

Geothermal Helps Show House Dig Deep for Energy Savings

By Greg Mazurkiewicz

February 06, 2012



The 2011 Idea Show House, located in the Creekside Village community in Shelby Township, Mich., is a stylish 4,000-square-foot home that features innovative design and green, sustainable living. One of its primary green features is a geothermal heating and cooling system.

The 2011 house follows the success of the original 2010 concept home, intended to demonstrate “what happens when the freshest ideas in sustainable living meet the hottest trends in new home design,” according to the Idea Show House website. Both of the homes were built by a collaboration of top companies in Michigan home design and construction.

Randazzo Mechanical Heating, Cooling & Fireplace Sales of Macomb, Mich., is the HVAC contractor that installed the geothermal system. Pete Randazzo, president of Randazzo Mechanical, said, “We got involved in this project because of our relationship with Vito Terracciano of Arteva Homes. Vito wanted to portray a more efficient home comfort system, much different than the normal system that most builders have been providing.”

Arteva Homes was the homebuilder for the 2010 Idea Show House and Randazzo Mechanical was selected to install the conventional high-efficiency heating and cooling system in that home. Terracciano made the decision to go with geothermal for the 2011 house and brought back Randazzo to handle the installation.

Randazzo said, “It was an easy decision for Vito to make. We are one of Michigan’s largest heating and cooling companies and our philosophy is to lead with innovation. Though geothermal is no new technology, we feel that its application at this time is an innovative way to combat the rising costs of utilities.”

Randazzo Mechanical subcontracted the drilling for the geothermal loop to Suburban Installers of Macomb, Mich. The company supplied a vertical loop with eight bore holes, 200 feet deep each.

A ClimateMaster dealer for two years, Randazzo Mechanical then proceeded to install two ClimateMaster Tranquility 27 Series geothermal systems, one for each floor of the show house. “The first-floor system is a ClimateMaster packaged system TTV-038 and the second floor system is a split system TTS-038,” said Randazzo.

The reason two units were installed, explained Randazzo, “was, one, it was a design preference on our end for the purpose of zoning. When zoning a larger home like this one, it was much easier to dedicate the second floor to the second floor system without compromising comfort on the first floor.” And overall, he noted, the efficiency of the system peaked when designed with two units for this particular home.

The ClimateMaster Tranquility 27 units feature a two-stage compressor, variable

speed fan, coated air coil, MERV 11 air filter, and use EarthPure® HFC-410A refrigerant. For first stage operation, Tranquility 27 is rated at 27.0 EER cooling and 4.5 COP heating. For second-stage operation, it is rated at 18.2 EER cooling and 4.0 heating. According to ClimateMaster, approximately 80 percent of heating and cooling needs are met during first-stage operation.

Randazzo Mechanical used ClimateMaster’s state-of-the-art GeoDesigner software to properly determine the correct sizing of the equipment. The Idea Show House website shows a GeoDesigner comparison of the geothermal system versus other HVAC systems, so the software serves as a sales tool to demonstrate the cost savings to prospective buyers.

In this application, the geothermal system is expected to provide energy savings of 67 percent over a conventional heating and cooling system.

In addition, the ClimateMaster geothermal system supplies nearly 100 percent of the home’s hot water needs as well as heating and cooling. “There are many variables to take into consideration, but for most applications, this system will provide a home’s hot water needs,” said Randazzo.

As far as how long it took to install the complete system, Randazzo said, “Including the loop process, and taking into consideration that there were two systems, it took approximately six days to complete. However, a typical retrofit geothermal job would normally take one to two days.”

The 2011 Idea Show House is currently open for tours and will be available for sale once the tours are over. The federal tax credit of 30 percent for geothermal is expected to be a major selling point for the home. “And the local utility companies embrace the technology by offering a reduced electric rate for geothermal customers,” said Randazzo.

For more information on the 2011 Idea Show House geothermal application, visit www.callrandazzo.com. For more information on the ClimateMaster Tranquility 27 Series geothermal systems, visit www.climatemaster.com.

Greg Mazurkiewicz is Web Editor. Email him at gregmazurkiewicz@achrnews.com.



Randazzo Mechanical installed two ClimateMaster Tranquility 27 Series geothermal systems, one for each floor of the show house.