

## **Seismic Assessment of Old Existing RC Buildings In Madinah with Masonry Infilled Using Ambient Vibration Measurements**

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**Abstract :** Early, pre-code, reinforced concrete structures present undetermined resistance to earthquakes. This situation is particularly unacceptable in the case of essential structures, such as healthcare structures and pilgrims' houses. Among these, existing old RC building in Madinah is seismically evaluated with and without infill wall and their dynamic characteristics are compared with measured values in the field using ambient vibration measurements (AVM). After, updating the mathematical models for this building with the experimental results, three dimensional pushover analysis (Nonlinear static analysis) was carried out using SAP 2000 software incorporating inelastic material properties for concrete, infill and steel. The purpose of this analysis is to evaluate the expected performance of structural systems by estimating, strength and deformation demands in design, and comparing these demands to available capacities at the performance levels of interest. The results are summarized and discussed.

**Keywords :** seismic assessment, pushover analysis ambient vibration, modal update

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