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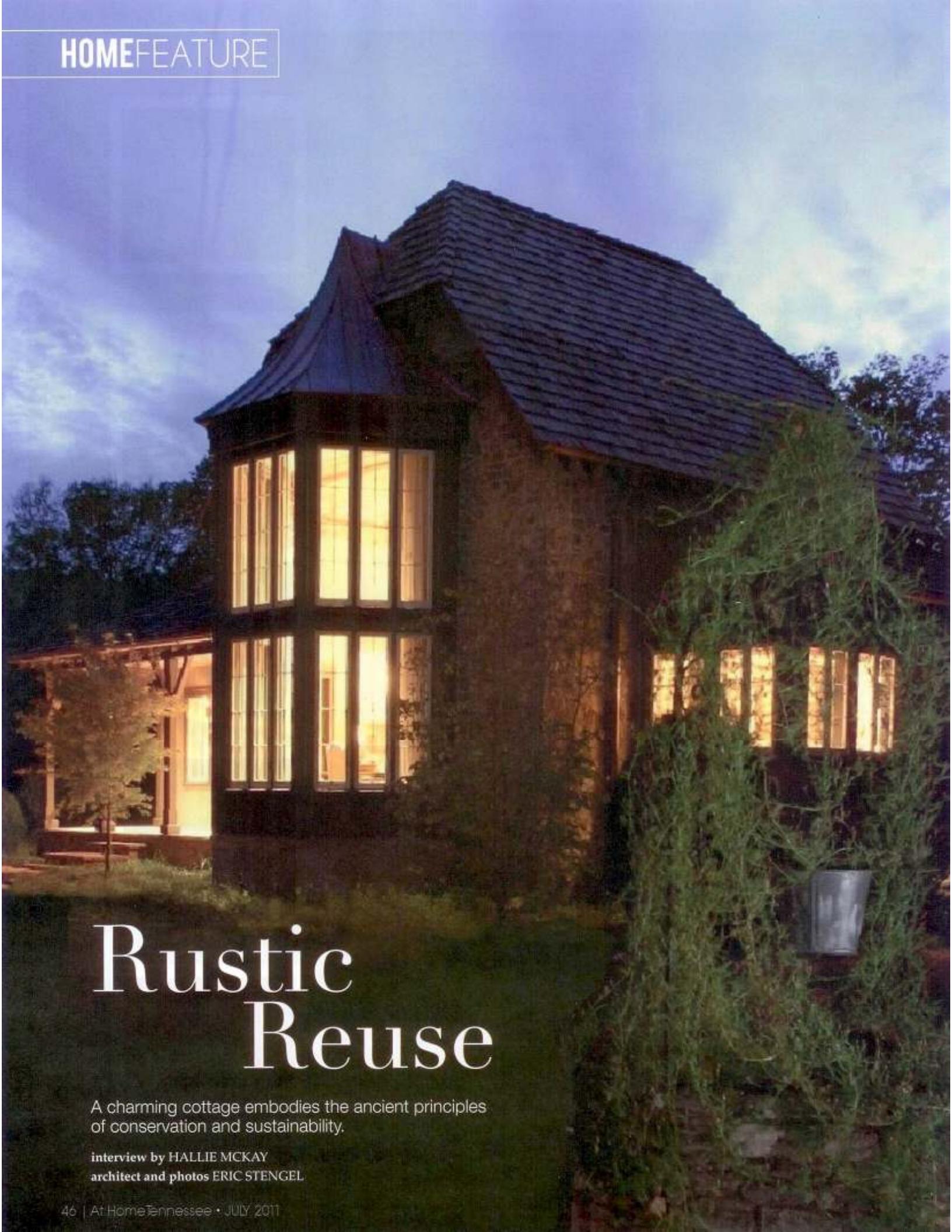


Rustic Reuse

A charming cottage embodies the ancient principles of conservation and sustainability.

interview by HALLIE MCKAY
architect and photos ERIC STENGEL

How did the homeowners envision using this house?
The homeowners wanted a small two-bedroom guest house. It was to be slightly remote, yet within walking distance of the main home and gardens.

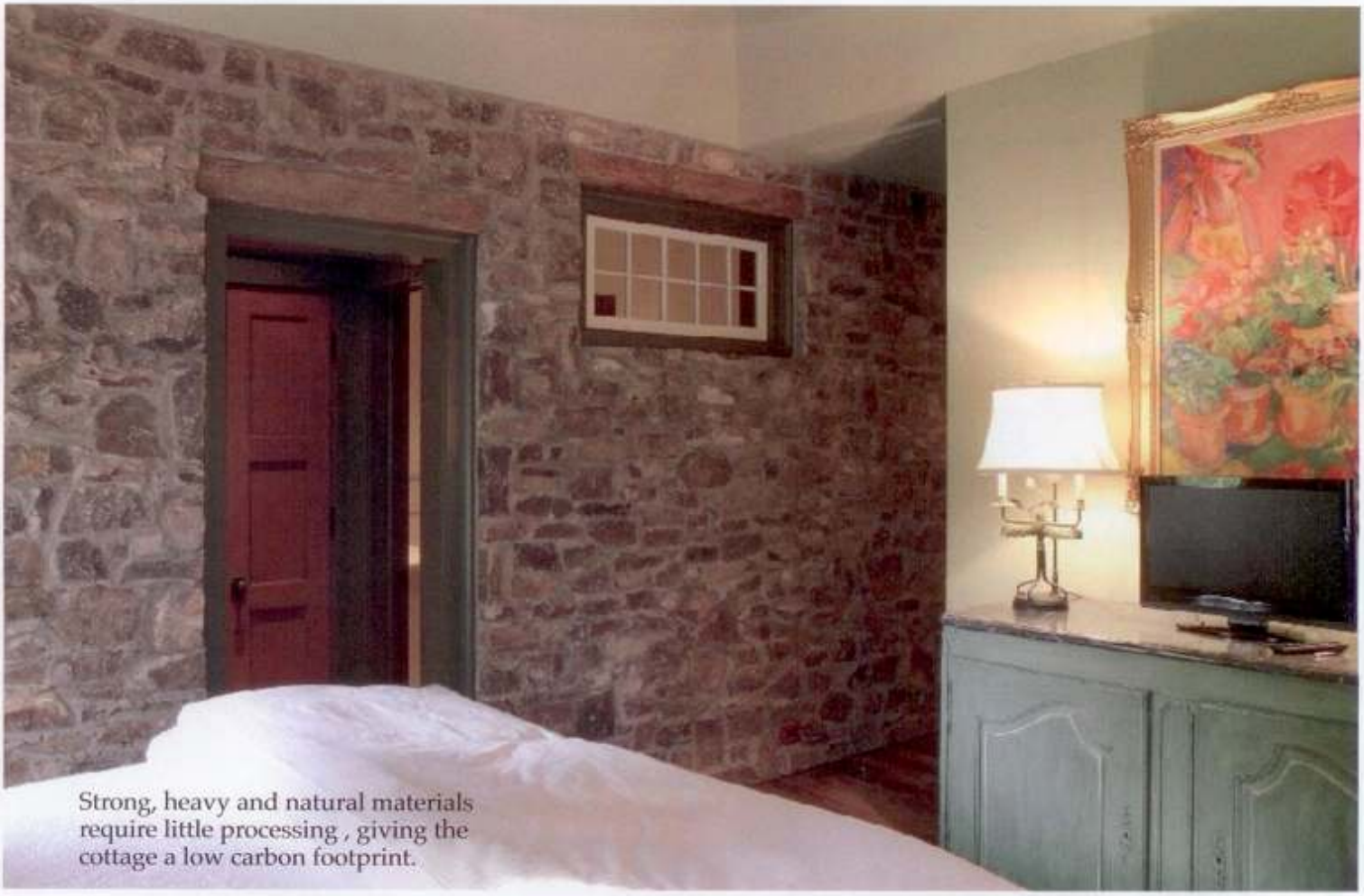
How would you describe the house?
It's simple, rustic architecture with chic, unpretentious detailing and interiors.

Your approach to the new construction?
The starting point is what some period architects call "Progressive Vernacular". This is a narrative strategy for home design. The design "tells a story" about how it evolved over time. In this case a narrative of two rock farm structures evolved and transformed in to a cottage by adding rough sawn "saddlebags". These additions enclosed and joined the rock buildings into one structure. That is why there are some rock walls on the interior – the narrative implies that they used to be exterior walls now enclosed.

The guest house is an example of sustainable green architecture. What qualifies or defines a house as green architecture?
The cottage fundamentally adheres to the ancient philosophy of conservation of materials and energy. The ancients didn't have a button to push to change or subvert the interior climate. And so, they had to build in harmony with nature and the environment they were in as a mater of survival.

Your philosophy emphasizes the reuse of materials and strong, heavy, natural and inert materials that require little processing.
Correct, many materials used in this cottage were collected and saved during the last 200+ years here in Tennessee. The new components are also inherently green due to the low carbon emissions in production, as well as upkeep during the natural life of the structure. The use of strong, heavy and natural materials insures the building's longevity and ability to maintain a stable temperature. In addition, the use of such materials also requires little processing, making them safe to your life and the environment.

You made great effort to reuse natural materials already present, including 150-year-old hand painted wainscoting, reclaimed poplar floors that are over 100 years old and century-old barn timbers. Was it difficult to restore these materials so that they could be used in the home?
Most materials were used as is with no additional processing required. The mantel, wainscoting,



Strong, heavy and natural materials require little processing , giving the cottage a low carbon footprint.

timbers, even the floor was not re-milled; only limited finishing was required. This adds to the "story telling" properties residing in the pocks and marks on the materials.

How does green architecture account for the heating and cooling of a home?

Heating and cooling can account for nearly 80 percent of the energy for a typically made building. One needs to focus on this demand because the savings are the largest here.

Passive solar or non-mechanical solutions to reduce heat transfer include: porch overhangs that block the sun from heating up a room, lower window to wall ratios on appropriate exposures to the sun and thermal building mass for material and temperature stability.

Thermal building mass for temperature stability?

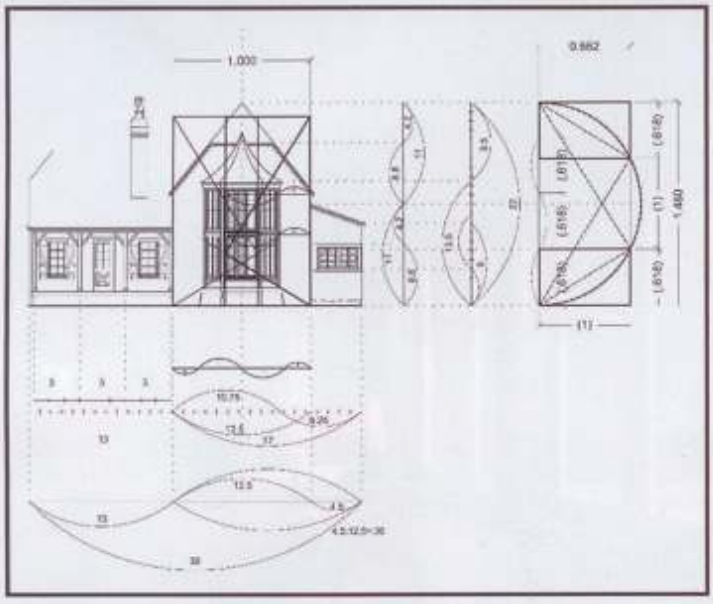
Thermal mass in buildings is how much the mass of the building provides "inertia" against temperature changes. Thus, a large thermal mass (concrete, rock, adobe bricks) can minimize the impact of temperature fluctuations. We call this passive solar performance through thermal mass.

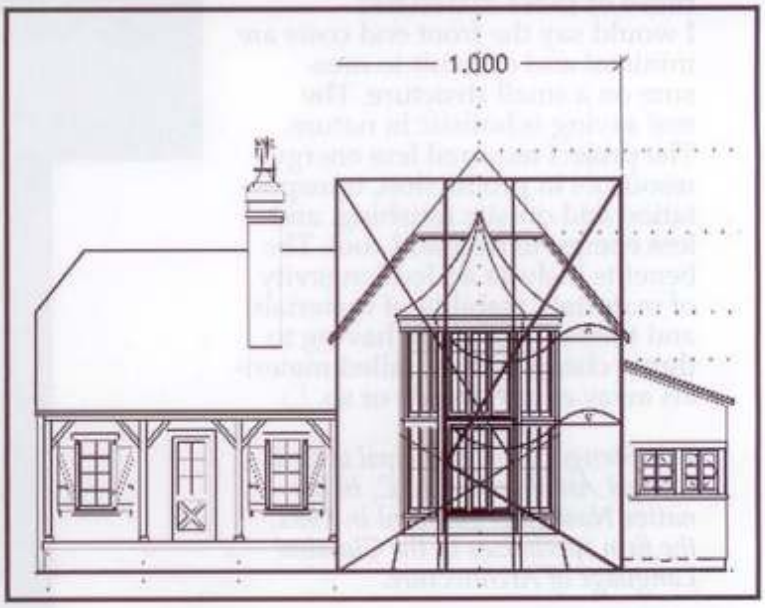
I love the double height bay window, but I would think it doesn't do much for the heating and cooling bill.

Glass has the opposite property of thermal mass in buildings. So you're right, heat is easily transferred through glass into a cooler room. Hence, the need for lower window to wall ratios; this comes from an influence in the ways ancients built. Think architecture pre-air conditioning.) Like all systems in a house, though, this ratio interacts with other considerations like the path of the sun, regional weather patterns and function of the room behind, to name a few. This window happens to face a huge oak tree which provides sufficient shade from the elements. The inside is also decorated with thick drapes which block out the sun and minimize solar transfer.

The reuse of reclaimed wood creates a cozy atmosphere.

Improvements in insulation make single pane glass more efficient and overall "greener" than double pane glass.





What types of features or modifications were implemented to reduce energy and cost spent on heating and cooling?
Instead of installing a traditional HVAC system, we chose a geothermal conditioning system which uses the earth's thermal stability to heat and cool the home. In addition to being cost-effective, it is also one of the most energy-efficient and environmentally friendly systems available.

What are some other features that can reduce energy costs? (Insulation, programmable thermostat, etc.)
Some savings in energy are made passively through insulation, orientation, weather sealing, etc. But holistic living in the sense of being a participant in the life of a home is fundamental.

What do you mean by being a participant in the life of a home?
I mean always hoping for gadget green solutions (which require lots of plastic parts made in a chemical factory) to do everything for us is to be a non-participant with nature's systems. As humans, we are still the "smartest" system in a home and being in sequence with the days of a year makes for a connected life. Small actions like closing the curtains when the sun is beaming in can make a meaningful difference.

Besides the benefits of conservation, were there any cost, labor or other benefits to the adaptive reuse of these materials?
I would say the front end costs are minimal and difficult to measure on a small structure. The real saving is holistic in nature. The project required less energy resources in production, transportation and on-site finishing, and less energy to heat and cool. The benefits include added longevity of materials, stability of materials and the savings of not having to throw cheaply made failed materials away every decade or so. □

Eric Stengel is the principal of Eric Stengel Architecture, LLC, in his native Nashville. Founded in 1991, the firm specializes in the Classical Language of Architecture.

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