

## Technical Session 6: Slab-on-Ground

*Moderator: David Sparks, Felten Group*

### **An Update to the Understanding of PTI DC10.8 – 18 (Guide for Performance Evaluation of Slab-on-Ground Foundations)**

*Tony Childress, Childress Engineering Services*

Mr. Tony Childress, P.E., S.E. will be discussing the Post-Tensioning Institute (PTI) publication DC10.8-18, Guide for Performance Evaluation of Slab-on-Ground Foundations. In his presentation, Tony will explain how the publication is intended to be used in the evaluation of slab-on-ground foundations along with examples. Tony will also discuss examples of improper use of this guide and how to avoid those mistakes. The publication is intended for use in evaluating the performance of low-rise buildings with slab-on-ground foundations for residential and similar construction. The guidelines, in the publication, are appropriate for use in the evaluation of post-tensioned and non-post-tensioned slab-on-ground foundations constructed on any soil condition. The publication only briefly addresses the cause and mitigation of the foundation movement, areas where Tony has an extensive background. A deeper discussion relative to cause and mitigation will be available, based on available time.

**Video | Presentation**

### **Comparison of PTI vs. Finite Element Method of Design and Performance for a Typical 40' x 70' Slab-on-Ground Project under Different Soil Conditions**

*Florian Aalami, PT Structures, Inc. and Anna Olveda, Wafflemat*

This presentation reviews the results of a parametric study that was conducted to determine the calculated performance variations between the traditional PTI method of a slab-on-ground foundation design vs a 3D finite element analysis (FEA) approach implementing the latest computer software. We will review and discuss the variations between a traditional ribbed slab foundation based on the PTI Method, a traditional ribbed slab based on a FEA model, a modified permanent, plastic void form foundation using the traditional PTI method, and the modified permanent, plastic void form foundation using a FEA model. Additionally, each one of these methods will be modeled with a 2" PVR soil design parameter and a 4.5" PVR soil design parameter to review the effects of the soil recommendations provided by the Geotechnical engineer. We will further review how the provided geotechnical design values impact the performance and design of the foundation.

**Video | Presentation**

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