

Model 350 Helical Piles

Project: Hospital Renovation
Location: Mount Vernon, IL
Date: September 2016

Challenge:

A second level was planned for an existing one-story building. It was determined the second-story addition would overload four existing column locations. Therefore, new columns were proposed to be installed next to the existing columns to support the additional loading. The hospital had to remain operational during the entire renovation. Access and allowable working space would be limited inside the building.

Solution:

Helical piles were selected to support the proposed columns given their ability to be installed within the confined space of the existing building using relatively small equipment. Model 350 (3.50-inch O.D. by 0.340-inch wall) hollow round shaft helical piles with an 8"-10"-12" triple-helix lead section were selected to support design working loads up to 50 kips per pile. Two column locations required a pair of helical piles to support a service load of 100 kips. Four helical piles were installed at each of the remaining two column locations to support a service load of 200 kips. The project engineer also specified two additional piles be installed near one of the new columns to provide support for contributory loads of a new wall construction. The piles were installed to achieve torque-correlated ultimate capacities of at least twice the design working loads ($FOS \geq 2$). The installed helical piles were fitted with new construction caps and cast within the individual column footings.

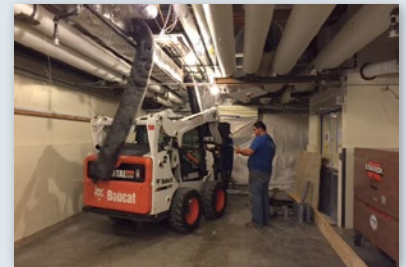
The helical piles were installed with a high-flow skid steer, which could be driven through standard double doors and over temporary bridging that spanned excavations within the tight working conditions. Scrubber attachments were used to mitigate exhaust fumes within the building. The helical pile installation was completed in just two days.

Project Summary

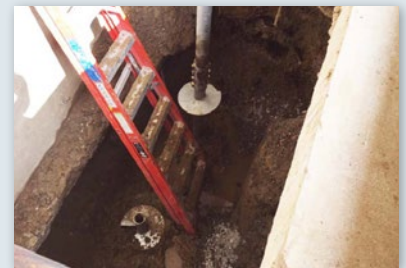
Structural Engineer: JPS Consulting Engineers; Dickson-Schaefer
Geotechnical Engineer: Bevis Construction, Inc.
Certified Pier Installer: Foundation Supportworks® by Woods
Products Installed: (14) Foundation Supportworks® HP350 Helical Piles, 8"-10"-12" Lead Section, Design Working Loads up to 50 kips (Compression)



Maneuvering skid steer through standard double doorway



Low overhead conditions; exhaust scrubber and vent hose on skid steer



Installing helical piles



Piles installed and fitted with new construction caps