

**JULY 12, 2017**

5:00 to 6:30 P.M. (1.0 PDH)

## **TECHNICAL PROGRAM**

### **Helical Design Theory and Applications**

**Speaker:** [Darin Willis, P.E.](#), [RamJack / Fortified Engineering Solutions](#) Tel. 973-535 4595

Darin Willis, P.E. is the Director of Engineering for Ram Jack and managing principal of Fortified Engineering Solutions. Darin has 32 years of experience in designing, developing, installing and testing hydraulically driven steel and helical piles. He has designed foundation underpinning systems for residential, commercial and industrial projects throughout the United States, Canada, Puerto Rico and Central America.

His structural design experience includes tilt wall, steel framed, concrete, masonry and wood structures. He has designed structures up to 850,000 square feet (Rooms To Go Distribution Center, Arlington, TX) to a ten-story dormitory for the Dallas Theological Seminary.

Darin received his engineering degree from the University of Texas at Arlington and is a licensed engineer in the state of Texas, member of the American Society of Civil Engineers (ASCE) and the Deep Foundation Institute (DFI). As a member of the Deep Foundation Institute, he is also on the technical committee for Helical Foundations and Tiebacks.

## **PRESENTATION SUMMARY**

Helical piles and anchors have been used in construction applications for more than 175 years. The first recorded use of helical piles was in 1836 by Alexander Mitchell when he used helical piles to underpin the Maplin Sands Lighthouse in England. Helical piles have gained in popularity to the extent they are more frequently used compared to many other deep foundation types in some geographical areas. The International Code Council (ICC) has also taken notice of the growing use of helical piles. Helical piles were added to in Chapter 18 of the IBC in 2009.



Darin's Willis's presentation focused on:

- **Helical Pile System:** Components, Applications, Benefits, Video Clip
- **Theory & Design:** History, Terzaghi, How To Calculate Capacities
- **ICC Acceptance Criteria:** AC358, Applications Covered
- **IBC 2009-2012:** Key Helical Pile Sections, Stability, Unbraced Lengths, Lateral Loads, Group Effect
- **Seismic Testing of Helical Piles:** Short video of full scale testing performed at the University of California, San Diego on world's largest shake table.

- **Foundation Solutions Software:** Solutions, Benefits, Screen Shots, Reports
- **Fortified Engineering Solutions:** Manufacturing, Dealer Network, Quality Control, ISO, ICC-ES
- **Interesting Jobs:** Review of Real World Applications With Case Study Info.