

# the NEWS

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## Geothermal Contractor Digs for Savings

### Homeowner Gains Year-Round Comfort, High Efficiency.

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OF THE NEWS STAFF

Nobody has to ask contractor Mike Sumple to take it outside. He's already there, digging in with a direct-access geothermal system that transfers energy from the earth over to an air handler that provides the conditioning for the home.

Sumple, president of C.H.W., LLC, Danbury, CT, installed a 5-ton Earth-Linked™ direct-access ground-source heat pump, from ECR Technologies, Inc., Lakeland, FL, together with a Model ESP-V air-handling system, from SpacePak, Westfield, MA, in a custom-designed 3,600-sq-ft home in New Milford, CT.

This three-story home features cathedral ceilings, an open floor plan, challenging angles, and a walkout basement with sunroom. The steady heat delivered by the ground-source heat pump and the location of the high-velocity air outlets in the ceiling, walls, and floors, noted Sumple, is designed to deliver comfort to all three levels of the home. The house is located in a high elevation of Connecticut where the temperature often dips to zero. With the thermostat set at 68°F, the homeowner saves energy and there are no cold spots.

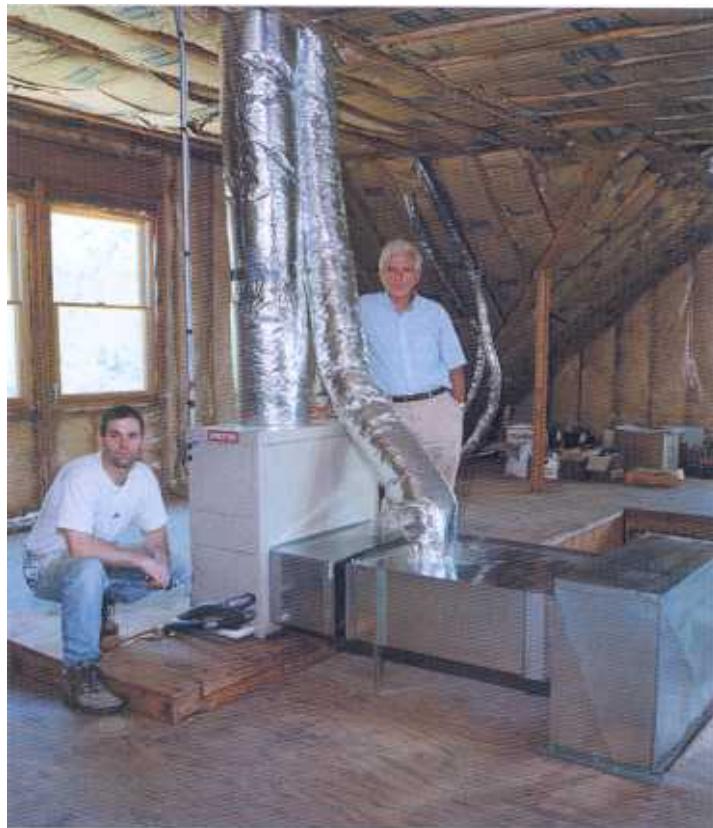
### THE GEO WAY

"Instead of burning fossil fuels to make heat, we simply use a ground-source heat pump to transfer heat that already exists in the ground into the home or building," Sumple explained.

"We bury copper ground loops and fill them with refrigerant. The ground-source heat pump, along with the copper loops, transfers the heat from the ground into the home.

"In the summer, this process is reversed, and the heat is moved from the home into the ground, which is cooler than the outside ambient temperature. We also take some of this heat and use it to generate free domestic hot water during the air conditioning season."

He added, "The geothermal process eliminates the need for a chimney since there is no combustion taking place. Also, there is no production of carbon monoxide gases in the home."



Shown left to right are Kurt Snyder, a homeowner in New Milford, CT, and Mike Sumple, C.H.W., next to Snyder's 3.5-ton Model ESP-V air-handling system, which also works in combination with the direct-access ground-source heat pump.

The direct-access system's copper refrigerant loop, Sumple stated, only requires a 3-in. hole vs. a 5-in. hole with a water-loop geothermal system. He said the copper loop only needs 100 ft per ton of capacity, compared to 150 ft per ton with a water loop, and a hole depth of 100 ft instead of 150 to 200 ft. This results in a 75% savings on drilling.

The system uses R-22 presently, but the manufacturer is testing R-407C. "Any hvac technician can service this ground-source unit because it's just like an air conditioning unit," he said.



SpacePak plenum with 2-in.-id flexible ductwork delivers conditioned air to the living space.



This home in Danbury, CT, uses the combination system, which is designed for maximum comfort and efficiency.



A 5-ton EarthLinked™ direct-access ground-source heat pump, from ECR Technologies, transfers energy from the earth, while a 5-ton Model ESP-V air-handling system, from SpacePak, heats and cools the home.

buildup in the ducts,” he said. There is one central return grille on each floor.

As for energy savings, “With a direct-access ground-source heat pump, for every one unit of electrical power, you get four units of heat energy. With an air-source heat pump, it’s about 2.8 units,” Sumple said.

The annual savings for heating and cooling are in the range of 40% to 60%, putting money in the bank for the homeowner.

*For more information on these combined direct-access ground-source heat pump/air handler systems, please contact Mike Sumple at 203-798-7689; [advgeothermalsys@aol.com](mailto:advgeothermalsys@aol.com) (e-mail) or contact SpacePak at 413-564-5530, [www.spacepak.com](http://www.spacepak.com). ©*

### AIR MIXING

The air distribution system uses the principle known as aspiration, so that as the airstream enters the room, it creates a gentle mixing of air, providing for more thorough air circulation. This helps to eliminate stratification, minimizing the floor-to-ceiling temperature difference and supplying an even temperature in the room.

Air in this system is moved at 2,000 fpm compared to the 500 fpm of a conventional system, Sumple noted. This “avoids dirt

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