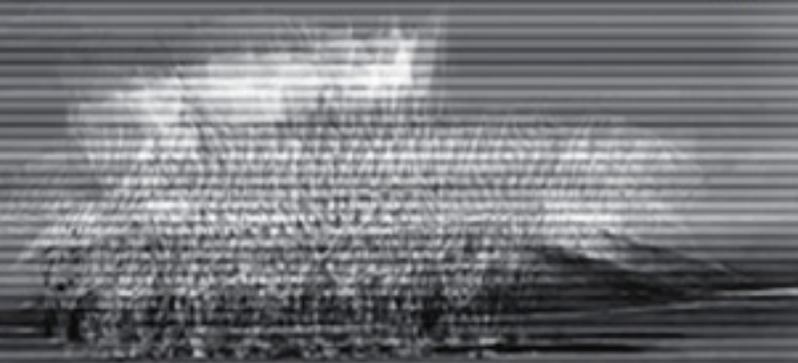


TOWN

Our favorite
creations, concepts,
and innovations from
the past year.
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George Penniman

On his reliance on natural resources and why New England needs geothermal.



After working at several well-known architectural firms in New England, George Penniman decided it was time to open his own practice. In 1994, after securing a project with consistent, guaranteed income, he founded George Penniman Architects.

The Connecticut firm has since grown to five architects. Projects range in scale from small renovations to significant estates in Connecticut, Rhode Island, New York and Massachusetts. While George Penniman Architects works primarily on residential homes – many second homes – they also design small commercial and institutional projects when the opportunities become available.

For Penniman, sustainability means taking advantage of natural resources and green technologies. Geothermal systems have changed the building environment, he says. When he established his firm, Penniman had been aware of the benefits of geothermal systems; he's been trying to push the technology to homeowners. "It wasn't until 1998 when I had a client who was interested in it and brought it to the table that I was able to do install my first geothermal system," Penniman says, "That was very unusual at that time for this location."

Of the 10 custom houses projects currently underway, about half of them have committed to geothermal in one form or the other. Penniman has also installed a geo-thermal system in his own circa 1850 home.

Penniman reveals homeowners choose geothermal for a variety of reasons. Having no fossil fuels on site is a huge reason to go with a system. "If a homeowner's level of interest is engaged they understand geothermal is a highly efficient way to heat and cool the house," Penniman says. Aesthetically geothermal systems eliminate the need for air conditioning condensers outside the house, which tend to be unsightly and hard to locate.



“Some people are more interested in doing things that make sense environmentally,” he adds. “All the arguments for geothermal come into play, depending on the homeowner.”

The upfront costs for geothermal is nearly the same for other systems; the well is the incremental cost. Homeowners reap the payback within several years. “There are great incentives and tax credits that vary from state to state,” Penniman adds.

From an energy savings perspective, George Penniman Architects runs calculations for clients considering a geothermal system over a conventional fossil fuel boiler and air conditioning system. Penniman explains the savings could be as much as 60 percent, which depends on the changing cost of heating oil.



A slab of stone from the site was re-purposed as a table top for the Porch.



Breakfast Room



Drilling rig for the geothermal well. After demolishing the old wood structure to reveal the stone, new walls were built.

Energy Efficient Windows and Spray Foam Insulation
Energy efficient windows were installed. All exterior walls were filled with closed cell spray foam insulation for a tight building envelope.

From doors and gates to light fixtures and railings, many elements that were able to be salvaged from the original house were refurbished.



Large-scale renovations and major retrofits are a notable firm offering. George Penniman Architects has lifted homes and put in new foundations. They've reinsulated, plumbed and wired structures, incorporating sustainable systems along the way.

"Renovations may be more challenging but there are a lot of fine homes around and not a lot of raw land available for people to build on," said Penniman. Older homes along the coast have an undeniable appeal, especially the waterfront, shingle-style houses from the 19th and early 20th century.

Penniman and his team recently completed a major renovation of a 1917 stone home located on the ocean in Rhode Island. The residence consisted of 12,000 square feet of conditioned space. "It had not had any significant renovations in decades. We stripped it down to the stone, sprayed in a closed cell foam insulation and improved the building envelope tremendously," said Penniman. New windows were installed. The home's geothermal heating and cooling system was run off a deep standing column well.

For George Penniman Architects, sustainable design means building and sighting a house well. Homes on the water take into account the prevailing winds year round; all designs take advantage of natural day lighting. "You could strip all the technological advancements off and it becomes all about building sensibly for the environment that you are in," said Penniman.

Penniman suspects the demand for sustainable home design will become more prevalent as homeowners realize the long-term energy savings. The firm is currently working on the design of their smallest project to date in which the homeowners requested they incorporate sustainable design practices – solar photovoltaics, domestic hot water systems, and geothermal. "It is showing signs that no matter the scale of the project or the resources of the homeowners they are interested in sustainability, which is exciting," concludes Penniman.



A project located in Westerly, Rhode Island was built utilizing similar green building practices: geothermal heating and cooling and spray foam insulation. All stonework is native and quarried in Westerly. Local artisans are used for installation. Landscaping features native plants and a low mow lawn. (Sitework by Anne Penniman Assoc.)

