

Washington Park Library: Geothermal Heat Pump System

FACT SHEET



BIOMASS



GEOTHERMAL



HYDROPOWER



SOLAR



WIND

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When Milwaukee's Finney Library was rebuilt and opened as Washington Park Library in April 2003, it featured additional computers, community meeting space, an expanded collection of materials and a unique geothermal heat pump system to heat and cool the library. The system is one of the first vertical bore heat exchangers in southeast Wisconsin.

The old Finney Park Library was built in 1953. When it became clear the library needed to be rebuilt, the library trustees were interested in the idea of using a renewable energy source to heat and cool the building. Typically, geothermal energy systems require a relatively large land area so that flexible piping can be buried over a wide area. The library recognized they needed to select a system that could operate within the confines of an established neighborhood. The new 20,000-square-foot library, which has been praised for fitting well with the neighborhood, draws its warmth from 200-foot-deep bore holes. Each borehole has a loop of heat exchange piping installed in it. Because the heat exchanger orientation is vertical, it fit under the library's parking lot.

Combined with other smart building features, including innovative lighting, low-E coating on the glass to minimize heat gain and loss, and use of daylight, the building is designed to be inviting, patron friendly and energy efficient.

Taj Schoening, Business Operations Manager for the library said trustees, staff and patrons all are very pleased with the GeoExchange system. "The system offers flexibility, and we are looking forward to the savings from low operating costs. We also are pleased to have an energy source that is having a positive impact on the environment."

Geothermal, or GeoExchange systems, have been gaining popularity because of their ability to utilize the stored energy in the earth as an energy source. Since the earth absorbs most of the energy it receives from the sun, it remains a fairly constant temperature just six feet below ground. GeoExchange systems use a series of underground pipes to take advantage of the earth's stored energy. A solution,

typically water and antifreeze, circulates through the pipes and absorbs the soil's heat. This heat is delivered to the geothermal heat pumps inside the facility, which in turn heat the building. In summer, the geothermal heat pumps remove warm air from the building, and then move it to piping in the ground, where the earth absorbs it.

GeoExchange is a proven technology that is being installed in homes, businesses and schools across Wisconsin, according to Steve Anderson, executive director of the Wisconsin Geothermal Association and Focus on Energy consultant. "Not only do home and business owners reduce energy costs by 50 percent, GeoExchange systems are more reliable, require considerably less maintenance and have a longer life than conventional systems. In addition, users are protected from energy price variations, since GeoExchange systems get most of the energy they need from the earth."

HOW FOCUS ON ENERGY CAN HELP

Renewable energy technologies can help reduce building operation costs, reliance on imported fossil fuels, pollution and greenhouse gas generation. An added benefit to the local and state economy is that use of renewable energy creates or sustains jobs right here in Wisconsin. Focus on Energy can help you incorporate renewable energy technologies into your commercial, industrial or agricultural business.

Businesses throughout Wisconsin that want to install, develop or use renewable energy can benefit from Focus on Energy's technical and financial assistance. Focus on Energy can link you to companies that design and install geothermal systems and help you determine which system is will fit your needs. For more information about Focus on Energy services related to renewable energy, please call 800.762.7077.

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