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Standard Imaging – Geothermal Heating and Cooling System

Challenge

Standard Imaging of Middleton provides instruments and software to provide Quality Assurance for the Radiation Therapy and Medical Imaging health care sector.

While planning the construction of a new facility in 2006, the company looked for ways to optimize energy efficiency and reduce environmental impacts. A geothermal heating and cooling system would draw on the heat of the earth to heat and cool a new building.

Strategy

The installation costs of the geothermal system were about 33% more than a conventional heating and cooling system. In order to offset the additional costs, 1) the company was able to receive Focus on Energy support (about \$10k) and 2) Economic Development tax credits from the WI Dept of Commerce were received.



Standard Imaging's geothermal pump utility room

The closed-loop, glycol based system contains 54 wells, each drilled 150 feet deep, located under the current parking lot. Piping from the 54 wells is combined into five two-inch tubes, which enter the building below grade (five other similar pipes are used for outgoing heat transfer). Once in the building, the tubing with glycol is routed into all of the 15 separate heating/cooling zones.

Standard Imaging worked with Landgraf Construction as the general contractor. They had no previous experience with geothermal but was eager to work with Standard Imaging. In addition, Capital Mechanical carried out the heating and ventilation installation.

Results

Standard Imaging moved into the 27,000-square-foot facility in February 2007, and the system has performed well. Saving about \$10,000 per year in natural gas costs, the company stood to recover the cost of the system in 8 to 10 years, before taking into account the Focus on Energy money.

The geothermal system requires less maintenance and the equipment has a longer life span than a natural gas system. Another benefit is the reduced size of the utility room compared to a conventional furnace room.

The geothermal underground plumbing was designed with expansion in mind. The current system is capable of heating and cooling another 10,000 square feet. Since Standard Imaging is now planning to expand in the next 1-2 years, this foresight will yield additional savings.

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