Supportworks Webinar Course Descriptions

PolyLevel 101 Presentation: An Introduction to Polyurethane Foam Injection

Polyurethane foam is used to create a variety of products from weather stripping to automobile parts. In recent years, the technology has been optimized for use in geotechnical and structural applications, including void filling, sealing utility conduits and pipelines, pipeline erosion prevention, subgrade improvement, slab stabilization and slab lifting. This presentation focuses on how polyurethane foam injection is used for stabilizing and lifting concrete. Learn the benefits of polyurethane foam injection, typical applications, design considerations, and installation steps and equipment.

Push Pier 101 Presentation: An Introduction to Hydraulically Driven Push Pier Systems

Hydraulically-driven push piers (also commonly referred to as resistance piers) have been used in the United States for retrofit foundation support since 1896. They are a deep foundation system used exclusively in retrofit applications since they require an existing structure to provide the reaction necessary to advance the piers to competent soils. This presentation touches on product development and history, system component descriptions, design considerations for modern side-load systems, installation steps, and how to determine a factor of safety. The presentation also features a case study showcasing use of push piers on a heavy commercial structure with estimated wall loads of 16,000 pounds per foot.

Helical 101 Presentation: An Introduction to Helical Foundation Systems

Helical piles have been used as a deep foundation option dating back nearly 200 years and have enjoyed a resurgence in awareness and popularity in recent decades. This introduction to helical piles begins with a brief overview of basic terminology used in the helical pile industry, descriptions of system components and the unique advantages that helical piles can offer over other deep foundation options. We will describe the methodology used to test and evaluate helical pile systems for capacity with reference to the International Code Council Acceptance Criteria for Helical Pile Systems and Devices (AC358). We will discuss some of the design considerations for helical piles and cover some typical applications. We will go over how helical pile geotechnical capacity is determined and how that capacity is verified during installation. We will end with a discussion of typical full-scale load test setups and procedures for tension and compression testing of helical piles.

Helical 201 Presentation: Design and Installation of Helical Foundation Systems

This presentation builds upon material introduced in Helical 101. The topics include helical pile spacing requirements to prevent group effect for axial and lateral loading, minimum depth, and

embedment requirements of the helix plates and other advanced design considerations. There is an in-depth discussion regarding how we predict capacity prior to installation and verify capacity during or after installation. We will cover the concept of critical depth, what it is and how it impacts the predicted pile capacity. We will discuss some creative ways to design for large lateral and/or moment loading. The evaluation of pile buckling will be discussed in detail with specific design guidance using the method required in the IBC and ICC AC358. We will discuss the system components and how their capacity is determined. The presentation wraps things up with a discussion on corrosion and some of the challenges that we face with certain soil conditions along with various soil sampling and testing techniques suitable for helical pile design.

Helical 301 Presentation: Helical Anchors and Soil Nails

This presentation is the third in our series on helical foundation systems and focuses on earth retention and anchored systems. Participants will learn common helical anchor and soil nail system terminology along with design and installation considerations for both systems. The application of each system for earth retention projects will be considered with attention given to anchor and soil nail performance, orientation, wall facing requirements, anchor testing procedures and important differences between each system. The use of helical anchors for large moment and lateral loading is discussed and case studies for various loading conditions are presented. Case studies are also used to show the application of helical anchors and soils nails for earth retention. With a better understanding of these two earth retention systems, a designer may be more comfortable in specifying one over the other in certain applications.