Welcome to the "Nation"...

...that is, "Foundation Nation."

By receiving this newsletter, you or your company has been identified as a local, regional, or national leader within the community of design professionals. At Foundation Supportworks™ we feel strongly about continuous training and sharing best practices with our Dealer Network. We'd like to extend communication of our knowledge about products, projects and other pertinent industry information to you as well. Whether you are a designer, specifier, or contractor, I know you will find a few notable tidbits within each issue. This information will prove beneficial to you, your company, or one of your clients in a future endeavor.

Our senior-level engineers are always just a phone call away with information and technical assistance. We likely understand your project and design concerns, because we have been there ourselves. Following graduation from South Dakota State University, I worked as a consulting geotechnical engineer for 11 years with varied experience in the areas of site development, landslide stabilization and deep foundations. My colleague, Kyle Olson, P.E., FSI Senior Structural Engineer, graduated from North Dakota State University and worked as a consulting structural engineer for 12 years prior to joining FSI. All of the FSI products are designed in-house under Kyle's direction and supervision. You can take comfort in knowing that you are working with engineers knowledgeable about your specific application.

Jeff Kortan, P.E.

Kyle Olson, P.E.

I hope you enjoy this issue of Foundation Nation and I look forward to talking with you in the future. I also encourage you to contact your local Foundation Supportworks™ dealer to learn more about the structural solutions they offer.

Your local dealer:

FOUNDATION NATION™
FSI NEWSLETTER FOR DESIGN PROFESSIONALS

Quarterly Newsletter • Issue 1

Contact Information:

For more information about Foundation Supportworks™ or to locate a Foundation Supportworks'™ dealer in your area, please visit our website at www.foundationsupportworks.com or call 800.281.8545.

FOUNDATION SUPPORTWORKS™

FOUNDATION NATION™
FSI NEWSLETTER FOR DESIGN PROFESSIONALS

Welcome to FOUNDATION SUPPORTWORKS™!

Foundation Supportworks™, Inc. (FSI) is a leading manufacturer and distributor of foundation stabilization systems for new construction applications, retrofit applications, walls and retaining walls. With major dealer support offices in Omaha, Nebraska and Seymour, Connecticut, our goal is to provide the industry with innovative solutions that are appropriately designed and tested, expertly installed and dependable to perform as promised.

Seymour, Connecticut

What sets FSI apart from other manufacturers?

- We have both geotechnical and structural engineers on staff for product design, quality assurance, and to provide technical support to engineers, architects, and general contractors local to the projects.
- We are committed to designing, testing and manufacturing products in accordance with the highest standards and procedures. We'll share more with you about these processes in upcoming newsletters.

What else can you look forward to in each quarterly newsletter? We'll include key developments from Foundation Supportworks™, such as new product design information and product testing results. You'll read case studies highlighting different product applications from various Foundation Supportworks'™ projects throughout North America. Finally, Jeff Kortan, P.E., Director of Engineering, will share pertinent industry news and trends.

- The Foundation Supportworks™ dealer network consists of more than 50 experienced structural contractors throughout North America. We continually offer classroom training, networking events, and audio/video training to ensure our dealers are the most knowledgeable contractors in the industry.

We're excited about where we are and where we'll go in the future. We look forward to partnering with you!

Sincerely,
Greg Thrasher,
President

Distribution Checklist

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FOUNDATION SUPPORTWORKS™

- **New Construction and Retrofit Helical Piles**
- **Helical Tiebacks**
- **Hydraulically Driven "Push" Piers**
- **Wall Anchors**
- **SmartJacks™**
- **Slab Piers**

CASE STUDIES

Push Piers

Industrial

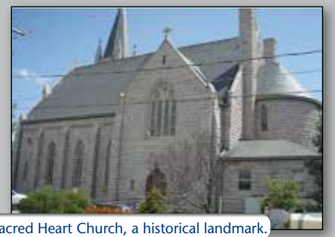
Project: SPSA Steam Plant
Location: Portsmouth, VA
Foundation Supportworks™ Dealer/Installer: JES Construction, Inc.

Challenge: The Steam Plant had visible signs and symptoms of foundation settlement, such as gaping cracks in the concrete block walls, separation between the block walls and ceiling, racked door frames, and cracked floor slabs. Settlement ranged from 1 inch to 3 inches. Differential movement within the block walls threatened to bind or break utility lines and piping that extended through wall penetrations. One of the probable causes of settlement was identified as dewatering activities at a neighboring shipyard.

Solution: JES Construction, Inc. installed twenty-nine (29) Foundation Supportworks™ Model 288 Push Piers to stabilize and lift the settled area of the building. The piers were installed on the inside of the building, so excavation was done by hand and excess material hauled out in wheel barrows. The geotechnical investigation identified suitable bearing soils at a depth of about 60 feet. However, the subsurface conditions varied significantly, and pier depths ranged throughout the building from about 50 feet to over 100 feet. The settled area of the administration building was stabilized and then lifted 1 ½ inches back toward its original elevation.

JES Construction, Inc. at the SPSA Steam Plant

Advancing push piers



Sacred Heart Church, a historical landmark.

SmartJacks™

Commercial

Project: Sacred Heart Church Renovation
Location: Omaha, NE
Foundation Supportworks™ Dealer/Installer: Thrasher Basement Systems, Inc.

Challenge: Sacred Heart Church is a stone and brick structure built in 1897 and named to the National Register of Historic Places in 1983. A major renovation project began in 2009. In order to refurbish and paint the high ceilings, scaffolding had to be erected atop the existing structural floor system. However, the floor system required supplemental support from within the crawlspace to carry the additional weight of the scaffolding and miscellaneous construction equipment and materials.

Solution: Thrasher recommended the use of Foundation Supportworks'™ SmartJacks™, a supplemental support system designed specifically for crawlspace applications. Some of the SmartJack™ system design features include: two feet of compacted crushed stone base, a precast concrete footing, a 3 1/2 - inch diameter steel column, and an adjustable thread rod to set the height. All of the steel components are either hot-dip galvanized or zinc plated for corrosion protection. The SmartJack™ system does not require poured concrete footings, so there was no delay waiting for concrete to cure. Twenty-two (22) SmartJacks™ were installed within three days, which allowed the renovation project to remain on schedule.

SmartJack™ is installed and plumbed.

SmartJack™ installation is completed.

Retrofit Helical Piers

Residential

Project: Single-Family Residence
Location: Lima, OH
Foundation Supportworks™ Dealer/Installer: J&D Basement Systems, Northwest

Challenge: The home was originally built in 1957, with an addition constructed in 1997. Almost immediately following construction of the addition, the homeowner observed warning signs of foundation settlement. In 2004, a contractor was hired to support the house and then pour large concrete footings beneath the existing foundation. This is a fairly common practice to provide deeper and larger footings, but is often ineffective since the new concrete is bearing on the same weak soil. The decision proved to be a costly mistake as the foundation settlement continued almost immediately following the repair.

Solution: J&D Basement Systems replaced the ineffective concrete footings with nine (9) Foundation Supportworks™ Model 288 Helical Piers to permanently stabilize the foundation. The piers were advanced to depths of over 12 feet and to estimated, torque-correlated ultimate capacities of over 47,000 pounds. L-shaped foundation support brackets were then positioned below and against the footings and hydraulic cylinders were used to lift the foundation back toward a level position. The helical piers effectively stabilized the foundation and restored value to the home.

Removal of failed bottle jacks and large concrete footing put in place by the first repair contractor.

Helical piers installed; foundation stabilized and leveled prior to backfilling.

EQUIPMENT SPOTLIGHT

Load Testing New Construction Helical Piles

Load testing deep foundations is common on larger commercial projects. Load tests not only serve as a check of conventional calculated capacities, but also as a check of methods used to estimate pile capacity during installation. The procedures for load testing new construction helical piles are the same as for other deep foundations: ASTM D1143, Standard Test Methods for Deep Foundations Under Static Axial Compressive Load, and ASTM D3689, Standard Test Methods for Deep Foundations Under Static Axial Tensile Load. FSI load frames are designed to conform to these standards. In fact, a clear distance of 8 feet is required by the criteria to prevent influence from any reaction to the test pile. The main beam of the FSI load frame is therefore 20 feet long to conform to this geometry!

In May 2009, a helical pile was installed in an open alfalfa field in Omaha, Nebraska to check feasibility of installing helical piles through dry, very stiff to hard silty clay (collapse-susceptible soil) to bear within moist, very stiff to hard lean clay deep in the profile. A 2 7/8-inch O.D. round shaft helical pile with an 8-10 lead section was selected for the test pile. After grinding through the upper 28 feet of dry, hard soil, the pile then advanced with relative ease to a depth of 58 feet and to an estimated installed torque-correlated ultimate capacity of 33,000 pounds. Comparatively, the calculated theoretical ultimate pile capacity was estimated at 29,000 pounds. Load test results, plotting pile head deflection versus load, identified a break in the deflection curve at about 36,000 pounds and 0.9 inch of deflection (0.39 inch of which was elastic compression of the pile). The load test results correlated well with both the theoretical and field-estimated ultimate capacities.