

Design Guidelines for URM Infills and Effect of Construction Sequence on Seismic Performance of Code Compliant RC Frame Buildings

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Abstract : Un-Reinforced Masonry (URM) infilled RC framed buildings are the most common construction practice for modern multi-storey buildings in India like many other parts of the world. Although the behavior and failure pattern of the global structure changes significantly due to infill-frame interaction, the general design practice is to treat them as non-structural elements and their stiffness, strength and interaction with frame is often ignored, as it is difficult to simulate. Indian Standard, like many other major national codes, does not provide any explicit guideline for modeling of infills. This paper takes a stock of controlling design provisions in some of the major national seismic design codes (BIS 2002; CEN 2004; NZS-4230 2004; ASCE-41 2007) to ensure the desired seismic performance of infilled frame. Most of the national codes on seismic design of buildings still lack in adequate guidelines on modeling and design of URM infilled frames results in variable assumption in analysis and design. This paper, using nonlinear pushover analysis, also presents the effect of one of such assumptions of conventional 'simultaneous' analysis procedure of infilled frame on the seismic performance of URM infilled RC frame buildings.

Keywords : URM infills, RC frame, seismic design codes, construction sequence of infilled frame

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