

Experimental and Numerical Analysis of Mustafa Paşa Mosque in Skopje

Authors : Ozden Saygili, Eser Cakti

Abstract : The masonry building stock in Istanbul and in other cities of Turkey are exposed to significant earthquake hazard. Determination of the safety of masonry structures against earthquakes is a complex challenge. This study deals with experimental tests and non-linear dynamic analysis of masonry structures modeled through discrete element method. The 1:10 scale model of Mustafa Paşa Mosque was constructed and the data were obtained from the sensors on it during its testing on the shake table. The results were used in the calibration/validation of the numerical model created on the basis of the 1:10 scale model built for shake table testing. 3D distinct element model was developed that represents the linear and nonlinear behavior of the shake table model as closely as possible during experimental tests. Results of numerical analyses with those from the experimental program were compared and discussed.

Keywords : dynamic analysis, non-linear modeling, shake table tests, masonry

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