needs and an irrigation controller reduces outdoor water use by as much as 50 percent.

Plumbing: An on-demand water recirculation system from a company called Metland D'MAND Systems dramatically decreases the amount of water homeowners typically waste while waiting for hot water to come out. Instead, residents merely push a doorbell-styled switch placed near each sink, wait 10 seconds, and then turn on the faucet for instant heated water.

Rustic flavors, warm colors, artistic touches and the use of "organic" materials dominate a décor that designers of the zero energy home call "Frank Lloyd Wright meets 21st Century." In the living room, features include a concrete faux-stone wall, a natural-shaped mesquite mantel and decorative mesquite blocks over the door and television. The woodwork was provided by 3 C Rustic.

Thanks to a creation of TerraGraphics that imprints photography onto wallpaper, giant photographs of a beach scene uniquely decorate the walls of a second floor girl's bedroom. Inspired by the Make-A-Wish Foundation of North Texas, the room was elaborately designed as a Make A Wish room for a beach-loving 13-year-old name Giovanna during the 2004 Dallas Parade of Homes. The small Italian-made staircase leads to a loft decorated as a girl's exclusive clubhouse or hideaway from brothers.

In the master bedroom, decorators continued with the home's warm tone, creating an arts and crafts design on the patterned floor, basket-weave wall effects behind the bed and hand-painted transoms over doorways. Walls are constructed of paperless sheet rock covered by American clay, and paints used are low VOC (volatile organic compound) products from Sherwin Williams.

The rough exterior of the master bath is centered by granite vessel sinks hewn from a boulder, courtesy of StoneStation.com. The countertops are concrete and the tub surround, tumbled travertine.

being able to create something as appealing as this home is, so people could actually see that greenbuilding isn't so strange after all."

Intrinsic to the process was the work of designer Mary Sorenson of Cedar Hill Design Center who was charged with creating an upscale and comfortable design theme that fit with the energy-efficient and healthy house concepts of the project. As a result of her efforts, rustic flavors, warm colors, artistic touches and the use of "organic" materials dominate a décor that Sorenson terms "Frank Lloyd Wright meets 21st Century."

"We decided early on that we didn't want it to look like an earth ship," Sorenson explains. "Even with the use of renewable resources and healthier choices, we knew we could make it a home that was beautiful and mainstream but also relaxed, inviting and family oriented."

To avoid the allergy issues that can accompany carpeting, more environmentally friendly and greener choices for flooring included stained concrete downstairs and bamboo (a member of the grass family) upstairs, while walls were constructed of paperless sheet rock, a product that resists mold and mildew as well as termites and which Miles cites as the "wave of the future" in the building and remodeling industry.

In turn, the walls were covered by American clay, a product that comes in a limited range of colors but produces interesting and attractive results. All paints used in the home were specifically selected as low VOC products, which means they contain less of the volatile organic compounds that outgas into the air and are commonly found in caulks, paints and glues. Additionally, 80 percent of the light fixtures in the zero energy home use compact fluorescent light (CFL) bulbs that burn brighter per wattage and produce considerably less heat than traditional incandescent bulbs.

Matt Reynolds of AndersonSargent explains that CFLs use 17 watts on average per bulb as compared to 75 watts per bulb with typical products. "It's one of those things that seems minimal," Reynolds says, "until you consider that a home may have 50 or more light bulbs. Then, it really adds up."

These sorts of environmentally friendly choices, impressive on their own, are merely finishing touches on an array of greenbuilt concepts that may seem a bit mind-boggling to the average consumer. The zero energy home touts a synergistic combination of elements such as passive solar design, a ventilated radiant barrier roof, improved window and insulation products, sealed whole house fans and high performance duct systems with hydronic heating, a tankless water tank, a photovoltaic solar energy system and xeriscaping—all heralded as features whose time has come.

Unfortunately, the price tag on incorporating greenbuilt and energy efficiency systems into new home construction is estimated to be 35 percent higher than doing things the traditional way, so these systems for long-term energy savings still require substantial upfront costs. And until public demand for greenbuilt homes and environmentally friendlier building practices increase, many builders are not inclined to make the switch.

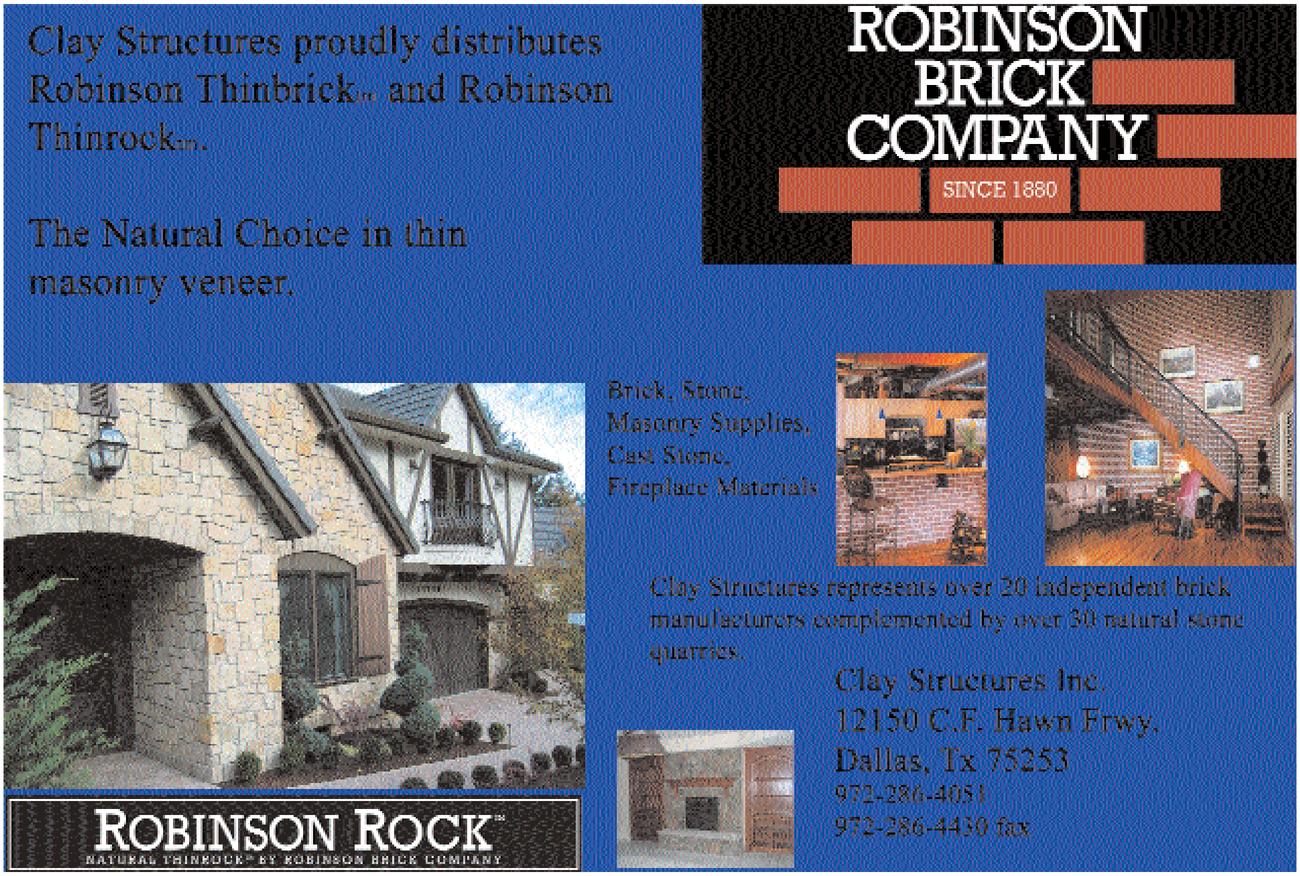
Nonetheless, the statistics are impressive and North Texas' first energy home remains noteworthy. Energy costs on the home are expected to be equivalent to those of a house one-third its size and with the addition of solar photovoltaic panels to the roof, energy usage drops even further. The term zero energy comes from the fact that the structure is actually hooked up to the utility grid, effectively sending unused energy back into the system, so it roughly produces the same amount of energy as it consumes in a calendar year and achieves the "net zero" energy consumption figure.

A small step toward mainstreaming the concept of the "home of the future" is an increase in construction of homes that meet the minimum requirements for the Environmental Protection Agency's Energy Star program. Energy Star homes typically consume an estimated 15 percent less energy than a traditional home. It should be noted, however, that building homes to be more energy efficient and implementing greenbuilding practices are two separate issues, and some Energy Star builders are more environmentally friendly in their construction practices than others.

Four local builders who were recognized recently by the Texas Association of Builders for exceeding Energy Star efficiency standards included Carl Franklin Homes, Paul Taylor Homes, History Maker and Mercedes Homes.

Interestingly enough, Frisco was a logical location for the Metroplex's first zero energy home since it is the first city in the U.S. to instate a greenbuilding program that mandates all new construction to meet the EPA's Energy Star standards. These guidelines raise the costs of new construction in the city, but homeowners there seem to take it in stride. City officials report new construction in Frisco is booming and estimates are that the city saves up to 30 percent of energy costs in each new home built there.

Currently unoccupied, the zero energy home is on the market and will likely become a private residence in the near future. For more information, visit www.zeroenergyhomedallas.com. ■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