

“DESIGN OF EARTHQUAKE RESISTANT RC FRAMED STRUCTURES USING ETABS”



PROJECT REPORT

Submitted by

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In partial fulfillment of the requirements for the degree of

BACHELOR OF ENGINEERING

In

CIVIL ENGINEERING

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI-590018.

Under the Guidance of

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CERTIFICATE

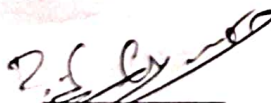
Certified that the project work entitled "*DESIGN OF EARTHQUAKE RESISTANT RC FRAMED STRUCTURES USING ETABS*" is a bonafide work carried out by


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TECHNOLOGICAL UNIVERSITY, BELAGAVI during the year 2019-2020. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

India at present is fast growing economy which brings about demands in increase of infrastructure facilities along with the growth of population. The demand of land in urban regions is increasing day by day. To cater the land demand in these regions, vertical development is the only option. This type of development brings challenges to counteract additional lateral loads due to wind and earthquake. This demands changes in the current structural system which needs to be implemented to resist these forces. Many research has been carried which describes the suitability of various lateral load resisting system against deformation and shear exerted due to the earthquake and wind forces.

The primary purpose of all kinds of structural systems used in the building type of structures is to transfer gravity loads effectively. The most common loads resulting from the effect of gravity are dead load, live load, and snow load. Besides these vertical loads, buildings are also subjected to lateral loads caused by wind, blasting or earthquake. Due to excessive displacements of all buildings occasioned by lateral loads, lateral load resisting systems are usually provided to curtail the effect.

Lateral loads can develop high stresses, produce sway movement or cause vibration. Therefore, it is very important for the structure to have sufficient strength against vertical loads together with adequate stiffness to resist lateral forces. Seismic loads are occasional forces that may occur during the life time of a building. Buildings should be able to withstand seismic loads due to minor earthquake without any structural damage and major earthquake without total collapse. Therefore, it is important to know the behavior of buildings for different lateral load resisting systems which will supplement the behavior of moment resisting frames is important for high rise structures to resist the lateral load.

Shear walls and infill frames are some of the LLRS commonly used in the present study. an attempt is made to study the structural behavior of 3 dimensional 3x3 bay 4 story, basic moment resisting RC frames when provided with two different types of LLRS. Shear wall and masonry infill. The detailed investigations are carried out for zone V of seismic zones of India as per IS 1893 (part 1); 2002, considering primary loads (dead, live and seismic loads) and their combinations with appropriate load factor

Two methods of linear seismic analysis i.e. equivalent lateral force method and response spectrum method is adopted according to IS 1893 PART 1: 2002 and the analysis has been performed using ETABS software package.