

# Micro Piles & Helical Piles

MP

HP



### Geologic Hazard Application

- Soft/Loose Soil
- Contaminated Soil
- Slope Stability

Diameter/Depth  
4 – 14 in dia  
10 – 150 ft deep

Compatible Soils  
Sand (SP, SM, SC)  
Silt (ML, MH)  
Clay (CL, CH)  
Bedrock  
Contaminated Soil HP

Bearing Capacity Range  
20 – 250+ kips

### Key Advantages

- Small equipment for tight access
- Ideal for repair/retrofit
- Minimal site impact
- Low spoil - HP
- No vibrations
- CBC compliant

### Key Considerations

- High material cost
- Steel below water
- Pile connections
- Need access

### Comparable To

- Torque piles
- Pipe piles
- Concrete piers
- Driven piles
- Soil nails/tiebacks

## Overview

**Micro Pile and Helical Pile (MP and HP)** systems are small diameter, high strength, manufactured steel, component pile systems. MP/HP are drilled and screwed into the ground to develop bearing and tension resistance for the support of foundations. MP can be installed quickly in virtually all ground using mobile drilling equipment. The HP offers a well-defined, component steel pile with reliable support of foundations. MP/HP construction produces low noise and no vibrations. The MP/HP obtains capacity at a deeper soil layer in bonding to competent rock or bearing on the helical plates. MP/HP are often used for underpinning, temporary bracing of historic building walls, and new construction tilt panels. The MP/HP can be installed with low headroom equipment, in tight access areas, and in new construction for foundation bearing and uplift forces. MP/HP are a versatile, cost effective, foundation pile for supporting foundations, bracing, and retrofit/repair projects.

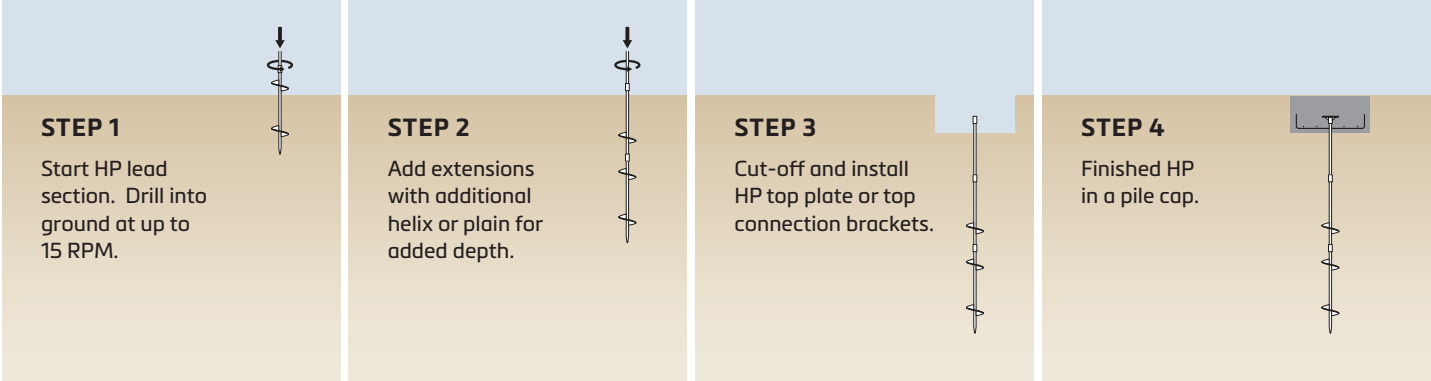
## MP/HP Applications

Seismic tension anchors, seismic retrofit, foundation underpinning, and wall tiebacks. The ideal applications for MP/HP:

- 1) Seismic retrofit of existing buildings.
- 2) Tight access areas for underpinning and added support.
- 3) Sensitive sites with vibration concerns near critical structures.
- 4) Foundation upgrade and retrofit in contaminated soil.
- 5) Groundwater protection regions.

**MP** **HP** **Micro Piles & Helical Piles**

**HP 4-Step Construction Process**



**Technical Details**

**Micro Pile and Helical Pile (MP and HP)** systems offer high capacity, tight access, deep foundation support with nearly instant force resistance after installation. MP/HP are used for seismic retrofit, support new foundations, upgrade old foundations, add capacity to existing foundations, arrest settlement of foundations, and help lift a foundation as the structure will allow.

MP are high capacity, small diameter, structural piles, commonly 4 to 12-inches in diameter. MP are both drilled and injected with grout during installation leaving a grouted steel casing or threaded bar in the ground. MP can be drilled into all ground conditions with adaptable mobile drill rigs. They are usually bonded into competent rock or very stiff soil to achieve capacity.

HP consists of a lead section and one or more extensions that are screwed into the ground by application of crowd and torsion. The HP lead looks like a screw with single to multiple 6 to 14-inches diameter helices. HP capacity is initially monitored by the installation torque when installed into soil. The torque resistance is a function of the soil type and size of helix components. HP extensions are added as the pile is advanced into the ground.

Once the design depth and installation torques are reached the MP/HP are cut off and a load bearing plate or new construction bracket is attached. Full-scale load tests to 200% confirm design bearing and uplift capacity.

Farrell uses mobile drill rigs, excavators, and compact track loaders equipped with a drill to install MP/HP. These piles are commonly installed to depths of 15 to 100-feet with capacities ranging from 25 to 250 kips.

MP/HP are small diameter, high capacity, versatile, deep foundation piles that support your project to **Go Vertical with Confidence®**.

**Testimonial**



Baker Beach Rehabilitation Project  
San Francisco, CA

“Through it all, the Farrell crew were very professional in working with full time onsite inspectors, Presidio Trust Representatives and unknown conditions underground. The entire job went smoothly and finished two days ahead of schedule.”

**Deanna Bohler**  
Project Manager  
Tricorp Hearn Construction

