A Study on the Effect of Shear Wall Contribution in Resisting the Base Shear on the R-Factor for RC Dual Systems

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Abstract

This paper presents a study on the effect of the shear wall contribution in resisting the base shear on the Seismic Response Modification Factor (R). Earthquakes will be resisted by Dual structural system consisting of RC shear walls and intermediate moment-resisting frames (IMRFs). Annex (2) of the Syrian Arab Code (in 2005 and 2013) stipulated simplified tables to determine the values of R-factor depending on the contribution of shear walls in resisting the base shear although the American Code UBC97 did not considered this effect. Nonlinear static pushover analysis is used to calculate R. The current investigation has shown that the R-factor increases with the increase in shear wall contribution in contrast to what the simplified tables introduced. The values of R for buildings with the same contribution have been found different, so no relation between the R-factor and the shear wall contribution was found.