



VILLAGE GREEN HOMES

GEOTHERMAL GROUND LOOP HEAT EXCHANGE
PROJECT PROFILE

Pioneer LEED for Homes Project in Northern Virginia Incorporates Latest in Geothermal Technologies from REHAU

When Robert Lauten, of Lauten Construction, wanted to incorporate technologies that would make his homes the first in Loudoun County to meet the US Green Building Council's LEED (Leadership in Energy and Environmental Design) standard, he turned to REHAU. Lauten wanted to develop a community that would offer homeowners the benefits of living in sustainable, energy saving homes that would reduce their carbon footprint. Offsetting the energy consumption of traditional HVAC systems was critical.

Bringing REHAU's leading edge heating and cooling systems into the design for his traditionally sized homes enabled Lauten to capitalize on a ground loop heat exchange system that has the potential to deliver 9 million Btu's of energy, per year, to its eventual homeowners. This would offer a carbon offset of almost 3 million metric tons, compared to a traditional energy source.

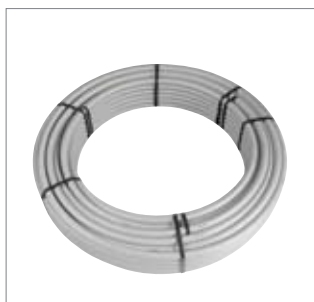
Using PEXa (crosslinked polyethylene) pipe added an extra layer of security for Lauten. With its excellent physical properties and resistance to point loading and other forms of impact, this pipe can be buried in excavated materials and reduces the likelihood of post-installation callbacks.

"Robert Lauten and his team were very receptive to how our RAUGEO ground loop heat exchange system can provide a higher level of security and increased energy extraction," said Mike Maher, sales manager at REHAU.

The innovative RAUGEO ground loop system capitalizes on the consistently moderate ground temperatures found below the earth's surface.

Using two vertical boreholes, 300 ft (91.4 m) lengths of PEXa pipe fitted with RAUGEO Double U-bends were installed. A heat transfer fluid circulates through these pipes, taking heat from the home's HVAC system during cooling, then dispersing it in the earth. When heating, it works in reverse, collecting naturally stored heat and delivering it to the home.

"Taking advantage of the natural properties of the ground in supplying and storing HVAC energy just seemed to make sense for this project," explained Lauten. "It's simply about responsible building and the benefits of long-term energy savings are nothing short of incredible."



Project: Village Green Homes

Location: Purcellville, VA

Type of Construction: Residential

Scope of Project: 3,300 sq ft (1,006 sq m) single-family home community

Owner: Village Green Homes, LLC

Architect: John F. Burroughs, New Leaf Collaborative Architecture & Design PLC

Contractor: Lauten Construction

Project Production Manager: Jim Canterf

REHAU Systems Used: RAUGEO™ ground loop heat exchange, REHAU ECOAIR™ ground-air heat exchange

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