

Retrofitting of RCC structure

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Abstract - Most of the structures regularly we see are made of reinforced cement concrete. The building was designed according to the state of the art over 38 years ago it did not meet the present-day requirement the project study deals with strengthening and enhancement of performance of existing structure by mean of retrofitting, so that structure can perform well when it would be subjected to additional loads over it. Building is residential community building nirlon colony having G+5 stored determination of load and moment carrying capacity of structural element before and after extension method applied for strengthening of structure and design of the existing structural elements such as RCC beams and column according to the load carrying capacity required.

Keywords: Retrofitting, R.C.C, Nirlon colony UDCPR

INTRODUCTION

Retrofitting of an existing reinforced concrete structure includes repair is a process of repairing of faculty structure either masonry or R.C.C It can also be used to repair old or damaged structure due to any uncertain loading. Retrofitting is needed when the assessment of structural capacity results in insufficient capacity to resist the forces to expected intensity and acceptable limit of damages. It is the modification of existing structure to make them more resistant to seismic activity ground motion or soil failure due to earthquake the retrofitting is also applicable for other natural hazard such as tropical cyclones tornadoes severe winds and thunderstorm. The results generated by the adopted retrofitting techniques must fulfil the minimum requirements on the building codes such as deformation detailing strength proposed work and objective My research project aims at doing seismic evaluation of building and suggesting how to retrofit the failing members using retrofitting methods.

LITERATURE REVIEW

Author Mohammad "parameter affecting behaviour of reinforced wrapped with CERP sheets" has studied aging building structure has become a world problem is particularly serious in developed countries. A construction

method for strengthening aging reinforced concrete building by wrapping structural member with carbon fibre sheets. In this paper, author examined the stress- strain relationship of concrete elements with rectangular cross section reinforced by wrapping with carbon fibre sheets.

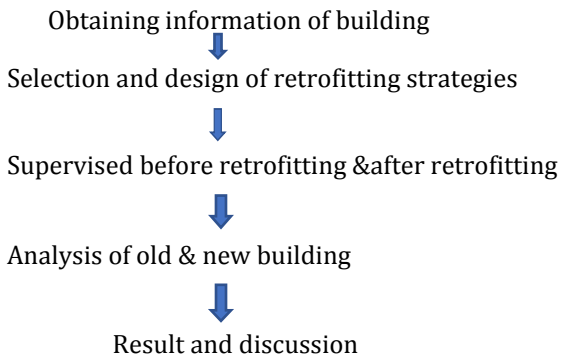
Anurag Mishra design and application of retrofitting techniques in various structure paper is focused on structure with lack the required strength as per the guideline of earthquake building code to sustain the seismic force the strength enhancement of structure is based on the concept of improving the flexibility stiffness, ductility, unity of the structure the method of retrofitting improving the seismic force sustaining capacity of various components of building without stress concentration at critical points.

Punit kumar seismic retrofitting method providing external strength to building under lateral loading we used Etabs 2015 computer for the analysis of structure there is a different load live load, dead load and seismic load in seismic analysis the parameter such as maximum displacement / maximum story drift overturning moment and story shear are calculated in the present technical paper.

Rahul mimje strength of existing building using retrofitting technique Now a days retrofitting becoming popular around the world as most of the important structure some other like old structure for the future earthquake and other environmental forces retrofitting is much better convenient retrofitting helps to enhance the strength resistivity and over are life span of the structure.

METHODOLOGY

The project is for give a strength to a building Before the starting retrofitting technique for the building its important to know the exact damages of the structure and then used then use retrofitting technique for the increase load capacity of beams column and wall. We have calculated area statement under UCCPR for future planning of new building after demolish of old structure



RESULT & DISCUSSION

- ❖ The study has an identification of sustainability initiative that will develop a solution for problem on construction strategy.
- ❖ The new scheme of strategy is finding that involves much thinking and practical consideration of the local and institutional building sector issues to the future as the target.
- ❖ The understanding on the problems on renovating and retrofitting and new building.

CONCLUSIONS:

1. The local retrofitting technique are used for strengthening building for increase load capacity of beam column and wall.
2. Fevovert is best rust converter as compared to yellow metal primer.
3. Using UDCPR common rules, project work is done properly by new regulations for Maharashtra state.
4. Using of UDCPR rules we get total area statement of plot [9260.47 sqm] and we get proposed built -up area [18668.576 sqm as per p line].
5. After redevelopment the developer gave them more carpet area maharera to rera 15 to 20 percent more as compared to old flat.

The ACKNOWLEDGEMENT

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REFERENCES

- 1.Mohammad [2021] "parameters affecting behaviour of reinforce wrapped parameter enforced co Crete wrapped with CERP" I-manager seismic retrofitting of structure 39 pg. 30-45
- 2.Punit Kumar, Sudhanshu Jaiswal, Praveen Kumar Yadav [2020] "A Research Paper on Seismic Retrofitting of pure structure" i-manager Journal of structural Engineering,9(1), pg. 52-59.
- 3.Supriya tulsides [2020] "New unified UDCPR co. pare with old" International jenoural of innovative research in technology 7 pg.714
4. Rahul mimje [2019] "Strength of existing building using retrofitting techniques" i-manager journal of Modern Engineering Science and Managements pg 3-50
- 5.PratikAkrte [2018] "The reduction compressive strength in concrete and the condition of existing structure research gate" i- journal of Innovative and exploring engineering3 pg.28-27
6. Pravin Waghmare [2018] "Using response spectrum method the software STAAD pro 200 to assess a performance old R.C building" i- manager journal of structural dynamics specialized in base isolation techniques.pg 6-10
7. Andrea miano [2018] "A longitudinal change frame of existing model included effect of flexural shear" i-journal of structures for Engineering and Architecture 47 pg. 77-87
8. Anurag Mishra, Rajan Ashvari [2017] "Design and application of retrofitting technique in various structure www research" International journal of engineering research and Technology 6 pg24.

9. Jimbaran bail [2017] “The building three story concrete structure mezzanine floor for storage research” i-ketut Sudarshan / Procedia Engineering,171

10. Nikita Gupta [2015] “Retrofitting of an existing residential building by using shear wall research” i-manager journal of civil Engineering and Environmental technology (2) pg. 5-83

11. Earthquake resistance design of structure, SK Duggal second edition Appendices III page no 484-485.

12. [http:// www.research gate.net](http://www.researchgate.net)



Before Retrofitting



After Retrofitting

A AREA STATEMENT	
1	Area Of Plot 19-D (Minimum area of a.b.c to be total)
a)	AS Per Ownership Documents (712.CTS extract)
b)	AS Per Measurement Sheet
c)	AS Per Site
2	DEDUCTIONS FOR
a)	Proposed D.P.O.P. Widening Area/Service Area/ Highway Widening
b)	Any D.P. Reservation Area
TOTAL (a+b)	0.000
3	Balance Area of Plot (1-2)
4	Amenity Space (if applicable) 10% of Plot area
a)	Required-
b)	Adjustment of 2(b) if any
c)	Balance Proposed-
5	Net Plot Area (3-4(c))
6	Recreational Open Space (if possible)
a)	Required-
b)	Proposed-
7	Internal Road Area
8	Plotable Area (if applicable)
9	Built-up Area with reference to Basic F.S.I as per front road width (Sr No 5 x 1.1) 4914.00 X 1.1 = 5405.40
10	Additional of F.S.I. on payment of premium
a)	Maximum permissible premium F.S.I based on road width / TGD Zone. (0.30)
b)	Proposed FSI on payment of premium.
11	In-Situ F.S.I./TDR Loading
a)	In-Situ area against D.P. road (2.0xSr. No. 2(a))if any
b)	In-Situ area against D.P. Amenity Space if handed over (2.00 or 1.85 x Sr.No.4(b) and/or(c))
c)	TDR area
d)	Total In-Situ/TDR loading permissible (11(a)+(b)+(c))
12	Additional FSI area under Chapter No.7
13	Total entitlement of FSI in the proposal
a)	(9+10(b)+11(d)) or 12 whichever is applicable
b)	Ancillary Area FSI upto 60% with payment of charges. (3201.88 x 80%)+(3677.74 x 60%) = 2561.48 + 2206.64
c)	Total entitlement (a+b)
14	Maximum utilization limit of FSI (building potential) Permissible as per Road width (as per Regulation No. 6.1 or 6.2 or 6.3 or 6.4 as applicable) x 1.6)
15	Total built-up area in proposal (excluding area at Sr.No.17b)
a)	Existing Built-up Area
b)	Proposed Built-up Area (as per 'P line')
c)	Total (a+b)
16	FSI consumed(15/13)(Should not be more than S.No.14(abv.)

Area Statement