

## OCTOBER 2013 MEETING

Wednesday, October 9, 2013 (1.5 PDH)

### TECHNICAL PROGRAM

#### Post Tension Slab Design - PTISlab 3.5

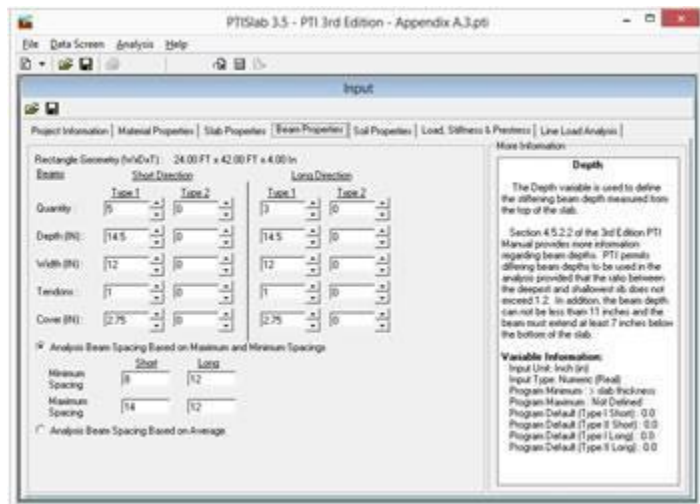
**Speaker:** Dean R. Reed, P.E., MLAW Engineering, 2804 Longhorn Boulevard, Austin, Texas 78758. Tel. No. (512) 835-7000. Cell No. (512) 431-2181

Dean is a registered Professional Engineer in Texas and surrounding states and is an expert in the design, investigation, and remediation of slab-on-ground foundations on expansive soils. He is a member of the Post-Tensioning Institute's Slab-On-Ground Committee and is the developer of the VOLFLO and PTISlab computer programs. Dean holds a *Master of Science in Civil Engineering* (1998) from the University of Texas at Austin, Department of Structural Engineering, and a *Bachelor of Science in Architectural Engineering* (1992) from the University of Texas at Austin.

### PRESENTATION SUMMARY

To an audience of about 85 attendees, Mr. Read gave an overview of the changes over time in the design standards for post-tension slab on ground design. Mr. Read noted that the first edition was published in 1980 and it was not until 1996 that the second edition was published. The third edition followed in 2004 with Addendums published in May 2007 and again in May 2008.

In December 2012, the Post-Tensioning Institute released an updated design standard (PTI DC10.5-12) titled "Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils." Mr. Read discussed the structural changes in this new document, referred to as the Combined Standard, and PTISlab 3.5. It was noted that each PTI standard was approved for use with the concurrent building code. The latest standard has been submitted to the ICC for approval to be current with the upcoming 2015 IBC and IRC publications.



Mr. Read presented several changes in the design standards over time. Each change was incorporated to reflect the empirical data from the earlier designs. A graph was presented that showed the changes in critical factors for each successive standard. The graph indicated that substantial changes in results occurred between the early standards however only minor changes are occurring in the design results between the latest standards.

A substantial number of the minor changes found in the latest standard were noted and reviewed. For example, the Combined Standard calculates the effective prestress force at the Beta point whereas the older PTI 2nd and 3rd Edition Manuals calculated this stress at mid-slab. The effective prestress is used in moment and shear calculations and the prestress at mid-slab is still used to calculate the minimum effective prestress on the concrete. This example explains the type of refinements incorporated into the Combined Standard to provide a more refined and accurate design result. Additional examples can be viewed in the presentation slides.

To download a copy of the slide presentation please [click here](#)

To read summaries of previous FPA presentations by Dean Read, please click:

June 2009 - [Modeling Vegetation \(and other\) Effects Using VOLFLO Software](#)

December 2008 - [How to Use the PTI-3rd Edition To Design Foundations in Houston](#)

### PAST PRESENTATIONS (click here)