



## Q&A

### Heating & Air Conditioning the Church and Undercroft

**Q. Why consider a new heating, ventilation and air conditioning system at this time?**

**A.** Air conditioning the church and undercroft has been a dream for decades. Not only would a cool space offer comfort and protection from potential ill effects of heat, it would make our worship services and outreach activities more attractive to visitors and free us to expand ministries previously restricted by summer heat. Our treasured organ, too, would benefit from more constant temperatures. Also, the boilers that generate heat for our building are nearing the end of their service lives. So with the need to replace the boilers soon, the time is right to take a look at addressing both heating and cooling.

**Q. If we invest in a combination heating and cooling system, what will change?**

**A.** Instead of heating the church with radiators, as we do now, numerous small heat pumps and fans will be installed in places where they will be out of sight, and will provide heating and cooling to specific zones as needed, allowing us to provide comfortable temperatures where needed while operating more energy efficiently.

**Q. Will the new HVAC system be noisy? Will we hear it in the sanctuary?**

**A.** No, one of our goals is a system that is neither seen nor heard.

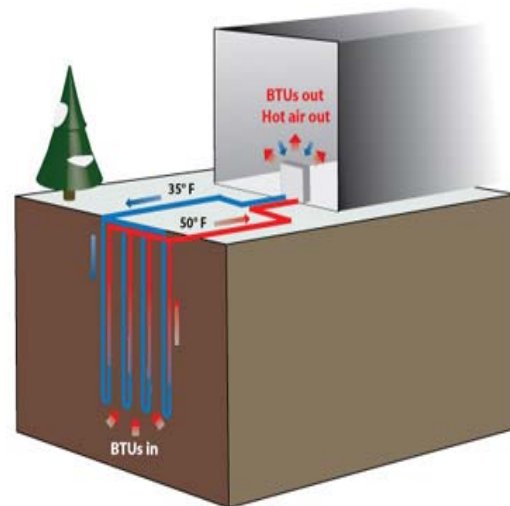
**Q. Why a geothermal system?**

**A.** For the health of the planet and long-term cost savings! Mount Olive is committed to reducing its environmental impact and being “gentle with the earth.” Geothermal energy is highly efficient and will help us reduce carbon pollution by dramatically reducing our reliance on natural gas, a fossil fuel. Over time, our investment in geothermal will pay for itself in savings.

**Q. How does geothermal work?**

**A.** In traditional air conditioning systems, a heat pump uses electric power to pump heat out of the cooled space to the outside air. On a hot August day, that means pumping heat from a 75° degree inside room to 90-100° degree outside air. That takes a lot of electricity.

An alternative is a geothermal system that makes use of the ground, where the temperature remains in the low 50° range throughout the year. This stable temperature provides a source for heat in the winter and a place to disperse excess heat in the summer. With a geothermal system, a heat pump is still needed, but instead of trying to transfer all that

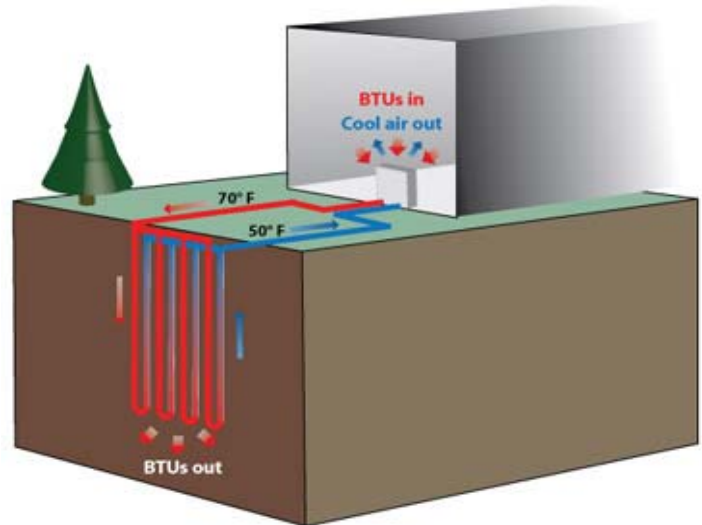


heat from inside into hot outside air, the pump transfers it to a fluid (a water and glycol mix) and circulates it through pipes that are buried in the ground. That requires a lot less electricity.

Once the pipes are installed, they can be used all year round. In winter, the heat pump is reversed to pump heat from the ground into the building. This uses a relatively small amount of electricity to produce the heat that otherwise would need to be generated by burning natural gas in the boilers.

**Q. Where would the geothermal wells be drilled?**

**A.** In the south parking lot. Since Mount Olive has limited land space, we would use a vertical system. In this arrangement, holes (approximately eight inches in diameter) are drilled about 250 feet deep and set about 20 feet apart. Two pipes installed in each hole are connected at the bottom to form a loop. These vertical loops are connected to a single larger-diameter horizontal pipes that would run under 31<sup>st</sup> Street to the boiler room below the kitchen. Our parking lot has enough room for 48 wells. Once the pipes are installed and the lot resurfaced, the system will not be visible on the surface.



**Q. What will the system cost?**

**A.** Geothermal adds about \$300,000 to the cost of a conventional heating and air conditioning system. Over time, savings on our energy will pay for the investment in geothermal. Plus we'll be reducing our impact on the environment. One more point: we will continue to need a boiler to heat the Parish House. The estimated cost of the project includes the purchase of a high-efficiency boiler.

**Q. What impact will the addition of air conditioning have on our monthly energy bills?**

**A.** The system will significantly reduce our gas bills for heating. With adding air conditioning for the church, our summer electric bills will go up significantly, but a good portion of that cost will be mitigated by generating our own electricity during long summer days with the soon-to-be installed solar panels on the Parish House roof. Even without the solar panels to generate electricity, our summer electric bills will rise less than if we installed a conventional air conditioning system.

**Q. How will a geothermal system affect our carbon emissions?**

**A.** Each year, Mount Olive emits about 140 tons of carbon dioxide (CO<sub>2</sub>) into the atmosphere. With geothermal, we will replace a significant amount of our gas use with electricity, which is becoming an increasingly low-carbon option as coal-fired electrical generation is replaced by solar, wind and natural gas. In addition, our carbon footprint will decrease as we begin to generate electricity with solar panels on the Parish House roof.

**Q. When do we plan to install solar panels on the Parish House roof?**

**A.** Installation of the solar panels should begin at long last in June. Electricity from the solar panels will help cool the Parish House and keep our computers, lights and appliances running immediately.

**Q. What changes will be required to the interior of our buildings?**

**A.** Very little. The old radiators in the nave and undercroft will be removed and replaced with grates in the floor. All the equipment will be hidden from view.

**Q. Whom should I contact with questions or concerns about the campaign and the building improvements?**

- *The capital campaign:* Campaign Chair Doug Parish at [dougparish@yahoo.com](mailto:dougparish@yahoo.com) or Congregation President David Anderson at [dtaparkave@aol.com](mailto:dtaparkave@aol.com).
- *Building improvements:* Property Committee Chair Art Halbardier at [pastorarth2@comcast.net](mailto:pastorarth2@comcast.net) or Congregation President David Anderson at [dtaparkave@aol.com](mailto:dtaparkave@aol.com)