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TITLE OF PROJECT:

Seismic Response Study of Buildings with Combined Irregularities

NAME OF ALL AUTHORS: *Yug Ratanpara,*

Postgraduate Student, Department of Civil Engineering, Nirma University, Ahmedabad 382481

NAME OF YOUR MENTOR: *Prof. Jahanvi Suthar*

Assistant Professor, Department of Civil Engineering, Nirma University, Ahmedabad 382481

NAME OF YOUR COLLEGE: Civil Engineering Department, Institute of Technology
Nirma University, Ahmedabad-382481

ABSTRACT (150-300 words):

Earthquakes are powerful and destructive natural events. The earthquake in Gujarat on January 26th, 2001, highlighted the need to be ready for such disasters. Many lives were lost, mainly because buildings couldn't withstand the quake. To make buildings more resistant to earthquakes, they should follow specific construction rules based on the seismic history of the area. Research shows that buildings with irregular shapes, like L-shaped ...plans on corner plots, or with unusual elevations, like large setbacks in commercial buildings, are more likely to suffer damage during earthquakes. So, it's vital to carefully analyze structures to ensure they can endure the forces of an earthquake

This research investigates the seismic behavior of RC building having combined irregularities. The primary focus of this study is the analysis of static indices as key performance indicators. This research aims to comprehensively understand the impact of irregularities on crucial parameters such as storey displacement, story drift, torsional irregularity ratio, overturning moment, and base shear. The investigation concentrates on two specific irregularities: set-back irregularity (vertical irregularity) and re-entrant corners, (plan irregularity). Different configurations of RC buildings having L shapes—are considered, each building having different irregularity ratios. The modelling, analysis and design of these buildings are carried out in ETABs Software. The result concluded as the comparison for the various irregularity ratio for static indices, storey displacement, story drift, torsional irregularity ratio, overturning moment, and base shear.

KEYWORDS: Plan Irregularity, Vertical Irregularity, Re-entrant Corner, Setback, Static Indices, Static and Response Spectrum Analysis

CATEGORY: Structural Engineering