

SEPTEMBER 2013 MEETING

Wednesday, September 11, 2013 (1.5 PDH)

TECHNICAL PROGRAM

Design and Construction of Structural Flat Slabs over Ground

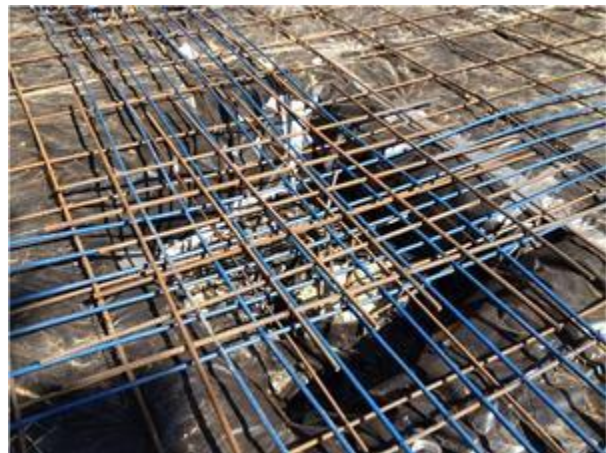
Speaker: Sandeep N. Patel, P.E., Master of Science in Civil/Structural Engineering, University of Houston , Bachelor of Science in Engineering, M.S. University, India with Sterling Engineering Group of Companies. Tel: 281-583-7088 ext 154

Sandeep is a registered professional engineer with experience in the commercial, civil, industrial, and multi-family disciplines. He is experienced with all aspects of project execution including engineering analyses and design, regulatory agency compliance, technical production, and management. Strong communication and technical writing skills have complimented the professional growth.

PRESENTATION SUMMARY

To an audience of about 70 attendees, Mr. Patel presented information on the methods and designs used to overcome the issues commonly associated with conventional slabs on grade. The risks to shallow foundation systems can be reduced by improving stiffness of foundation, separating the foundation from underlying soils, or mitigating soil properties.

The majority of Mr. Patel's presentation discussed the design and construction of elevated slab on ground foundations in expansive soil environments. Soil swell pressures are often ten to fifty times the loads imposed on the slabs; therefore soil swelling pressures are difficult if not impossible to design for. By elevating the slab, the slab is isolated from soil movement induced by changing moisture contents in the soil. Void forms may be used to isolate the foundation from the soils.



The post tension slabs are typically designed as two way slabs without drape considerations. The slabs are supported on a grid of piers with an average pier spacing of twelve to fifteen feet on center. Slab thickness is typically in the six to seven inch range. Thickened areas with rebar are typically used around supports or regions of high shear. Grade beams are not required although a perimeter beam is typically employed for moisture control.

A number of benefits of this system were listed by Mr. Patel including speed of construction, reduced volume of concrete, increased stiffness of slab, and isolation from soil movement.