

IT'S NOT EASY BEING GREEN...
it's downright amazing!

WICKHAM POND

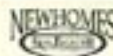
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EarthCraft 101

The sun's rays may be hampered but there is no shortage of light with these Low-E insulated windows.



Despite what some people may think, building a "green" home doesn't mean building a home that looks as sterile as a hospital and is as stale on style as an industrial warehouse. Today's environmentally friendly homes are as beautiful on the eye as they are on the environment.

To prove our point, we've taken apart one of the homes featured on the Earth-Craft House Tour. Forget going behind the scenes, we're taking you on an all-access, behind-the-walls tour of the residence – from the foundation to the roof and everything in between. Featured are just some of the environmentally friendly ideas incorporated by Abrahamse & Company Builders at their five EarthCraft-certified homes at 1012 Druid Avenue in Charlottesville. The residential in-fill project is also the first residential project in Virginia to be certified by the American Lung Association's Health House program.

FOUNDATION

The foundations of the Druid Avenue homes feature the Superior Walls Xi Foundation System — 5000-psi steel-reinforced insulated concrete wall panels. The product forms a concrete cavity wall panel with concrete studs at 24 inches on center attached at the top and bottom with bond beams. This foundation system creates a superlative capillary break between the ground and the structure since the bottom bond beam of the foundation as well as the concrete floor slab is never in contact with the ground itself. Superior Walls are warranted for 15

years against defects in workmanship and side-wall water penetration. The concrete used in Superior Walls provides warranted lifetime protection against freeze/thaw cycles and water vapor transmission. With 5-1/2" fiberglass batt insulation installed between the studs, the foundation system delivers an R-Value of 31.5.

Recycled Fly Ash is a significant component in the concrete mix used in the construction of the houses at 1012 Druid Avenue. Fly Ash is a by-product formed in the process of burning coal to make electricity. Incorporating Fly Ash into concrete actually improves the strength and segregation of the mix. Using Fly



Stunning stained concrete floors by Daniel McHugh of Abrahamse & Company Builders, make good use of coal production by-products.

Ash concrete is an easy way to recycle an otherwise useless by product

FRAMING

The exterior walls are constructed of 2 x 4 spruce studs with 1/2" oriented strand

board sheathing and Tyvek house wrap. The walls are insulated with BioBased Systems soy based polyurethane spray-in-place foam. The walls are framed from the foundation plate all the way to the roof plate as one continuous panel. The floors are then "balloon framed" within the continuously insulated exterior envelope to reduce air leakage and provide continuous insulation. BioBased 501, is water blown and contains no CFC, HCFC's or formaldehyde. BioBased foam insulation is not fiber based and contains no harmful particulates.

WINDOWS

Low-E Insulated windows allow a large amount of light into the living space without sacrificing efficiency and comfort. The Low-E component of the windows also blocks harmful UV rays which, over time, can cause your furniture to fade and deteriorate prematurely. The highly insulated glass structure maximizes the amount of light coming into the home without compromising the tightness and insulated efficiency of the building envelope.

SYSTEMS: HEATING, VENTILATION and AIR CONDITIONING (HVAC)

The heating and air conditioning system of each Druid Avenue home includes a **3-ton 16-SEER variable-speed Lennox heat pump** with a dual speed compressor and 15 KW of electric back-up heat. The duct system is designed to provide proper air distribution, low velocity, and quiet air flow to all conditioned spaces, free from objectionable drafts. Multiple return air or transfer grills are installed to maintain proper airflow and pressure in all spaces. Hinged splitter type, balancing dampers are installed in trunk ducts at all main tees and wyes. SEER is an energy consumption rating similar to the gas mileage rating in cars. Standard in most new houses are 10 SEER units.

Each Druid Avenue Health House is equipped with a **Healthy Climate 5-inch pleated media air filter** with a minimum MERV rating of 16. Installed in the duct system, it is designed to work with the home's heating and cooling system to deliver cleaner, fresher air

throughout the entire home.

A MERV 16 filter is designed to remove a minimum of 95 percent of circulated fine particles (from .3 microns and up) like dust, mold spores, and other allergy-aggravating irritants that are easily inhaled deep into the lungs. In comparison, MERV 14 filters are typically used as the final filters in hospital HVAC systems.

Radon Mitigation System

Radon is an odorless radioactive gas that occurs naturally in the ground and can seep into our houses. According to the American Lung Association, radon is the second-leading cause of lung cancer in the U. S. today. These residences have a system known as sub-slab depressurization which uses pipes installed below the concrete slab that are vented through the roof. If an unusually high level of radon is detected, an in-line fan can be added to enhance the system's function.

Sealed Combustion Fireplace

Each Health House fireplace is a **Lennox Merit Plus direct vent, sealed combustion, natural gas fireplace**. Combustion



As safe as it is beautiful—a Lennox Merit Plus direct vent, sealed combustion, natural gas fireplace.

pollutants are gasses or particles that come from burning materials. The American Lung Association Health House standards require that all combustion appliances be directly vented out of the house.

Whole House Dehumidifier

Indoor air quality is maintained by a ducted, Ultra-Aire whole-house dehumidifier capable of keeping the relative humidity of the entire home at a level lower than 50 percent. Controlling the amount of moisture in the air keeps molds, funguses, mites and other biologi-

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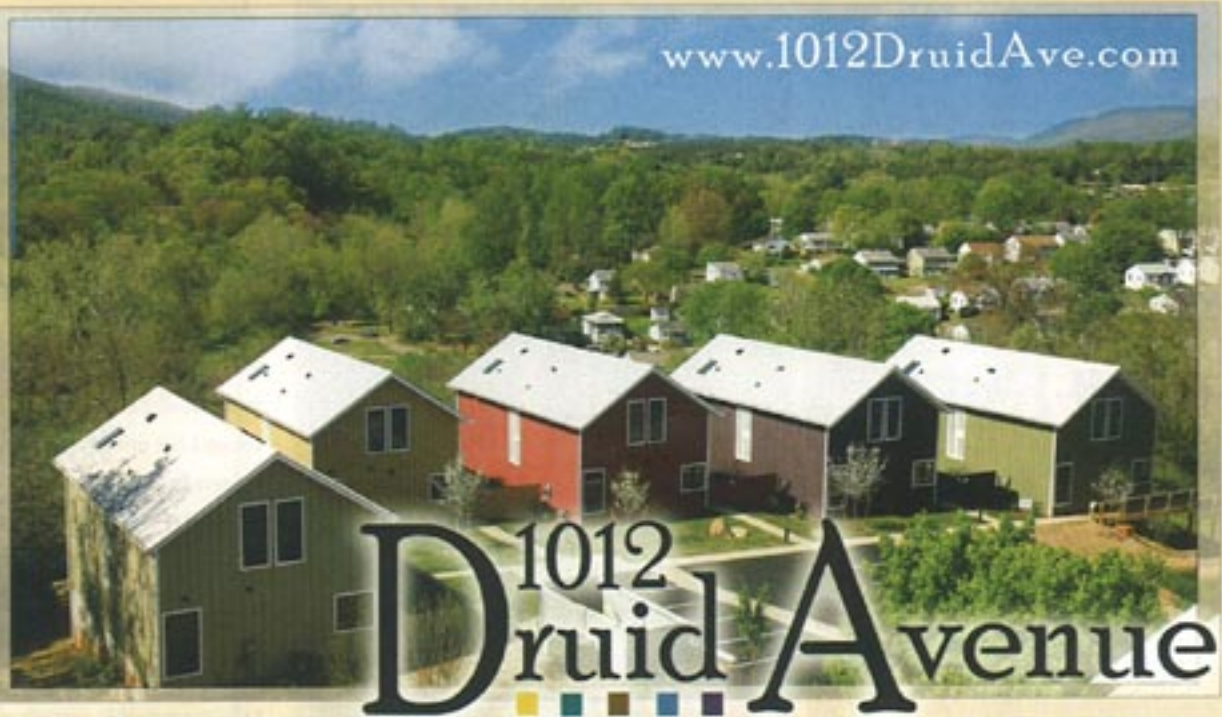
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Abrahamse & Company BUILDERS

Andrew Thomas ARCHITECT



Directions: I64 to Rt 20 exit. Head north towards C-ville. At top of hill take left on Druid. Look for sign on left.



1012 Druid Avenue

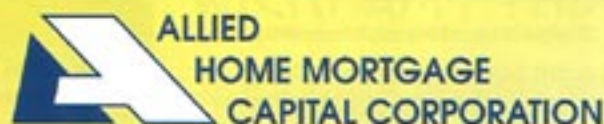
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cal contaminants in check. These pollutants need an environment with more than 50 percent relative humidity to thrive and survive. Fresh air for the home is brought in through the dehumidifier where it is filtered, dehumidified, and mixed with the air being circulated by the air handler of the heating and air conditioning systems. It is very important that the air in a tightly built home is supplemented with fresh air from the outside.



A bath filled with natural light and instant filtered hot water.

SYSTEMS: WATER

Circulating Hot Water

The hot water line is a continuous loop with a small circulating pump to make for "instant" hot water at your fixtures, eliminating the long wait for the cold water to run out of the pipes.

Water is filtered through an Aqua-Pure premium performance activated charcoal filter which effectively reduces unwanted chlorine taste and odor as well as microscopic particles of rust and sediment.

PAINT AND FINISHES

Paint with No VOC Content

Each Health House is finished with Sherwin Williams Harmony brand interior latex paint which contains zero Volatile Organic Compounds (0 grams/liter per EPA method 24). This paint provides a durable, low-odor, anti-microbial, interior coating without silica. Harmony coatings meet or exceed the criteria set forth by the U. S. Green Building Council LEED criteria.

Low-VOC Wood Floor Finish

Eon 70 is a new wood floor finish made by Bona, the same company that makes Traffic wood floor finish. Eon 70 sets the world standard for environmentally responsible waterborne finishes with

only 70 grams per liter of Volatile Organic Compound out gassing.

EXTERIOR DECKING

Borate-treated wood is a great new alternative to the pressure-treated woods of the past which were infused with arsenic and heavy metals. Wood treated using DOT Borates is non-volatile, odorless and virtually non-corrosive. Borate-treated wood repels pests like termites, carpenter ants, fleas and cockroaches. This new generation of pressure-treated wood is a safe non-toxic alternative that raises the bar for performance and quality.

ROOF

The light color of the roofing material used on the Druid Avenue houses is a significant contributor to energy efficiency and sustainability. Light-colored roofing materials reflect the sun's energy instead of absorbing it. This allows each roof to remain cooler through most of the summer months, minimizing the heat gain from the sun inside the building envelope, which in turn reduces the load on the home's cooling equipment and lowers the homeowner's energy bill. It also reduces the negative "heat island effect" of the home by reducing the amount of heat radiating from the roof into the atmosphere.

The roof assembly is constructed of an 8-1/4" Insulspan structural insulated panel system (SIPS) producing a composite R35 at 25 degrees F. A SIP system is a composite panel consisting of an expanded polystyrene core laminated between two layers of oriented strand board. The SIPS are installed as 8 by 14 foot panels with the joints foamed and taped. With no possibility of air movement within or around the panels, the insulative performance of the roof far exceeds a comparable truss or rafter structure.

The roofing material consists of Timberline 30 Premium Architectural shingles by GAF. The GAF white shingles are the only shingles in the United States that meet both the initial and maintenance Energy Star performance levels for steep-slope roofing products. Eaves received GAF Weather Watch leak barrier roof underlayment. ■