

Elastic Deformation of Multistory RC Frames under Lateral Loads

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Abstract : Estimation of lateral displacement and interstory drifts represent a major step in multistory frames design. In the preliminary design stage, it is essential to perform a fast check for the expected values of lateral deformations. This step will help to ensure the compliance of the expected values with the design code requirements. Also, in some cases during or after the detailed design stage, it may be required to carry fast check of lateral deformations by design reviewer. In the present paper, a parametric study is carried out on the factors affecting in the lateral displacements of multistory frame buildings. Based on the results of the parametric study, simplified empirical equations are recommended for the direct determination of the lateral deflection of multistory frames. The results obtained using the recommended equations have been compared with the results obtained by finite element analysis. The comparison shows that the proposed equations lead to good approximation for the estimation of lateral deflection of multistory RC frame buildings.

Keywords : lateral deflection, interstory drift, approximate analysis, multistory frames

Conference Title : ICSECM 2016 : International Conference on Structural Engineering, Construction and Management

Conference Location : Montreal, Canada

Conference Dates : July 14-15, 2016