

Modal Analysis for Study of Minor Historical Architecture

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Abstract : Cultural heritage conservation is a challenge for contemporary society. In recent decades, significant resources have been allocated for the conservation and restoration of architectural heritage. Historical buildings were restored, protected and reinforced with the intent to limit the risks of degradation or loss, due to phenomena of structural damage and to external factors such as differential settlements, earthquake effects, etc. The wide diffusion of historic masonry constructions in Italy, Europe and the Mediterranean area requires reliable tools for the evaluation of their structural safety. In this paper is presented a free modal analysis performed on a minor historical architecture located in the village of Bagno Grande, near the city of L'Aquila in Italy. The location is characterized by a complex urban context, seriously damaged by the earthquake of 2009. The aim of this work is to check the structural behavior of a masonry building characterized by several boundary conditions imposed by adjacent buildings and infrastructural facilities.

Keywords : FEM, masonry, minor historical architecture, modal analysis

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