

Monitoring of Anime Sante church's dome after earthquake in L'Aquila

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This work shows the results of monitoring of Santa Maria del Suffragio (Anime Sante)

Abstract Church, L'Aquila, Italy. The historical building was stricken and damaged by mainshock of April 6, 2009; the dome is the structural element that has been seriously hit by seismic event. The ambient response analysis of global structure and dome element enable to improve the FE model by model updating methodology using modal data. The identification techniques furnish useful information concerning the structural and mechanical properties of dome's structure, these parameters are needed to evaluate the appropriate design of rebuilding and structural rehabilitation of dome. The geometric configuration and the self-weight of lantern induce to an independent dynamic response of macro-element against the behaviour of dome generating the first mechanism of collapse and the failure of dome shape. Different retrofitting configurations for the dome have been proposed in this paper.

Keywords Model updating, Dynamic identification, Monitoring, Structural rehabilitation