

# **Multistory Building Frames and Shear Walls Founded on “Rocking” Spread Footings**

G. Gazetas, D. Dais, F. Gelagoti, R. Kourkoulis

National Technical University of Athens

## **ABSTRACT**

The seismic performance of a two-story 2D frame and a five-story 3D frame–shear-wall structure founded on spread (isolated) footings is investigated. In addition to footings conventionally designed in accordance with “capacity-design” principles, substantially under-designed footings are also used. Such unconventional (“rocking”) footings may undergo severe cyclic uplifting while inducing large plastic deformations in the supporting soil during seismic shaking. It is shown that thanks to precisely such behaviour they help the structure survive with little damage, while experiencing controllable foundation deformations in the event of a really catastrophic seismic excitation. Potential exceptions are also mentioned along with methods of improvement.