**Title: EFFECT OF POSITION OF IRREGULARITY IN CONCRETE FRAME ON RESPONSE TO SEISMIC FORCES**

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**Abstract:** This paper deals with the irregular profile of concrete frame building along vertical direction comprising of mass discontinuity and overhanging mass. The underlying fact of the paper is the effect of seismic force in concrete frames with different types of irregularities including mass discontinuity and overhanging mass. For each successive model, the position of overhanging mass and mass discontinuity is kept variable to make the study effective. This study delineates the vulnerable effect of mass discontinuity and overhanging mass in concrete frame buildings. To attain the nonlinear property of each element of frame, pushover analysis method along with the equivalent static force method has been adopted for the present study. UBC97 code has been used here for linear static analysis while the parameters for nonlinear static analysis are arrogated from FEMA356 and ATC40. Investigations on different frames exhibit that the location of mass discontinuity and overhanging mass can be a key matter to avoid risks due to earthquake. While considering the design of such frames which have irregularities, designer must think about the position of irregularity. Basically, vulnerability increases in the mass discontinuity if the irregularity is in lower stories. Moreover, vulnerability increases in the overhanging masses if the irregularity is in higher stories.

**Keywords**: Concrete frame, Pushover analysis, Mass discontinuity, Overhanging mass