VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590010

PROJECT REPORT ON

"STUDY ON MULTISTORY BUILDINGS SUBJECTED TO BLAST LOAD"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
in
CIVIL ENGINEERING

Submitted By

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CERTIFICATE

This is to certify that the following students

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has submitted Project report on **"STUDY ON MULTISTORY BUILDINGS SUBJECTED TO BLAST LOAD"** for VIII Semester B.E. in Civil Engineering during the academic year 2018-19.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

The investigation and design of structures when exposed to explosion loads require an understanding of the air explosion phenomenon and the dynamic response of structure. Analysis of structures exposed to blast loading is difficult because the uniform transient loads produced by the nearby detonation, combined with the localized structural response results in an extremely complex structural analysis problem. Usually the structures will experience the blast loading owed to armed actions, unplanned outbursts or terrorist actions. This type of blast loading may result in severe destruction or failure of the structure due to their very high intensity and dynamic nature. Failure of one important member in the locality of the source of the blast may generate critical stress redistribution and lead to failure of other members, and ultimately the entire structure.

In this project an attempt is made to analyze a G+4 storied symmetrical building which is subjected to blast loading. A comparative analysis is given when the structure is fitted with X bracings, diagonal bracings. For the analysis ETABS is used along with RC Blast software. A case study is to be perform in unsymmetrical building taking the reference of our college AIET Main Building with G+4. A comparative analysis is given when the structures are fitted with different types of bracings. The plan of the building is to be drawn using AutoCAD and for the analysis ETABS is used along with RC Blast software.

Computation of blast loading for G+4 storied framed building has been carried out for the five cases, in which one is Normal G+4 storey building, X-Braced type building, Diagonal type braced building i.e. inclination along X and Y direction. The buildings are considered as per IS Code 4991:1968 for blast resistant designing purposes. In all the cases the equivalent SEMTEX charge weight W has been taken as 50 kg and the actual effective distance from explosion R is taken as 10 m.

As the positive pressure decreases the time taken for the blast load to reach the structure also decreases. The displacement for the G+4 storey normal building was found to be more as compared to that of the other type of braced structure.