

# Heat, cool via geothermal

If you're building a home, the law requires that you install a furnace with a minimum 78-percent efficiency rate. But if you want maximum savings, you don't have to settle for minimum efficiency.

Geothermal heating and cooling, the technology on the threshold of replacing conventional systems, is more than three times as efficient as the most efficient oil or gas furnace.

"This results in substantial savings for homeowners over the lifetime of the equipment," said Jerry Goetz, a Detroit Edison heating and cooling expert.

In the air conditioning mode, the system performs at a seasonal efficiency rating of 16; federal law requires a minimum of 10 for air conditioning.

Operating costs are up to 30 percent less than those of a high-efficiency natural gas system, and up to 60 percent less than those for high-efficiency oil or propane systems, when used in conjunction with Detroit Edison's low time-of-day rate, Goetz said.

"Homeowners in a well-insulated, 2,400-square-foot home could expect to pay \$527 annually to operate a geothermal system, compared to \$801 for natural gas, \$1,315 for oil or \$1,420 for propane," Goetz said.

Geothermal, like refrigerators and conventional air conditioners, is a heat transfer system. The system uses an electrically powered heat pump to collect and concentrate heat from the water in your well or from piping buried in the ground.

In winter, the concentrated heat is transferred indoors through a forced-air heating system. In summer, the system reserves the heat. It extracts heat from the air inside the home and moves it, via the well water or piping buried in the ground, back into the earth. The earth's temperature remains constant year-round. The system also can supply hot water.

"Since geothermal systems use the earth's natural resources as a renewable source of energy, they help protect the environment," Goetz said.

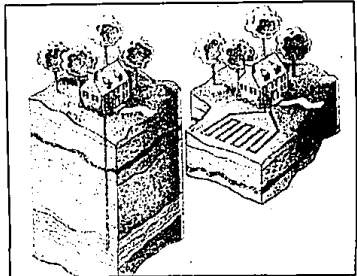
Initial installation costs for a geothermal system are typically higher than those of a conventional furnace or central air conditioner, he added.

"But with the low operating costs, combined with Detroit

Edison's low time-of-day rate, the payback period can be from 20 to 10 years," Goetz said.

Homeowners who qualify for Detroit Edison's Energy Efficient New Home Construction Program can close that efficient insulation, windows, lighting, major electric appliances and central air conditioning.

Call Detroit Edison toll-free at 1-800-833-2786.



**Geothermal traits:** This cross-section illustrates open and closed loop geothermal systems. Open loops use ground water pumped from a well. After the heat transfer, the water is discharged to seep back down to the water table. Closed loops circulate an antifreeze solution through polyethylene pipe. The solution absorbs or disperses heat, depending on the season. Closed loops can be buried in the ground or submerged in a lake or pond.

neoprimativism" calling for integrity of design that uses simple forms and hides nothing.

The series, in its 20th year, is presented by the Division of Continuing Education and Professional Development in association with the College of Architecture and Design.

The autumn presentations, scheduled October through December, are partially underwritten by, and produced in association with, the American Institute of Architects-Detroit.

# Speaker to urge simple forms in design

Merk Mack, of Mack Architects, San Francisco, will speak in ARCHITECTURE, the ongoing professional lecture series, Thursday, Oct. 14.

The programs are open to the public without cost and meet 7:30 p.m. at the Lawrence Technological University campus, 2100 W. 10 Mile in Southfield, in the LTU College of Architecture and Design Auditorium (A-200). For more information, call Gary Keeskes at 356-0200, Ext. 4050. Mack is an avant-garde, Austrian-born architect who rejects postmodernism and espouses a "unique attitude of

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