

Helical Piles Support Gymnasium

Project

Hamilton Elementary School

Location

Moline, IL

CHALLENGE ▼

A slab-on-grade building addition was planned along the south and east sides of an existing school gymnasium. The gymnasium had experienced differential settlement at its southeast corner, evident by previous tuckpointing repair in the brick veneer. The existing gym foundation consisted of a three-foot deep foundation wall supported by a one-foot thick continuous footing. The new addition foundations planned adjacent to the southeast corner of the gymnasium included helical piles installed along the existing footings and cast into structural grade beams. These grade beams would be doweled into the existing footings and foundation walls to stabilize the existing building corner as well as support the new loads of the proposed addition.

A geotechnical investigation performed in the area of the proposed helical piles identified approximately six feet of uncontrolled lean clay fill over medium stiff to stiff lean clay and silt (loess) to depths from 27 to 30 feet below grade. Stiff to very stiff sandy lean clay (glacial till) then extended to approximately 98 feet.



Product staged along east gym wall; looking south



Helical pile installation along south wall of gym

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► Continued

SOLUTION ▼

Fifteen helical piles were installed around the southeast corner of the gymnasium. The helical pile configuration consisted of Model 288 (2.875-inch OD by 0.276-inch wall) hollow round shaft with a 10"-12"-14" triple-helix lead section followed by a 14" single-helix extension to support a design working load of 35 kips. Standard extensions advanced the piles to depths up to 40 feet below floor slab elevation to bear within the glacial till. The piles were advanced to torque-correlated ultimate capacities of at least twice the design working load ($FOS \geq 2$). The piles were fitted with new construction brackets and cast into the new foundations. The helical pile installation was completed within two days.



Adding 7-foot blank extension



Pile installation complete

PROJECT SUMMARY ▼

- Architect:** Legat Architecture
- Structural Engineer:** KJWW Engineering
- Geotechnical Engineer:** TEAM Services, Inc.
- General Contractor:** Russell Construction Company
- Certified Pile Installer:** MidAmerica Basement Systems
- Products Installed:** (15) Foundation Supportworks® HP288 Helical Piles, 10"-12"-14"-14" Helix Plate Configuration, Installed Depths up to 40 feet, Design Working Load of 35 kips

For additional case study and technical information please visit Commercial.Supportworks.com.