AUGUST 2007 MEETING

Wednesday, August 8, 2007

TECHNICAL PROGRAM

Guidelines for the Evaluation of Foundation Movement for Residential and Other Low-Rise Buildings

Speaker: Lowell Brumley, P.E., Board Member, FPA-SC-13 Subcommittee Chair, President of TSG Consultants, Inc., Houston TX, Tel. 713-996-8101

PRESENTATION SUMMARY

To a room of about 60, Mr. Brumley, a licensed professional engineer with MSCE and BSCE degrees from UT Arlington presented the Structural Committee's paper no. FPA-SC-13-0, entitled, *Guidelines for the Evaluation of Foundation Movement for Residential and Other Low-Rise Buildings*. The Structural Committee sanctioned the ad hoc FPA-SC-13 subcommittee in February 2003, with Mr. Brumley as the chair. The 30-page guideline Mr. Brumley presented, recently passed Peer Review and was published 15 July 2007.

How much foundation movement is too much? The presented document was written to answer that question. Its intent is to be used as a guide in determining whether a foundation has performed within normal design limits. Mr. Brumley showed that because of the paper's coupled guidelines for collecting, presenting, computing, and comparing data, there is less subjectivity in using the FPA method than with other foundation performance guidelines previously presented.

Mr. Brumley detailed some of the terms defined by the committee, such as Deflection, Deflection Ratio, Deflection Limit and Tilt. He discussed several levels of inspection (A, B and C, modeled after TBPE and ASCE TX), noting only Level C was allowed in order to utilize the FPA method. He presented the equations that the committee derived for the paper and gave examples of their use.

Mr. Brumley discussed how the acceptance criteria proposed by the committee were formulated by the committee, i.e., by comparison of actual projects from committee members. In the case of deflection, a deflection limit of kL/360 was chosen to fit the projects reviewed, where k =1.00 along the principal axes of the foundation and varying as high as 1.41 depending on the angle of the considered line off of the principal axes. This gave an actual deflection limit varying between L/360 and L/255, depending on the geometry.

Mr. Brumley said the tilt limit was chosen as 1%, which is in concurrence with, and computed the same as specified by the Texas Residential Construction Commission (TRCC). Although the current PTI design standard (3rd Ed) does not limit tilt, the committee recognized the functional issue of highly sloped floors, even though little or no distress may appear in the superstructure.

To download a copy of the guideline presented by Mr. Brumley, click here.

To download a copy of Mr. Brumley's slide presentation, click here.

To download a copy of the spreadsheet used by the committee to analyze their cases, click here (Members Only)

For a summary of Mr. Brumley's Dec 2002 FPA presentation, entitled *Comments to the Use and Application of the PTI Method and Suggestions for Further Research*, click here

PAST PRESENTATIONS (click here)