A vast and growing network.
IDEAL is a C.S. Stroyer & Sons company. Est. 1956 and began manufacturing in 2004.
Headquarters in Greater Rochester, NY

- 15 acres
- 13,500 Sq Ft Corporate office and Training Facility
- 63,000 Sq Ft Production and Distribution Facility
We know our IBC’s.

All product design and fabrication is compliant with the relevant sections of 2009 IBC Chapter 18 Soils and Foundations.

ISO Certification renewal in process.

ICC-AC358 in process
PRODUCTS

• STELCOR Auger Grouted Steel Core Displacement Piles
• Helical Piers
• Beam Piles
• Square Shaft Helical Piers
In every area of our company you’ll find *real* people.
Auger Grouted Steel Core Displacement Piles
The Director of the United States Patent and Trademark Office

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, the right to exclude others from using, offering for sale or selling throughout the United States of America, or importing into the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

Director of the United States Patent and Trademark Office
There’s a running theme with STELCOR.

- Higher Capacity
- Less Depth
- Higher Production
- Less Cost
Get acquainted

- **Head & Shaft**
- **Steel & Grout**

Common Elements
Get acquainted.

The CONTINUOUS STRUCTURAL STEEL CORE from tip to top is the primary load carrying element.

The steel core diameter and wall thickness will be determined by the load/torque requirements of the STELCOR element.
Get acquainted.

The CONTINUOUS STRUCTURAL STEEL CORE filled with grout creates a confined grout column that increases axial compressive capacity and pile stiffness also allowing for more lateral capacity.
Get acquainted.

REVERSE AUGER FLIGHTING drives grout down the shaft. Add column pressure and grout tends to surround the entire length of the pile.
Get acquainted- Elements

The INSTALLATION DEVICE IS A HELICOID that will advance the pile with rotation and crowd. *No vibration.*
Get acquainted.

LATERAL DISPLACEMENT HEAD increases in diameter. It can densify soils. Lose granular soils are Ideal.
Get acquainted.

The LATERAL DISPLACEMENT HEAD forces the soils outward creating an annulus that is slightly greater than the reverse auger providing for grout infusion.
Get acquainted.

The DEFORMATION STRUCTURE develops a “corrugation” in the grout column by deforming the soil column.
Get acquainted.

The elements of the displacement head may be placed in varying configurations according to design needs. In this particular diagram, the deformation structure is on top of the bearing plate.
Get acquainted.

The INSTALLATION DEVICE BECOMES A BEARING PLATE that is significantly larger than the pile diameter and is often grout encased.
Get acquainted.

REVERSE AUGER FLIGHTING
Post installation, the augur becomes a structural element transferring the load from steel core into the grout column.
The Steel Core- Always
Features & Benefits

- Vibration-less installation
- No spoils or cross contamination
- Can be installed in high water tables
- Positive soil displacement
- Higher capacities for comparable cross sectional area of steel and grout
- No disruption to the surrounding properties
- No removal costs or environmental concerns
- Lower cost per KIP of support
- Grout inside and outside the continuous steel core
- Exceptional lateral capacity
- Saves cost of casing the hole
Get acquainted - Installation
Auger Grouted Steel Core Displacement Piles
Create a reservoir in the soil.
Keep the reservoir full of grout.
Auger Grouted Steel Core Displacement Piles

Fast. Clean.
6” per Revolution- Do the Math.
Install to Designed Depth
Top Off the Interior of the Steel Core
No Spoils Removed
No Spoils Removed
No Spoils Removed
No Spoils Removed
Case Study: Wastewater Treatment Plant
How will STELCOR perform?

Compared with high capacity helical piles

The Dryden WWTP in upstate New York was expanding its plant capacity and needed a vibration-less pile for the clarifiers and filter tanks.

The geotech designed a helical pile with the following configuration.

- 5.00” x .304 wall central steel shaft
- Helix configuration: 18” – 22” – 24” x 3/4” gr. 50 plate
- Installed to a depth of 26 feet and 38,000 Foot Pounds of Torque
The helical pile was tested to 110 tons with a net settlement of 2.376” and considered unacceptable.

The IDEAL design team was consulted and evaluated the STELCOR 1200 series AGSCD Pile with a 12” lateral displacement head, 16” x 3/4” drive helix and 8 inch structural reverse auger flights.

The pile was to be continuously grouted to 20 feet.
LOAD TEST
At the 50 ton design load the STELCOR pile showed a settlement of .221”.
At 110 tons it moved 1.124 and rebounded to .884.

It was installed in “marshy” conditions with approximately 26,500 foot pounds of torque.
## DRYDEN TEST PILE No 4, 20 FEET, 5" DIAMETER, GROUTED
21-Jun-10

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<th>TIME (Minutes)</th>
<th>LOAD (kips)</th>
<th>GAUGE READINGS</th>
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*Note: The table above shows the readings for two gauges (G1 and G2) with their respective normalized readings.*
You’re getting it.

Higher Capacity
Less Depth
Higher Production
Less Cost
Case Study: Elizabeth, NJ

- 2400 Micro piles specified to support warehouse floor over soil that was consolidating. Some sub-floor voids of 4 feet and more.
Case Study: Elizabeth, NJ
Case Study: Elizabeth, NJ
Case Study: Elizabeth, NJ
Case Study: Elizabeth, NJ

- Soils-
  - Fill-10-20 blows per foot
  - Peat- <10 blows per foot. 12-22 Feet below grade.
  - Sand/silt Gravel- two layers of low to medium dense of fine sand with little silt and some gravel. Upper layer average bpf =25. Lower layer is similar material with bpf of 10-15. These layers vary for 25-45’ below surface and are 20-35’ thick.
  - Glacial Till- 43-64’ below surface
  - Rock stratum- Only one boring- 84’ below surface.
- Alternate 1- Quadruple Helical- 10/12/14/14 installed to 30’. Failed
Case Study: Elizabeth, NJ

- STELCOR lead- SC1200-278276-5-16128-7
  - 12” OD Grout
  - Steel Core 2.875” x .276” wall
  - 5’ length- Height restriction under a mezzanine- most were 10’
  - 16” Tip- Installation Helicoid
  - 12” OD Grout
  - 8” Displacement Head
  - 7” Reverse Augur
- STELCOR extension- SC1200EXT-2782765-7
  - 278EXT5- No reverse augur through the Peat and higher.
Case Study: Elizabeth, NJ
Case Study: Elizabeth, NJ

• The Micro Pile Projection
  • Maximum production rate of 24/day.

• The STELCOR Reality-
  • Borings taken outside the building- Sub-floor fill was chunks of concrete and hard soil. Some pre-drilling required
  • Production rate- 40-60/day

• Result-
  • Job was accomplished ahead of schedule AND at lower cost
  • Imagine what the production increase did to the contractors bottom line
Case Study: Elizabeth, NJ
Paper Mill Longview, Washington

- Replace existing paper press.
- Double the load on heavily loaded timber piles
- Needed
  - 100 kip Design Load
  - Compact Installation Equipment
  - Little or no mess.

- Soils- from grade
  - 32’ of soft to firm silts and sandy silts- approx. average 6 bpf
  - 22’ of medium dense, fine to medium sands with silt layers- approx. average 17 bpf
  - 12’ of firm silt and clay- approx. average 7 bpf
  - From 66’ to 122’ medium dense to dense, fine to medium sands and silty sands
Paper Mill Longview, Washington

• STELCOR used--- Job specific design often employed
  • Penetrator Lead-A 5’ helical pile with a 10” helix for penetration and end bearing in a thin 42 bpf layer at 70’ underlain by a thin layers 25 bpf and 33 bpf
• STELCOR lead-
  • 3.5” Steel Core
  • 8” OD Grout Column
  • 10” Installation Helicoid
  • 6” Displacement Head
  • 5.5” Reverse Augur
• Tested to 200 kips < 0.80” settlement
Paper Mill Longview, Washington

- Test Pile #1- 9 in dia. x 84 ft
- Test Pile #2- 8 in dia. x 48.5 ft
- Production Test # 1- 7 in dia. x 70 ft
Boss coupler system, for large diameter piles to transfer torque and axial loads without compromise.
Pile continuously grouted while being driven to pre-engineered depth.
“EPOXIED SCREW”
We know what you’re thinking.

Higher Capacity
Less Depth
Higher Production
Less Cost
Designing STELCOR-

Auger Grouted Steel Core Displacement Piles
JOB SPECIFIC DESIGN

Steel
Grout
Soil

Well-known elements in unique, symbiotic relationship.
JOB SPECIFIC DESIGN

**Steel** - Primary Structural Element - Tip to Top. Reliable, Repeatable

Reverse Augur - Transfer load to grout.

Technical Specifications available.
JOB SPECIFIC DESIGN

**Grout**- Interior of shaft. Confined Grout Column Increasing Load(s)

Well-known elements. A little different application.
JOB SPECIFIC DESIGN

**Grout**: Exterior of Shaft - Transfer Load to Soil via Increased Surface Area and Jagged, Irregular Interface.

Well-known elements. A little different application.

Contact **IDEAL** for design assistance.
JOB SPECIFIC DESIGN

Grout- Exterior of Shaft-Increased Surface Area Complemented by the Jagged, Irregular Interface that also Adheres Providing Significantly Increased Friction Coefficient.

Well-known elements. A little different application.

Contact IDEAL for design assistance.
The STELCOR installation process provides a unique and irregular grouted interface with the soils and provides densification advantages in non-cohesive soils.
In every area of our company you’ll find real people.