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AN OVERVIEW WITH A CASES STUDY OF RETROFITTING OF CONCRETE STRUCTURE A REVIEW

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ABSTRAC

Retrofitting is a technique to improve the structural capacities including the strength, stiffness, ductility, stability of a building that is found to be deficient. It can effectively improve the performance of a building. In this paper, an RC building of G+3 will be analyzed and design in E- tabs software. Then the number of floors will increased to 3 numbers above the top floor of existing building so that the building becomes G+6 floors and again it is increased by 2 numbers above the top floor of existing building then it becomes G+8 floors. Because of increment of floors the load on the building will be increased so the existing columns may fail in design the failure of columns may be maximum in bottom storey, so how many number of columns fail the same will rectified by Reinforced Concrete jacketing technique, because of jacketing the column strength will increased and the jacketing will be design to carry the increased load by using IS code (IS 159882013) and the jacketing will be done in ANSYS software. In the software each failed column will be modeled and the increased area of reinforced column can able to take an increased load so the building can raised to the above mentioned floors. Hence columns can be strengthened to carry the increased load safely.

Keywords: Micro silica, Recro3sFiber, Compaction, CBR Tests lime, Black Cotton soil.

I. INTRODUCTION

Retrofitting is main part of the modification of existing structures to create them more many Performed by accepting one of the following strategies like by decreasing the seismic demands.on process stiffness capacity, Strength and plasticity are the common seismic response parameters taken into consideration while Retrofitting. The locally available materials and technologies,cost Considerations, duration of the works and architectural is depend upon applied to be technical choice.the schemes can be either global or local, based on the seismic retrofitting. The structures member how many used for the global retrofit method include conventional method or non-conventional method

What is retrofitting?

- The seismic strengthening of existing damaged or undamaged structures is called retrofitting.
- The evaluation of the building indicates that the strength available before the damaged walls insufficient and restoration alone will not be adequate in future quakes the more improvement is original strength.

A. Why retrofitting is required

The concrete structure faced in problem

- Modification of structural system
- Structural cracks
- Seismic Damage
- Damage to structural members.
- Errors in design or construction
- Excessive loading
- Corrosion due to penetration honey combs

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B. Objective of retrofitting

The seismic strengthening of existing damaged or undamaged structures is called retrofitting. The Evaluation of the building indicates that the strength available before the damaged walls insufficient and restoration alone will not be adequate in future quakes the more improvement is original strength.

C. Adding shear wall

The lateral load acting on the structure by a shear wall is composed to shear panel and braced to the effect on counter. The earthquake forces is resist to providing shear wall.

D. Adding in fill wall

This it can be brick masonry infill wall

- Concrete is surrounding to Installed tight elements.
- The lateral stiffness of an infill wall with storey
- Storey columns are substantially reduced on ground for shear Forces and ductility demand and flexural the structure of the infill wall.
- The ductility of structure is Do not increases

E. Adding steel bracing:

- When the large opening are required to effective solution.
- Strength, stiffness and ductility in increase
- Natural light for openings.
- Existing structure to add less weight.

F. Wall thickening technique

- The concrete and steel reinforcement,Increase the thickness by adding bricks.
- The vertical and horizontal can be bear by more loads.
- Sudden failure of the wall does not cause

G. Adding wing wall or buttress

- The ductility and stiffness of structure,to increase lateral strength.
- The existing frame on the exterior side of the wing wall are placed.

H. Base isolation

- The base isolation is known as a superstructure of isolation from foundation.
- The vibration control techniques is the most powerful tool for passive structural.
- The structure minimum repair of superstructure of Isolates building from ground motion lesser seismic loads hence lesser damage.
- The serviceable throughout ConstructionBuilding can remain.
- The major instruction upon existing superstructure does not involve.

I. structural elements of Jacketing

The strengthening of concrete is the most popular method building elements like as

1. Columns
2. Beams
3. Beam column junctions

- The shear strength concrete confinement flexural strength due to Jacketing
- Used to material
- Fibre reinforce polymer(FRP)
- Carbon fibre reinforce polymer (CFRP)
- Gas Fibre Reinforce polymer(GFRP)
- Steel Reinforced concrete
- Steel plates

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II. REMARKS

- The concrete structure increase in the capacities (strength, stiffness ductility, stability and integrity).
- Theessential facilities and functional continuity of life span of structures of the reduction in loss of lives damages.
- The working space of concrete structuredue to extensions in structural elements and affect the appearance is decrease.
- The high shear concentration near wall Increase in lateral stiffness.
- The overturning moment at foundation is Increase.

III. CONCLUSION

The school building has created chaos in society, it has been and felt after every earthquake failure. Economical techniques is a large numbers of these deficient structures need to be retrofitted.it has been seen that society disaster resilient make and lives enhanced performance of these structures can save numbers. These structures should have IO level performance due to importance of school buildings in post disaster scenario. First they need to be evaluated and to identify the performance of school buildings.The damaged columns retrofitting is done,when the paper assessment of damaged reinforced concrete framed school building has been carried out.

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