

Model Makeover

A 1960s rambler transforms into a showcase of green building

By Tracy Mitchell Griggs

photographs by
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FOR SINGLE MOTHER NANCY BARNES, the remodeling of her home on a quiet cul de sac in southern Prince George's County was driven by the need to accommodate her 12-year-old son, a paraplegic since birth.

"The house initially suited our needs," Nancy says about the three-bedroom 1960s rambler, which she bought to be close to her elderly parents and her job with the Postal Service. "But as my son grew older, I needed to address [his] long-term care needs, and it became apparent we were outgrowing the space."

The house measured 1,500 square feet; the rooms and hallways were cramped; and the interior spaces weren't wheelchair-accessible. Nancy

Old and New: Nancy Barnes's 1960s brick rambler, left, was renovated into a 4,000-square-foot Mediterranean-style green home. Opposite: the entryway with arched door and inlaid mosaic tile floor.

BEFORE PHOTOGRAPH FROM THE ALEXANDER GROUP



The interior features universal design elements, such as three-foot-wide doors and four-foot-wide hallways, so the homeowner's son can move easily between rooms.

Right: A bathroom accommodates Nancy's paraplegic son and is decorated with cheerful lime-green walls, a Silestone countertop and colorful tile. Below: the ground-floor powder room with its glass mosaic tile sink wall. Opposite: the home's dramatic great room and scissor-truss roof system.



began looking at other houses about eight years ago, but most still would need extensive work to meet her family's requirements. Her son has respiratory problems, too, she adds, so any new home or remodeling plan would have to address indoor air quality. While searching, Nancy began to educate herself about universal design and healthy homes by reading magazines and watching Home & Garden Television.

Once she chose to stay put and remodel — a decision made easier by the views of farmland to the rear of the house — Nancy steeled herself for the challenge. However, she didn't foresee the five years it would take to find a builder who could incorporate many of the universal design and green elements on her wish list. She interviewed at least four companies. "One arrived and took measurements and never came back," she says. "Another produced drawings, but then I had difficulty obtaining copies. This was definitely the most challenging and frustrating aspect of the entire process."

Nancy's attorney suggested she contact Alex Dean, CEO and president of the Alexander Group, a Kensington-based design-construction company that has specialized in building energy-efficient homes for more than 30 years. "I was intrigued by the possibilities this project presented for our group," says Dean. He and his staff have earned several green certifications, including the Green Certified Professional designation from the National Association of the Remodeling Industry.



IT'S NOT EASY BEING GREEN

ACCORDING TO THE U.S. GREEN BUILDING COUNCIL, LEED-certified homes can have energy savings of more than 30 percent over homes built to the International Energy Conservation Code, a widely used standard.

Many LEED homes owe part of their certification to the quality of the indoor environment, says Alex Dean, president of the Alexander Group. This was especially important for Nancy Barnes's son, who has health problems.

To address that concern, the Barnes home features two high-efficiency heating, ventilating and air-conditioning systems, including a system for bringing fresh air into the well-sealed house, and air and ultraviolet light filters to capture and kill pollutants and bacteria.

Other elements include:

- 1 Garage pollutant protection: All garage openings to the home are sealed, and a garage exhaust fan operates on a timer.
- 2 Environmentally friendly finishes: Carpeting features 45 percent post-consumer recycled content, and wood flooring produces low emissions of volatile organic compounds. The cabinets are made from Forest Stewardship Council-certified wood and are formaldehyde-free. Low-VOC paints are used throughout the house.
- 3 Spray foam insulation: The material was used to insulate all walls, including in the basement and crawl space.
- 4 Carbon monoxide monitors are on each floor.
- 5 Energy-efficient lighting: Ninety percent of the home's lighting is produced by compact and pin-based fluorescent bulbs.
- 6 Energy Star appliances.
- 7 Energy-efficient windows and exterior doors.

The LEED for Homes program also requires homeowner education. Dean and his team assembled an operations and training manual for Nancy Barnes that covers each of her home's features.

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The Alexander Group began evaluating Nancy's home for the remodel in 2007. That work coincided with the pending launch of the Leader in Energy and Environmental Design (LEED) for Homes program by the U.S. Green Building Council, a nonprofit that advocates sustainable building practices, says Dean, who attended the first LEED technical workshop in 2008. The LEED for Homes program is a green certification system that ensures that homes are designed and built to be healthy and energy and resource efficient. The organization began a pilot program in 2005 and officially launched LEED for Homes in February 2008.

"We saw this project as a great opportunity to register and build one of the first LEED homes in the D.C. area," Dean says. But for Nancy, it meant she would have a house that not only would accommodate her son, but also provide extra space for visiting family and rooms that might eventually house her parents.

After reviewing several design proposals, she settled on a Mediterranean-influenced architectural style that uses traditional exterior stucco, finished with a high-performance acrylic coating and sturdy concrete roof tiles in a classic terra cotta shade. It's a dramatic transformation, but part of the original house still exists beneath the skin of the new 4,000-square-foot dwelling. The builder kept two first-floor walls and the basement exterior walls so that the home would qualify as a remodeling project under county regulations. It was also cost- and resource-efficient to recycle some of the existing dwelling, Dean says. "Everything else was removed, including all electrical, plumbing and HVAC systems."

Nancy rented an apartment nearby during the 12 months of construction so



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that she could oversee the extensive remodel. "Although construction went pretty smoothly, there were a few surprises," she recalls. "We discovered a stream under the house during foundation excavation and had to add three sump pumps. I also did research on hooking up to county gas lines but had to scrap that idea due to cost." Instead, an underground propane tank provides fuel for heating, hot water and cooking, as well as for a backup generator.

"In addition to providing essentials, the house is designed to act as an assisted-living care home," Dean says. "In the event of a power failure, heating, cooling and cooking functions can be maintained."

The spacious kitchen features eco-friendly cherry cabinetry and Energy Star appliances.

Opposite: Arched doorways on the front portico, which offers barrier-free access from the driveway.

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Universal design elements include three-foot-wide doors and four-foot-wide hallways. There are no thresholds to impede movement between rooms, and an elevator provides easy access to each of the three levels for Nancy's son.

While the house presents a striking new facade to the street, Nancy wanted to make sure the views of open space to the rear, the lot's best feature, were preserved. The main living spaces on the first floor — a large open kitchen and an airy great room — are oriented toward the pastoral landscape. Her son's bedroom and bath on the main level also overlook the bucolic scene.

"I feel very fortunate that I was able to build a home that provides everything I



The kitchen sink windows frame a view of the rolling farmland behind the house.

need for my son and I was able to stay in my neighborhood," Nancy says. "It was definitely worth the wait."

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GOING FOR GOLD

ANYONE CAN SAY A HOME IS GREEN, but the U.S. Green Building Council's LEED for Homes program sets guidelines for what that means. The program offers four levels of certification: Certified, Silver, Gold and Platinum, each defined by progressively stricter standards and assigned a number of points (the scale adjusts for house size, so that smaller buildings need fewer points). The Barnes project is targeted for Gold.

The nonprofit USGBC, founded in 1993, estimates that there are more than 70 local and regional green home building programs in the United States, each with its own rules. "But the LEED program is the most rigorous," says Alex Dean, president of the Alexander Group, which designed and built the house for Nancy Barnes.

Nate Kredich, USGBC's vice president of residential development, says, "LEED certification verifies that the home is designed to meet the highest criteria and operates exactly the way it is supposed to — with energy efficiency and health in mind, and the potential to save residents money on energy and water bills while reducing carbon footprints and environmental impact."

According to the USGBC, there are 697 residential units in the Washington area registered with the intent of achieving certification (if a multifamily project registers, each unit is counted separately). As of March, the program had certified only one single-family home in the area.

To qualify, the builder, owner or developer must register the project before construction begins and hire a third party, a technical consultant that acts as a provider for LEED for Homes, to assist with verification and documentation. A "green rater," who works for the provider, critiques the project and reviews the LEED checklist to determine a preliminary certification level.

During construction, the builder supplies proof of construction methods and materials used, and the green rater inspects, performs tests and calculates a home energy rating. Once the project is finished, the builder gives final documentation to the green rater, who does one last inspection, validates the number of points to award the project and submits the portfolio to LEED for Homes for review.

Steven Winter Associates, the LEED provider contracted by the Alexander Group, submitted the Barnes project in March for Gold-level certification, with 87.5 points (the threshold for Gold for a home this size is 80 points). Kredich says that if a project has been well-documented, certification can take place within 30 days.

The house also was recently named a 2009 finalist by the National Association of Home Builders Green Building Program, which recognizes efforts that support environmentally friendly design and construction.

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