

MAY 19, 2004 - Using Slab-on-Ground Foundation Elevation Measurements in Residential Foundation Engineering Performance Evaluations

Speaker: [R. Michael Gray, P.E.](#), Consultant, Member, Kingwood TX, Tel. 281-358-1121.

PRESENTATION SUMMARY

Mr. Gray, Texas Real Estate Commission Professional Level Licensed Real Estate Inspector and Licensed Professional Engineer in Texas who sits on the [Structural Committee](#), holds a bachelor's degree in engineering from UT Austin, and specializes in the structural and mechanical inspection and evaluation of single family homes for buyers, presented his paper entitled, "Using Slab-on-Ground Foundation Elevation Measurements in Residential Foundation Engineering Performance Evaluations" to a audience of about 60. The presentation was based on the paper published in the Proceedings of the Texas Section ASCE, Fall 2003 meeting in Dallas TX.

Mr. Gray presented a summary of various authors back to 1956 which were critical on elevation surveys. Most were of opinion that at least two sets of elevation surveys must be done to provide accurate assessments of foundation movement. Mr. Gray pointed out fallacies in using ACI 318, 302 and 117 for design, quality control and performance assessment of residential foundations.

Some points made by Mr. Gray:

- ACI-318 is meant for elevated structures, not slab on grade. The closest section of that code is the part on two-way floor slabs.
- ACI says that deflections computed using their code could be 20 percent less to 30 percent more than actual deflections.
- No code currently limits tilt of foundations, although ASCE's Texas Section Forensic Guideline suggests a foundation should meet ADA's guideline of 2 percent maximum slope.

The last paragraph of Mr. Gray's paper states,

"Foundation surface survey data should be used with a due regard for the limitations inherent with this type of approach as well as the limitations specific to the data being used. Foundation surface surveys can provide useful data for purposes of assessing the performance of a slab-on-ground foundation if at least two professionally made surveys are available. Given the current state of practice, the use of a single elevation survey, especially one done in a normal manner with a small number of measurement locations, may be misleading and ineffective."

For a copy of the paper which was the basis for Mr. Gray's presentation, [click here](#). For a copy of his presentation, [click here](#).

For a summary of a paper presented by Mr. Gray in April 2003, [click here](#).

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