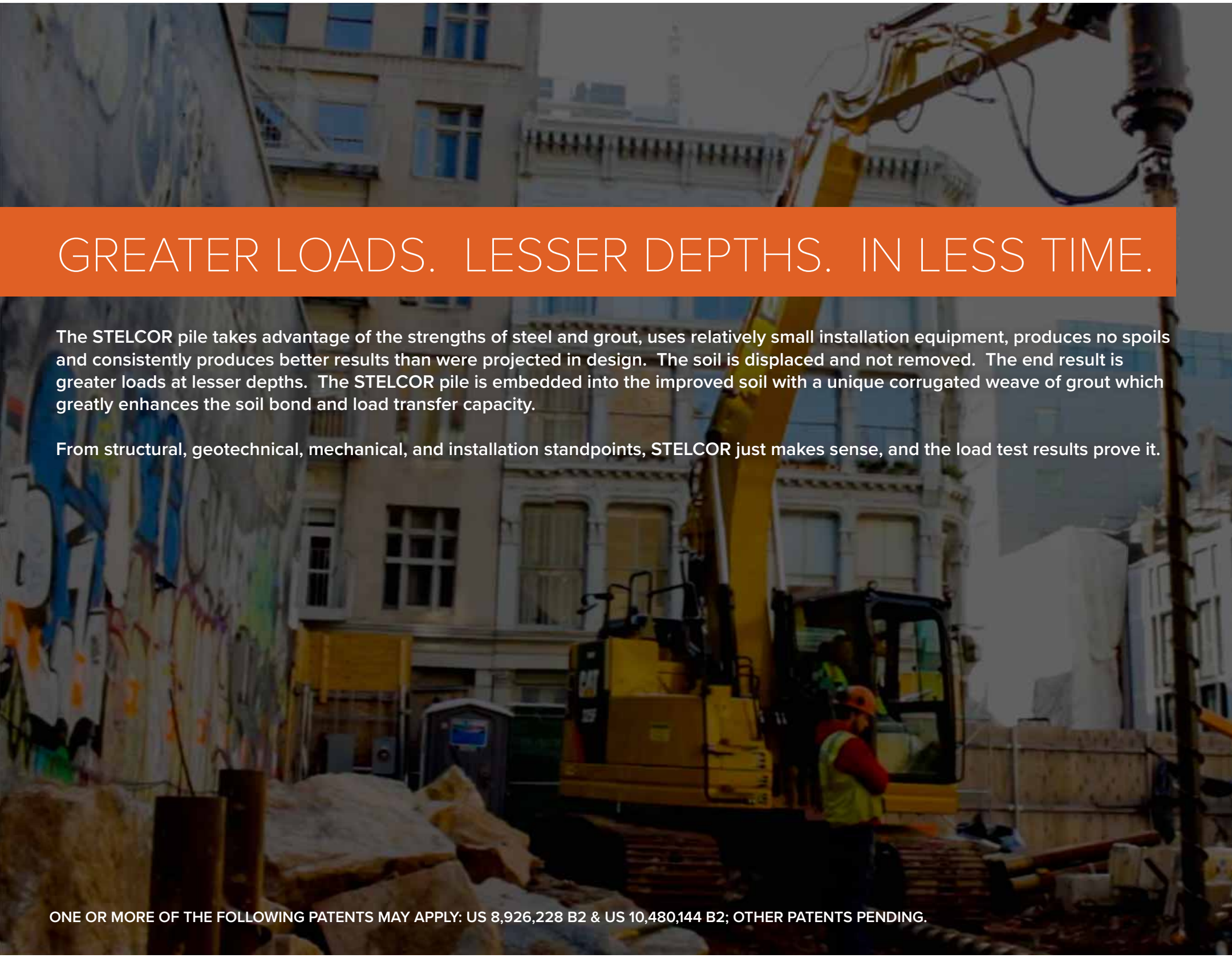
STELCOR®

DRILLED-IN DISPLACEMENT MICROPILES



GREATER LOADS. LESSER DEPTHS. IN LESS TIME.

The STELCOR pile takes advantage of the strengths of steel and grout, uses relatively small installation equipment, produces no spoils and consistently produces better results than were projected in design. The soil is displaced and not removed. The end result is greater loads at lesser depths. The STELCOR pile is embedded into the improved soil with a unique corrugated weave of grout which greatly enhances the soil bond and load transfer capacity.

From structural, geotechnical, mechanical, and installation standpoints, STELCOR just makes sense, and the load test results prove it.

ONE OR MORE OF THE FOLLOWING PATENTS MAY APPLY: US 8,926,228 B2 & US 10,480,144 B2; OTHER PATENTS PENDING.

HOW IT WORKS

STELCOR Drilled-In Displacement Micropiles are installed using hydraulic powered rotary equipment and are turned into the ground while crowd or downward pressure is exerted on the steel core and a continuous flow of grout is provided to the top of the pile. Reverse flighting welded to the steel core draws the grout into the annulus created by a displacement head located near the tip of the steel core.

The welded reverse flighting ensures a continuous grout column and structural load transfer from the grout column into the high strength steel core.

Grout ports in the steel core also provide consistent grout placement along the length of the pile.

No soil is removed during installation of STELCOR Drilled-In Displacement Micropiles and the steel cores are left in the ground at each location.

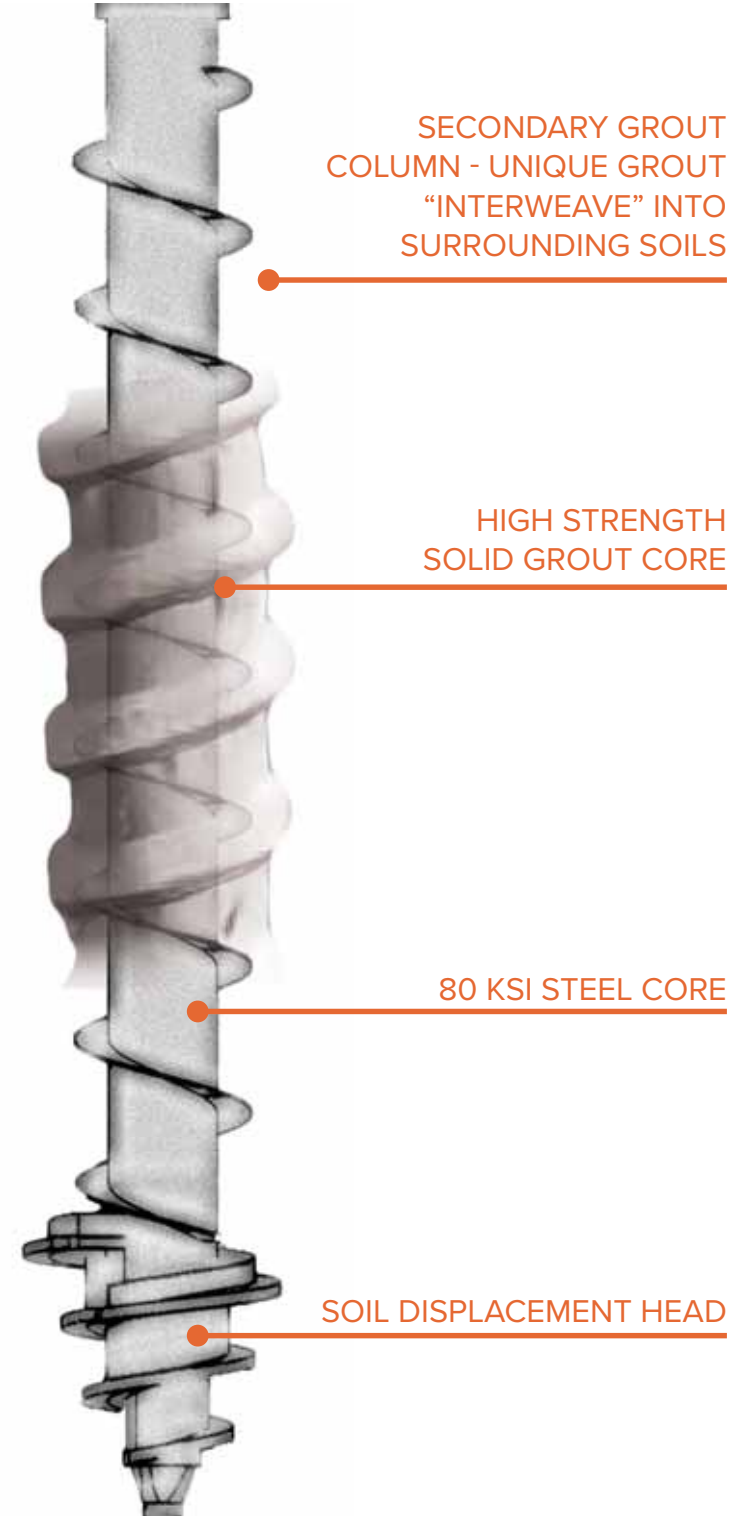
The STELCOR displacement lead section includes a drive plate, a lateral displacement plate and a secondary deformation structure.

The driving plate helps advance the pile downward and provides end bearing support which can be used for total axial capacity when required.

The lateral displacement plate creates a positive annulus around the steel core by displacing the soil outward, enhancing soil density surrounding the pile element.

The secondary deformation structure produces a ribbed or corrugation effect along the grouted pile shaft, greatly enhancing soil bond and load transfer.

A continuous grout column is thereby created by means of the STELCOR displacement lead section and reverse flighting. The structural steel core extends the entire length of the pile ensuring unbroken structural integrity.



FEATURES+BENEFITS

VIBRATIONLESS INSTALLATION CAUSES NO DISRUPTION TO THE SURROUNDING PROPERTIES

NO SOIL IS REMOVED, MEANING NO CONTAMINATION OR COSTLY SPOILS REMOVAL

CAN BE INSTALLED IN HIGH WATER TABLES

EXCEPTIONAL LATERAL CAPACITY

NO REDUCTION IN BENDING CAPACITY AT THE BOLTED CONNECTION (UNLIKE THREADED CONNECTIONS)

PREDICTABLE GROUT VOLUMES AND PLACEMENT

POSITIVE GROUT DISPLACEMENT

MINIMAL MOBILIZATION AND DEMOBILIZATION COSTS

LOWER COST PER KIP OF SUPPORT COMPARED TO OTHER PILE TYPES

CAN BE INSTALLED IN TIGHT ACCESS AND LOW OVERHEAD ENVIRONMENTS


NO SPOILS OR CROSS CONTAMINATION


POSITIVE GROUT PLACEMENT


CAN BE INSTALLED IN HIGH WATER TABLES

INSTALLATION

INSTALLATION SEQUENCE AND GROUT TAKE ESTIMATION FOR STELCOR

PART 1 – GENERAL DESCRIPTION

DDM's are installed using hydraulic powered rotary equipment and are turned into the ground while crowd or downward pressure is exerted on the steel core and a continuous flow of grout is provided to the top of the pile. A reverse flighting welded to the steel shaft draws the grout into the annulus created by a displacement head located near the tip of the steel core.

PART 2 – INSTALLATION SEQUENCE

1. Attach the hydraulic drive head to the DDM lead section and align pile tip at a specified pile location.
2. Advanced the lead section 12-in below ground and lift up, removing soil, to create a grout reservoir.
3. As the lead section progresses beyond the grout reservoir, commence grout flow. Monitor and record grout take during the entire installation of each pile using the STELCOR pile installation record provided. A grout flow meter is recommended for accurate grout volume measurements.
4. Grout shall flow continuously to fill the annulus created by the DDM displacement head. Maintain grout level within 24 inches of installation grade.
5. Where extensions are required, stop the drive head and remove from the lead section.
6. Attach the hydraulic drive head to a DDM extension section.
7. Attach the extension section to the lead section with specified hardware and continue the installation. Add extensions as required to reach design depth.
8. If dense soils or obstructions are encountered, and the pile will not advance, reverse the pile 24 inches and re-advance. Repeat 3 to 5 times while measuring how much the pile advances each time. Do not exceed the maximum specified torque of the shaft. If the pile does not advance, then pre-auguring may be required to reach design depth. Consult with Ideal to determine if the pile can be terminated in dense/ stiff layers above design depth.
9. If the pile top is terminated above the pile cut-off elevation, cut the steel core using an appropriate method such as a band saw or torch.
10. Upon completion of pile installation, ensure that the grout level is brought to the top of pile (inside and outside of the steel core).
11. Install bolted steel pile cap before grout sets. Steel pile caps may be installed at a later date if required.
12. Document installation torque every 5' during installation and at pile termination using the STELCOR pile installation record provided. Pile capacity is not determined by installation torque, and data is used as reference only.

PART 3 – GROUT TAKE APPROXIMATIONS

Recommended grout mix of 0.44 water to cement (W/C) using Type I/II Portland cement. A colloidal mixer must be used.

- STELCOR 1200 – 0.38 Cubic ft. per lineal foot
- STELCOR 1400 – 0.44 Cubic ft. per lineal foot
- STELCOR 1600 – 0.67 Cubic ft. per lineal foot
- STELCOR 1800 – 0.88 Cubic ft. per lineal foot
- STELCOR 2000 – 1.15 Cubic ft. per lineal foot

Note: Published grout take approximations are for bidding purposes only. Actual grout take will vary depending on soil type. The test pile(s) establishes the installation parameters including depth, grout take, and capacity for production piles in the site-specific soil.

APPLICATIONS

STELCOR is the perfect solution when the objective is to provide a deep foundation solution in extremely poor soils at comparitively shallow depths. STELCOR repeatedly delivers higher than expected load test results in compression, tension, and lateral applications.

The lower cost per kip of support compared to other pile types makes STELCOR an extremely competitive alternate on projects requiring a deep foundation solution.

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STORAGE SILO FOUNDATIONS
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3.15 MEGAWATT WIND FARM
TEXAS

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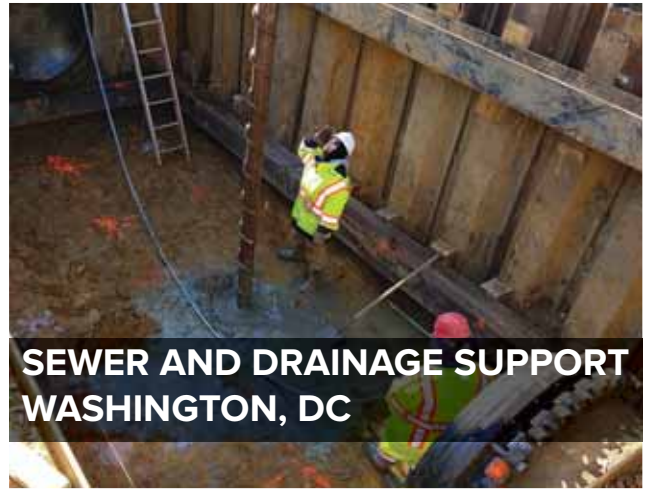
MULTI-STORY NEW CONSTRUCTION	COMMERCIAL BUILDING REMEDIATION	BRIDGE SUPPORT
SANITARY PIPELINE SUPPORT	SUBSTATIONS	BULKHEADS
STORAGE SILO FOUNDATIONS	TIE-DOWNS/MOORINGS	SHORING PIPELINE
WORK CAMP FOUNDATIONS	SOUND WALLS	MACHINE BASES
TOWERS – QUAD BASE	ROADWAY SIGNAGE TRAFFIC SIGNALS	STORAGE TANKS AND SILOS
UTILITY ANCHORING	BILLBOARD/SIGNAGE GENERATOR BASES	TIE-BACKS/ANCHORS/RETAINING WALLS

8 STORY LIMITED ACCESS SITE
NEW YORK, NY



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