CASEHISTORY

Colorado Medical Facility
Durango, Colorado

Adaptable Helical Pile Foundation for a Colorado Medical Facility

A new two-story medical office building in Durango, Colorado, required a reliable foundation solution capable of supporting substantial structural loads while accommodating limited site access and several concrete foundation configurations.

The project team selected 182 hot-dip galvanized MAGNUM® Helical Piles, each 6 inches in diameter and approximately 30 feet long. Helical piles allowed installation with smaller equipment and crews, reducing mobilization requirements on the restricted site while supporting the project's time-sensitive schedule.

Helical Piles for Challenging Soil Conditions

Soft upper soils presented another challenge. Alternate foundation systems would have relied heavily on skin friction, resulting in lower capacities through these weaker soils. MAGNUM® Helical Piles develop tension capacity through their helices, allowing them to achieve the required capacity sooner as they advance into more competent bearing material.

Installers advanced the piles to bearing within the underlying claystone, which provided consistent load-bearing conditions across the site.

The helical pile foundation system provided compression capacities of up to 100,000 pounds and tension capacities of up to 50,000 pounds.

Adaptable Connections for Multiple Foundation Configurations

At compression-only locations, the project used MAGNUM® MHC1300 Bolted Plate Caps. Where foundation elements required additional uplift resistance, MAGNUM® supplied this same cap with hooked rebar welded directly to the top plate.

These adaptable connections allowed the same helical pile system to support column foundations, shear walls and grade beams throughout the building. The approach helped simplify installation while addressing varying compression and tension requirements.

Additional Lateral Load Support

The project also incorporated battered helical piles where increased lateral resistance was required. Installing select piles at an angle helped the foundation system resist horizontal forces while maintaining compatibility with the surrounding concrete foundation elements.

This approach allowed the project team to address compression, tension and lateral loads with one adaptable helical pile foundation system.

An Efficient Foundation Solution

By combining smaller installation equipment, reduced mobilization, short installation times and adaptable pile connections, MAGNUM® Helical Piles provided an effective solution for the project's access, schedule and soil challenges.

Hot-dip galvanizing added corrosion protection, while bolted plate caps, rebar connections and battered pile installations allowed the foundation system to meet the varied structural requirements of the Colorado medical facility.