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Geothermal Vault Provides "Green" Energy Solution for New Construction

By: Joanna Climer

The Asia Society of Texas needed a new building that would house the society's cultural center, the Asia Society Texas Center. The society's programs had outgrown capacity and more space was required in order to serve larger audiences. As part of the building design, the society wanted the center to have a high-efficiency and low maintenance solution for its energy needs.

The Asia Society is a leading global and pan-Asian non-profit organization working to strengthen relationships and promote understanding among United States and Asian people, leaders and institutions. As an international nonprofit, nonpartisan, educational organization, the Asia Society helps build awareness of the more than 30 countries generally defined as the Asia Pacific region.

Construction began on the new building and is scheduled to be complete in late 2011, with the building opening in early 2012. The 38,000-square-foot

building is located on two city blocks in Houston's Museum District. It was designed by Japanese architect Yoshio Taniguchi, who also designed the Museum of Modern Art in New York City. The new Asia Society Texas Center will be located on the south section of land along Southmore Boulevard in Houston, with the north side reserved for garden spaces and landscaped parking.

One aspect of the building is a 'green' design, which includes the use of geothermal energy. Geothermal energy is a safe renewable energy that is stored within the earth. Due to the earth's constant temperature, energy can be efficiently used for heating and cooling purposes without harm to the environment. The importance and demand of renewable energy sources are growing drastically due to the public's growing concern for reducing waste. The use of geothermal energy is also supported and endorsed by the United States Department of Energy and the Environmental Protection Agency (EPA).

By using the ground as a heat exchanger, geothermal energy is an efficient heating/cooling option. A heat exchanger is typically created by running a series of pipe loops horizontally or vertically throughout the ground, hence the term "ground loops". The ground loops are filled with water or water based liquid and connected to a heat pump inside the building. The heat pump circulates the water through the ground loops, thus creating a heat exchanger that is far more proficient, clean and cost effective than most heating and cooling systems.

To use geothermal energy for the heating and cooling of the new center, the design consultant on the project, Greg Tinkler of the engineering firm Redding Linden Burr, Inc. (RLB), specified the use of high-density polyethylene (HDPE) geothermal vaults for the project -- detailing an ISCO Industries custom-designed vault, the Circuit Maker Vault®, as an example. A geothermal vault is the structure that serves as the connection point for the ground loop and the heat pump for the building.

The contractor chosen for the geothermal project was Los Angeles-based Enlink Geoenergy Services, Inc. Project Manager Stuart Lyle of Enlink contacted ISCO Industries' representative Mike Golightly to supply ISCO's custom-designed HDPE geothermal vault for the installation.

ISCO Circuit Maker Vaults® are leak proof and easy to install. They are also custom made to fit any engineering requirements. Some features of an ISCO geothermal vault include: butt-fused circuitry; a 100 percent leak-free polyethylene structure; H-20 (Highway Traffic) load rating availability; an

OSHA compliant access ladder; custom fabrication to customer's specifications; extrusion welding; Pressure Temperature (P/T) ports on all outlets; choice of metal or polyethylene valves; quick pressure test of individual circuits; and easy purging and isolation of circuits.

Enlink Geoenergy Services decided to work with ISCO Industries for this project because the company worked with ISCO in the past and was aware of the reliability and quality of ISCO's geothermal vaults.

"ISCO has always been a wonderful company to work with," said Lyle. "Both Bruce Thompson and Michael Golightly have always treated Enlink as a first class customer. They seem to always know what I need to order when I call. In particular, Michael Golightly has always been especially helpful when helping me work with project engineers.

"Concerning ISCO's prefabricated HDPE vaults, it is always so nice to see it arrive on site and ready to plug into our system without worrying about building our own manifold assembly," Lyle added. "Additionally, the construction of the vault is always so neatly and professionally done. It is easy to see why ISCO is an industry leader in geothermal supplies and vaults."

ISCO Industries designed, shipped and delivered the geothermal vault to the site on April 2010. According to ISCO's vault installation standards, Enlink installed the vault on April 28 with the use of a tracked excavator

"Like all other geothermal projects that Enlink Geoenergy Services has been a part, it is a privilege to be an instrumental player in the promotion of geothermal systems in the green energy movement," Lyle said. "Enlink strives to be an industry leader much like ISCO and continues to welcome private sector projects like the Asia House."

The installation of the vault was "simple and issue free" according to Lyle. The geothermal system will be joined to the internal HVAC system on December 2010, but will not be fully operational until the beginning of 2012 when the facility is due to open.

Once the building is completed, visitors will be able to experience the comfort and innovation of a geothermal energy system.

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Louisville, KY-based ISCO Industries is a distributor and fabricator of piping products. For more information on ISCO Industries, visit www.isco-pipe.com.

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