



Go Big and Green

Building large custom homes that meet energy efficiency standards is possible using design/build

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Opinions and politics aside, homeowners have the right to build any size home they want or can afford to build. No association, trade professional or politician will succeed in telling U.S. homeowners how to spend their money and what size home is appropriate. Thus, the ability to design and build any size home with efficiency and sustainability in mind is key to the future of custom home building.

When Jim Baker, president of Orefield, Pa.-based studio26 Homes and his two sons, Scott Baker, vice president of operations, and Brian Baker, vice president of marketing and design, launched their company in 2004, it was to fill a void they saw in the residential market. “I was in the commercial sector and was familiar with LEED but at that time there was no LEED for residential. We saw this as something that was emerging,” says Brian Baker.

Studio26 builds homes following the standards provided by the U.S. Department of Energy Building America Program and was the first builder in Pennsylvania to build a LEED-certified Silver home. This home — shown here and on the following pages — received Gold certification through the NAHB National Green Building Program which was approved as an ANSI standard in January. “We are committed to green homes. And one way we define green homes is homes that are at least 40 percent more energy efficient than standard code homes,” Baker says.

“There are different shades of green. A smaller home using fewer resources and less energy is greener than a larger home using more resources. I don’t deny that. But it’s not my place to tell a person if they deserve a big or small home. People are going to build big homes anyway. The technologies are out there [that can] be applied to all homes and buildings across the board,” Baker says. “We try to design a home that meets someone’s needs in a small footprint, which would also cost them less with no wasted space.”

Key Green Features

This home was oriented due south with the long portion of the home oriented for passive solar benefits. It includes overhangs to shelter the hot sun during summer months and allow the sun to

enter the home during winter months when solar heat gain is appreciated. “We chose the style of home because Craftsman allows for [more overhangs] than other designs. Colonial homes don’t have many eaves and sometimes it can look forced and not part of the architecture,” Baker adds.

The garage was sited on the west side of the house to buffer it from the harsh winds as the home sits on a hill. A southwest-facing sunroom has features within the room to encourage energy efficiency. “Most of the windows are operable and can create cross ventilation in the summer. It is completely sealed off from the rest of the home, insulated separately with its own HVAC and exhaust systems. The owner can smoke his cigars in the room without contaminating the rest of the home. The doors are actually exterior doors so you can close it off from the rest of this house,” Baker says.

When designing and building a large green home, it’s essential to look at all building systems as being connected. “Similar to the human body, almost every system relies on the next to ensure that the home performs at its highest capability. The more integrated, balanced and smooth-running all of the systems are relative to each other, the higher the performance that can be expected from the home,” Baker says. “With these two key understandings in place, we feel we are well on our way to deliver successful green, high-performance homes that not only save our homeowners money on their bills every month, but also provide safer and healthier retreats that they can call home.”

To guarantee efficiency, the HVAC system was designed before studio26 broke ground. “Many builders will oversize the units or have the HVAC [installer] do the HVAC units. Also, unfortunately, homes will be built and the contractor will put things in almost as an afterthought. Because our homes are so tight we can now optimize the system and not oversize it. The system was appropriately designed for the load of the house,” Baker adds. One single 4-ton ultra-efficient heat pump is used in this house.

NAHB Green points for Levis residence Orefield Pa		Points required for each level			Points awarded	Level achieved
Section:		Bronze	Silver	Gold		
1	Lot Design Preparation and Development	8	10	12	42	Gold
2	Resource Efficiency	44	60	77	102	Gold
3	Energy Efficiency	37	62	100	251	Gold
4	Water Efficiency	6	13	19	28	Gold
5	Indoor Environmental Quality	32	54	72	86	Gold
6	Operation Maint. & Owner Education	7	7	9	19	Gold
7	Global Impact	3	5	6	14	Gold
	Additional points sections of your choice	100	100	100		
	Total target points for Bronze Silver or Gold	237	311	395	542	

Education and Challenges

With most custom home projects, challenges are ever present, and this home was no exception. One challenge Baker met was minimizing all the materials required for building such a large project. “Another challenge lies in the fact that a larger home typically has more exterior surface area exposed to the outdoor climate, which inevitably increases the home’s vulnerability through

possible weak spots in the building envelope. This can be overcome with sound design and extra-attentive care including effective on-site quality control,” Baker adds.

Educating clients that energy-efficient solutions are available can be another challenge. “Unfortunately, in our region green isn’t at the forefront or as well-understood,” Baker says. “We get two clients: one who likes the style of our homes; and then you get the people who come to us because they know we are a green builder. The best thing we can sell is energy and cost savings. The other thing we can sell is healthy homes; we live in an area with high allergen and pollen levels.”

For trades looking to take their clients to the next level by offering energy efficiency no matter the size home they’re requesting, Baker emphasizes that builders should take extra time planning energy-efficient strategies. “Before jumping into any green project, builders may need to first take a step back and generate an initial plan for success because lot choice and site design, including passive solar strategies, are significant factors in laying the greenest possible foundation for the project ahead.”

studio26 homes

studio26homes.com

Orefield, Pa.

Company Stats

Industry memberships: DOE Building America Builder-Partner, EPA Partner, USGBC, BPRA, NAHB, PBA, LVBA, LVGBF

Residential new construction: 90 percent

Residential remodeling: 10 percent

Exterior

Roofing: CertainTeed

Siding: James Hardie

Brick/stone/stucco: Eldorado Stone

Doors: Pella Windows and Doors

Locksets & hardware: Baldwin Hardware

Garage doors: Clopay

Insulation: Johns Manville

Skylights: Tru-Lite Skylights

HVAC: Trane Inc.

Interior

Doors: Simpson Door

Tile: Marca Corona, Crossville

Brick/stone/stucco: Eldorado Stone

Fireplaces: Napoleon

Central vacuum: Beam

Outdoor Living

Decking: Trex

Lighting: Hinkley

Fireplaces: Majestic

Grill: Lynx Grills

Kitchen

Sinks: Kindred, Blanco

Faucets: Kohler Co.

Range: Thermador

Exhaust hood: Thermador

Ovens: Miele

Refrigerators: Thermador

Wine coolers: Liebherr

Dishwashers: Miele, KitchenAid

Washer/dryer: Whirlpool

Microwave oven: Thermador

Bath

Tubs: Aquatic

Toilets: Toto

Showers: Aker

Shower faucets: Kohler Co., Grohe

Sinks: Kohler Co.

Sink faucets: Kohler Co., Grohe

Home Technology

Lighting control system: Lutron, Leviton

Security system: Honeywell

