

Result Retrofitting for RCC Structure

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Abstract:- The Research Paper States That How to determine Weather The Structures Needs Retrofitting And Which Technique Is Suitable For Which Type Of Structure The Primary Idea Thought For Improving Strength Of The Structure Is Stated On The Following Points.

- Strengths of Structure
- Quality of Concrete
- Type of Structure

Retrofitting methods are Suggested, to Improves the Seismic Force Resistance Capacity of Different Components of the Building.

Keywords:- Sismic Forces , Strength, Quality.

I. INTRODUCTION

In the part of north India many of the structures face seismic forces due to which structures are affected. Approximately 100 out of 70 building structures are non-engineered and constructed of loadbearing structures. Evan a small seismic activity can affect the structure due to seismic impact. Due to this many people losses their life

The earthquake occurred on 6th November 2023 which had a powerful magnitude of 5.6 felt massive Terms in Delhi NCR. The Richter scale hit a magnitude of 5.6 in Nepal region but affected many region in India. Many of the structures got damaged in north India region. From this scenario we get to know that the structures constructed should be deigned for earth quake. Now a days may of the structures in city are constructed to resist earthquake using building code IS:1893: 2002. But in rural areas this practice is not followed so many issues. Practically it is impossible to demolishand reconstruct so it is necessary to follow earth quake resistant practice.

Our aim is to state that weather the structure needs to use retrofitingtechniques.

II. METHEDODOLOGY

A. Visual Inspection

The structure was observed by us on each side. The type of cracks were observed. Many other defects were also observed.

B. Rebound Hammer Test.

It is a Compression test carried by nondestructive method.

Table 1: Rebound Hammer Test Readings

Coloumn Compressive Test Result					
Coloumm No	Puzzel No	Grade of concrete	Age of Concrete In Years	Compresive Strenght in N/mm ²	AVG Compresive Strenght in N/mm ²
C1	1	M30	35	35	34
	2	M30	35	33	
	3	M30	35	34	
C2	1	M30	35	38	35
	2	M30	35	32	
	3	M30	35	35	
C3	1	M30	35	35	34.33
	2	M30	35	35	
	3	M30	35	33	
C4	1	M30	35	30	31.66
	2	M30	35	31	
	3	M30	35	34	
C5	1	M30	35	36	37.83
	2	M30	35	38	
	3	M30	35	39.5	
C6	1	M30	35	29	

	2	M30	35	30.2	30.4
	3	M30	35	32	
C7	1	M30	35	31	31.66
	2	M30	35	29	
	3	M30	35	35	
C8	1	M30	35	35	35.33
	2	M30	35	35	
	3	M30	35	36	



Fig 1: Photos while Testing on Structure with Rebound Hammer



Fig 3: Direct Method Testing



Fig 2: Our Project Guide While Testing on Structure with Rebound Hammer



Fig. 4: Readings on Ultrasonic Pulse Velocity Meter



Fig 5: Indirect Method

A. Ultra Sonic Pulse Velocity Test

Ultrasonic pulse velocity test is a non destructive test which is performed to determine the quality of concrete.

Table 2: Ultrasonic Pulse Velocity Readings

Ultrasonic Pulse Velocity Test		
Location	Pulse Velocity(km/s)	Concrete Quality
C1	4.55	Excellent
C2	4.22	Good
C3	3.95	Good
C4	4.64	Excellent
C5	3.89	Good
C6	3.76	Good
C7	4.55	Excellent
C8	4.64	Excellent

III. RESULT

- From the visual we state that the cracks are minor and are not on the surface which are acceptable.
- From the nondestructive Compressive test we state that the compressive strength of the concrete is acceptable.
- From the above ultrasonic pulse velocity test we state that the overall quality of concrete is good.

IV. CONCLUSION

From the test carried on the concrete structure we state that the structure is in acceptable condition and any type of retrofitting is not needed on the structure.

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