

SEPTEMBER 2007 MEETING

Wednesday, September 12, 2007

TECHNICAL PROGRAM

Recommended Guidelines for the Design and Construction of Swimming Pools in Houston, Texas

Speaker: [David Eastwood](#), P.E. FPA Board Member, President of [Geotech Engineering and Testing, Inc.](#), Houston, TX, Tel. 713-699-4000.

PRESENTATION SUMMARY

To an audience of about 80, Mr. Eastwood, a licensed professional engineer with MSCE and BSCE degrees from University of Houston, experienced in geotechnical, environmental and forensic engineering presented the paper he authored entitled, "Recommended Guidelines for the Design and Construction of Inground Swimming Pools in Houston, Texas".

Mr. Eastwood discussed recommendations for designing and constructing inground swimming pools in Houston. He said, "Pools have no respect now," and consequently there have been performance problems with inground pools in Houston, often when there were expansive soils or perched water tables present in the area. He authored the paper being presented to begin establishing guidelines for designing and constructing pools, which currently has little control in the codes. He said the most comprehensive standard currently is "American National Standard for Residential Inground Swimming Pools", publication no. ANSI/NSPI-5 2003, which only devotes one paragraph in its 80 pages to geotechnical and structural design of pools.



Mr. Eastwood said the geotechnical and structural designs should be by licensed professional engineers with professional liability insurance. He outlined minimum geotechnical requirements, particularly logging of root fibers, groundwater monitoring, suction testing and designing for tree removal during construction or loss of nearby trees after construction.

Mr. Eastwood said the engineers need to advise the owner of risks involved for different design methods available. If the owner does not want to accept the risk for the pool popping out of the ground, the engineers should provide a suitable means to ensure it will stay in the ground, even when empty. Some methods for doing this include vents, French drains with sump pumps, chemical or lime stabilization, vertical moisture barriers, a heavy concrete base with toes to resist uplift, and the use of void spaces with the pool supported on deep foundations.

Mr. Eastwood cautioned building pools near slopes unless the pool will be protected by properly designed retaining walls or will be supported on deep foundation. He advised that the structural engineer visit the site before the designing the pool if the soil report shows a nearby slope. He cautioned contractors against using sand for a backfill around or under pools, saying only select fill should be used. He also warned contractors that OSHA requires special excavation precautions if the depth of excavation is over 5 feet.

To download a copy of the paper presented by Mr. Eastwood, [click here](#).

For a summary of Mr. Eastwood's past FPA presentations, click one of the following:

[January 2003](#) ASCE Paper Presentation - "Recommended Practice for the Design of Residential Foundations."

[June 2001](#) - State of Practice of Geotechnical Engineering Design of Custom Homes in the Houston Area between 1990 and 2001

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