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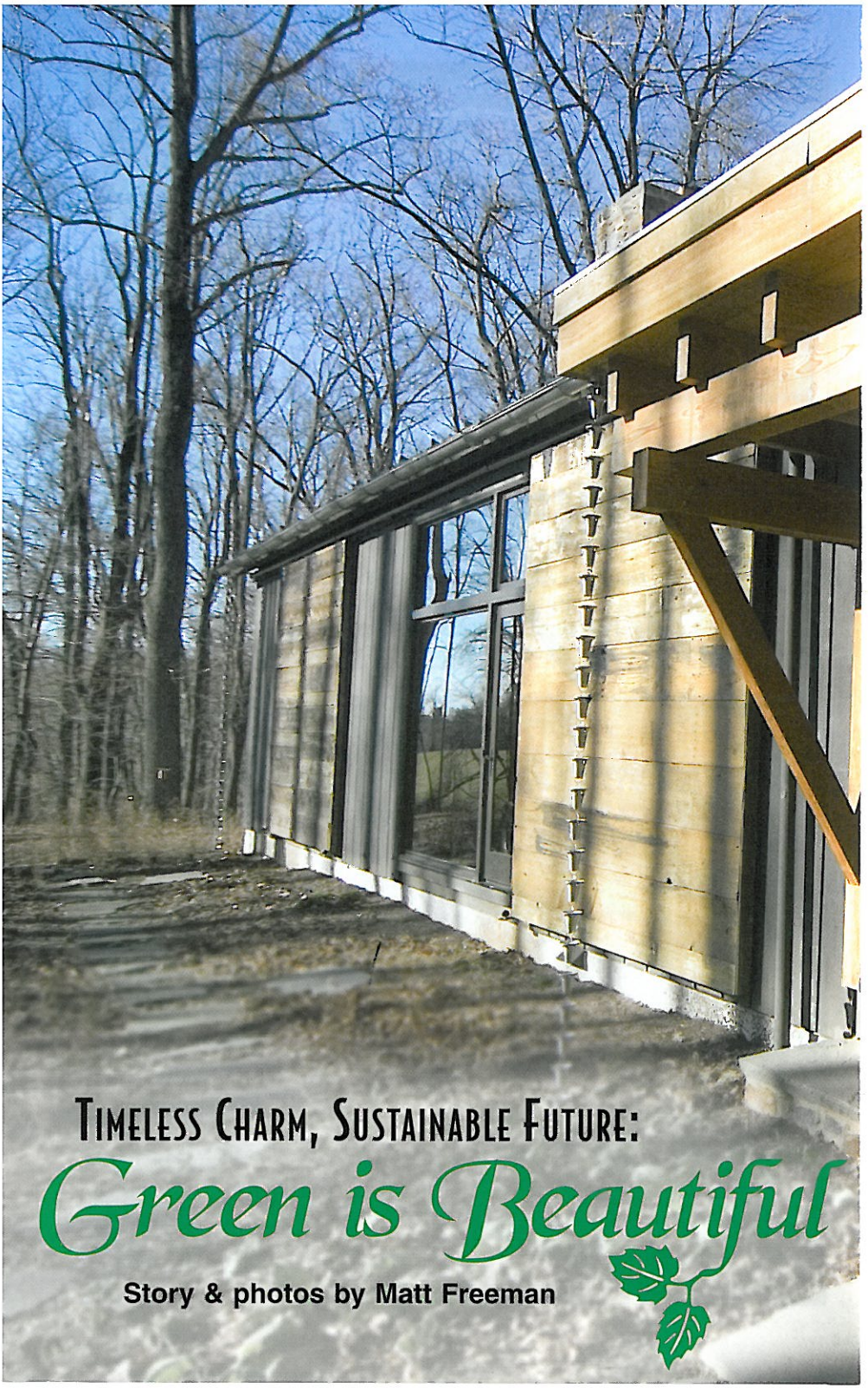

Timeless Charm, Sustainable Future:

Green is Beautiful

Story & photos by Matt Freeman


Photo by John Lewis

The wooded five-acre setting on Sills Mill Road, east of Kennett Square, harks back to an earlier age, a time of fields of grain and water-powered grist mills. And although its design is contemporary, Avrim "Ave" and Vicki Topel's new home is meant to evoke the charm of the region's historic buildings.

The timeless natural world is also part of the design — the house is situated carefully on the site, embraced by a protective ring of tall trees. It rises amid a meadow of native plants, and it looks out over fields where deer calmly graze.

But a closer look reveals that in many ways this home belongs less to the past than it does to a rapidly emerging and more sustainable future. In the process of building their home, the Topels and the team they assembled took advantage of what the region's past and its natural world had to offer for its aesthetics, and ended up with a home that has earned prestigious awards for its cutting-edge energy efficiency technology and minimal disturbance of the environment.

Modest Plan

The Topels' original goal was far more modest. With Ave in semiretirement, they wanted a smaller home and a simpler life — less work on the yard, lower utility bills, and daily life lived mostly on one floor, ranch-house style. So they contacted Hugh Lofting of Hugh Lofting Timber Framing, who had built a carriage house for their former home. His colleague Amy Cornelius asked if they'd considered making the new home a "green" house.

What would that mean, the Topels asked — putting solar panels on the roof? Cornelius told them it was much more — a green house was far more comprehensive, a new type of construction for a new type of lifestyle. It involved achieving the highest energy efficiency and the lowest impact on the surrounding natural world. The

Lofting organization had been proponents of this type of building for the previous 30 years. The Topels didn't know much about the topic at the time of the conversation, but they were about to learn.

Contemporary Vernacular

Lofting introduced the Topels to architect Matthew Moger of Lyman Perry Architects. Moger asked for a "romantic description" of the house they dreamt of, met with them repeatedly, and spent time on the site, getting a sense of it. He says Lyman Perry's belief is that you don't simply create a building and apply it to the site; the structure should grow out the environment and fit it naturally.

Moger then created models and collages of indigenous architecture and native plants, assembling a range of elements drawn from historic buildings and the natural world. The goal was to create a simple design that would recall the barns and farmhouses of the region's past, a style he calls "contemporary vernacular."

And today, now that the two-year building process is finished, visitors who travel up the long driveway first see sloping, meadowed grounds covered with native plants and designed by Jonathan Alderson Landscape Architects of Wayne to control groundwater naturally.

Then visitors see what might be buildings of two different eras. One has large windows and heavy-beamed barn doors next to them, topped with a traditional standing seam metal roof. Beyond and perpendicular to this part of the house is a two-story building with red wooden siding and roof of the same standing seam metal construction, topped by a cupola.

The home is placed in the lee of a wall of poplar trees that stretches far above and seems to protect the home in an almost parental embrace. Moger says he feels a reverence for the site. Looking at this visual harmony of the

building and surrounding trees, a visitor could be excused for imagining that the site feels fondly about the new home as well.

The glassed-in entranceway with its timber framing and copper door (the Topels are fond of metal sculpture) is what Moger calls "your first 'wow' moment." It connects the two buildings. Turning left, you enter the kitchen and living room area.

The roomy kitchen has soapstone counters and traditional wood cabinetry by David T. Smith of Morrow, Ohio. In the middle of the room is a massive stone fireplace by Landenberg stonemason Gary Odle that soars up to and through the timber-framed ceiling. Large windows give the living room on the other side beautiful views of the grounds. The reclaimed barn doors can be rolled over the windows for privacy.

A turn right from the door (there are no hallways) takes you into the private living area. On the ground floor is the master bedroom suite to the left, then an office and music room, then laundry room, pantry, and garage on the right.

On the second floor are bedrooms for the Topels' children and a "pajama room," an open area off the stairs with seating and a flat-screen television (placed atop another barn door). Behind the bedroom building is a Quaker carriage shed.

Green From the Ground Up

Beauty was only one goal of the team that the Topels and the Lofting organization put together. "These guys were champing at the bit to build a LEED home," Ave Topel recalls, meaning it would meet stringent standards set by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System.

Tad Radzinski, of Sustainable Solutions Corporation located in Schwenksville, handled the specifics of many of the energy-saving techniques used. The basements were made of Superior Walls panels, designed to provide maximum insulation.

Aboveground, the living room/kitchen section was made with Lofting's timber framing, a traditional building method that accords well with the latest green construction techniques. The heavy beams used will last indefinitely, are naturally handsome and are made of a renewable material. (Almost all the wood used in the home was either reclaimed from old barns or taken from forests with Forest Stewardship Council certification for environmentally responsible management.)

And timber framing lends itself to construction with structural insulated panels (sips) — layers of insulation sandwiched between plywood. These

panels eliminate the need for studded walls and the insulation gaps they create, and form a tightly sealed house that drastically reduces energy use.

Special Conditioned Air, Heat, Light

But the tight seal means fresh air has to be brought in as the air in the house becomes stale. Drafts recirculate the air in traditional homes; in green buildings, the process is controlled. Fresh air is brought in through ductwork, and the old air vented out.

The Topel house uses an energy recovering ventilator, installed by John Malm of Radiant Comfort System in Elverson, that channels the conditioned air — cold or hot — next to the incoming fresh air long enough to cool or warm it as much as possible. This makes maximum use of the energy expended in the winter and summer. Topel says utility bills for the 4,500-square-foot home are only 25 percent of what their old 5,300-square-foot home required.

Topel enjoys showing people the Munchkin Vision II propane boiler in the basement. Unlike many shed-sized boilers, this one is about the size of a two-drawer file cabinet. And water is heated as needed; it's not kept hot all the time, as a traditional water heater does.

Green design is found throughout the house. Most lighting fixtures are compact fluorescent bulbs. The toilets and faucets are low-flow, and the wide and numerous windows are Loewen models with special coatings and other energy-saving features. The drywall is made from gypsum recovered in the process of powerplant desulfurization. And those standing seam metal roofs, so reminiscent of the 19th century? They include 20 percent recycled metal.

Silver Rating, Green Beginnings

From the basement to the roof, the green technology was built in from the beginning. Many of these elements can be added to existing homes, but the concerted effort to use them so comprehensively won the Topel house the Silver rating from LEED. There are only a handful of residences in all of Pennsylvania that have achieved this distinction.

But there are more on the way. The Topels have become green-building evangelists and recently wrote a book detailing their experience and the benefits they found in it: *Green Beginnings: The Story of How We Built Our Green & Sustainable Home.*

"We were just so thrilled with the way things turned out," Vicki Topel says, "that we thought it would be a nice idea to share our experience with other people." And given the beauty of this house, we're lucky they did. ♦

RESOURCES

Architect: Matthew Moger, Lyman Perry Architects, Berwyn, PA 610-889-9966, lperry@lparchitects.com, lparchitects.com

Green Building: Hugh Lofting Timber Framing, West Grove, PA 610-444-5382; hughloftingtimberframe.com

Sustainable Design: Tad Radzinski, Sustainable Solutions Corporation, Schwenksville, PA 610-287-4152; sustainablesolutionscorporation.com

Landscaping: Jonathan Alderson Landscape Architects, Wayne, PA 610-341-9925; jonathanalderson.com

Stonemason: Gary Odle, Stone-scapes, Avon Grove, PA 610-255-3309; stonescapesweb.com

Stone provider: Rotunno Stone Yard, Avondale, PA 610-268-3451

Heating: John Malm Radiant Comfort Systems, 610-286-3031; radiantcomfortsystems.com

Electrical Contractor: Brian Little, BDL Electric, Nottingham, PA 610-842-6594

Plumbing: Alex Little, Classic Plumbing, Chester, PA 610-872-4307

Windows: Loewen Window Center of Pennsylvania, Frazer, PA 610-296-5890 (Larry Harkins)

Painter: Mark Quinn, 610-357-1644

Roofing: Wayne Saufley, Waybank Contracting, 610-869-3170, 302-529-1110; waybankcontracting.com

Cabinetry: David T. Smith, Morrow, OH 513-932-2472; davidtsmith.com