

THATCHER FOUNDATIONS INC.

Micropiles

DEEP FOUNDATIONS • EARTH RETENTION SYSTEMS • MARINE CONSTRUCTION

Thatcher has been in business over 60 years. We pride ourselves in our ability to complete projects on time and on budget. We made our reputation building foundations for some of the largest structures in Chicago; however, pounding the biggest piece of steel into the ground isn't always the best solution. Sometimes the job can be done using something smaller and less intrusive - a micropile.

Micropile is a misnomer. The typical capacities of a micropile are 20 to 100 tons, in special cases some are greater than 200 tons. Micropiles were developed in the 1950's in Italy as a means to support historic buildings. Originally called *pali radice*, they made their way across Europe over the next few years. They first showed up on this side of the Atlantic in the early 1970's in Boston and New York. It wasn't long before people started to realize micropiles might have applications other than underpinning. Construction and material standards were developed and the micropile was on its way.



18th Street Pedestrian Bridge - 100 ton micropiles, 90 ton driven piles.

Micropiles offer advantages over other types of deep foundations:

- Micropile pile rigs are small and able to access places other deep foundation rigs can't.
- Micropiles are installed in threaded sections of any length. This makes micropiles ideal for low headroom installations.
- Micropiles cause minimal vibration and noise.
- Micropiles produce minimal amounts of spoil. The typical micropile is five, seven or nine inches in diameter - much smaller than other drilled foundations.





Micropiles generally utilize 50 to 80 ksi steel casing and 4,000 to 5,000 psi grout. The casing is advanced to a pre-determined depth or socketed into rock, then tremie-filled with grout. Sometimes additional reinforcing steel is added to increase capacity and/or provide a means to transfer tensile loads. The following table shows the most popular micropile sizes. The allowable loads shown are calculated assuming 18 ksi on the steel and 1,250 psi on the grout. Higher capacities can be obtained.

Diameter (in)	Wall Thickness (in)	Weight (lbs./ft.)	Allowable Load (tons)
5.0	0.362	18.00	56
5.5	0.415	23.00	73
7.0	0.498	35.00	114
9.625	0.545	53.50	186



The typical micropile installation is usually done in conjunction with another type of foundation method. We can assist in the design of the foundation system to minimize cost and potential problems. The earlier we are involved in the process, the more we can help.

Call us today and let us show you how we can help you complete your project on time and on budget.



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