

RaphaelArchitects

2011 CBCC Environmental Seminar

‘Building Green on a Budget’

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Raphael Architects

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The Central Bucks Chamber of Commerce Architectural and Environmental Committee presented its annual environmental seminar on March 17 at Aldie Mansion in Doylestown. The seminar, “Building Green on a Budget: Successful, Sustainable Projects for Home & Business,” was hosted by Heritage Conservancy. Interested homeowners and professionals heard keynote speaker Nic Darling, Chief Marketing Officer for Postgreen Homes, describe his development company’s business model for producing affordable, sustainable homes in Philadelphia. Three case study panel discussions followed Darling’s presentation, including a new LEED home, commercial adaptive re-use projects and energy-saving improvements for an historic farmhouse.

Darling ventured outside his Philadelphia comfort zone to deliver the keynote speech to the 110 suburban homeowners, architects, planners and contractors who attended the free seminar. Postgreen Homes is the recipient of the 2010 LEED Home of the Year award for the 100k House project. Darling and Postgreen founder Chad Ludeman highlighted the unique thought process they employ to evaluate, design and build their efficient urban homes.

To serve transitional neighborhoods in Philadelphia, Postgreen establishes construction priorities to achieve the desired cost point. All projects are new construction on relatively small row homes sites just 16 feet to 20 feet wide. The new buildings range from 1200 to 1400 square feet and sell for under \$400,000. Once Postgreen determines the price point a specific neighborhood is able to absorb, it defines performance characteristics that it can deliver for the home’s established sales price.

All projects Postgreen undertakes must be energy-efficient and provide healthy living environments. Projects are evaluated in these ten categories:

1. Location – Projects must be within walkable distance of public transportation.
2. Design – Projects balance the objective to minimize size with the desire to maximize “awesomeness.”
3. Air sealing – Construction techniques include house gaskets and butyl tape to ensure an extremely tight building envelope. Postgreen aims to achieve a 50-percent reduction in Home Energy Rating System (HERS) over code-construction homes. Some of Postgreen’s homes have achieved HERS ratings of 25 percent, a 75-percent reduction over code-compliant homes.

4. Insulation – Postgreen employs a double stud wall construction with a 3-inch air space between the studs to create an 11-inch blown cellulose insulation cavity. This construction provides an approximate R value of R40. Typically roof construction includes structural insulated panels combined with spray cellulose insulation to achieve an R value of R78.
5. Ventilation – Energy Recovery Ventilation (ERV) units with heat exchangers are required in these tightly sealed environments. The ERV units run at approximately 97-percent efficiency.
6. Windows and doors – Triple-pane construction and insulated doors are required to maintain the insulation and air-sealed environment.
7. Mechanicals – The well-insulated environment enables Postgreen to heat the entire home with a ductless mini split air conditioning and heat pump unit.
8. Water conservation – Low-flow toilets and fixtures lower operating costs by reducing water usage and decrease energy consumption by using less heated water.
9. Efficient appliances – Smaller, efficient refrigerators and freezers are viable in a walkable neighborhood offering convenient supplies of fresh groceries.
10. Low Volatile Organic Compounds (VOCs) finishes – Tight interior environments require extreme care to limit toxin off-gassing from cabinets and carpets.

Conspicuously absent from Postgreen’s analysis is the use of recyclables, salvaged components, and photovoltaic panels, thermal solar panels and other alternative energy sources. Postgreen has found that currently these products do not provide sufficient returns to justify their costs in their cost-sensitive homes.

Geothermal Heating’s Bill Burk, Shelly Enterprises’ T.C. Feick and Heat Shed’s Charlie Reichner led the first panel discussion highlighting the design and construction of a recently completed LEED Platinum house in Newtown. The home was featured in 2010’s environmental seminar.

Peter Brown, Vice President of marketing for First Savings Bank; Joseph Phillips, architect/partner at George J. Donovan AIA & Associates; and Steve Swartley, President of Penn Builders presented First Savings’ recent triumphs in adaptive re-use: an industrial building, an abandoned gas station and an historic farmhouse to create the bank’s administrative headquarters in Perkasio and two retail banking branch offices in Buckingham Township.

Phil Getty concluded the evening by presenting the practical, sustainable techniques he has utilized to improve the energy efficiency of his 200-year-old farmhouse.

“Building Green on a Budget” was sponsored by Heritage Conservancy, First Savings Bank and E&E Building Group.