

Helical Piles Support Beer Garden Patio Structure

Project

Exile Brewery Patio

Location

Des Moines, IA

CHALLENGE ▾

The Exile Brewing Company was renovating an early twentieth-century brick building in downtown Des Moines. Renovations included a restaurant and an exterior beer garden patio adjacent to the building. The outdoor patio area was designed to be a 39-foot square poured concrete slab to accommodate concrete block seating, lamp posts, tables and chairs. The patio structure would consist of a structural slab with grade beam support along the perimeter, which would also support the concrete block seating. Soil information was unavailable for a foundation design; however, the general contractor, having experience with construction in the downtown Des Moines area, anticipated weak sandy soils at the project site. A deep foundation was suggested to support the patio structure. Helical piles were considered a viable deep foundation option to bear the foundations below the assumed loose sandy soil conditions. Although the design loads from the patio structure were relatively low, both the general contractor and the client wanted a foundation system that would provide reliable support for the loaded perimeter of the structural slab.



Building to be renovated for future brewery



Advancing piles with standard extensions

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SOLUTION

Low mobilization costs and the possibility for a quick and easy installation made helical piles the ideal deep foundation system to support the beer garden patio structure. The design included sixteen (16) Model 288 (2.875-inch OD by 0.276-inch wall) hollow round shaft helical piles with 10"-12" double-helix lead sections. Standard extensions advanced the piles to depths required to achieve a torque-correlated ultimate capacity of at least 16 kips (FOS≥2). The helical piles were installed to an average depth of 19.5 feet to achieve a minimum required torque of at least 1,800 ft-lb. New construction brackets were placed on the tops of the helical piles and cast into the concrete grade beams. The 16 helical piles were installed in just one day.



Completed patio structure



Installed piles in grade beam trench to be cut and fitted with new construction brackets

PROJECT SUMMARY

Structural Engineer:	Raker Rhodes Engineering
General Contractor:	Ball Team, LLC
Certified Pile Installer:	Midwest Foundation Repair
Products Installed:	(16) Foundation Supportworks® HP288 Helical Piles, 10"-12" Lead Section, Installed to An Average Depth of 19.5 feet, Design Working Compression Load of 8 kips

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