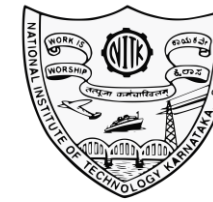




INDIAN SOCIETY FOR TECHNICAL EDUCATION, NITK CHAPTER

Effect of Earthquake Loads with Open Story and Varying Plan Shapes under using ETABS



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PROJECT OBJECTIVE

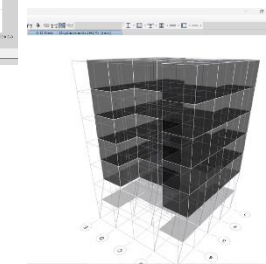
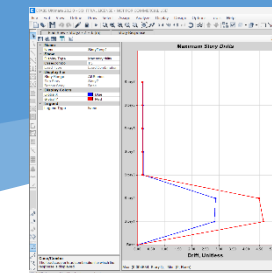
This project aims to show how this lack of infill walls compromises the structural integrity of the structure, as such buildings have shown poor performance during earthquakes.

METHODOLOGY/PROCEDURE

- UNDERSTANDING THE FUNCTIONING AND IMPORTANCE OF WALLS DURING AN EARTHQUAKE.
- MODELLING STRUCTURES IN ETABS20 WITH DIFFERENT CROSS SECTIONS.
- COMPARING THE STRENGTH OF THE BUILDING IN ABSENCE AND PRESENCE OF SOFT STOREY.
- FINALLY COMPARING THE RESISTIVE STRENGTH USING DRIFT CURVES.

RESULTS AND SPECIFICATIONS

- SLAB: M20 GRADE CEMENT.
- COLOUMN REBAR: HYSD GRADE 500



INTRODUCTION/THEORY

SOFT STOREY BASICALLY MEANS ONE LEVEL OF A BUILDING THAT IS SIGNIFICANTLY MORE FLEXIBLE OR WEAK IN LATERAL LOAD RESISTANCE THAN THE STORIES ABOVE IT AND THE FLOORS OR THE FOUNDATION BELOW IT. THIS LEVEL OF THE BUILDING DO NOT HAVE WALLS AND HENCE ITS CAPACITY TO SUSTAIN LATERAL LOADS DECREASES.

IN THIS PROJECT WE HAVE COMPARED THE STRENGTH AND RESISTIVE CAPACITY OF BUILDINGS DIFFERENT OF SECTIONS DURING AN EARTHQUAKE IN PRESENCE AND ABSENCE OF THE SOFT STOREY. THE SECTIONS ARE: **C,L,H AND SQUARE.**

PROJECT OUTCOMES

EFFECTS OF SEISMIC AND OTHER LATERAL LOADS WERE ASSESSED ON 3 TYPES OF BUILDINGS THROUGH DRIFT DISPLACEMENT (RELATIVE DISPLACEMENT BETWEEN ADJACENT FLOORS) AS A MAJOR PARAMETER.

COMPARISONS:

- SEISMIC ANALYSIS ON NORMAL BUILDING
THERE WERE NOT MUCH LATERAL DISPLACEMENTS DUE TO DIFFERENT LOADS HENCE THE BUILDING TYPE CAN BE TERMED MORE EARTHQUAKE PROOF THAN THE OPEN STORY.
- SEISMIC ANALYSIS OF AN OPEN STORY
LATERAL DISPLACEMENT B/W ADJACENT FLOORS WHERE OPEN STORY WAS LOCATED WAS OBSERVED WHICH WILL BE A MAJOR FACTOR IN THE FAILURE OF THE BUILDING.

PROJECT RELEVANCE/FUTURE SCOPE

FROM THE OUTCOMES OF THE PROJECT, WE CONCLUDED THAT:
OPEN STORY BUILDINGS CANNOT BE CONSTRUCTED IN EARTHQUAKE PRONE REGIONS.

- USAGE OF DAMPERS ETC. CAN BE PROMOTED TO COVER UP THE DRAWBACKS, OPEN STORIES CARRY AND THUS AVOIDING DISASTERS TO AFFECT THE BUILDING.
- THIS PROJECT WILL ALLOW PEOPLE TO EXPLORE DIFFERENT OPTIONS LIKE RETROFITTING ON THE OPEN STORY FLOOR ETC.