



Project

Geothermal system design and construction enables Boston's largest fossil-fuel-free building

90%

of building heating and cooling provided by geothermal system

1,500 feet

depth of geothermal wells — the deepest for any U.S. project

345K square feet

in building area, making it the largest fossil-fuel-free building in Boston

Summary

- Haley & Aldrich helped Boston University (BU) and its project team achieve ambitious plans for the brand-new Center for Computing & Data Sciences (CCDS). In addition to becoming a striking addition to Boston's skyline, the CCDS would be the city's largest fossil-fuel-free building.
- To reach that goal, the school needed partners that could design a geothermal heating and cooling system capable of meeting nearly all the 19-story building's needs. This task would be challenging at the dense, urban site, which lacked space to install many geothermal exchangers.
- The project's design team turned to Haley & Aldrich for geothermal design, geotechnical design, and environmental services because of [our history](#) working below ground on BU's campus and our successful record designing and installing complex geothermal systems in New England.
- The site constraints posed unusual challenges for the design and installation of the geothermal system. We promoted a concentric well design (the Rygan HPGX system) capable of working to depths of 1,500 feet — the deepest in the United States at the time — to install ground-source heat exchangers that circulate water to exchange heat between the building and deep underlying bedrock.

- We collaborated with BU and multiple drilling contractors to test drilling and installation methods that would reduce borehole deviation while controlling the flow of groundwater into the boreholes. Lessons learned from the testing program proved integral to the final design and installation by Skillings & Sons.—
- The success of the geothermal system enabled BU to achieve its goal of a fossil-fuel-free CCDS building, which opened in 2022 and was certified as the school's first on-campus [LEED Platinum](#) building, cemented the school's position as a green energy leader in Boston and beyond. The system will meet 90% of the structure's cooling and heating needs, contributing to a building as forward-looking as the disciplines it houses.

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