

Q&A: 2017 Building Improvements at Mount Olive

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.

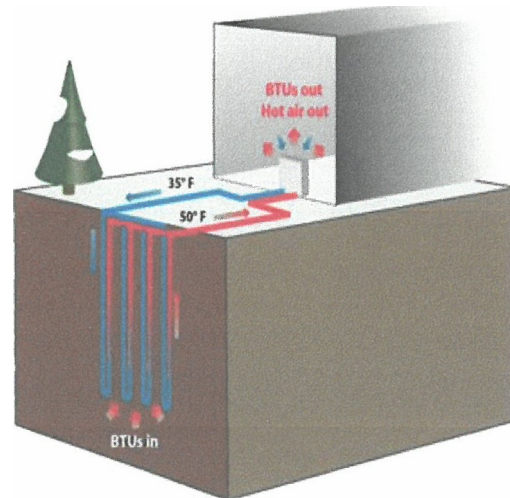
Q. Why a geothermal system?

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

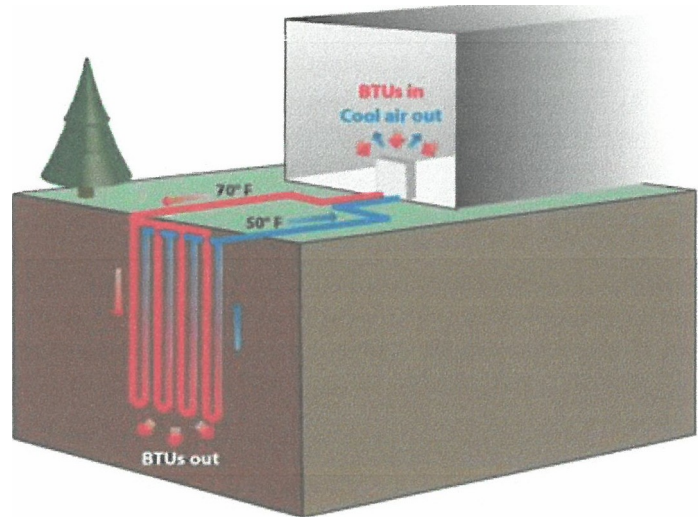


heat from inside into hot outside air, the pump transfers it to a fluid (a water and glycol mix) and circulates it through pipes that are buried in the ground. That requires a lot less electricity.

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 single larger-diameter horizontal pipes that would run under 31st 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.



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 reduce 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 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 in June. Electricity from the solar panels will help cool the Parish House and keep our computers, lights and appliances running.

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.

North Parish House Entrance Improvements



Preliminary rendering

Q. What is envisioned for the entrance?

A. Proposed improvements to the north entrance - which serves us seven days a week as a main door - would make it:

- Fully compliant with the Americans with Disabilities Act (ADA) and more accessible
- Friendlier to enter and exit especially during bad weather, with the addition of a canopy
- Equipped for remote opening, such as from the church office.

In addition, the entrance patio would be improved for easier maintenance.

Q. We put in an elevator at the north entrance a few years ago. Is this entrance not already in compliance with the ADA?

A. The elevator helped meet ADA standards. And although the entrance is technically accessible, it is difficult to open, particularly if you're in a wheelchair, use a walker or are navigating on crutches. The proposed improvements would enable opening the door with a push of a button.

Plus, on weekdays when the door is locked, no one likes to wait outside after ringing the bell for someone to come open the door. So, it will be equipped for remote opening. Finally, the lighting by the north entrance is inadequate. That will be remedied.

Improvements to Our Grounds and Parking Lot

Q. Why do we need to improve our parking lot and grounds?

A. As they are today, they are not welcoming, they don't convey that we care for our neighbors and community and they present safety hazards. Stairs to the church are deteriorating and becoming unsafe. Sidewalks are broken and uneven. Retaining walls are crumbling. Landscaping is overgrown or in poor condition. The surface of the parking lot is crumbling and uneven - and poor lighting contributes to safety concerns.

Q. What improvements are envisioned?

A. New retaining walls, sidewalks, lighting, signs, entry steps and landscaping - all designed to be more welcoming, provide improved safety and security and reduce maintenance. (Note: If the congregation moves forward with the geothermal system for heating and cooling, the geothermal wells would be drilled in the parking lot, necessitating its renewal.)



Q. Will we lose or gain parking spaces the lot?

A. We will retain the same number of parkingspaces. There may be changes in the layout of the lot to ensure it complies with city code.

Q. What will be done to help people who park in the lot feel more secure, especially after dark?

A. The addition of good lighting will help eliminate dark corners and shadows. Lighting around the church itself also will make the walk to the building safer. And landscape improvements will be designed with an emphasis on eliminating security concerns.