4th International Conference on Researches in Science & Engineering
& International Congress on Civil, Architecture and Urbanism in Asia
18 July. 2019, Kasem Bundit University, Bangkok, Thailand

A study on the damage of some vertical geometric irregular RC frames under earthquakes

Milad Ebrahimnejad, Mohamad Rahmati *

1. Assistant Professor, University of Guilan, milad_ebrahimnejad@yahoo.com
2. M.Sc. Student of Structural Engineering, mohamad.rahmati.c.e@gmail.com

Abstract

Utilization of the irregular buildings is one of the significant issues in structural industry. Therefore it is considerable to research the efficiency of this type of buildings under earthquakes. Vertical geometric irregularity is one of the common irregularities and is sometimes inevitable to construct it. The purpose of this research is to evaluate the damage of some types of vertical geometric irregular structures under earthquakes to obtain the effect of irregularity on the response of the structure. In this regard, regular and irregular RC frames are modeled and analyzed applying far-field records. Measurement and localization of damage are investigated by using principal damage indexes and identification of damaged elements. It is deduced from the results that in irregular RC frames, the damage magnitude increases significantly in comparison to the regular ones and the damage is occurred where there is the most irregularity among the stories.

Key words: Geometric irregularity, Regular, RC frame, Damage magnitude, Damage localization