

PENNDOT e-Notification



Bureau of Design
Bridge Quality Assurance Division

PAPIER

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Earthquake Loads Applied to Piers Supported on Combined Footings

It has been recently discovered that a valid analysis of a combined footing and its supporting foundation under **earthquake** loading conditions (forces entered via the EQL command) is unattainable with the PAPIER computer program. Both LFD and LRFD analyses are affected.

In order to perform a valid analysis of a combined footing and its supporting foundation, the user needs to be able to specify **concurrent** bottom of column forces. If the moment at the bottom of Column 1 is being maximized, concurrent forces at the bottom of the other columns supported on the combined footing must be entered so that internal equilibrium can be satisfied. However, the SEISAB computer program, which is typically used to compute the earthquake response of a pier, reports only the **maximized** forces at the bottom of each column. In fact, no structural analysis software package will report concurrent bottom of column forces when a response spectrum type dynamic analysis is used.

WORK-AROUND

There is no work-around to this issue.

Effective immediately, do not use PAPIER to analyze piers supported on combined footings subjected to earthquake loads.

FUTURE CORRECTIVE ACTION

No long-term corrective action is planned.

Direct any questions concerning the above issues to:

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For additional information, please visit the PENNDOT LRFD and Engineering Programs support website at <http://penndot.engrprograms.com>.