

# Fordham University looks to heat up savings with geothermal

## Case Study

FlexTech Consultant:  
EME Consulting  
Engineering Group

Client Name:  
Fordham University

Business Type:  
Higher Education

Location:  
Bronx, NY

## Background

Fordham University is evaluating a geothermal pilot project to heat and cool three buildings at its Rose Hill campus in the Bronx, NY. The University reached out to EME Consulting Engineering Group whose services focus on engineered solutions to provide energy efficiency.

## The Project

The University is looking to implement alternative and renewable heating and cooling strategies on campus to reduce greenhouse gas emissions as well as shift heating production from fuel to electricity and begin phasing out cooling towers on campus.

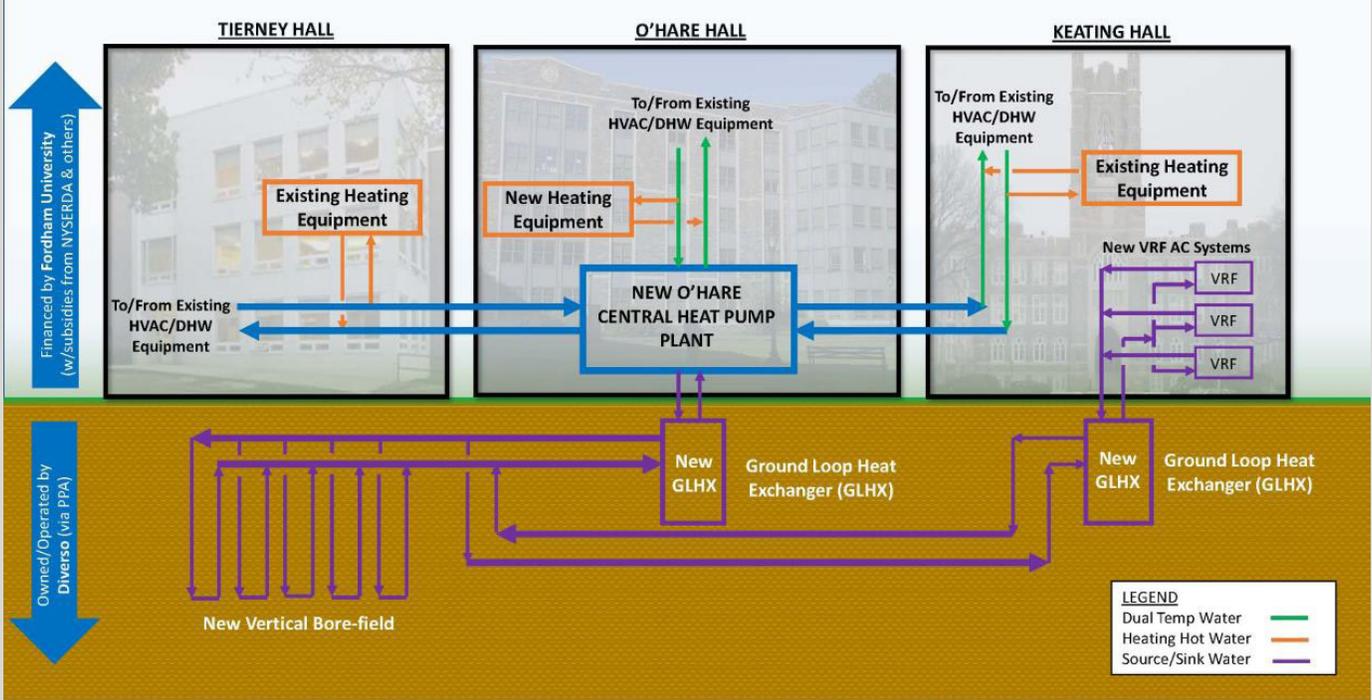
EME proposed installing a new vertical bore field and ground loop heat exchangers. The bore field system would provide condenser water to new equipment, including a new 700-ton central ground coupled heat pump plant to generate chilled water and low-temperature heating hot water, and a 100-ton new variable refrigerant flow (VRF) cooling system. Additionally, the existing building HVAC systems would be modified to support the new central heat pump plant configuration.

### Projected Savings:

- *Life cycle cost savings of \$2.9 million*
- *662 metric tons of GHG emissions avoided*



**PROPOSED CONFIGURATION OF GEOTHERMAL PILOT PROJECT AT O'HARE, KEATING, & TIERNEY HALLS**



**The Study**

EME studied the feasibility of a geothermal-based system based on constructability, energy impact, and finances. The project was evaluated based on occupancy types, load profiles, and interconnected utilities of the buildings and created a detailed energy model that performed a rigorous energy analysis to determine the most efficient geothermal system configuration. A life cycle cost analysis was completed to demonstrate the energy savings and economic viability when compared to replacing the systems, including real maintenance and operations data, as well as potential carbon fines.

Furthermore, EME would design the new VRF systems, the integration of the existing heating systems into the new geothermal plant, and all required changes to existing building HVAC

**NYSERDA Flexible Technical Assistance Program**

Completing an energy study of a building can help identify and evaluate opportunities to reduce energy costs and incorporate clean energy into a company’s capital planning. Through the FlexTech Program, NYSERDA shares the cost to produce an objective, site-specific, and targeted study on how best to implement clean energy and/or energy efficiency technologies. A NYSERDA-approved FlexTech Consultant will work with businesses to complete the energy study and provide expert, objective and customized technical services to inform clean energy management and investment decisions.



NYSERDA-Approved FlexTech Consultant



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