

Inspection

Data Collection & Planning

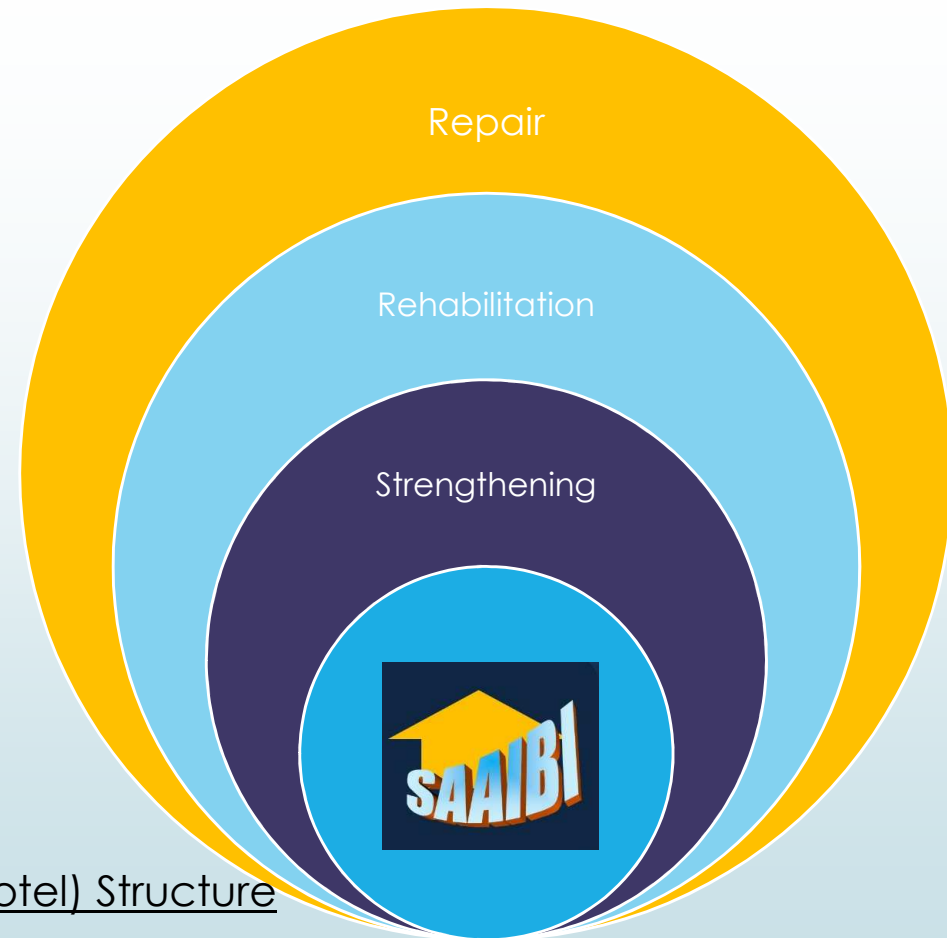
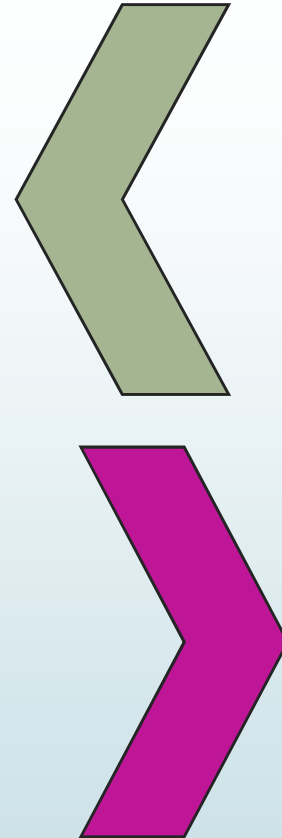
Non destructive Testing

Analysis

Problem Identification

Workable Solutions

Safe Guard





Condition Survey Report For Commercial (Hotel) Structure

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Condition Survey Report For Commercial (Hotel) Structure

- Standard Disclaimer:
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What Does Condition Survey Report reveals ?

- An Overall Health Condition of Home / Building much like a Doctor examines a patient.
- After examining through Visual Inspection An Engineer may suggest for Non Destructive Test if required for complete Health Check Up much like Doctor prescribe for Body Check Up.
- This Tests and Inspection will reveal whether the building is Safe or Require Repairs, Rehabilitation or Strengthening as the case may be.
- Suggest Repair and Retrofitting measures which needs to be taken as per building demand.

How does it Serves the Purpose ?

- To Understand The General Condition of Home / building.
- Finding Area of Distress which requires Repairs, Rehabilitation or strengthening.
- To Enhance Life of Building and Save Lives of Humans and Building.



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1) Introduction:

The AXZ Hotel Limited is a Hotel Property at Pune.

During Routine Interiors it was noticed that some of the structural members were showing cracks and Distress. The structure was having one basement plus ground plus 4 Upper storey which are around 18-year-old.

In Lieu of the above Work order was awarded to carry out Condition survey report which includes, Visual Inspection, Non Destructive Testing at site, Analysis and giving out Recommendation based on Survey Report for Solutions and further Safe Guard of Structure.



2) General Information

No. of levels (including ground floor and roof);	5 levels =Basement + Ground + 3 Upper Floors as per Architectural Drawing.
Height of building	(Height: 18 metres)
No. of basements	one
Type of building	Commercial
Type of construction	RCC Frame Structure with Infill Block and RCC Slab
Probable age of building	18 years
Building Information	Building consists of parking Lot in Basement with Rooms at upper floors
Dimensions	Length: 20.0m x Breadth: 13.5m
Foundation type / Depth	Type: Isolated RCC footing; as per Structural Drawing.
Other information (if any)	Structural and Architectural Drawing Available.

Definition:

Condition Survey is an examination of concrete for the purpose of identifying and defining of distress.

Objective:

The Objective of Condition Survey of a building structure is

- a) To identify - cause of distress and their sources.
- b) To assess - the extent of distress occurred due to corrosion, fire, earthquake or any other reason,
 - the strength of the structure,
 - its ability to rehab.
- c) To prioritise the distressed elements according to seriousness for repairs and
- d) To select and plan the effective remedy.

Stages:

Stages for carrying out Condition Survey, largely depend on field conditions, maintenance and have a direct relation with the pattern of distress, whether localised or spread over.

Condition survey of a building is generally in Seven different stages to identify the actual problem so as to ensure that a fruitful outcome is achieved with minimum efforts and at least cost. The Seven stages of Condition survey described are

- a) Inspection b) Data Collection & Planning c) Non destructive Testing d) Analysis e) Problem Identification f) Workable Solutions and g) Safe Guard

4) Visual Inspection



Fig 2. Slab Reinforcement Exposed

Internal Inspection -



Figure 3. Minor Cracks in Plaster.



Figure 4. Minor Crack in Plaster.



Figure 5. Minor Crack in Sunk Slab.

5) Non Destructive Testing

NON-DESTRUCTIVE TESTING

9. NON-DSTRUCTIVE TESTING

On the basis Visual Inspection, following Non Destructive Testing (NDT) decided to carried out:-

Purpose of NDT Test:-

- > To Determine the existing Compressive Strength of concrete.
- > To Obtained the Quality of Concrete.
- > To analyzed the carbonation and oxidation of concrete and reinforcement.
- > To check the reinforcement details of structural members.

Based on that following tests carried out:-

1. Quality of Concrete – ULTRASONIC PULSE VELOCITY (UPV TEST).
2. Corrosion/ Oxidation in Existing Reinforcement – HALF CELL POTENTIAL (HCP TEST).
3. Carbonation in Concrete Surface – CARBONATION TEST.
4. Hardness of Concrete – REBOUND HAMMER.
5. Compressive Strength of Concrete – Cut And Pull Out Test (CAPO) TESTING.
6. Reinforcement Analysed – REBAR MAPPING (As per drawing and site condition).
7. Chemical content in Concrete – Chemical Testing .
8. Depth & Type of foundation – Foundation Analysis .

Note:

1. Above testing methodology are present in report along with results.
2. Results based on Quality, Strength, Corrosion Potential, Existing status of structures.

ULTRASONIC PULSE VELOCITY TEST

Application:

These tests are primarily done to establish:

1. The homogeneity of concrete.
2. Presence of cracks, voids and other imperfections.
3. Changes in quality of concrete over time.
4. This test does not establish compressive strength of tested concrete.

UPV Tests are done in accordance with Indian standards IS: 13311 (Part I).

Procedure:

1. The concrete surface where probes are to be applied is cleaned properly.
2. Grease is applied on the test surfaces
3. The probes are pressed on the surface of the structural element to remove air gaps.
4. Distance between the two probes is noted.
5. Read time taken for the ultrasonic pulse from the instrument.
6. Calculate Velocity=distance / time.

Methods:



Direct Method



In-Direct Method



Semi-Direct Method

Test Report

Concrete Core Compressive Strength

Customer Name : Mr. Anil **XXXXXX** Brand Code : **BT**
 Office Address : Dham **XXXXXX XXXXX** Material Code : **NDT**
 Site Name : Hotel **XXXXXX XXXXX** Sample Ref No. : **51020**
 Project Number : **XXXXXX** Report No. : **19912-1**
 Grade of Concrete : **NA** Date of Test : **20/05/2019**
 Location of Concrete : **XXXXXX** Specimen Dimensions (mm) : **150x150x150**
 Contact Details : Mr. Anil **XXXXXX** 9551771777 (WhatsApp) : **86**
 Date of Booking : **11-May-2019**
 Date of Test : **13-May-2019**

OBSERVATIONS & CALCULATIONS

Sl. No.	ID No.	Dimension (mm)	Area of concrete (mm ²)	Weight before casting (kg)	Weight after casting (kg)	Loss of weight (kg)	Compressive strength (N/mm ²)	Compressive strength (MPa)
1	C-01	60/0	NA	1740.79	1235.00	505.79	41.5	11.00
2	C-02	60/0	NA	1740.79	1186.40	554.39	40.0	11.00

GENERAL INFORMATION & NOTES OF CALCULATIONS

Sl. No.	ID No.	Compressive strength (N/mm ²)	Compressive strength (MPa)	Notes
1	C-01	41.5	11.00	Mean
2	C-02	40.0	10.00	Mean

Observation

- 1) IS 516 Part 4-2018 Method of test for strength of concrete.
- 2) IS 456-2000 code of practice for plain & reinforced concrete.
- 3) SP 34-1987 (IS 516) Handbook on Indian Standard Code of practice for plain & reinforced concrete.

Conclusion

- 1) Test results are satisfactory.
- 2) NA indicates not possible.

Remarks

- 1) The test results and methods used in this report are in accordance with the standard and methods used in the laboratory.
- 2) Any test report shall be in original report (i.e. **XXXXXX**) or in electronic format (i.e. **XXXXXX**).
- 3) Any of the test results in this report shall be in original report (i.e. **XXXXXX**) or in electronic format (i.e. **XXXXXX**).

This report can be submitted to our website www.damconcrete.com

This is electronically generated report hence does not require signature.

For all technical queries contact on Toll-Free No. 1800 200 445.

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Non Destructive Testing of R.C.C.

Customer Name : Mr. Anil **XXXXXX** Brand Code : **BT**
 Office Address : Dham **XXXXXX XXXXX** Material Code : **NDT**
 Site Name : Hotel **XXXXXX XXXXX** Sample Ref No. : **51020**
 Project Number : **XXXXXX** Report No. : **19912-1**
 Grade of Concrete : **NA** Date of Test : **20/05/2019**
 Location of Concrete : **XXXXXX** Specimen Dimensions (mm) : **150x150x150**
 Contact Details : Mr. Anil **XXXXXX** 9551771777 (WhatsApp) : **86**
 Date of Booking : **11-May-2019**
 Date of Test : **13-May-2019**

OBSERVATIONS & CALCULATIONS

Sl. No.	Location & Identification	Grade of concrete	Time of casting	Age (days)	Moist. Scanner (Relative Humidity)	Moist. Scanner (Moisture Content)	Moist. Scanner (Moisture Ratio)	Moist. Scanner (Moisture Ratio)	Moist. Scanner (Moisture Ratio)
1	C-01	NA	NA	NA	NA	NA	NA	NA	NA
2	C-02	NA	NA	NA	NA	NA	NA	NA	NA
3	C-03	NA	NA	NA	NA	NA	NA	NA	NA
4	C-04	NA	NA	NA	NA	NA	NA	NA	NA
5	C-05	NA	NA	NA	NA	NA	NA	NA	NA
6	C-06	NA	NA	NA	NA	NA	NA	NA	NA
7	C-07	NA	NA	NA	NA	NA	NA	NA	NA
8	C-08	NA	NA	NA	NA	NA	NA	NA	NA
9	C-09	NA	NA	NA	NA	NA	NA	NA	NA
10	C-10	NA	NA	NA	NA	NA	NA	NA	NA
11	C-11	NA	NA	NA	NA	NA	NA	NA	NA
12	C-12	NA	NA	NA	NA	NA	NA	NA	NA
13	C-13	NA	NA	NA	NA	NA	NA	NA	NA
14	C-14	NA	NA	NA	NA	NA	NA	NA	NA
15	C-15	NA	NA	NA	NA	NA	NA	NA	NA
16	C-16	NA	NA	NA	NA	NA	NA	NA	NA
17	C-17	NA	NA	NA	NA	NA	NA	NA	NA
18	C-18	NA	NA	NA	NA	NA	NA	NA	NA
19	C-19	NA	NA	NA	NA	NA	NA	NA	NA
20	C-20	NA	NA	NA	NA	NA	NA	NA	NA
21	C-21	NA	NA	NA	NA	NA	NA	NA	NA
22	C-22	NA	NA	NA	NA	NA	NA	NA	NA
23	C-23	NA	NA	NA	NA	NA	NA	NA	NA
24	C-24	NA	NA	NA	NA	NA	NA	NA	NA

Observation

- 1) IS 516 Part 1-2010 **XXXXXX** testing of concrete.
- 2) IS 13311 - Part II - **XXXXXX** testing of concrete.

Conclusion

- 1) NDT was carried out using **XXXXXX** Mechanical concrete hammer **XXXXXX** No. **XXXXXX** and Digital Ultrasonic Testing Machine **XXXXXX**.
- 2) Indicative strength in this report are calculated from regression investigation based on hammer readings and pulse velocity readings. The predicted strength has a correlation of 0.84 with actual strength as per calibration done in our laboratory.

6) Problem Identification

7) Conclusion and Recommendations

- From visual inspection there were no sign of major structural distress in structure.
- From NDT test concrete grade is between 10 to 20 MPa, so for analysis we have assumed that grade of concrete is M15.
- 4 Columns are unsafe at lower ground floor and 10 columns are unsafe at ground floor.
- Retaining wall at lower ground floor level was constructed with bricks, as bricks are not made to carry lateral pressure due to soil and surcharge.

Recommendations for Structural Members

Please refer following for strengthening scheme:-

Jacketing is highly recommended for ground floor to increase width of column

LOWER GROUND FLOOR LEVEL											
Column ID	Fok	Column Sectional Property			Fok	Assumed Exposed 1%	Dmax (mm)	Pu (From analysis)	SAFE/UNSAFE	Deficiency	Strengthening Scheme
		B	D	As (sq.mm)							
C1	15	230	510	116127	415	1173	1023	422	SAFE	0.41	
C2	15	230	510	116127	415	1173	1023	702	SAFE	0.69	
C3	15	230	510	116127	415	1173	1023	790	SAFE	0.77	
C4	15	230	510	116127	415	1173	1023	751	SAFE	0.73	
C5	15	230	510	116127	415	1173	1023	818	SAFE	0.80	
C6	15	230	510	116127	415	1173	1023	744	SAFE	0.73	
C7	15	230	510	116127	415	1173	1023	395	SAFE	0.39	
C8	15	230	510	116127	415	1173	1023	1030	UNSAFE	1.01	Jacketing
C9	15	230	600	136620	415	1380	1203	1133	SAFE	0.94	
C10	15	230	600	136620	415	1380	1203	1213	UNSAFE	1.01	1 Layer of 400 GSM FRP Wrapping
C11	15	230	600	136620	415	1380	1203	1097	SAFE	0.91	
C12	15	230	600	136620	415	1380	1203	1173	SAFE	0.97	
C13	15	230	600	136620	415	1380	1203	1040	SAFE	0.87	
C14	15	230	510	116127	415	1173	1023	1082	UNSAFE	1.08	
C15	15	300	510	160786	415	1620	1413	1085	SAFE	0.75	
C16	15	330	540	191268	415	1932	1683	1135	SAFE	0.70	
C17	15	230	510	116127	415	1173	1023	760	SAFE	0.74	
C18	15	230	510	116127	415	1173	1023	476	SAFE	0.47	
C19	15	230	510	116127	415	1173	1023	976	SAFE	0.93	
C20	15	230	510	116127	415	1173	1023	831	SAFE	0.91	
C21	15	230	510	116127	415	1173	1023	962	SAFE	0.94	
C22	15	230	620	141174	415	1426	1244	869	SAFE	0.70	
C23	15	230	510	116127	415	1173	1023	320	SAFE	0.31	
C24	15	230	510	116127	415	1173	1023	676	SAFE	0.68	

Based on STAAD Pro analysis statement was prepared between assumed and required reinforcement based on that deficiency is found.

LOWER GROUND FLOOR LEVEL										
Column ID	Fok	Column Sectional Property			Fok	Assumed Design 1%	Dmax (MM)	Pu (From analysis)	SAFE/UNSAFE	Deficient
		B	D	As (mm²)						
C1	15	230	510	116127	415	1173	1023	422	SAFE	0.41
C2	15	230	510	116127	415	1173	1023	702	SAFE	0.69
C3	15	230	510	116127	415	1173	1023	790	SAFE	0.77
C4	15	230	510	116127	415	1173	1023	751	SAFE	0.73
C5	15	230	510	116127	415	1173	1023	818	SAFE	0.80
C6	15	230	510	116127	415	1173	1023	744	SAFE	0.73
C7	15	230	510	116127	415	1173	1023	395	SAFE	0.39
C8	15	230	510	116127	415	1173	1023	1030	UNSAFE	1.01
C9	15	230	600	136620	415	1380	1203	1133	SAFE	0.94
C10	15	230	600	136620	415	1380	1203	1213	UNSAFE	1.01
C11	15	230	600	136620	415	1380	1203	1097	SAFE	0.91
C12	15	230	600	136620	415	1380	1203	1173	SAFE	0.97
C13	15	230	600	136620	415	1380	1203	1040	SAFE	0.87
C14	15	230	510	116127	415	1173	1023	807	SAFE	0.59
C15	15	230	600	136620	415	1380	1203	1447	UNSAFE	1.20
C16	15	230	600	136620	415	1380	1203	1163	SAFE	0.97
C17	15	230	510	116127	415	1173	1023	1082	UNSAFE	1.08
C18	15	300	510	160786	415	1620	1413	1085	SAFE	0.75
C19	15	330	540	191268	415	1932	1685	1185	SAFE	0.70
C20	15	230	510	116127	415	1173	1023	760	SAFE	0.74
C21	15	230	510	116127	415	1173	1023	476	SAFE	0.47
C22	15	230	510	116127	415	1173	1023	976	SAFE	0.93
C23	15	230	510	116127	415	1173	1023	831	SAFE	0.91
C24	15	230	510	116127	415	1173	1023	962	SAFE	0.94
C25	15	230	620	141174	415	1426	1244	869	SAFE	0.70
C26	15	230	510	116127	415	1173	1023	320	SAFE	0.31
C27	15	230	510	116127	415	1173	1023	676	SAFE	0.68

GROUND FLOOR LEVEL										
Column ID	Fok	Column Sectional Property			Fok	Assumed Design 1%	Dmax (mm)	Pu (From analysis)	SAFE/UNSAFE	Deficiency
		B	D	As (sq.mm)						
C1	15	160	510	80784	415	816	712	355	SAFE	0.50
C2	15	160	510	80784	415	816	712	560	SAFE	0.79
C3	15	160	510	80784	415	816	712	602	SAFE	0.83
C4	15	160	510	80784	415	816	712	580	SAFE	0.82
C5	15	160	510	80784	415	816	712	630	SAFE	0.89
C6	15	160	510	80784	415	816	712	576	SAFE	0.81
C7	15	160	510	80784	415	816	712	310	SAFE	0.44
C8	15	160	510	80784	415	816	712	806	UNSAFE	1.20
C9	15	160	600	93040	415	960	837	917	UNSAFE	1.10
C10	15	160	600	93040	415	960	837	996	UNSAFE	1.19
C11	15	160	600	93040	415	960	837	804	UNSAFE	1.07
C12	15	160	600	93040	415	960	837	938	UNSAFE	1.14
C13	15	160	600	93040	415	960	837	830	SAFE	0.99
C14	15	160	510	80784	415	816	712	473	SAFE	0.68
C15	15	160	510	80784	415	816	712	1256	UNSAFE	1.77
C16	15	160	600	93040	415	960	837	930	UNSAFE	1.11
C17	15	160	510	80784	415	816	712	888	UNSAFE	1.25
C18	15	200	510	100300	415	1620	1413	786	SAFE	0.50
C19	15	230	540	191268	415	1932	1683	936	SAFE	0.50
C20	15	160	510	80784	415	816	712	563	SAFE	0.79
C21	15	160	510	80784	415	816	712	368	SAFE	0.52
C22	15	160	510	80784	415	816	712	832	UNSAFE	1.17

7) Workable Solution

Workable Solutions are offered in the form of Repair, Rehabilitation or Strengthening Scheme in the form of Methodologies of Work to be adopted for Safety, Durability of Structure

Step-1: Grinding Work

Basic treatment must be made to the surface prior to application of fiber wrap systems if any required. Surface is very well grinded with grinding machine to make the surface rough wherever required for strong bonding between the existing concrete & Adhesive. Apart from the grinding at plain surface areas it is also necessary to remove all the sharp corners with grinder and form at least a minimum of 20 - 25mm radius for proper application of fiber wrap system. For proper confinement radius should be formed.



Step-2: Primer Coating (R&M Primer).

In order to promote adhesion and prevent the surface from chipping resin from the FRP, a low viscosity epoxy primer compatible to the substrate is applied with a roller until the substrate is locally saturated. Primer is a 2 component based material.

Mixing Proportion: - 1) Base:- 2) Hardener

These two components have to be mixed in specified ratio and need to be stirred well with the help of stirrer machine for at least 2-3 minutes till it gets properly mixed. Fine mixing will give better result. After application of primer allow the material to cure for at least 04 hrs.



Step-3: Leveling Putty (R&M Leveling Mortar)

The adhesive, high viscosity putty is applied on the surface wherever it is necessary to fill the porosities to make it smooth & uniform in nature.



Step-4: Cutting Fiber to required length

In a clean area away from the resin, the fabric (Carbon) is carefully measured and cut in accordance with the specifications and Drawings.



Step-5: Drilling for Anchors

An anchor is provided where there is drilling has been done for providing an anchor or shear connector. After completing the primer work the next step is to go for the drilling, for which marking has to be done at the centre of the overlapping distance as specified (or) given in the drawing. The depth of the drilling is as per the size of Fiber Anchors which is almost 50mm to 60mm long.

Drill holes at least 14mm diameter and 60 mm deep in structure. Holes to be drilled as per drawing or at 500 to 800 mm c/c spacing covering adequately the area proposed to be grouted. Holes spacing can be altered as per site conditions.



Step-6: 1st COAT OF SATURANT (JUST BEFORE FABRIC)

Apply Epoxy: (Just before fiber wrapping)

Epoxy is a bonding agent for the fibers and it is a 2 component based material. Mixing Proportion:-

1) Base:- 3.7kg, 2) Hardener:-1.3kg.

These 2 components require a proper mixing with the help of Stirrer machine for at least 2-3 minutes for accurate merging which gives an output of superior bonding.

Immediately after stirring, it should be applied on surface without any time gap with the help of brush application.



Step-7: APPLYING FABRIC

Immediately after applying the epoxy layer we must start doing fiber wrapping around the surface as per the guidelines of the manufacturer. While wrapping roller application with pressure is must so that the fiber should get properly embedded in the epoxy for superior bonding with concrete which results in developing a better strength.



Step-9: Fixing of Fiber Anchors

After completing the wrapping work fiber anchors are normally applied at the ends of the wraps on columns as well as where overlapping joints occur as specified or given in the drawing. The anchor is inserted in the drilled hole as shown in the figure and then protruding fibers are manually spread in circular shape so that it should give a locking effect from all 360°. The purpose of placing fiber anchor is to hold the ends & joints of the wrap so that it should not peel off from the ends in any circumstances and it provides a long lasting life to the fiber wrapping system.



pressure is must so that the **U666** should get properly embedded in the epoxy for superior bonding with concrete which results in developing a better strength.

Step-7: Drilling for Anchors

After completing the grinding work, the next step is to go for the drilling, for which marking has to be done at the centre of the overlapping distance as specified (or) given in the drawing. The depth of the drilling is as per the size of **U666** anchors which is almost 50mm to 60mm long. Thereafter, the **U666** anchor is inserted inside the drilled area and **U666** is spread in such a way that it looks the joint of overlap.

Step-8: Fixing of Fiber anchors

After completing the wrapping work, **U666** anchors are applied at specified spacing on structural element. The anchor is inserted in the drilled hole as shown in the figure and then protruding fibres are manually spread in circular shape so that it should give a locking effect from all 360°. The purpose of placing **U666** anchor is to hold the ends & joints of the wrap so that it should not peel off from the ends in any circumstances and it provides a long lasting life to the **U666** wrapping system.



Step - 9: Application of fire protective coating

It is advised to provide fire protection coat post strengthening on the structural member to fire proof the members.

9.4 Methodology for Strengthening of Structural Element with RC Jacketing

Step-1: Removal of loose concrete



Removal of loose concrete from the member so as to prevent from the deterioration or de-bonding issues that entire loose particle from the concrete should remove. After removal of loose concrete entire surface should be wetted by spraying water.

Step-2 : Additional Reinforcement



Based on the design aspect additional reinforcement is added to concrete with maintaining of proper alignment and cover.

Step-3: Application of Anticorrosion to Reinforcement.



After the removal of the loose mass of concrete for surface preparation the existing reinforcement is exposed to the atmosphere which is treated with the anticorrosive treatment to avoid corrosion of the steel.

Step-4: Drilling and fixing of Shear Connectors



After the application of the bond coat the drilling is carried out, after the drilling the drill hole is cleaned with blower and the shear connectors are fixed with the help of epoxy. The depth of the drill hole and the spacing depends on the design of jacketing.

8) Safe Guard

To Safe Guard Wealth Of Nation it is of utmost importance that proper Maintenance is taken throughout the Years so that our structures remain Usable for their intendend life and longer. Below is the list of Do's and Don'ts for Structures

For proper maintenance of any RCC Structure, following are to be followed:

Do's:

- Thorough Structural Audit should be done every 5 years for the buildings aging between 15 to 30 years and at every 3 years for building aging beyond 30 years.
- In case of any of the following concerns, bring to the notice of consulting Structural Engineer:
 - > Cracks in Columns, Beams or Slabs.
 - > Swelling in Columns.
 - > Visible deflection in the Beams/Slab.
 - > Vibration noticed while moving or shifting any equipment in the slab.
- Carry out timely repairs of any parts of the building under the advice and supervision of consulting Engineer.
- Provide water proof cement coating on the exterior faces of the building regularly.
- Ensure the maintenance of the false ceiling at regular intervals.
- Checking all drainage and water supply service pipe lines and its connections at every 2 years and replace the defective ones.
- Checking up internal plumbing lines and joints to trace leakage if any from a licenced plumber.
- Getting the house drains cleaned once in every 2 years or anytime when there is a choke up or overflow of drain waters from the manholes.
- Checking of waterproofing on the terrace and checking for repairs to prevent any leakages.
- Common service areas and common compound areas should be kept in good condition.
- Underground and Overhead tanks should me checked and maintained properly.
- Keep the terrace clean and maintain especially before, during and after monsoon.

Don't's:

- Unauthorized additions over the designed load for the structure should not be allowed.
- Never allow any internal structural changes/ alterations like changes of position of the rooms.
- Do not allow structural additions if not approved by municipal authority or a consulting structural engineer.
- Do not let unwanted vegetation grow near the structure.
- Do not do any of the following without professional engineer support:
 - > Repairs of structural members.
 - > Modification of existing plan of the building.
 - > Changing of floor finish.
 - > Structural alteration in view of ~~proper~~ designing.
 - > Any kind of renovation of the building.

STRUCTURAL AND ARCHITECTURAL INFORMATION BASED INSPECTION (SAAIBI)



संरचनात्मक और वास्तुकला आधारित निरीक्षण एवं जानकारी।

Why Building Inspection:

- Due to Bad Workmanship, NO Quality Control, Weathering, NO Maintenance, Deterioration, Over loading, Structural cracks are observed on Buildings.
- These need to be addressed and repaired to maintain Building Structural Integrity and to prevent potential Failure.
- Regular Inspection and Timely Repairing is the key to Long lasting Buildings.

How can we help:

- We Conduct Inspection, Do Non Destructive Tests .
- Detect Structural defects and Potential hazards to Structure and Recommend Repairs, Retrofit and Strengthening.
- We take Building inspection for Residential, Commercial and Industrial structures.



SAAIBI.COM

Safe Building, Safe YOU.



+91 9819953550



info@saaibi.com



www.saaibi.com



565/566, Suraj Prasad Building,
New Mill Road, Kurla (W),
Mumbai :400070, INDIA

Let's Make Structures SAFE & DURABLE.

- # Home, Building, Industry Inspection and Report.
- # RCC and Steel Structures Analysis and Design.
- # FRP Design for Rehabilitation and Strengthening.
- # Repairs, Rehabilitation and Strengthening Solutions.
- # Non Destructive Testing of Building Elements.
- # Proof Checking of Structures.
- # Structural Audit.

