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# HOMES

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# Homeowners turn to geothermal energy

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**I**t's a hot topic: geothermal energy.

Also known as "green energy," it's a technology that is trickling into Colorado. For Bob and Linda Fread, owners of Cottonwood Creek Heating, Inc., it is about "keeping your castle warm," in a cost-effective and energy-efficient system. Why not save energy and money in a clean, sustainable energy source found in your own backyard?

Rather than extracting fossil fuels such as coal, oil, and gas from the earth only to burn them, geothermal energy is an alternative system that uses the earth's constant temperature of 50 to 60 degrees Fahrenheit, 8 feet under the soil. It is the least-polluting heating and cooling system available; simply put, it is heat-pump technology converted to heat or cool a house, similar to air conditioners and refrigerators.

There are two types of geothermal systems: wells and open-loop systems or the system that the Freads use called the closed-loop system with bore holes and horizontal loop fields. Currently, Fread is working with Acculine Construction, owned by Bruce Davidson, on a project in Mesa Antero. The home under construction is 4,400 square feet and the project involves

digging out an area 260 feet long, 8 feet deep and 25 feet wide, with 8,000 feet of polyethylene tubing laid in coils called "slinkys." The water is circulated in the slinkys to the pump; waste heat is pumped back into the ground in hot weather and heat is extracted from the system in cold weather. Therefore, the system provides both heat and cool



Excavating the site for a geothermal system. Courtesy photo.

air depending on the season.

Fread says, "This is the best source of renewable energy going, as it extends the energy fourfold."

The Freads have been in business since 1984, offering in-floor heating, forced-air heating and wood, pellet, and gas stoves and fireplaces. As geothermal advances began moving west from their origin in Oklahoma, Fread jumped on the bandwagon. He has a North American Technician Excellence Certification in Geothermal Installation, is accredited with International Ground Source Heat Pump Accreditation and has licenses with the Colorado Division of Water Resources as a geothermal installer. He contracts with designer Terry Proffer of Major Geothermal in Colorado Springs, who has done hundreds of systems in Colorado.

The advantage of a geothermal system, Fread says, is that "for each \$1 of electricity that is required for the system, there is a \$4 net gain. It does not produce its own energy but it's the



Zack Fread, Cottonwood Creek Heating owner's Bob's son, with tubing for a geothermal project. Courtesy photo.

**Geothermal**  
Continued, Page 22

# Geothermal

Continued, Page 22



best way to stretch current energy.” He explains that geothermal systems are initially expensive in construction, but the low maintenance cost and low energy cost, along with a 30 percent tax credit, outweigh the initial expense.

Colorado is not in the forefront of numbers of geothermal installations, but the Front Range of Denver, Fort Collins and Colorado Springs are beginning to take more notice. In the San Luis Valley, the most recent high school built in the Sargent School District received a Building Excellent Schools Today (BEST) grant of \$21 million dollars and invested some of it in geothermal in-floor heating and air conditioning in their 35,000-square-foot structure.

Fread says, “Geothermal systems are becoming more popular with architects for schools, community buildings and military bases.” While geothermal systems are used in only 1 to 2 percent of systems nationwide, they are drawing more attention in the West because it is the best way to extend our energy resources. Because the coil system is underground, there is no

impact of snow or wind and the pump equipment is inside the house away from elements.

A geothermal system in a home is quiet, no more of a hum in the pump room than that of a refrigerator.

“If you’re comfortable in your home with heat and air, you don’t think of the system,” Bob said. One Gunnison homeowner has enjoyed his geothermal system for eight years at a cost of about \$300 per year.

Fread’s experience and dedication are fueled by his passion for clean, sustainable and inexpensive energy.

Cottonwood Creek Heating is located at 28302 CR 317, and is open from 10 a.m. to 5 p.m. Monday through Friday and 10 a.m. to 1 p.m. Saturdays. Phone number is 395-6535.

**Top:** For a 4,400 square foot home, an area 260 feet long, 8 feet deep and 25 feet wide was excavated, and 8,000 feet of polyethylene tubing laid in coils called “slinky” as part of the delivery system. Hot or cold air can be exchanged through the system.

**Below:** Bob Fread stands beside his truck, giving scale to the coils used for the geothermal energy project. Courtesy photos.

