

Design of shear wall at project desire- Brahmmand, Thane, India

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Abstract -Shear wall are used because the primary or a part of the first lateral force- resistance system in style and retrofit building. concrete coupled shear wall structure is AN economical unstable resistance structure system. it's massive lateral stiffness and strength, and may give sensible management of horizontal displacement and story drifts of buildings beneath earthquakes masses. we have a tendency to a coming up with the shear wall by exploitation E-TAB software system .The importance of style of earthquake resistance structure is that the increased instances of earthquakes that causes severe loss of life and property. No structure ought to suffer any broken throughout earthquakes of any magnitude throughout earthquakes of any magnitude and decrease of the devastation caused is that the main objective of the project.

Keywords- Earthquake, seismic, structure, resistance, shear wall, design etc.

1. INTRODUCTION

India may be a country whereby hr of our land is unstably planning a earthquakes resistance structure employing a shear wall once more acquisition socio-economic losses In immense proportional and also the same time reminding the requirement of prone and is being visited by earthquake time and seismic style. Hence, this project primarily aims at style a earthquake resistance employing a shear wall.

Shear wall area unit vertical components of the horizontal forces resistance system. Shear wall area unit created to country the results of lateral load working on a structure. In residence construction, shear wall area unit straight external walls the generally type a box that provided all of and created properly, and that they can have the strength and stiffness to resist the horizontal forces.

Within the last 20 years, shear wall becomes a very important a part of middle and high-rise residential buildings. As art of an earthquakes resistance building style, these walls area unit place in buildings plans reduction lateral displacement beneath earthquakes hundreds. Therefore shear wall frame structure area unit obtained.

In building construction a rigid vertical diaphragm capable of transferring lateral forces from exterior walls, floors, and of to the bottom foundations during a direction parallel to heir planes. Examples square measurement the concrete wall or vertical truss. Lateral forces causes by wind, earthquake and uneven

settlement hundreds, in extra to the load of the structure and occupants produce powerful twisting (torsion) forces.

These forces will virtually tear (shear)a building half. Reinforcing frame by attaching or putting a rigid wall within it maintain the form of the frame and prevents rotation at the joints. Shear walls square measure particularly necessary in high-rise buildings subjected to lateral wind and seismic forces. Earthquakes became a concert several for individuals and to accommodate this many construction firms square measure building structure which may stand up to earthquakes to a definite.

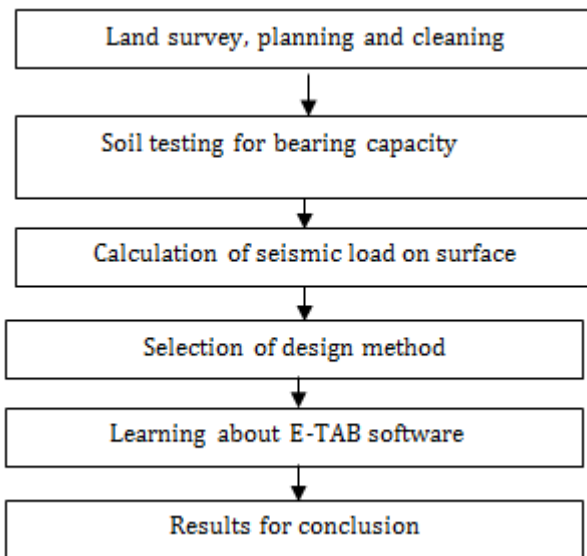
The recent earthquakes in Asian country have caused in depth harm to many masonry buildings thanks to that thought of lateral forces on structure. Such devastation are often decreased that of earthquakes resistance throughout construction and when construction.

2. METHODOLOGY

There square measure 3 kinds of style method:

1. Segmented shear wall ways the segmental shear wall ways uses full height shear wall phase that abide by quantitative relative needs and square measure sometime restrained against overturning by hold down devices at the top of every phases.
2. Forces transfer-ground gap ways the second ways, the forces transfer-ground gaps ways contemplate the complete shear wall with gap and also the wall pier adjacent to opening square measure phase. The tactic needs the forces round the perimeter of the gap to be analyzed designed and careful. With this methodology the restriction devices typically happens at the top of the shear walls, not at every wall pier, and special reinforcement round the gap is commonly needs.
3. Perforated shear wall methodology the third and also the newest methodology is associate degree empirical approach that doesn't need special description for forces transfer adjacent to the gap. The perforated shear wall methodology, however, specially needs restriction devices at every finish of the perforated shear wall.

2.1 FLOWCHART



2.2 CASE STUDY

We firstly studied and collected all the information related to soil on which structure will be build. Gave a visit to actual site[desire project, brahmand ,thane {w}-400605] and surveyed as necessary. Planned a suitable data and further proceed for soil bearing test .

We got permission from site holder to design and calculate the load for that particular shear wall. Used some software like E-TAB for calculation of seismic load. Which will resist due to effective design of that shear wall. We took all measurements which will help us for our project for getting effective results and conclusion.



2.3 Lists of materials:-

Concrete:- All the concrete items for the construction have the followings characteristics.

Grade of concrete:-M20,M60,M45 and M40.

(Concrete design mix as per IS 456:2000)

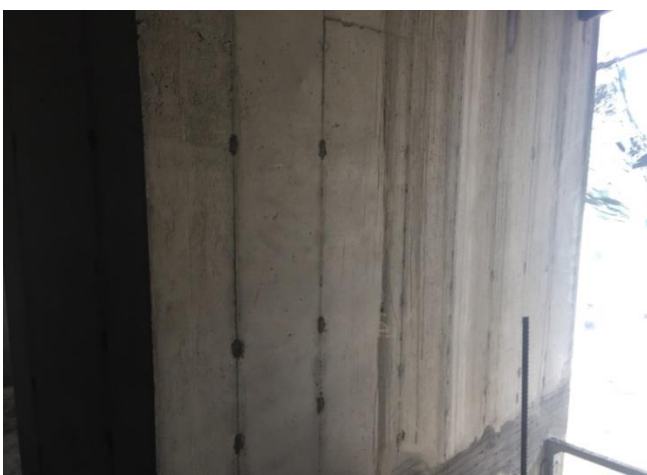
M20 for P.C.C

Reinforcement:- Reinforcement of grade conforming to IS 1786:1985

3. Conclusion

The project appealed to us after we realize the necessity of earthquake resistance structure. Seismic analysis of buildings still needs adequate attention in India in spite of the fact that the single most important factor of contributing maximum damage an casualties in past earthquake is the collapse of buildings.

Thus, shear wall are one of the most effective building elements in resisting lateral forces during earthquake. By constructing shear wall construction it will provide



larger stiffness to the building thereby reducing the damage to structure and its content.

We came across many new facets related to the project and it was a greater learning experience throughout for us.

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