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Role of masonry infill wall on the seismic behavior of typical four-storey building in Pakistan

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Masonry infill walls are used as partition in reinforced concrete frames and are considered as a non-engineering structure for design and analysis purposes. The goal of this study is to compare different response parameters such as displacement, storey drift, base shear and ground overturning moment of a multi-storey RC frame structure with and without infill walls. For this purpose, a four-storey building is selected, which is supposed to be situated on stiff soil type (SD) and seismic zone 2B according to the Building Codes of Pakistan. Openings are neglected in the building. Non-linear static pushover analysis method is used to check the behavior of building during earthquake using SAP-2000. To find the width of compression struts, FEMA-356 is used. The results are compared and shown in the form of graphs. It is concluded that the masonry infill walls may have significant effects on the seismic response of the reinforced concrete frame structures, therefore, infill walls needs to be considered during the design and analysis of the building.
Keywords: Reinforced concrete frame, masonry infill walls, compression struts, pushover analysis, seismic resistance

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