



CIVIL CONSTRUCTION DIVISION



DEEP FOUNDATIONS MICROPILES

Description

Micropiles (also referred to as Mini-Piles) are deep foundation, small diameter grouted piles typically consisting of a central steel reinforcement member and commonly includes steel casing. Micropiles can be designed to carry very high capacity loads, with design loads commonly on the order of 250 kips and higher depending on project requirements.

Loads are typically achieved through skin friction between the grout and surrounding soil or rock. In limited situations, loads can be achieved in end-bearing where the piles are terminated in competent rock formations. Unlike a Drilled Pier, Micropiles derive a large percentage of their load from the steel reinforcement. This, coupled with achieving their load in skin friction, makes micropiles excellent for both tension and compression loads. Steel casing can also be added to address lateral loading requirements.

Micropiles are typically used in limited access areas, such as low overhead clearance, and can be accessed through a typical man door. Micropiles are a cost effective solution in areas with Karst topography and sloping rock.

With a typical Drilled Pier foundation, significant cost overruns can occur due to extra rock coring. This is resulted as the Drilled Piers are extended along the face of sloping rock, or when voids are encountered in the rock formation near the design bearing elevation of the drilled piers and extra rock coring is required. Micropiles reduce this risk as micropiles typically extend down into the rock formation so the load is transferred in skin friction and potential voids in the rock are identified. This eliminates the risk of voids below the bottom of the Drilled Pier.

Completed Projects

Below is a sampling of completed micropile projects by Helitech Civil Construction Division (click the link in red for more information on each project):

- [Ameren Labadie - Power Plant - Eureka, MO](#)
- [Anderson Hospital - Medical-Hospital - Maryville, IL](#)
- [Scott Air Force Base - Government Facility - Military - Scott Air Force Base, IL](#)
- [Mallinckrodt - Manufacturing-Pharmaceutical - St. Louis, MO](#)
- [6 East Washington - Historic Renovation - Indianapolis, IN](#)
- [Irving School District - Academic-Elementary - Joplin, MO](#)
- [Fort Nelson Distillery - Louisville, KY](#)
- [Heartland - Academic-College - Normal, IL](#)
- [Bowling Green - Waste Water Treatment Plant - Bowling Green, KY](#)
- [Northside New Era Church - Indianapolis, IN](#)
- [Cowels Commons - Performing Arts Venue - Des Moines, IA](#)
- [Garfield Apartments - Residential Complex - St. Louis, MO](#)
- [Archer Daniels Midland - Cedar Rapids, IA](#)
- [AT&T Cell Tower - Chester, IL](#)
- [Illinois Department of Transportation - Aurora, IL](#)
- [Solutia \(Subsidiary of Eastman Chemical Company\) - Sauget, IL](#)
- [Anderson Hospital - Medical-Hospital - Maryville, IL](#)
- [City Sanitation Line - Valparaiso, IN](#)
- [Waste Water Treatment Facility - Danville, KY](#)
- [Romain Subaru - Evansville, IN](#)
- [University of Illinois - Historic Academic Facility - Champaign, IL](#)

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