STRUCTURAL AUDIT REPORT

ROOF TOP CHSL

Sher-E-Punjab Colony, Andheri East, Mumbai-400093.

03rd to 06th December, 2025.

COMPILED BY :

M/S. ARVIND SINGH CONSULTANTS.

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THE PURPOSED OF STRUCTURAL AUDIT IS

- To save life & property
- To know the health of your building & to project the expected future life.
- Highlight the critical areas that need to be attended with immediate effect.
- To proactively assist the residents and the society to understand the seriousness of the problems and the urgency required to attend the same.
- To comply with municipal or any other statutory requirements.

HOW DO WE CARRY IT OUT?

If we are serious about the structural audit, what do we tell our structural engineer? What are our expectations?

Step 1 – It is imperative that we must have Architectural & structural plans of the buildings. It will be helpful if we have detailed structural calculations including assumptions for the structural design.
The assumptions can also include the allowable live loads, whether the building is designed for residential, commercial, light industry or heavy industry and whether any future provision for adding new floors is considered? What type of earthquake loads is considered? Which I.S. Code requirement has been met?

Step 2 – If the Architectural plans and structural plans are not available. The same can be prepared by any Engineer by measuring the size of the building & locating the position of the columns, beams and size of all such structural elements.

Step 3 – Inspection of the building – A detailed inspection of the building can reveal the following:

a) General information of the building

- Name and address of the building
- Number of stories in each floor of building
- Description of main usage of building i.e. commercial, residential, institutional
- Maintenance History of the building

b) Structural system of the building

- Any settlement in the foundations.
- Visual cracks in columns, beams and slabs.

- Concrete disintegration and exposed steel reinforcement – photographs can be helpful.
- Slight tapping with hammer can reveal deterioration in concrete.
- Extent of corrosion in reinforcement.
- Likewise, verify the status of water tank, staircase, lift and lift machine room.

c) Addition or alterations in the building

- Identification of change of occupancy
- Alteration or addition of partition walls
- Alteration or addition of toilets, water tank
- Alteration or addition of balcony

d) Dampness and leakages

- Detect the dampness in walls, ceiling
- Identify the leakages in terrace, toilets, plumbing lines, drainage lines and overhead tanks.

Step 4– Earthquake Criteria

Mumbai is located in Earthquake Zone III as per Indian Standard Codes. The Earthquake Code IS 1893-2002 provides rigorous analysis and design of Buildings Structures so that it can withstand the Earthquake forces. It may be possible to retrofit the old buildings, so that they do not collapse during earthquake, but may develop some cracks and allow enough time for people to escape. Thus, saving precious lives.

Step 5– Compliance of Audit requirements

Audit is a good thing but in itself Audit is not sufficient, it is important that the findings and/or recommendations of audits are implemented satisfactorily, within a stipulated time limit and are certified by Structural Engineers, otherwise the Audit findings will remain on paper.

IS IT A COSTLY PROCESS ?

Of course, this is going to be costly, but human lives are more important and they need to be saved at any cost.

BY- LAWS RULES FOR STRUCTURAL AUDIT

Stage 1- As per clause No. 77 of revised Bye- Laws of Co-operative Housing Societies: "the Society shall cause the 'Structural Audit' of the building as follows:

- For building aging between 15 to 30 years once in 5 years
- For building aging above 30 years once in 3 years

This will be a continuous process as it is difficult to guarantee future life of old buildings. However, regular Audits and implementing audit findings will avoid sudden collapse of buildings and save thousands of lives. This process will also increase the future life of buildings

Stage 2- Maintenance after every 15-20 years (e.g. external plastering and painting, replacement of damage drainage pipes, tracing out local as well as overall leakages inclusive of those mentioned in stage 1)

Stage 3– Maintenance after every 25-30 years (e.g. major structural repairs, inclusive of stage 1 & 2 wherever required)

If the structure is properly constructed under strict quality control & good work membership, construction material specification complying IS standard, the stages will be further prolonged.

The behavior of the concrete structure in dry climate and in humid climate is different. In humid climate, due to air & water entrainment reinforcement steel rusts and forms scales around its periphery. As the volume of scaling increases it tries to disintegrate the concrete part. If we don't stop the process the structure will become more and more weak. It is advisable to have a "Structural Audit" after every five years to observe & to control the long-term damage, which are making the structure weak. Nothing (including human being) is long lasting. But every attempt should be made to utilize & enjoy the benefits for maximum possible period.

1. INTRODUCTION

1.0 INTRODUCTION

The society building **'Roof Top CHSL'** is located **Sher-E-Punjab Colony, Andheri East, Mumbai-400093.** The society consists of **G+3 and G+4 structures.**

1.1 **M/s. Arvind Singh Consultants** submitted a proposal to the client with **Ref no.– .** On request submitted the proposal and discussed the principles and procedures of investigation, finally **client has approved to conduct survey of the said educational building on 03rd to 06th December, 2025.**

1.2 As per the information provided by the client, the building **Constructed in _____.** No major accident such as fire, partial collapse etc., has occurred since its construction as per verbal information given by client.

1.4 Visual inspection, tapping was carried out simultaneous result of the same are presented in this document

1.5 Instrumentation such as **Rebound Hammer, Ultrasonic Pulse Velocity Test, Half Cell Potential Test, Carbonation Test, Core test & Chemical Analysis test, Cover Meter test** was carried out whose results are also enclosed.

1.6 **Arvind Singh Consultants** undertake not to disclose or reveal any technical information collected during investigation or put in possession during the course of our working without the explicit written approval of the clients.

M/s. Arvind Singh Consultants., disclaim any responsibility of the finding, if the client chooses not to get the structure repaired or rehabilitated within six months of report date. We also are not responsible for any mishap or failure if the client alters the loading pattern and condition at site knowingly or unknowingly or by any act of nature. **The validity of the report is restricted to six months only from today on 18th January, 2026. report is to be treated as a status report only of the building under investigation.**

2. PRINCIPLES

2.0 PRINCIPLES

2.1 VISUAL OBSERVATION:

The building was investigated flat and shops for observation and also from outside of the building. Each Column, Beam & Slabs within the section was observed for a range of defects such as Cracks, Spalls, Crazing, Seepage etc. all area which formed the total data of the structure.

2.2 SURFACE STRENGTH PROFILE: - REBOUND HAMMER METHOD

The hammer is principally a surface hardness tester. The principle is that when a spring-loaded shaft strikes a surface. Its rebound is a function of the hardness of the surface. The force on the shaft and its rebound are developed and measured by the hammer. The operations are very simple. They consist of releasing the plunger from locked position by pressing gently against the hard surface and check for zero setting of rebound number indicator on the graduated scale. The hammer is then strongly pressed against the prepared spot of the surface plunger and causes the impact. The position of the indicator on the scale is read as "rebound number" and recorded in test data log. These recorded data logs are then corrected for position of the hammer, position of the reinforcement, moisture contents in the elements and carbonation depth. The together with other data would help design of others actions.

2.4 CLASSIFICATION OF BLDGS-

CATEGORY	AUDITORS FINAL CONCLUSION
C1	To be evacuated demolition immediately.
C2-A	To be evacuated and/ or partial demolition requiring major structural repair.
C2-B	No eviction only structural repair.
C3	No eviction needs minor repair only.

3. OBSERVATIONS

3.0 OBSERVATIONS

i) Structure

Most of the Structural members are seen in distress condition at external and internal area with structural repairs needed.

Mumbai lies in coastal area where atmosphere is saline in nature. This atmosphere enhances the corrosion activity in the Reinforcement. The damage to the concrete is mainly due to the carbonation of the concrete and corrosion of Reinforcement. Area of the Corroded Reinforcement occupies Six to Eight times Volume of original Reinforcement, which in turns exerts pressures on the concrete cover, which results into cracking of concrete from core to cover. These Cracks allow moisture and various corrosive atmospheric elements to enter the concrete area and in turn cause extensive damage to structure. Corrosion of reinforcement can be compared with cancer to Structure and by this way the process of chain reaction of deterioration commences thus gradually reducing the original strength of structural members. This is a continuous process, which can be minimized with the help of selecting appropriate treatment at the time of repair.

A-Wing


DATE- 3/12/2025
FLOOR- 1
FLAT- 21
PORTION- BR-1


DATE- 3/12/2025
FLOOR- 1
FLAT- 21
PORTION- BR-1/BL


DATE- 3/12/2025
FLOOR- 1
FLAT- 21
PORTION- BR-1


DATE- 3/12/2025
FLOOR- 1
FLAT- 21
PORTION- BR-1


DATE- 3/12/2025
FLOOR- 1
FLAT- 21
PORTION- P


DATE- 3/12/2025
FLOOR- 1
FLAT- 21
PORTION- P


DATE- 3/12/2025
FLOOR- 1
FLAT- 2.1
PORTION- K


DATE- 3/12/2025
FLOOR- 1
FLAT- 2.1
PORTION- K


DATE- 3/12/2025
FLOOR- 1
FLAT- 2.1
PORTION- LR


DATE- 3/12/2025
FLOOR- 1
FLAT- 2.4
PORTION- BR


DATE- 3/12/2025
FLOOR- 1
FLAT- 2.4
PORTION- DINING


DATE- 3/12/2025
FLOOR- 1
FLAT- 2.4
PORTION- BR

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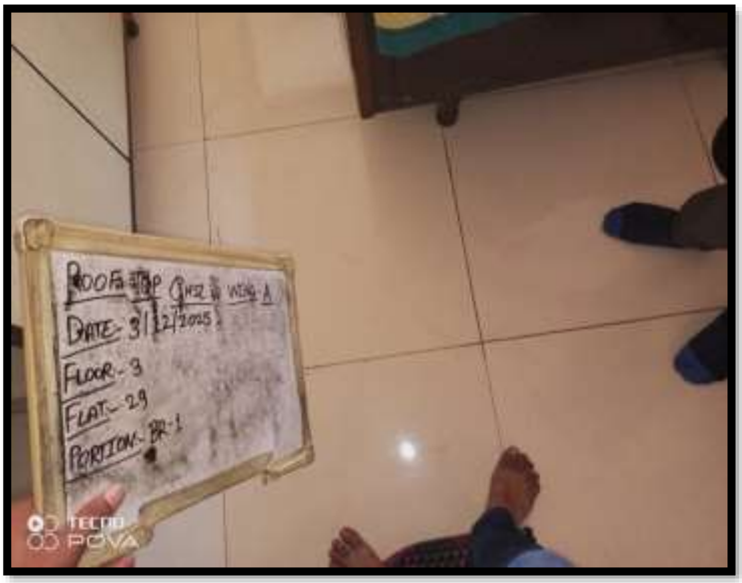
ROOF TOP CHSL WING-A
DATE- 3/12/2025
FLOOR- 3
FLAT- 30
PORTION- K


ROOF TOP CHSL WING-A
DATE- 3/12/2025
FLOOR- 3
FLAT- 30
PORTION- K
TECNO
POVA


ROOF TOP CHSL WING-A
DATE- 3/12/2025
FLOOR- 3
FLAT- 29
PORTION- BR-1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FLOOR- 3
FLAT- 29
PORTION- BR-1
TECNO
POVA


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DATE- 3/12/2025
FLOOR- 3
FLAT- 29
PORTION- BR-1
TECNO
POVA


ROOF TOP CHSL WING-A
DATE- 3/12/2025
FLOOR- 3
FLAT- 29
PORTION- BR-1
TECNO
POVA

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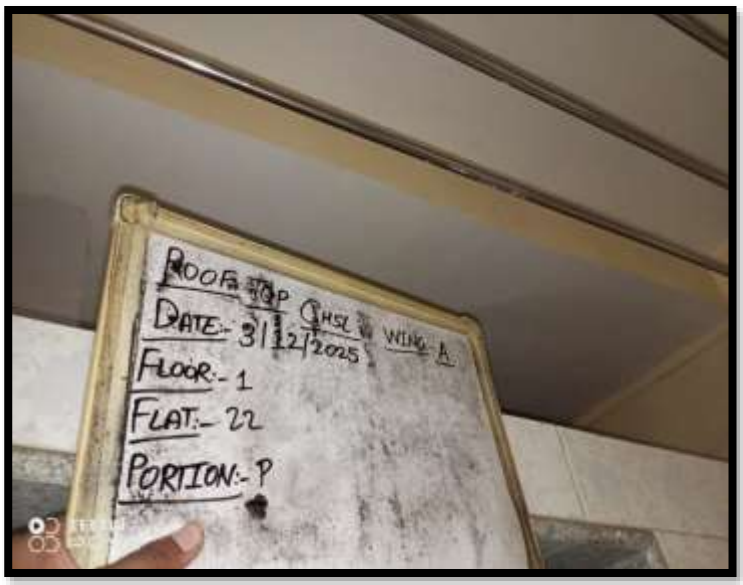

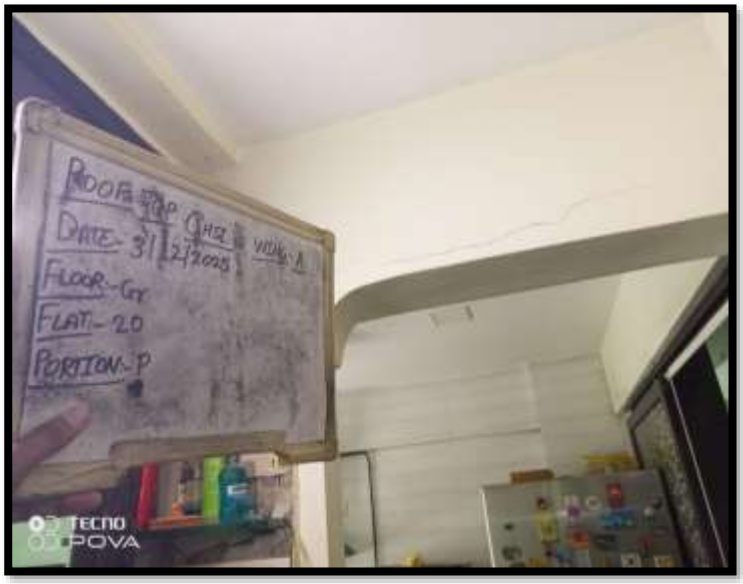

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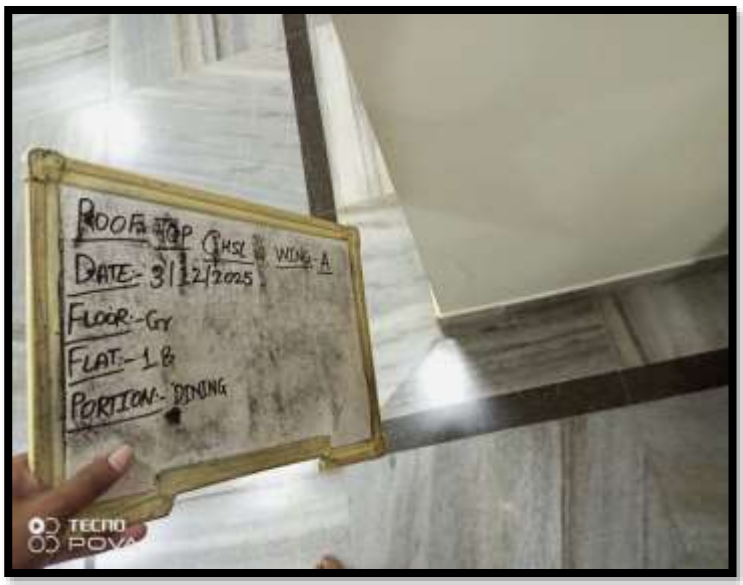

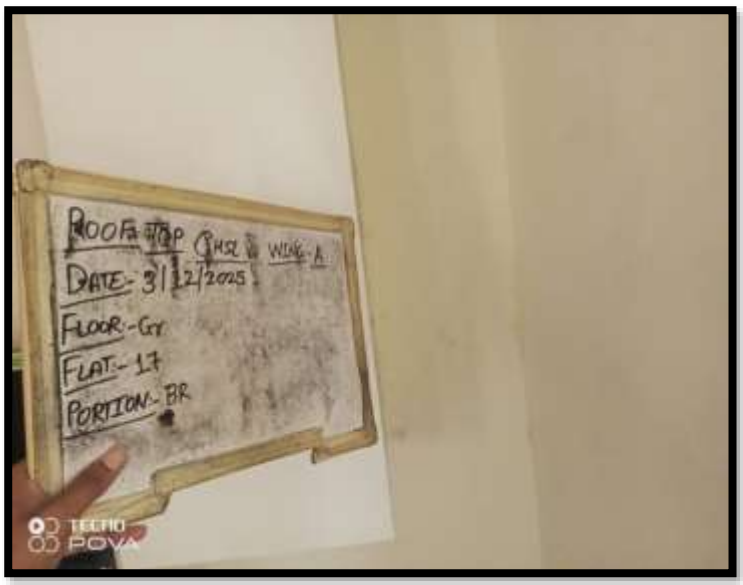

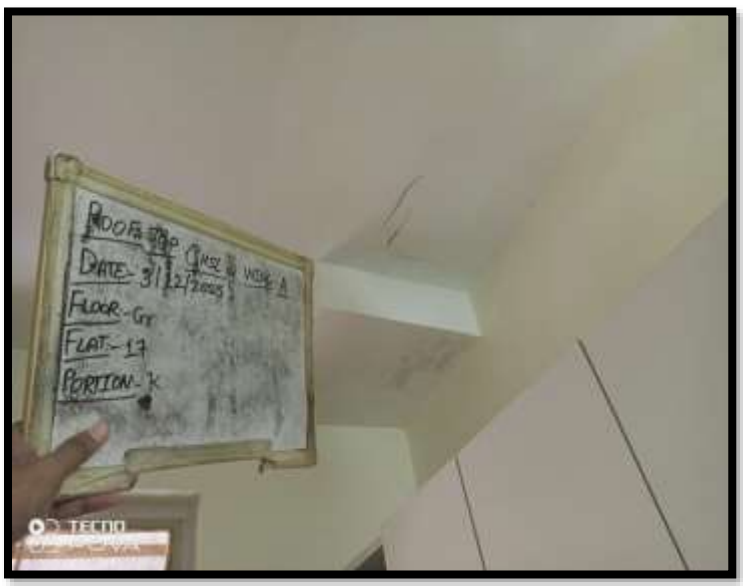

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ROOF TOP CHSL WING-A
DATE- 3/12/2025
FLOOR-GF
FLAT- 2
PORTION- BR


ROOF TOP CHSL WING-A
DATE- 3/12/2025
FLOOR-GF
FLAT- 2
PORTION- BR-1


ROOF TOP CHSL WING-A
DATE- 3/12/2025
FLOOR-GF
FLAT- 2
PORTION- BR-1


ROOF TOP CHSL WING-A
DATE- 3/12/2025
FLOOR-GF
FLAT- 2
PORTION- DINING


ROOF TOP CHSL WING-A
DATE- 3/12/2025
FLOOR-GF
FLAT- 2
PORTION- P

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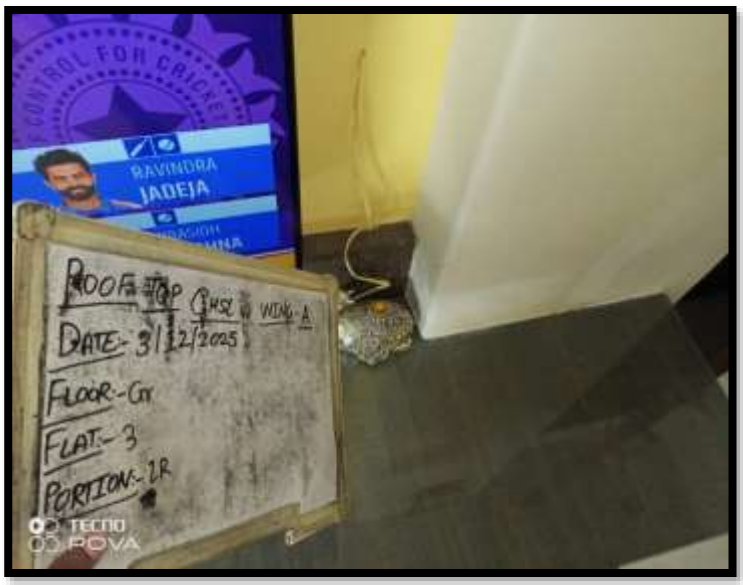

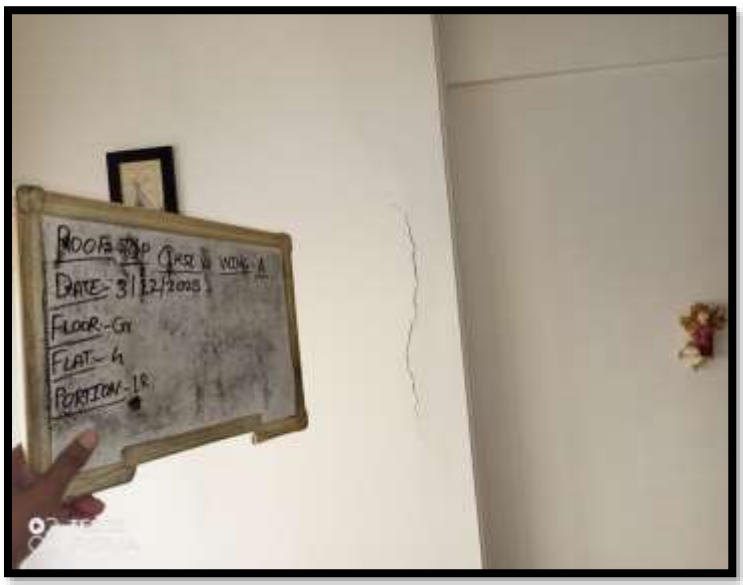

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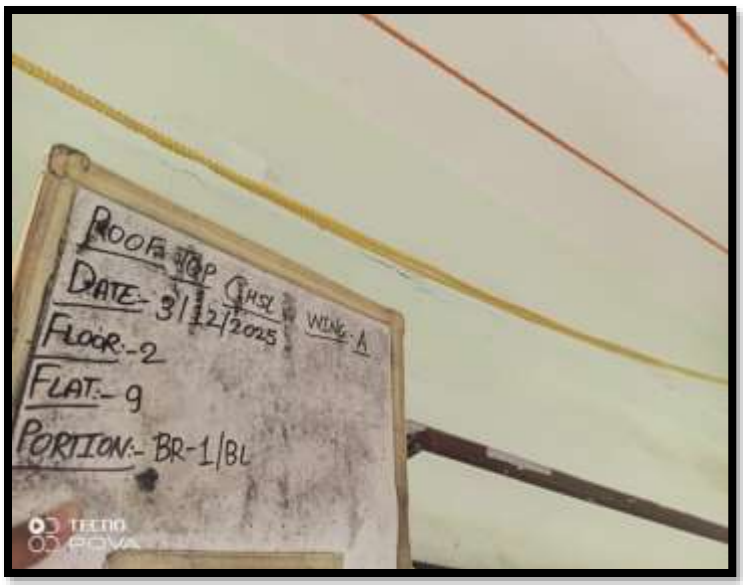

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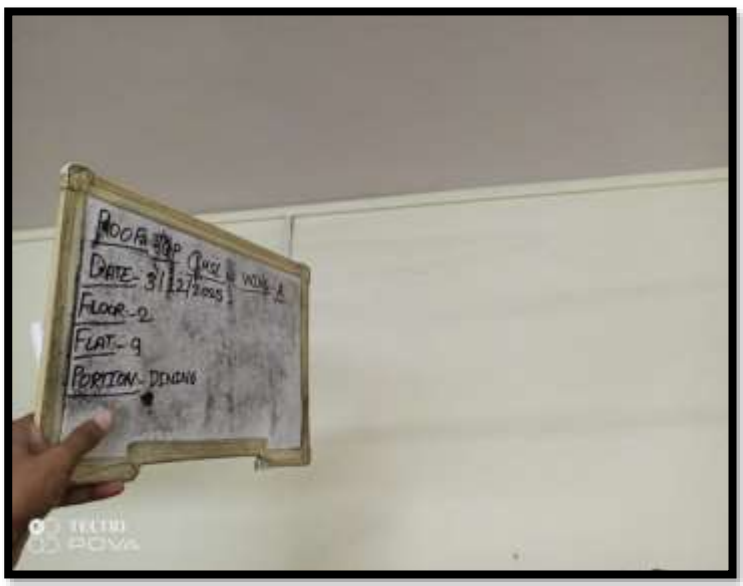

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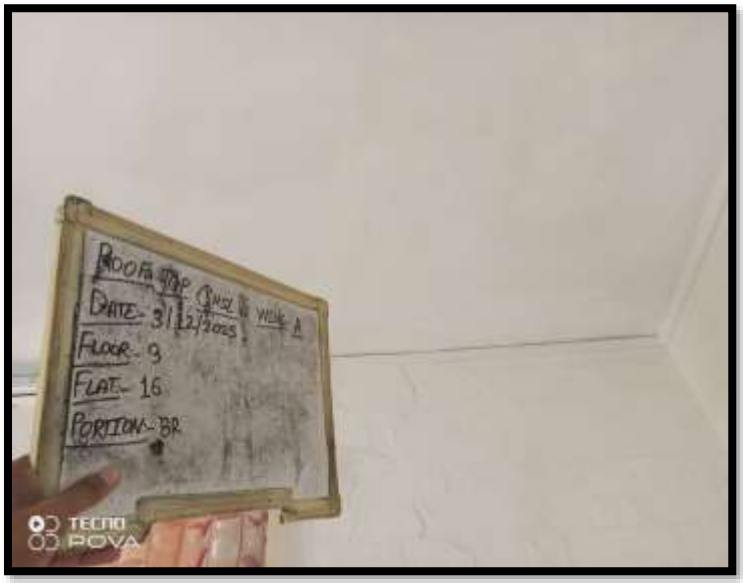

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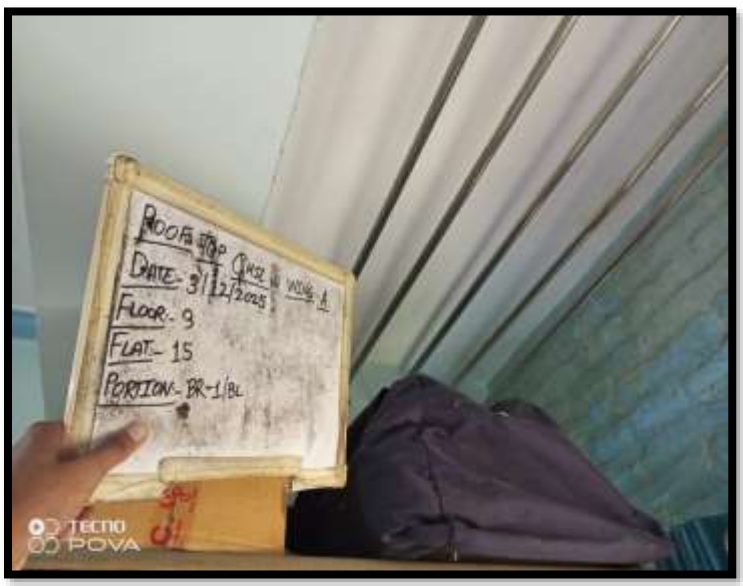

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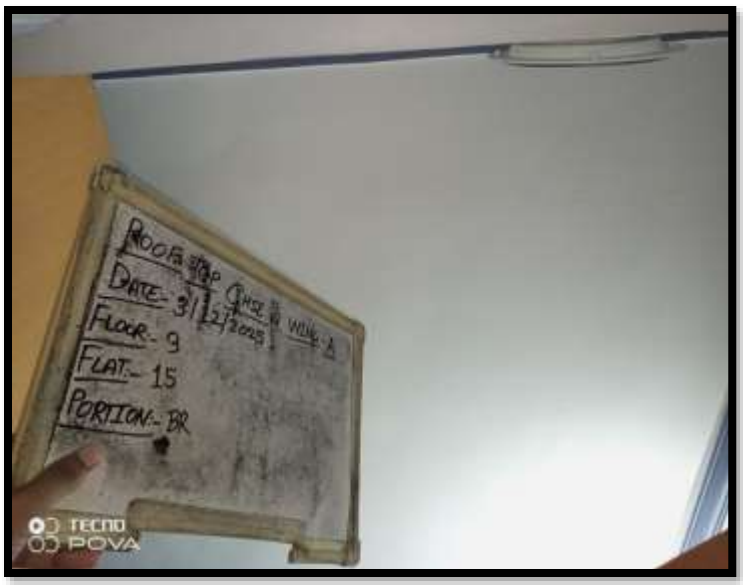

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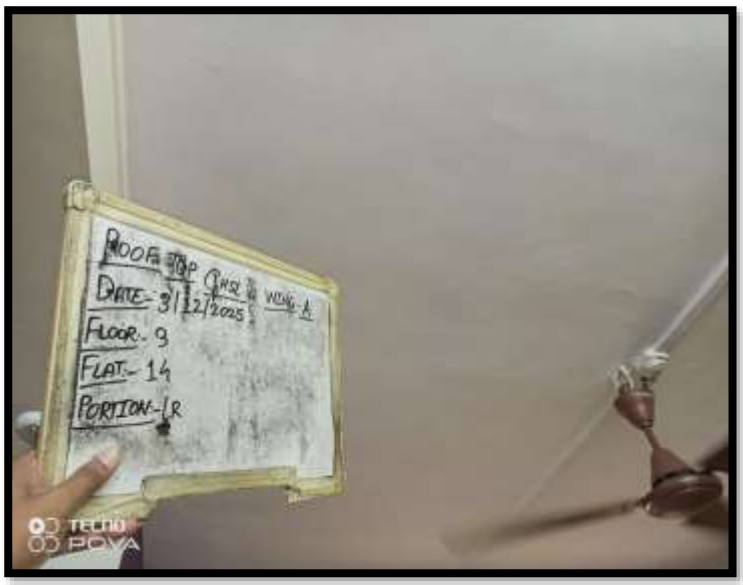

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DATE-
FLOOR-
FLAT-
PORTION-
TECNO
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FLOOR-
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PORTION-


TECNO
POVA

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FLOOR-
FLAT-
PORTION-EXTERNAL
TECNO
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PORTION-EXTERNAL
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PORTION-EXTERNAL
TECNO
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PORTION-EXTERNAL
TECNO
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FLOOR-
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PORTION-EXTERNAL
TECNO
POVA


FLOOR-
FLAT-
PORTION-EXTERNAL
TECNO
POVA

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B-Wing


ROOFTOP CHSL
DATE-5/12/2025
FLOOR-4
FLAT-39
PORTION-BR
TECNO POVA


ROOFTOP CHSL
DATE-5/12/2025
FLOOR-4
FLAT-39
PORTION-LR/BR
TECNO POVA


ROOFTOP CHSL
DATE-5/12/2025
FLOOR-4
FLAT-39
PORTION-BR
TECNO POVA


ROOFTOP CHSL
DATE-5/12/2025
FLOOR-4
FLAT-39
PORTION-BR
TECNO POVA


ROOFTOP CHSL
DATE-5/12/2025
FLOOR-4
FLAT-39
PORTION-P
TECNO POVA


ROOFTOP CHSL
DATE-5/12/2025
FLOOR-3
FLAT-36
PORTION-BR
TECNO POVA

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ROOFTOP CHSL
DATE-5/12/2025
FLOOR-3
FLAT-34
PORTION-BR


ROOFTOP CHSL
DATE-5/12/2025
FLOOR-3
FLAT-34
PORTION-P


ROOFTOP CHSL
DATE-5/12/2025
FLOOR-3
FLAT-34
PORTION-W/BATH


ROOFTOP CHSL
DATE-5/12/2025
FLOOR-3
FLAT-34
PORTION-W/BATH


ROOFTOP CHSL
DATE-5/12/2025
FLOOR-3
FLAT-34
PORTION-K


ROOFTOP CHSL
DATE-5/12/2025
FLOOR-3
FLAT-34
PORTION-P

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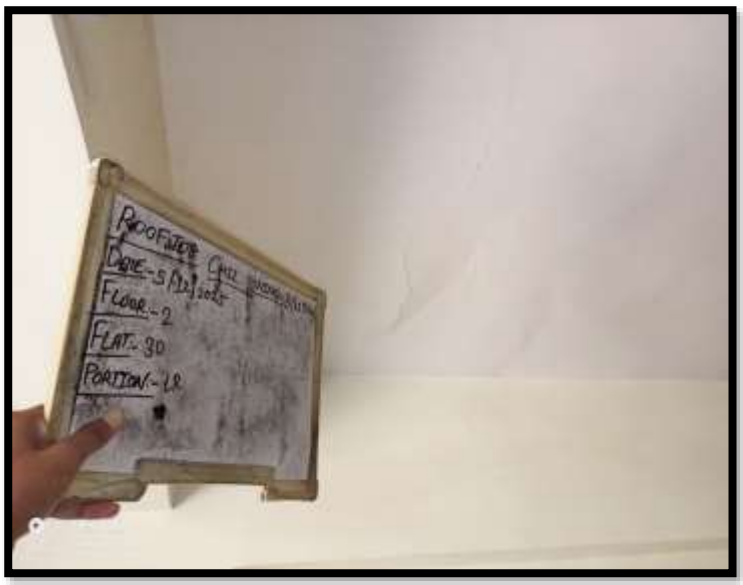

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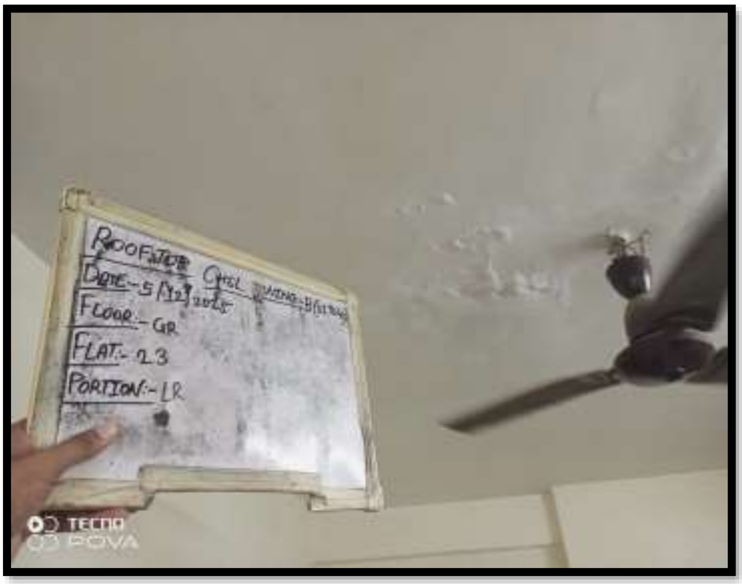
FLOOR:- GR
FLAT:- 23
PORTION:- P
TECNO
POVA


FLOOR - GR
FLAT- 23
TECNO
POVA


FLOOR - GR
FLAT:- 23
PORTION:- LR


FLOOR - GR
FLAT:- 23
PORTION:- LR
TECNO
POVA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FLAT:- 23
PORTION:- LR


FLOOR - GR
TECNO

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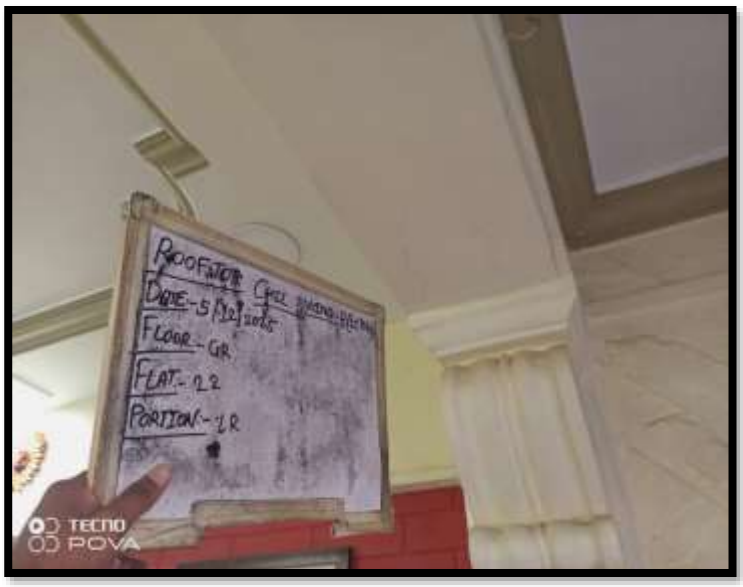

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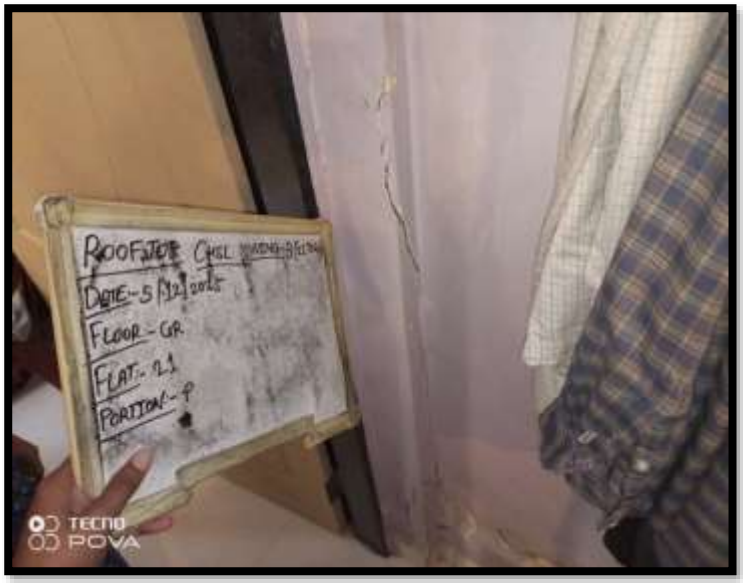

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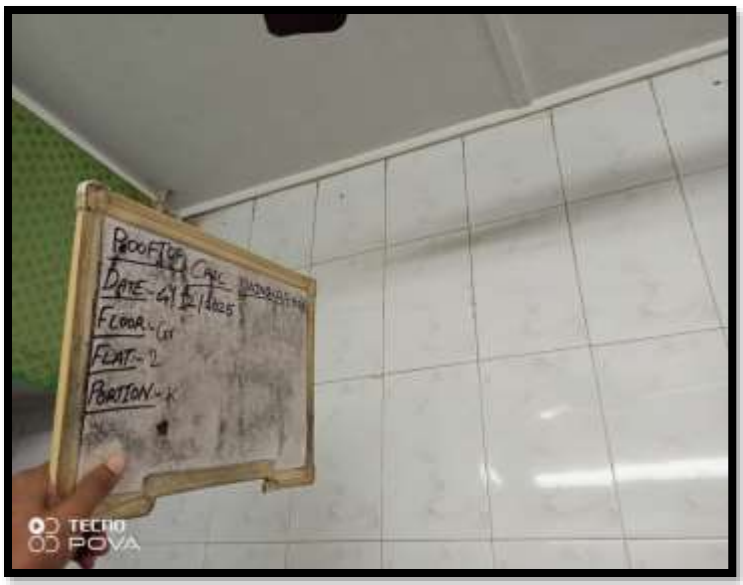

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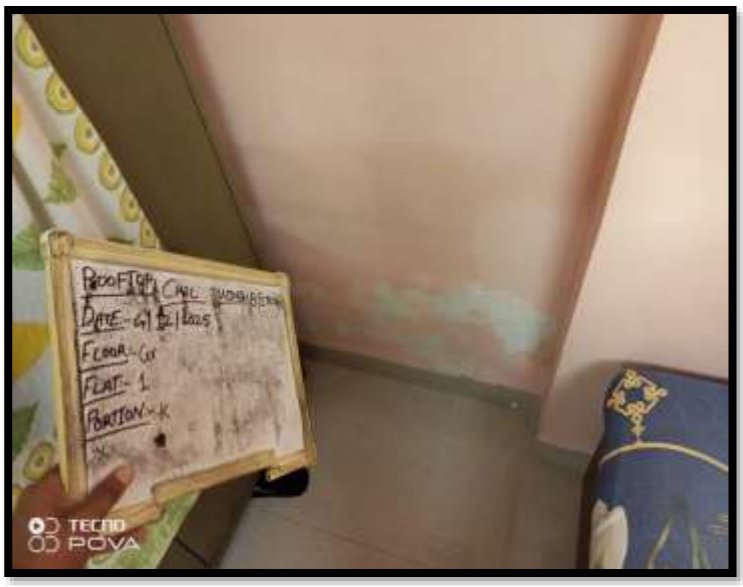

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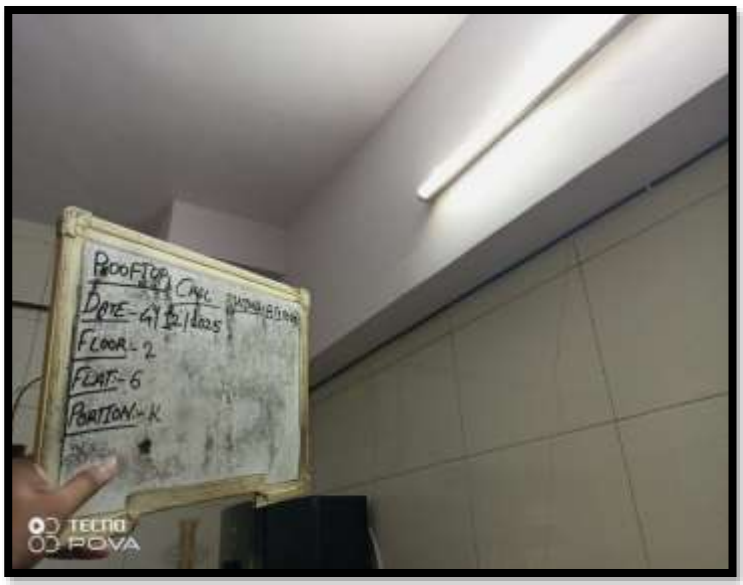

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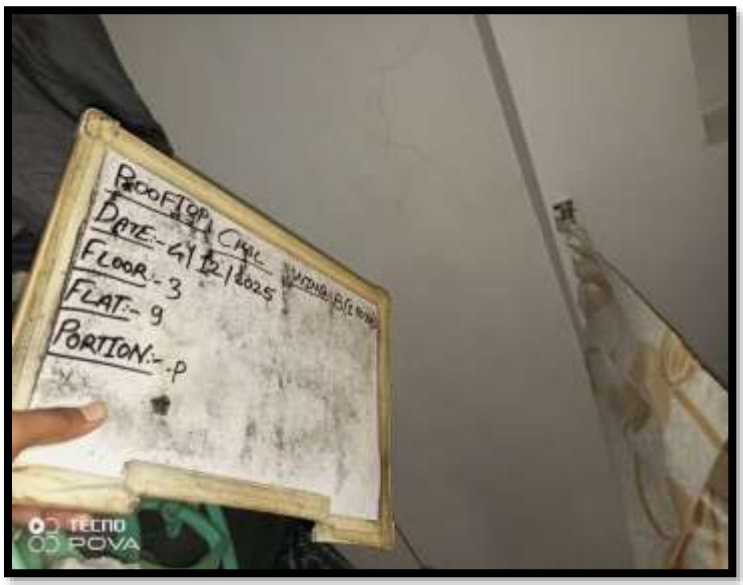

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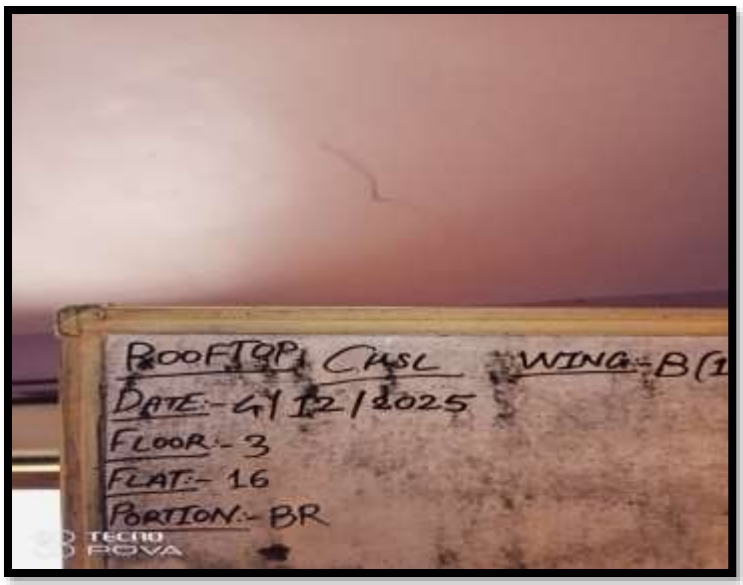

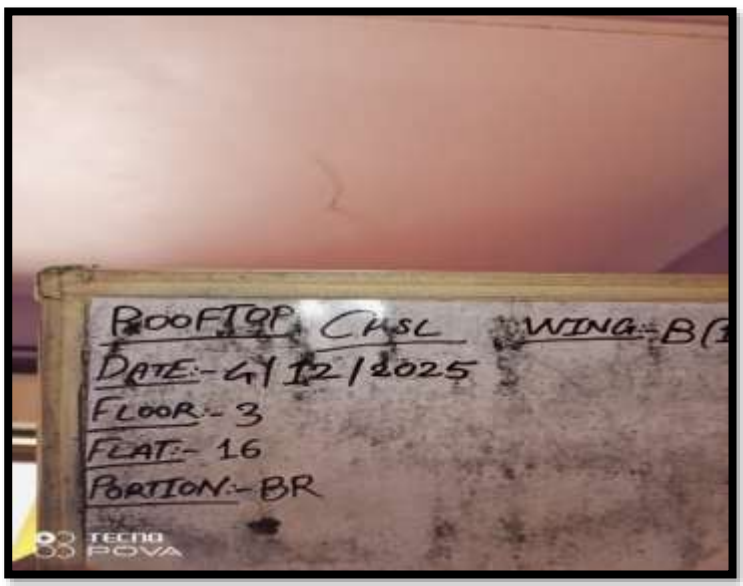

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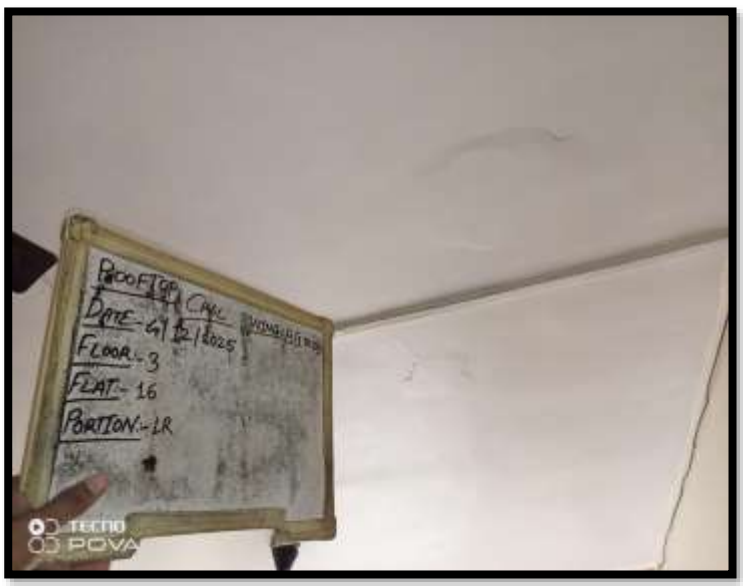

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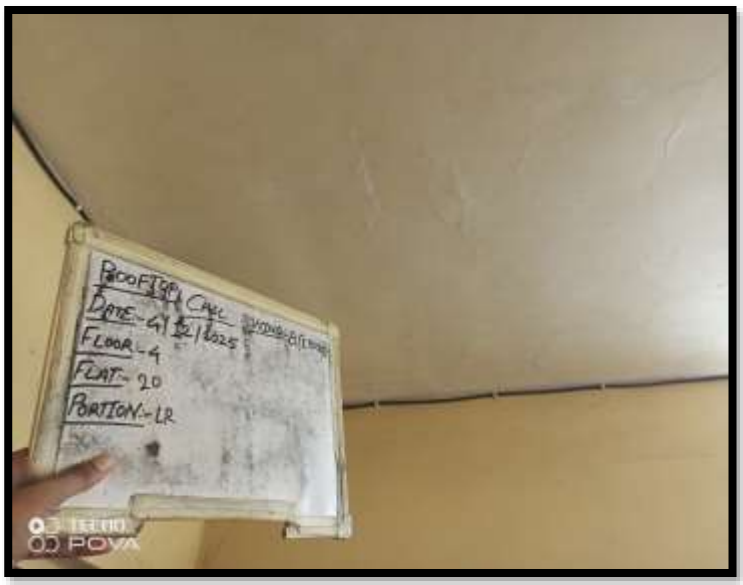

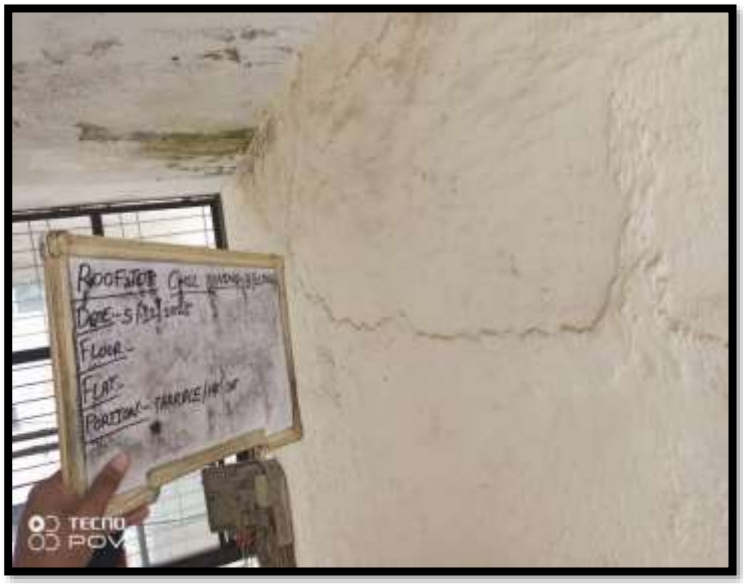

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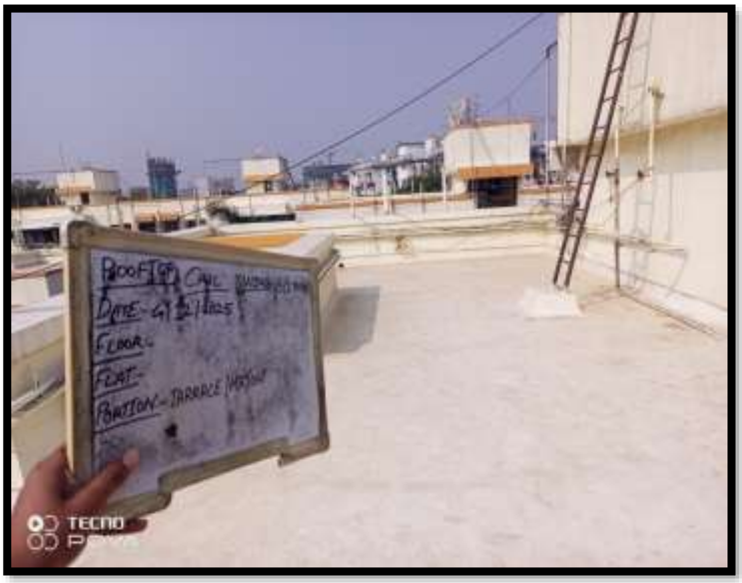
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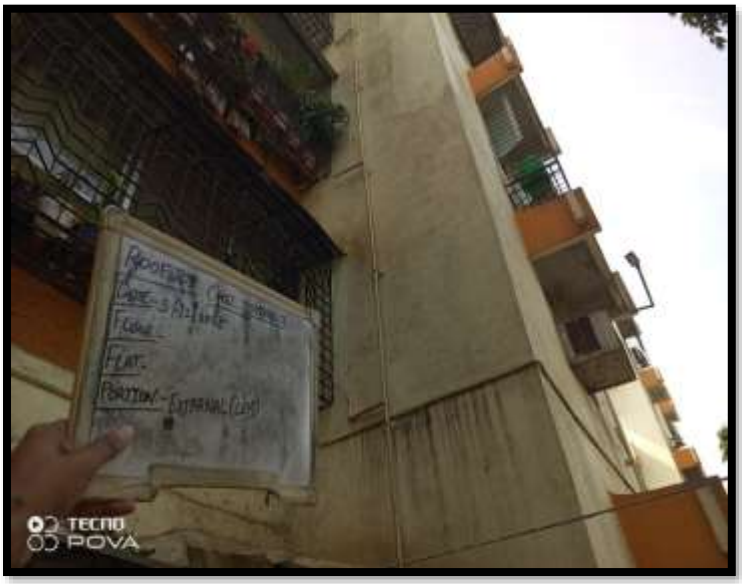
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Roof Top CHSL 03rd to 06th December, 2025

C-Wing






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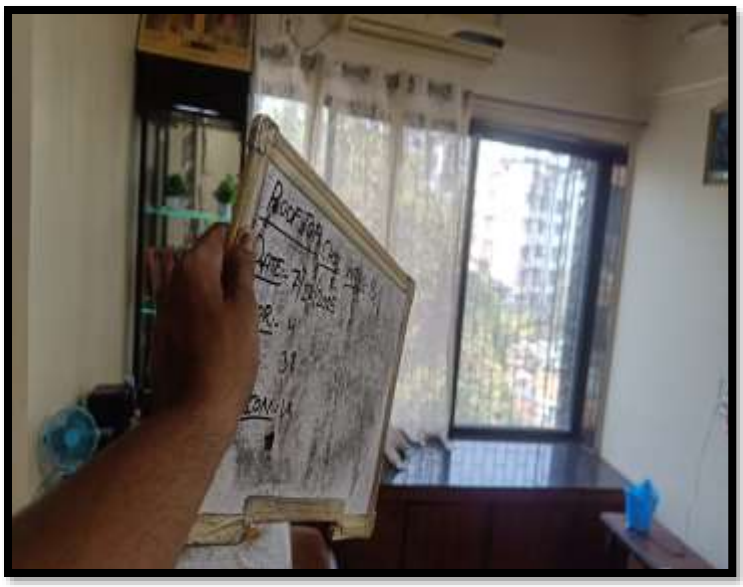




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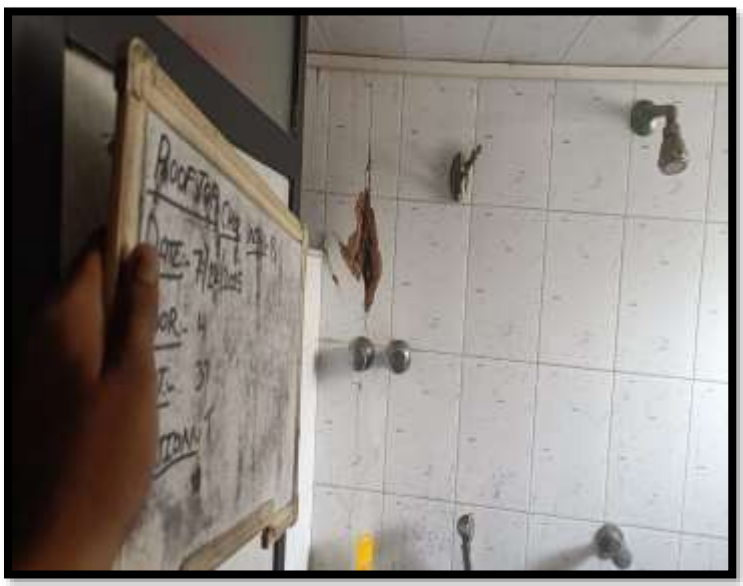
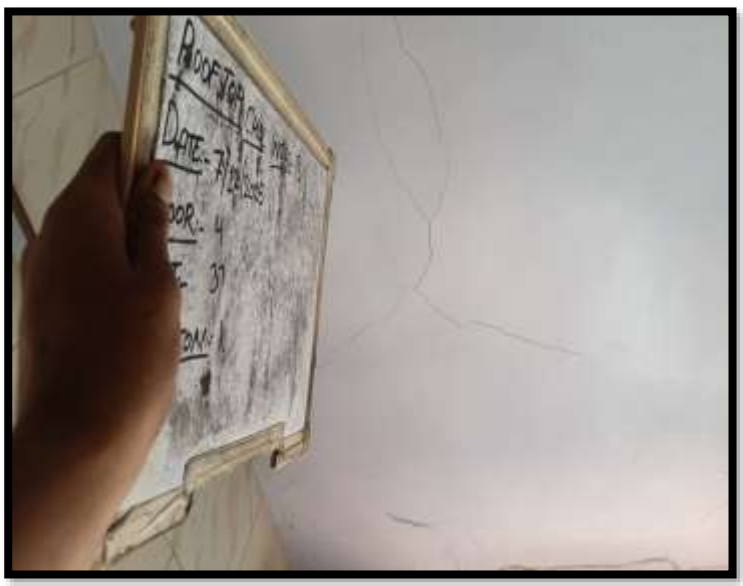

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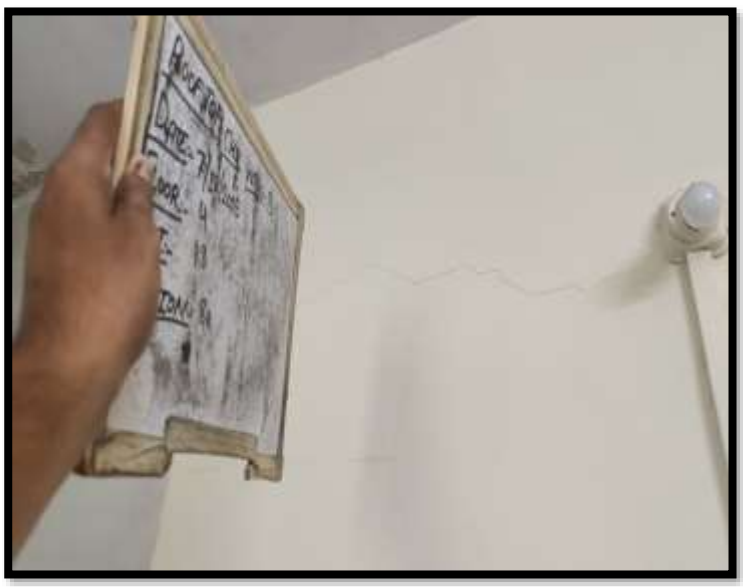

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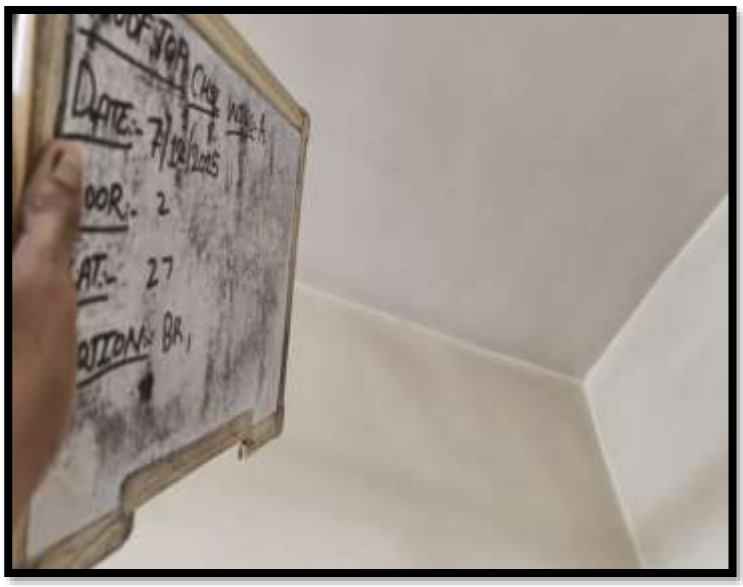

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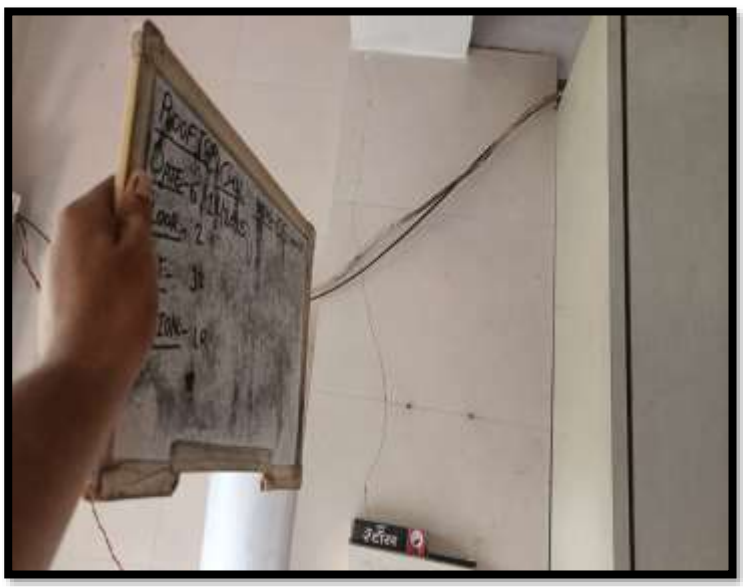
ROOF TOP CHSL
DATE- 6/12/2025
FLOOR- 2


ROOF TOP CHSL
DATE- 6/12/2025
FLOOR- 2



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ROOF TOP CHSL
DATE- 6/12/2025
FLOOR- GF
FLAT- 22
DIRECTION- P


ROOF TOP CHSL
DATE- 6/12/2025
FLOOR- 4
FLAT- 20
DIRECTION- K


ROOF TOP CHSL
DATE- 6/12/2025
FLOOR- GF
FLAT- 21
DIRECTION- LR


ROOF TOP CHSL
DATE- 6/12/2025
FLOOR- 4
FLAT- 20
DIRECTION- K


ROOF TOP CHSL
DATE- 6/12/2025
FLOOR- 4
FLAT- 20
DIRECTION- P


ROOF TOP CHSL






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ROOFTOP CHSL
FLOOR:- 2
FLAT:- 9
AUM SWEET AUM

ROOFTOP CHSL
FLOOR:- 2
FLAT:- 9

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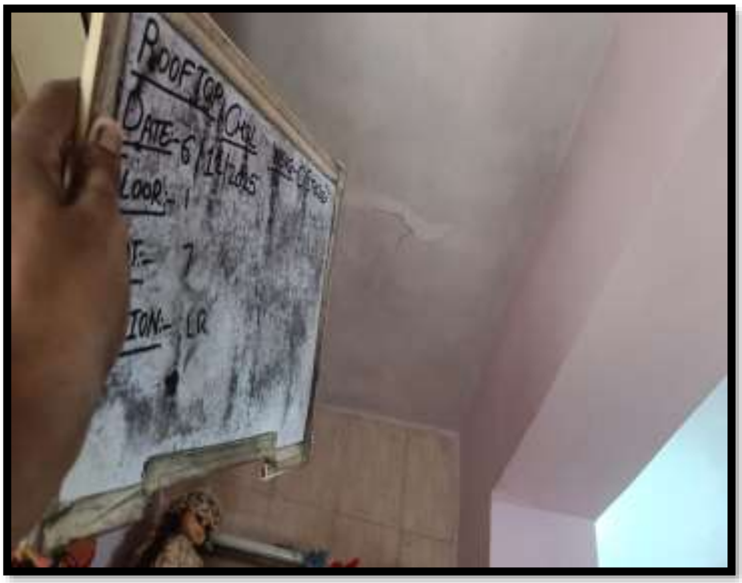
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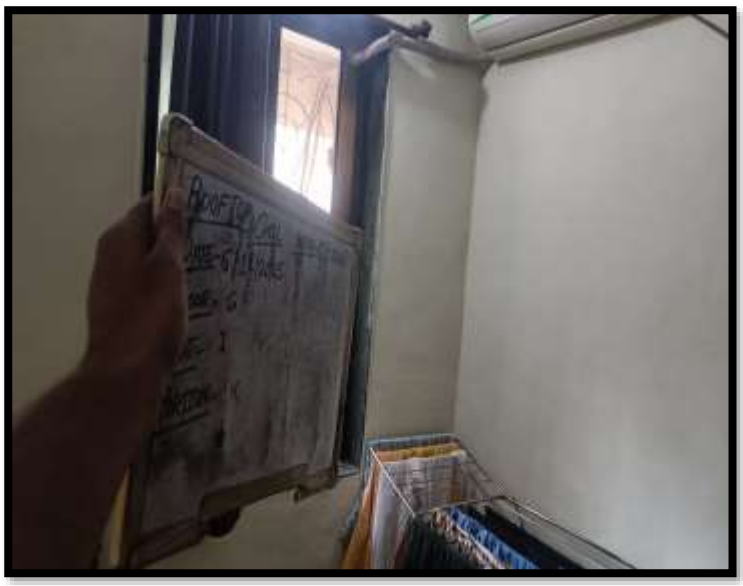

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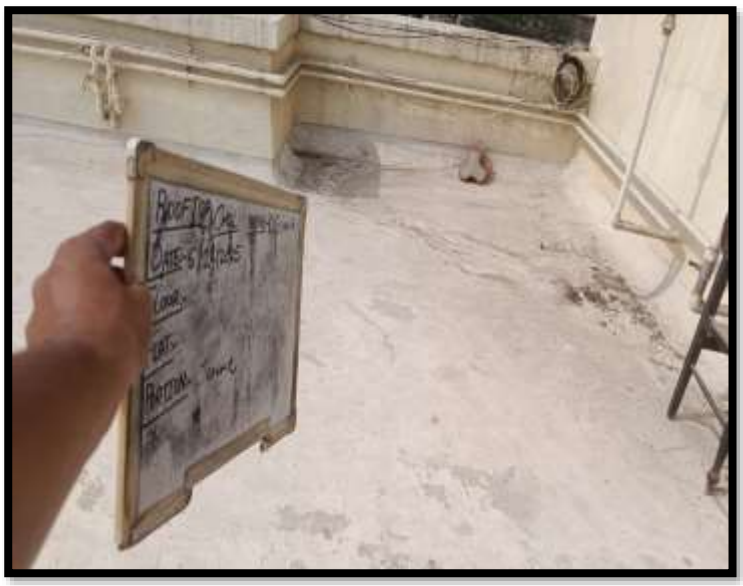

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OBSERVATION AND INFERENCES

Preliminary inspection has been carried out to find out the structural defects and leakages and seepages in the class room/offices. Also, inspection has been carried out to find out each and every damaged portion in the building that includes terrace waterproofing, chajjas, structural members (i.e., columns, beams & slabs), external plaster, overhead water tank, plumbing and painting. After detailed inspection proposed scheme of repairs has been suggested if require.

Terrace Waterproofing :-

- **The present terrace waterproofing shows chemical coating above China chips cover IPS finish on floor. The top layer shows cracks on the surface, which allows leakage of water during monsoon in many areas.**
- **The cracks indicate the waterproofing is damaged from inside and the top layer sounds hollow when tapped with hammer at many locations.**
- **The terrace parapet wall found minor plaster crack at few locations. That has cause seepage in below Rooms.**

The present condition of terrace indicates major-minor damage. The terrace area is directly open to sky and subject to temperature variation due to which any damage needs to be attended on priority basis to prevent further damage and life increase of the building structure.

Headroom :-

- **The head room found with wall plaster crack and hollow plaster on external walls and columns.**
- **The head room chajja shows structural cracks.**
- **The top layer shows cracks on the surface, which allows leakage of water during monsoon.**

Structural Members (i.e., Column, Beam & Slab) :-

Columns :-

- **These cracks may allow leakage of water into the reinforcement that corrodes the bars and consequently deteriorates the structure.**
- **It is found that in the existing structure, column found with major and minor vertical cracks and damages at many places as mentioned in the observation sheet.**
- **It is found that in the existing structure, some portion gives hollow sound that reveals deterioration of concrete in the column.**
- **The separation cracks have been observed between column and wall at few places.**
- **The external areas column found with major and minor cracks that has allowed ingress of water into the reinforcement that corrodes the reinforcement and consequently deteriorates the structure.**

The columns inside flats shows major and minor damages, cracks and hollow plaster at many places. The cracks have widened and the deterioration is increasing day by day.

Beams :-

- **Cracks have been observed in the beams are of different nature viz. tension cracks and shear cracks.**
- **At many places wall shows leakage/seepages specially the exterior portion, which has affected the beam and inside areas and hence deterioration of the structure started.**
- **Minor and major separation cracks have been found between beam and wall of which indicates improper bond between wall and beam and needs to be rectified.**
- **The beam above window found with horizontal cracks throughout which will affect window movement and window frame can damage.**

Slabs :-

- **The slab at some places shows major leakage and cracks due to structural damaged from outside.**
- **The slabs seen in distress condition with loose concrete cover and fallen concrete cover with exposed reinforcement especially as mentioned in the observation sheet.**
- **The slab surfaces inside the flats are observed with seepage marks, paint peel-off, and major/minor damage, in several areas.**
- **Dry seepage marks have been observed in loft area of bathroom and toilets.**

Chajjas :-

- **The existing chajjas above the windows of the building are observed with common seepage issues and minor cracks at several locations. Cracks and dampness are noticed at window top/chajja levels inside flats, indicating water ingress due to failure of the chajja waterproofing layer.**

Staircase area :-

- **The staircase steps are found to be in average condition. However, the staircase walls and waist slabs/soffits on some floors exhibit major/minor cracks and loose concrete observed.**
- **The overall condition of all staircase area shows minor damages & required attention to safeguard building.**

Internal : -

- **The cause of leakages is observed to be viz. external cracks, leakage.**
- **The internal areas found with major and minor cracks and damage which requires attention.**
- **It must be noted that leakages through walls have caused more damage to the structural elements of the building on continuous basis. It appears that the internal areas have not been maintained properly.**
- **Leakage from the external face of the building were observed at few places.**

The wall shows major/minor plaster crack and leakages & structural damage are mentioned in the observation sheet. To prevent internal leakage & damage, co-operation of client is very important

Plumbing :-

- **The existing drainage plumbing is of PVC system of pipes.**
- **The present loop line and down take line is of UPVC system of pipes running through the terrace parapet walls seen in average condition.**

Painting :-

- **The damaged plaster has affected the structure and internal areas. The cracks found in the plaster of walls shows seepage marks inside in many areas (especially around the windows and dead walls).**
- **The external face of the building is found with minor plaster crack. Few places found in external area (especially on the dead walls).**
- **The external face requires civil and structural repair in future on condition observed and internal inspection done to prevent future leakage and to prevent structure from further deterioration.**

Note :-

1. **The structural stability of the building is to be assessed under following constraints,**
2. **The above report is based on visual inspection only / Non-destructive test conducted on site.**
3. **In absence of design data & RCC detailed drawings "as executed"; the safety of the structure against earthquake cannot be assessed.**
4. **For obvious reasons, distress in foundation of the structure, if any cannot be assessed.**
5. **Detailed investigations if needed are to be carried out separately.**
6. **This structural Audit report has validity for 6 months. If client does not follow the procedure/ recommendation within 6 months then M/s. Arvind Singh Consultants is not responsible for any mishap/ accident at site.**
7. **The responsibility of building lies totally with client after 6 months of structural audit report**

The overall condition of the building indicates major/minor structural deterioration and poor maintenance. At many locations, structural members have developed major and minor cracks, concrete spalling, and reinforcement exposure. In addition, leakage issues, are observed at the time of inspection of the building, which will further contributed to the weakening of the structure. The continuous water penetration and lack of timely repairs have accelerated corrosion in RCC members, leading to loss of bonding between steel and concrete. The building has reached a stage where it requires civil and structural repairs recommended to ensure safety and avoid any potential risk to the occupants and surrounding area.

4. INTERNAL OBSERVATIONS

- **Internal flats observation :-**

Flat No	Observation
	'A' Wing
1	**Living Room :- Column seen in distress condition. (Covered with False Ceiling)** **Balcony :- No major distress is seen.** **Dining :- No major distress is seen. (Covered with False Ceiling)** **Passage:- Minor ceiling cracks seen.** **Kitchen:- No major distress is seen.** **Bedroom :- Minor ceiling cracks and dampness seen.** **Bedroom 1 :- No major distress is seen.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
2	**Living Room :- Column cracks seen near door. Ceiling distress and bulge seen.** **Balcony :- Ceiling seen in distress condition and rusted reinforcement seen. Beam distress seen above window.** **Dining :- Column cracks and hollow plaster seen. Ceiling distress and bulge seen.** **Passage:- Ceiling distress and bulge seen. Beam distress seen in loft area.** **Kitchen:- Ceiling cracks and bulge seen.** **Bedroom :- Ceiling seen in distress condition and beam cracks seen above window.** **Bedroom 1 :- Ceiling distress seen above cupboard.** **Balcony :- Ceiling distress and beam cracks seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
3	**Living Room :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **Dining :- No major distress is seen. (Covered with False Ceiling)** **Passage:- Beam cracks seen above bedroom door.** **Kitchen:- Beam seen in distress condition and tiles cracks seen above window. Minor ceiling cracks seen.** **Bedroom :- Beam cracks seen above window. Wall dampness seen near window. (Covered with False Ceiling)** **Bedroom 1 :- Ceiling distress and rusted reinforcement seen above cupboard.** **Balcony :- Wall cracks seen below window.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
4	**Living Room :- Column distress seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **Dining :- No major distress is seen. (Covered with False Ceiling)** **Passage:- Beam cracks seen.** **Kitchen:- No major distress is seen. (Covered with False Ceiling)**

	Bedroom :- No major distress is seen. (Covered with False Ceiling) **Bedroom 1 :- Column distress seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
5	**Living Room :- Beam cracks seen.** **Balcony :- Beam cracks seen above window.** **Dining :- No major distress is seen.** **Passage:- Beam distress and rusted reinforcement seen in loft area. Ceiling cracks seen.** **Kitchen:- Ceiling cracks and bulge seen.** **Bedroom :- Minor ceiling cracks seen.** **Bedroom 1 :- No major distress is seen.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
6	**Living Room :-No major distress is seen.** **Balcony :- No major distress is seen.** **Dining :- No major distress is seen.** **Passage :- Minor ceiling cracks seen.** **Kitchen :- Ceiling dampness seen.** **Bedroom :-No major distress is seen.** **Bedroom 1 :- No major distress is seen.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
7	**Living Room :-No major distress is seen.** **Balcony :- Ceiling cracks and bulge seen.** **Dining :- Flooring tiles seen uneven.** **Passage :- Minor ceiling cracks seen. Beam cracks seen above kitchen door.** **Kitchen :- Ceiling dampness seen. Ceiling seen in distress condition above door.** **Bedroom :- Beam distress seen above window. Ceiling cracks seen.** **Bedroom 1 :- No major distress is seen.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
8	**Living Room :-Column seen in distress condition.** **Balcony :- No major distress is seen.** **Dining :- No major distress is seen.** **Passage :- Beam cracks seen in loft.** **Kitchen :- Ceiling cracks and bulge seen.** **Bedroom :-Beam seen in distress condition above window. Flooring tiles seen uneven and ceiling cracks seen.** **Bedroom 1 :- Beam distress seen. Ceiling cracks seen above door.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**

9	**Living Room :- Column seen in distress condition.** **Balcony :- Beam distress and tiles cracks seen above window. Ceiling distress and wall dampness seen.** **Dining :- Beam and ceiling cracks seen.** **Passage :- Beam seen in distress condition in loft area. Ceiling distress and bulge seen.** **Kitchen :- Beam distress seen above window. Ceiling cracks and paint peel-off seen.** **Bedroom :- Ceiling cracks and bulge seen above cupboard. Flooring tiles seen uneven near door.** **Bedroom 1 :- Ceiling cracks and bulge seen. Flooring tiles seen uneven near door.** **Balcony :- Beam and ceiling seen in distress condition.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
10	**Living Room :-No major distress is seen.** **Balcony :- No major distress is seen.** **Dining :- No major distress is seen.** **Passage :- Ceiling seen in distress condition and rusted reinforcement seen.** **Kitchen :- Beam and ceiling cracks seen.** **Bedroom :- Beam cracks and wall dampness seen. Flooring tiles seen uneven. Wall dampness seen.** **Bedroom 1 :- No major distress is seen.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
11	**Living Room :- Wall dampness seen near window. (Covered with False Ceiling)** **Balcony :- Ceiling dampness seen.** **Dining :- No major distress is seen. (Covered with False Ceiling)** **Passage :- No major distress is seen.** **Kitchen :- Ceiling cracks and dampness seen.** **Bedroom :- Beam and ceiling seen in distress condition. Flooring tiles seen uneven near door.** **Bedroom 1 :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- Beam seen in distress condition above window. (Covered with False Ceiling)** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
12	**Living Room :-Column distress and beam cracks seen.** **Balcony :- Ceiling cracks seen.** **Dining :- Beam seen in distress condition.** **Passage :- Column and beam cracks seen.** **Kitchen :- Beam cracks seen.** **Bedroom :- Beam and ceiling cracks seen.** **Bedroom 1 :- Column seen in distress condition. Flooring tiles seen uneven and ceiling cracks seen.** **Balcony :- No major distress is seen.**

	WC :- No major distress is seen. **Bath :- No major distress is seen.**
13	**Living Room :- Flooring tiles seen uneven near window. (Covered with False Ceiling)** **Balcony :- No major distress is seen.** **Dining :- Flooring tiles seen uneven.** **Passage :- No major distress is seen.** **Kitchen :- No major distress is seen.** **Bedroom :- No major distress is seen.** **Bedroom 1 :- Column sounds hollow plaster seen near window. Flooring tiles seen uneven.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
14	**Living Room :- Column sounds hollow near window. Minor ceiling cracks seen.** **Balcony :- Minor ceiling cracks seen.** **Dining :- Minor ceiling cracks seen.** **Passage :- Ceiling cracks and bulge seen.** **Kitchen :- Ceiling cracks and bulge seen.** **Bedroom :- Column cracks seen near door. Construction joint cracks seen.** **Bedroom 1 :- Closed.** **Balcony :- Minor ceiling cracks seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
15	**Living Room :- Column seen in distress condition and beam cracks seen. Wall dampness seen behind sofa.** **Balcony :- Ceiling dampness seen.** **Dining :- Beam and ceiling seen in distress condition. Beam cracks and bulge seen.** **Passage :- No major distress is seen.** **Kitchen :- Ceiling distress and bulge seen.** **Bedroom :- Beam cracks seen above door. Minor ceiling cracks seen.** **Bedroom 1 :- Beam seen in distress condition and column cracks seen near door. Flooring tiles seen uneven and ceiling cracks and dampness seen.** **Balcony :- Ceiling dampness seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
16	**Living Room :- Minor column cracks seen. Wall cracks and loose plaster seen above TV.** **Balcony :- Ceiling distress and bulge seen.** **Dining :- Beam distress and ceiling dampness seen.** **Passage :- Minor ceiling cracks and dampness seen.** **Kitchen :- Minor ceiling cracks seen.** **Bedroom :- No major distress is seen.** **Bedroom 1 :- Column distress and hollow plaster seen. Flooring tiles seen uneven.** **Balcony :- No major distress is seen.**

	WC :- No major distress is seen. **Bath :- No major distress is seen.**
17	**Living Room :- Column seen in distress condition.** **Balcony :- Minor beam cracks seen.** **Dining :- Column cracks seen.** **Passage :- Ceiling and beam distress in loft area.** **Kitchen :- Ceiling cracks and bulge seen.** **Bedroom :- Minor wall dampness seen in corner.** **Bedroom 1 :- No major distress is seen.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
18	**Living Room :- Column cracks seen near door. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **Dining :- Minor column cracks seen. (Covered with False Ceiling)** **Passage :- Beam cracks and ceiling dampness seen.** **Kitchen :- Ceiling cracks and bulge seen. Ceiling dampness seen.** **Bedroom :- No major distress is seen.** **Bedroom 1 :- Column seen in distress condition near door and balcony.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
19	**Living Room :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **Dining :- Column cracks seen in corner. (Covered with False Ceiling)** **Passage :- Beam cracks seen above kitchen door.** **Kitchen :- Column distress and tiles cracks seen behind refrigerator.** **Bedroom :- Ceiling cracks seen.** **Bedroom 1 :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
20	**Living Room :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- Wall dampness seen near window. (Covered with False Ceiling)** **Dining :- No major distress is seen. (Covered with False Ceiling)** **Passage :- Beam cracks seen above kitchen door. (Covered with False Ceiling)** **Kitchen :- No major distress is seen. (Covered with False Ceiling)** **Bedroom :- Beam seen in distress condition above door and window. (Covered with False Ceiling)** **Bedroom 1 :- Column seen in distress condition near cupboard. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
21	**Living Room :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **Dining :- No major distress is seen. (Covered with False Ceiling)**

	Passage :- Beam and ceiling seen in distress condition and rusted reinforcement seen. Column distress seen. **Kitchen :- Beam and ceiling seen in distress condition.** **Bedroom :- No major distress is seen. (Covered with False Ceiling)** **Bedroom 1 :- Column and ceiling seen in distress condition. Flooring tiles seen uneven.** **Balcony :- Ceiling distress and bulge seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
22	**Living Room :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- Wall dampness seen in corner. (Covered with False Ceiling)** **Dining :- No major distress is seen. (Covered with False Ceiling)** **Passage :- Minor ceiling cracks seen.** **Kitchen :- Ceiling cracks seen.** **Bedroom :- Beam cracks seen above window. Ceiling cracks seen.** **Bedroom 1 :- No major distress is seen.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
23	**Closed.**
24	**Living Room :- Repairs in process.** **Balcony :- Repairs in process.** **Dining :- Repairs in process.** **Passage :- No major distress is seen.** **Kitchen :- No major distress is seen.** **Bedroom :- Beam cracks seen above window. Minor ceiling cracks seen.** **Bedroom 1 :- Ceiling distress and bulge seen.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
25	**Living Room :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- Wall dampness seen in corner. (Covered with False Ceiling)** **Dining :- No major distress is seen. (Covered with False Ceiling)** **Passage :- Flooring tiles seen uneven.** **Kitchen :- No major distress is seen. (Covered with False Ceiling)** **Bedroom :- No major distress is seen. (Covered with False Ceiling)** **Bedroom 1 :- Construction joint cracks seen and flooring tiles seen uneven. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
26	**Living Room :- Minor column cracks seen. (Covered with False Ceiling)** **Balcony :- Wall dampness seen. (Covered with False Ceiling)** **Dining :- No major distress is seen. (Covered with False Ceiling)** **Passage :- Minor ceiling cracks and dampness seen.** **Kitchen :- Minor ceiling cracks and dampness seen.** **Bedroom :- Minor ceiling cracks and dampness seen.** **Bedroom 1 :- No major distress is seen. (Covered with False Ceiling)**

	Balcony :- Ceiling cracks and bulge seen. **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
27	**Living Room :- No major distress is seen..** **Balcony :- Beam cracks seen above window.** **Dining :- Wall cracks seen.** **Passage :- Beam and ceiling cracks seen.** **Kitchen :- No major distress is seen.** **Bedroom :- Beam cracks seen.** **Bedroom 1 :- Beam and ceiling cracks seen near window.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
28	**Closed.**
29	**Living Room :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **Dining :- No major distress is seen. (Covered with False Ceiling)** **Passage :- Flooring tiles seen uneven.** **Kitchen :- Ceiling cracks seen.** **Bedroom :- Wall cracks and dampness seen near window. (Covered with False Ceiling)** **Bedroom 1 :- Column seen in distress condition near balcony. Flooring tiles seen uneven near door.** **Balcony :- Flooring tiles seen uneven.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
30	**Living Room :- No major distress is seen.** **Balcony :- No major distress is seen.** **Dining :- No major distress is seen.** **Passage :- No major distress is seen.** **Kitchen :- Beam seen in distress condition and tiles cracks seen. Ceiling cracks and dampness seen above window. Flooring tiles seen uneven.** **Bedroom :- No major distress is seen.** **Bedroom 1 :- Ceiling cracks and dampness seen. Flooring tiles seen uneven.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
31	**Living Room :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **Dining :- No major distress is seen. (Covered with False Ceiling)** **Passage :- Minor ceiling cracks seen.** **Kitchen :- Ceiling cracks seen.** **Bedroom :- No major distress is seen.** **Bedroom 1 :- Minor ceiling cracks on repaired patches.** **Balcony :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
32	**Living Room :- No major distress is seen. (Covered with False Ceiling)**

	Balcony :- No major distress is seen. (Covered with False Ceiling) **Dining :- No major distress is seen. (Covered with False Ceiling)** **Passage :- No major distress is seen.** **Kitchen :- Minor ceiling cracks seen.** **Bedroom :- Wall cracks seen in corner.** **Bedroom 1 :- Column cracks seen near balcony. Beam cracks seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
'B' Wing	
1	**Living Room :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **Passage :- Column seen in distress condition and tiles cracks seen. Beam cracks seen in loft area.** **Kitchen :- Ceiling cracks seen.** **Bedroom :- Ceiling distress and bulge seen above door.** **WC :- Ceiling dampness seen.** **Bath :- No major distress is seen.**
2	**Living Room :- Beam seen in distress condition above passage door and near balcony.** **Balcony :- Ceiling cracks and bulge seen.** **Passage :- Beam distress and tiles cracks seen in loft area.** **Kitchen :- Column and beam seen distress and tiles cracks. Ceiling distress and bulge seen.** **Bedroom :- Ceiling cracks and bulge seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
3	**Closed.**
4	**Living Room :- Minor column cracks seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **Passage :- No major distress is seen.** **Kitchen :- No major distress is seen. (Covered with False Ceiling and PVC Panels)** **Bedroom :- No major distress is seen. (Covered with False Ceiling and PVC Panels)** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
5	**Living Room :- Flooring tiles seen uneven near passage door.** **Balcony :- Beam and ceiling cracks seen.** **Passage :- No major distress is seen.** **Kitchen :- Column and beam seen in distress condition and tiles cracks. Ceiling cracks seen.** **Bedroom :- Beam cracks seen above window. Ceiling cracks and bulge seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
6	**Living Room :- No major distress is seen.** **Balcony :- Flooring tiles seen uneven. (Covered with False Ceiling)**

	Passage :- No major distress is seen. **Kitchen :- Beam cracks seen.** **Bedroom :- No major distress is seen. (Covered with False Ceiling)** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
7	**Living Room :- No major distress is seen.** **Balcony :- No major distress is seen.** **Passage :- No major distress is seen.** **Kitchen :- Flooring tiles seen uneven near door.** **Bedroom :- Ceiling cracks and bulge seen. Flooring tiles seen uneven near window.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
8	**Living Room :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen.** **Passage :- Beam distress and tiles cracks seen above bedroom door.** **Kitchen :- Ceiling distress and bulge seen.** **Bedroom :- Ceiling cracks and bulge seen above window. Beam tiles cracks seen above window. Flooring tiles seen uneven near cupboard.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
9	**Living Room :- No major distress is seen.** **Balcony :- Wall and ceiling cracks seen.** **Passage :- Ceiling cracks seen.** **Kitchen :- Beam distress seen and tiles cracks above window.** **Bedroom :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
10	**Living Room :- No major distress is seen.** **Balcony :- No major distress is seen.** **Passage :- No major distress is seen.** **Kitchen :- No major distress is seen.** **Bedroom :- Minor beam cracks seen above window.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
11	**Living Room :- Ceiling cracks and bulge seen. Beam seen in distress condition. Flooring tiles seen uneven near passage door.** **Balcony :- Beam cracks seen above window. Flooring tiles seen uneven and ceiling cracks seen.** **Passage :- Beam distress seen above bedroom door and in loft area. Ceiling distress and rusted reinforcement seen in loft.** **Kitchen :- Column cracks and sound hollow near door.** **Bedroom :- Ceiling cracks and bulge seen. Flooring tiles seen uneven.** **WC :- No major distress is seen.** **Bath :- Ceiling cracks seen.**
12	**Living Room :- No major distress is seen.** **Balcony :- Beam seen in distress condition above window. Wall cracks and loose plaster seen near window.**

	Passage :- Ceiling cracks and bulge seen above bedroom door. Beam distress seen in loft. **Kitchen :- Beam seen in distress condition above window. Sunk slab cracks seen.** **Bedroom :- Ceiling cracks and bulge seen. Beam distress seen above window.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
13	**Living Room :- No major distress is seen.** **Balcony :- No major distress is seen.** **Passage :- No major distress is seen.** **Kitchen :- Beam cracks seen above window.** **Bedroom :- Ceiling cracks seen. Flooring tiles seen uneven.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
14	**Living Room :- Beam distress seen above passage door and near balcony. Flooring tiles seen uneven near passage door.** **Balcony :- No major distress is seen.** **Passage :- No major distress is seen.** **Kitchen :- No major distress is seen.** **Bedroom :- Ceiling distress and bulge seen in corner. Beam cracks seen above window.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
15	**Living Room :- No major distress is seen.** **Balcony :- No major distress is seen.** **Passage :- Ceiling cracks and dampness seen. Beam cracks seen in loft** **Kitchen :- No major distress is seen.** **Bedroom :- Wall dampness seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
16	**Living Room :- Column sound hollow near balcony. Ceiling cracks and bulge seen above passage door.** **Balcony :- Ceiling cracks and bulge seen.** **Passage :- Ceiling distress and rusted reinforcement seen in loft. Beam and ceiling cracks seen.** **Kitchen :- Ceiling seen in distress condition and loose concrete seen. Beam cracks seen.** **Bedroom :- Ceiling distress and bulge seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
17	**Closed.**
18	**Living Room :- Beam and ceiling cracks seen.** **Balcony :- Ceiling cracks seen.** **Passage :- Beam and ceiling cracks seen.** **Kitchen :- Beam and ceiling cracks seen.** **Bedroom :- Beam and ceiling cracks seen.** **WC :- No major distress is seen.**

	Bath :- No major distress is seen.
19	**Closed.**
20	**Living Room :- Ceiling cracks and dampness seen. Wall and beam cracks seen.** **Balcony :- Ceiling seen in distress condition.** **Passage :- Beam seen in distress condition. Ceiling cracks and bulge seen.** **Kitchen :- Column seen in distress condition and tiles cracks seen. Ceiling cracks and bulge seen.** **Bedroom :- Ceiling seen in distress condition above window. Ceiling cracks and dampness seen.** **WC :- Ceiling tiles cracks seen.** **Bath :- Ceiling tiles cracks seen.**
21	**Living Room :- Column seen in distress condition near sofa and balcony. Wall shows dry leakage patches and loose plaster seen above tiles.** **Balcony :- Wall dampness seen near window.** **Passage :- Column seen in distress condition near bedroom door. Beam cracks and ceiling dampness seen in loft. Wall dampness seen near WC door.** **Kitchen :- Beam seen in distress condition and tiles cracks seen. Column distress and tiles cracks seen near door.** **Bedroom :- Beam distress and tiles cracks seen above window. Ceiling cracks and dampness seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
22	**Living Room :- Column seen in distress condition near main door and passage door. Beam cracks seen above passage door. Beam cracks seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen.** **Passage :- No major distress is seen.** **Kitchen :- Beam seen in distress condition and tiles cracks seen.** **Bedroom :- No major distress is seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
23	**Living Room :- Column cracks seen near main door and balcony. Beam seen distress condition and ceiling dampness seen.** **Balcony :- Ceiling distress and bulge seen. Wall cracks and loose plaster seen.** **Passage :- Beam and ceiling seen in distress condition. Ceiling seen in distress condition and rusted reinforcement seen in loft.** **Kitchen :- Beam seen in distress condition and tiles cracks seen. Column distress and tiles cracks seen near door.** **Bedroom :- Ceiling cracks and bulge seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
24	**Living Room :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- No major distress is seen. (Covered with False Ceiling)** **Passage :- No major distress is seen.** **Kitchen :- Beam distress and tiles cracks seen.**

	Bedroom :- Wall tiles cracks seen near window. **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
25	**Living Room :- No major distress is seen.** **Balcony :- Minor beam cracks seen above window.** **Passage :- Beam and ceiling seen in distress condition. Column cracks seen near kitchen door.** **Kitchen :- Beam distress and tiles cracks seen above window. Column distress and tiles cracks seen. Ceiling distress and bulge seen.** **Bedroom :- Ceiling distress and bulge seen in corner. Beam distress seen above window. Wall dampness seen during monsoon.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
26	**Living Room :- No major distress is seen. (Covered with False Ceiling)** **Balcony :- Wall and beam cracks seen. (Covered with False Ceiling)** **Passage :- Ceiling dampness seen in loft.** **Kitchen :- Column cracks seen.** **Bedroom :- Wall cracks and dampness seen near window. Ceiling cracks and bulge seen.** **WC :- Ceiling cracks and bulge seen.** **Bath :- Ceiling cracks and bulge seen.**
27	**Living Room :- Ceiling cracks and bulge seen.** **Balcony :- Ceiling cracks and bulge seen.** **Passage :- Ceiling cracks seen.** **Kitchen :- Beam seen in distress condition above window and in corner. Ceiling distress and bulge seen.** **Bedroom :- Wall dampness seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
28	**Closed.**
29	**Living Room :- No major distress is seen.** **Balcony :- No major distress is seen.** **Passage :- Ceiling distress seen in loft area.** **Kitchen :- No major distress is seen.** **Bedroom :- Ceiling cracks and bulge seen. Wall dampness seen.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
30	**Living Room :- Ceiling cracks and bulge. Beam cracks seen.** **Balcony :- No major distress is seen.** **Passage :- Beam and ceiling seen in distress condition.** **Kitchen :- Beam distress and tiles cracks seen above sink.** **Bedroom :- Wall and ceiling dampness seen during monsoon.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
31	**Living Room :- No major distress is seen** **Balcony :- Beam distress seen above window. Ceiling dampness seen above window.** **Passage :- Flooring tiles seen uneven.**

	Kitchen :- Ceiling cracks and bulge seen. Beam cracks seen above door. **Bedroom :- Ceiling cracks and bulge.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
32	**Living Room :- Beam cracks seen above passage door.** **Balcony :- Beam cracks seen above window.** **Passage :- No major distress is seen.** **Kitchen :- Ceiling dampness seen. Beam distress and tiles cracks seen above window. Column distress and tiles cracks seen behind refrigerator.** **Bedroom :- Ceiling cracks and bulge seen near door. Beam distress and tiles cracks above window..** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
33	**Living Room :- No major distress is seen. (Covered with Wall Paper)** **Balcony :- Wall and beam cracks seen. (Covered with Wall Paper)** **Passage :- Column distress seen near kitchen door. Beam distress and minor ceiling cracks seen.** **Kitchen :- Column distress and tiles cracks seen. Beam distress and tiles cracks seen above window. Ceiling distress and bulge seen.** **Bedroom :- Beam distress seen above window. Ceiling cracks and bulge seen.** **WC :- Ceiling cracks seen.** **Bath :- Ceiling cracks seen.**
34	**Living Room :- Column seen in distress condition near balcony and passage door. Ceiling distress and bulge seen. Flooring tiles seen uneven.** **Balcony :- Ceiling cracks and bulge seen.** **Passage :- Ceiling distress and rusted reinforcement seen.** **Kitchen :- Beam distress rusted reinforcement seen. Ceiling distress and bulge seen.** **Bedroom :- Beam distress seen above window. Ceiling cracks and bulge seen.** **WC :- Ceiling cracks and bulge seen.** **Bath :- Ceiling cracks and bulge seen.**
35	**Living Room :- Wall and ceiling dampness seen. Ceiling cracks and bulge seen.** **Balcony :- Ceiling distress and bulge seen.** **Passage :- Ceiling cracks and dampness seen. Wall dampness seen.** **Kitchen :- Column seen in distress condition near door.** **Bedroom :- Closed** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**
36	**Living Room :- Ceiling cracks and bulge seen.** **Balcony :- Closed** **Passage :- Beam seen in distress condition.** **Kitchen :- Wall dampness seen.** **Bedroom :- Beam cracks seen above window.** **WC :- No major distress is seen.** **Bath :- No major distress is seen.**

37	**Living Room :- No major distress is seen. Balcony :- Beam cracks seen above window. Passage :- No major distress is seen. Kitchen :- Column and ceiling cracks seen. Bedroom :- Beam and ceiling cracks seen. WC :- No major distress is seen. Bath :- No major distress is seen.**
38	**Living Room :- No major distress is seen. Balcony :- No major distress is seen. Passage :- Beam cracks seen. Kitchen :- Column cracks seen near window. Bedroom :- Ceiling cracks and bulge seen. WC :- No major distress is seen. Bath :- No major distress is seen.**
39	**Living Room :- Wall dampness seen near passage door. Balcony :- Beam distress seen. Passage :- Ceiling cracks seen. Kitchen :- No major distress is seen. Bedroom :- Ceiling cracks and bulge seen. Wall cracks and dampness seen near window. WC :- No major distress is seen. Bath :- No major distress is seen.**
40	**Living Room :- No major distress is seen. Balcony :- Beam and ceiling cracks seen. Passage :- Ceiling cracks seen. Beam cracks seen. Kitchen :- Closed. Bedroom :- Ceiling cracks and bulge seen. Wall dampness seen. Beam cracks seen above window. WC :- No major distress is seen. Bath :- No major distress is seen.**
‘C’ Wing	
1	**Living Room :- Ceiling dampness and column cracks seen. Passage :- No major distress is seen. Kitchen :- No major distress is seen. WC/Bath :- No major distress is seen.**
2	**Closed.**
3	**Living Room :- No major distress is seen. Passage :- Ceiling cracks and bulge seen. Beam cracks seen. Kitchen :- Beam cracks seen above window. Ceiling cracks seen. WC/Bath :- No major distress is seen.**
4	**Living Room :- Column and ceiling cracks seen. Beam cracks seen. Passage :- Ceiling cracks and bulge seen. Beam cracks seen. Kitchen :- Beam cracks seen above window. Ceiling cracks and bulge seen. WC/Bath :- No major distress is seen.**
5	**Living Room :- Column and beam cracks seen. Wall cracks seen. Balcony :- Ceiling distress and rusted reinforcement seen. Passage :- Ceiling cracks seen. Kitchen :- Beam cracks seen near window.**

	WC/Bath :- Ceiling cracks seen.
6	**Living Room :- Ceiling cracks seen.** **Passage :- Beam cracks and ceiling dampness seen.** **Kitchen :- Beam cracks seen. Ceiling cracks and dampness seen.** **WC/ Bath :- Ceiling dampness seen.**
7	**Living Room :- Ceiling cracks and bulge seen. Beam cracks seen.** **Balcony :- Ceiling cracks seen.** **Passage :- Beam cracks seen.** **Kitchen :- Beam cracks seen above window.** **WC/ Bath :- No major distress is seen.**
8	**Living Room :- Column and beam cracks seen. Flooring tiles seen uneven.** **Passage :- Beam cracks and ceiling dampness seen.** **Kitchen :- Ceiling cracks and bulge seen.** **WC/ Bath :- No major distress is seen.**
9	**Living Room :- Beam cracks seen above window. Wall cracks seen.** **Passage :- Ceiling seen in distress condition.** **Kitchen :- Beam and ceiling cracks seen.** **WC/ Bath :- No major distress is seen.**
10	**Living Room :- Column cracks seen near door. Ceiling cracks seen.** **Passage :- No major distress is seen.** **Kitchen :- Beam seen in distress condition above window. Wall cracks and dampness seen.** **WC/ Bath :- Ceiling cracks seen.**
11	**Living Room :- No major distress is seen.** **Balcony :- Beam and ceiling cracks seen.** **Passage :- Ceiling cracks and bulge seen.** **Kitchen :- Ceiling cracks and bulge seen.** **WC/ Bath :- No major distress is seen.**
12	**Living Room :- Column and ceiling cracks seen.** **Passage :- Ceiling seen in distress condition.** **Kitchen :- Ceiling cracks seen.** **WC/ Bath :- No major distress is seen.**
13	**Closed.**
14	**Living Room :- No major distress is seen.** **Passage :- No major distress is seen.** **Kitchen :- No major distress is seen.** **WC/ Bath :- No major distress is seen.**
15	**Living Room :- Column and beam cracks seen. Ceiling cracks seen.** **Passage :- Ceiling dampness seen.** **Kitchen :- No major distress is seen.** **WC/ Bath :- No major distress is seen.**
16	**Living Room :- Ceiling cracks seen.** **Passage :- Beam and ceiling seen in distress condition. Ceiling cracks seen.** **Kitchen :- No major distress is seen.** **WC/ Bath :- No major distress is seen.**
17	**Living Room :- No major distress is seen.** **Passage :- Ceiling seen in distress condition. Beam cracks and flooring tiles seen uneven.**

	Kitchen :- Beam and ceiling cracks seen. **WC/ Bath :- No major distress is seen.**
18	**Living Room :- Beam and wall cracks seen.** **Passage :- Ceiling cracks seen.** **Kitchen :- Ceiling cracks seen above.** **WC/ Bath :- No major distress is seen.**
19	**Living Room :- Column cracks seen.** **Passage :- No major distress is seen.** **Kitchen :- No major distress is seen.** **WC/ Bath :- No major distress is seen.**
20	**Living Room :- Ceiling cracks and bulge seen. Beam and wall cracks seen.** **Passage :- Beam and ceiling cracks seen.** **Kitchen :- Beam cracks seen above window. Ceiling cracks seen.** **WC/ Bath :- Ceiling cracks and bulge seen.**
21	**Living Room :- Beam seen in distress condition.** **Passage :- Beam seen in distress condition.** **Kitchen :- No major distress is seen.** **WC/ Bath :- No major distress is seen.**
22	**Living Room :- Ceiling cracks seen.** **Balcony :- Beam and ceiling cracks seen.** **Passage :- Beam seen in distress condition. Ceiling cracks and bulge seen.** **Kitchen :- Ceiling cracks and wall dampness seen.** **WC/ Bath :- No major distress is seen.**
23	**Living Room :- Column seen in distress condition. Ceiling cracks and bulge seen.** **Passage :- Ceiling cracks seen.** **Kitchen :- Ceiling cracks seen. Wall cracks and dampness seen.** **WC/ Bath :- No major distress is seen.**
24	**Closed.**
25	**Living Room :- Flooring tiles seen uneven.** **Passage :- Ceiling dampness seen.** **Kitchen :- No major distress is seen.** **WC/ Bath :- No major distress is seen.**
26	**Living Room :- No major distress is seen.** **Passage :- No major distress is seen.** **Kitchen :- Beam cracks seen above window. Ceiling cracks and bulge seen.** **WC/ Bath :- No major distress is seen.**
27	**Living Room :- No major distress is seen.** **Passage :- Beam cracks seen.** **Kitchen :- Beam cracks seen above window. Wall cracks seen.** **WC/ Bath :- No major distress is seen.**
28	**Living Room :- Beam cracks seen.** **Passage :- No major distress is seen.** **Kitchen :- Beam and column cracks seen.** **WC/ Bath :- No major distress is seen.**
29	**Living Room :- Ceiling cracks and bulge see. Beam and column cracks seen.** **Passage :- Beam cracks seen. Ceiling cracks and bulge seen.**

	Kitchen :- Beam cracks seen above window. Ceiling cracks and bulge. Column cracks seen. **WC/ Bath :- No major distress is seen.**
30	**Living Room :- Beam cracks seen above window.** **Passage :- Ceiling cracks seen in loft.** **Kitchen :- Beam cracks seen above loft.** **WC/ Bath :- No major distress is seen.**
31	**Living Room :- Beam seen in distress condition above window.** **Passage :- Column and beam distress seen.** **Kitchen :- Beam distress seen above window. Ceiling cracks and dampness seen. Column cracks and wall dampness seen.** **WC/ Bath :- No major distress is seen.**
32	**Living Room :- Column and beam seen in distress condition near window.** **Passage :- Ceiling seen in distress condition. Column cracks seen.** **Kitchen :- Beam cracks and ceiling dampness seen.** **WC/ Bath :- Ceiling cracks and bulge seen.**
33	**Living Room :- Column seen in distress condition.** **Passage :- Beam and ceiling cracks seen.** **Kitchen :- No major distress is seen.** **WC/ Bath :- No major distress is seen.**
34	**Living Room :- No major distress is seen.** **Passage :- Ceiling cracks and bulge seen.** **Kitchen :- Beam cracks seen above window. Ceiling and wall cracks seen.** **WC/ Bath :- No major distress is seen.**
35	**Living Room :- No major distress is seen.** **Passage :- Beam cracks and ceiling dampness seen.** **Kitchen :- Beam cracks seen above window. Ceiling dampness and flooring tiles seen uneven.** **WC/ Bath :- Ceiling seen in distress condition.**
36	**Living Room :- No major distress is seen.** **Passage :- No major distress is seen.** **Kitchen :- Beam cracks seen above window.** **WC/ Bath :- No major distress is seen.**
37	**Closed.**
38	**Living Room :- Flooring tiles seen uneven.** **Passage :- No major distress is seen.** **Kitchen :- Beam cracks seen above door.** **WC/ Bath :- No major distress is seen.**
39	**Living Room :- Beam and ceiling cracks seen. Wall cracks seen.** **Passage :- No major distress is seen.** **Kitchen :- Beam and ceiling cracks seen.** **WC/ Bath :- No major distress is seen.**
40	**Living Room :- Ceiling dampness seen.** **Passage :- Ceiling cracks and dampness seen.** **Kitchen :- Beam dampness seen above window. Wall cracks seen.** **WC/ Bath :- No major distress is seen.**

5. INSTRUMENTATION

In any building structure, damage to the structural members and others parts of building like external walls, partition walls, chajjas is primarily cased due to water seeping in from the parts of the building structure at top like terrace, coping on parapet wall, staircase top and through porous plaster or cracks in the plaster. This water percolate in the structural and other RCC members and when in contact with reinforcement steel cases oxidation reaction. The diameter of the rods thereby increases and tries to throw the surrounding concrete away thereby forming cracks in the concrete structure. Similarly, water also seeps in through junctions of chajjas and walls due to failure of waterproofing system.

The continuous splash of rainwater affects the terrace-waterproofing top and developed of and development of cracks starts. The cracks allow water inside and the structure starts deterioration. The corrosion of reinforcement results in the formation of rust, which occupies a much larger volume than the steel from which it is formed. This corrosion product exerts large internal pressure resulting in cracks and spalling in concrete.

The formation of cracks in concrete further leads to quicker rate of corrosion, due to ingress of moisture and air resulting in failure of structure in due course. Quality of concrete, cover thickness of concrete over reinforcement and condition of reinforcement are the major factors affecting the corrosion.

When the concrete cracks excessively during very early stage of its life. Excessive air entrapment also produces low strength concrete. Thus a cyclic of cracking, entering of further moisture corrosion, etc. on structural members. The construction deficiencies may also be the cause of damage to the building structural.

The damage thus caused has to be repaired by appropriate methods and proper schemes of repairs. In the following pages, we have given our observations and inferences on the status of the building and the suitable methods of repairs are also described in brief.

The causes of these structural defects can mainly be attributed to –

- Monsoon leakage from walls.
- Plumbing leakages.
- Carbonation of concrete.
- Corrosion of reinforcements.
- Inadequate maintenance.
- Proximity to surrounding drainage/sewerage system.
- Weathering effect of salty climate in Mumbai.

6. RECOMMENDATIONS

6. RECOMMENDATIONS :

1) PLASTER

External surface of the building needs structural and civil repairs like patch PMM (Polymer Modified Mortar), plastering and cracks filling to avoid leakage/seepages inside the flats especially on the dead walls and plumbing areas.

2) STRUCTURE :

Most of the structural members are seen in repairable condition at internal face with structural repairs needed as per given observation sheet. Structural repairs should be done with PMM (Polymer Modified Mortar) up to 25 mm thickness and above 25 mm micro concrete/Column jacketing repairs should be done.

3) TERRACE :-

Terrace floor needs waterproofing repairs and Head room/ parapet wall needs structural and civil repairs as per observation sheet.

NOTE ON STRUCTURAL DISTRESS

RCC building are frame structure (members of the frame are columns, beams, slabs) buildings. The healthy condition of the RCC frame members is must from the stability point of view of building. The structural distress sets in the RCC members slabs, beams, columns, etc. due to various reasons. However, **LEAKAGE** is the main cause. These corrode the reinforcement bars in the RCC members which in turn increase the volume of the reinforcement bars resulting initially in cracks and subsequently in spalling of cover concrete along with plaster or spalling of core concrete, as the case may be. This further aggravates the rusting process. Thus, the deterioration process continues with time affecting the **STABILITY** of the building and the long life of the building. Advised to rehabilitate all the RCC members as per methodology both from outside, in the common areas and from inside of all the class rooms and offices of the building.
The methodology will have to be modified during the stage of surface preparation (Process of removal of loose / bad concrete) in specific cases. Is expected – a portion of the RCC member or complete member may give way during the surface preparation – i.e. when removal of loose / bad concrete is in progress. In such situation utmost safety precautions with respect to structure and workmen and occupation needs to be ensured. i.e. when rehabilitation of a severely deteriorated roof slab of a room (which is the floor slab of upper flat room) is taken up – then take following precautions:

1. Ensure that nobody occupies and there is no material in both rooms below & above this slab.
2. Tackle slabs one by one in a flat.
3. If the slab taken up for rehabilitation was rehabilitated earlier by guiniting and if now the guinited material is deteriorated and mesh is rusted then in such a situation either the complete slab needs replacement or rehabilitate by micro concrete from pockets at regular intervals in floor slab of upper flat room.
4. Remove the floor tiles over the slab (floor of upper flat room) and inspect the slab from above. If decision is taken to replace the slab by new slab, then removal of the same from top is advised which will ensure better safety.
In these location slab will be restored with the ready to use micro concrete or with regular concrete as per the site condition. In such situations temporary supports are advised prior to starting the work of surface preparation, as detailed by the consultant.
Many flats have false ceiling and cladding provided over the RCC members in some locations. Shops have hoardings over the RCC members. These areas cannot be inspected for any structural distress. The concerned member be informed to constantly monitor these areas and if any cracks are noticed in the cladding material or spalling of cover concrete is noticed it is advised to remove then the false ceiling and the cladding material and Rehabilitate the RCC members. In (old) building where severe structural distress to RCC members is observed, remove complete false ceiling to slabs and cladding material to columns and beams and inspect RCC members and rehabilitate them immediately. Dismantle any additional brick partition walls placed over the slab, this is absolutely necessary from the STABILITY point of view of the building. This is advised as there

could be resistance to the removal of the false ceiling and cladding as lot of money is spent on this. The concerned owners have to reconcile and understand that here the STABILITY of the building is involved.

In the visual inspection at many locations, it is difficult to differentiate between the plaster cracks, the separation gaps and the structural distress cracks. Proper treatment should be given as advised after opening out the cracks. The plaster cracks and the separation gaps should be treated as per the details given in the

Technical Specifications (Typical)

A. MATERIAL SPECIFICATION :-

1. All materials to be supplied by the Contractor and should be of approved quality and will be in conformity with the specifications. If material delivered on the site does not satisfy the Consultants, the Contractor shall remove the same from site. Cost of testing the material as required shall be borne by the Contractor as and when directed by consultant.
2. Unless otherwise stated OPC Cement of approved Brand should be used. The cement to be used should not be more than 3 months old (from the date of manufacture).
3. Sand to be used shall be river water sand, as specified. Marine sand shall not be allowed to be used. Sand to be used should be well graded and free from any salts and silt. Slit content should not be more than 5%. All the sand to be used on site should be first screened and washed before use.
4. Water to be sued should be free from acids, salts, organic matter or other substance that may be deleterious to concrete and steel and shall be potable type as per statutory norms. Test certificate shall be submitted to the Consultant and Society as and when asked for.
5. Solid content of the polymer @ 1050 C should be greater than 40% and pH should be greater than 8. Polymer shall be of approved make and quality.
6. Independent testing, if insisted by the Consultant shall be carried out in approved laboratory for the Polymer Cement Mortar Which After 28 days should give following minimum strength result.

Compressive Strength	>	35 N/mm2
Tensile Strength	>	6 N/mm2
Flexural Strength	>	8 N/mm2
Bond Strength	>	1.8 N/mm2

7. Brick to be used should have minimum crushing strength of 35 Kg/Cm2. Maximum Water absorption allowed 25%.
8. Non Shrink Cementitious Grout shall have following properties and should give following strength at 28 days.

Compressive Strength > 35 N/mm2

Bond Strength 14 days at 250 C > 3.5 N/mm2

9. Micro Concrete should give following strength at 28 days.

Compressive Strength > 55 N/mm2

B. WORK SPECIFICATIONS :-

1. <u>Scaffolding</u> :-

(a) Wooden Bamboo Scaffolding :

Double Bamboo of size not less than 50mm dia and more than 3 m length of each. Bamboo shall be strong, seasoned and straight and shall be acceptable for building height up to 25 m. The Bamboos shall be well spliced and tied at all joints by strong coir rope. The scaffolding shall be well braced and secured to the outside wall at intervals.

(b) Steel scaffolding :

These shall be of approved manufacturer 'ACROW' or equivalent and with all the accessories, fixture, bracings etc. complete.

Note: 1. No Holes in walls will be permitted for fixing ties.

2. Scaffolding shall rest on firm ground and concrete pedestals.

Area for payment to contractor shall be Front exposed Surface area only.

2. Screens and Safety Nets :-

These should be good quality thick Nylon or similar type to secure the entire exposed area, however, horizontal netting shall also be provided at 1st floor level wherever required.

Payment is supposed to be included in scaffolding rate.

3. Window Coverings :-

The openings should be will covered by plywood or similar material. Ventilation should be provided wherever required. Measurement shall be on actual area basis.

4. Grills and Weather Sheds :-

These existing items will need careful handling as these are to be dismantled and re-fixed after the repair works are completed. Grills are likely to distort and re-fixing may be a problem. Re-fixing screws should be drilled and not hammered. Measurement shall be on exposed surface area basis.

C. REPAIR WORK SPECIFICATIONS :-

1. Terrace Water Proofing :-

A. Repairs by complete removal of existing heavily damaged Water proofing and Re-laying new W.P.

a) Remove existing coba carefully up to R.C.C. slab surface

b) Repair any damage in R.C.C. slab by PMM/Micro concrete and additional reinforcement wherever necessary.

c) Provide with hand pressure pump non-shrink cement grout in cracks and crevices in slab, through nozzles.

d) Rain water outlets to be made leak proof by (Polymer + Cement) rendering to inside surface.

e) Provide suitable water proofing polymer membrane coating on R.C.C. slab surface and wata as per consultant's direction.

f) Provide new brick-bat Coba on membrane coated surface, using cement mortar laid to slope and cure by water ponding after initial set.

g) Finish with IPS and china mosaic on top.

B. **Repair Minor-damaged existing water proof surface.**

a) Clean the surface by water jet and coir brush to expose cracks.

b) Grout through the cracks using PVC nozzles, wherever necessary, and fill the open cracks by water proofing putty. Cracks should be prepared with 'V' groove for filling.

c) Apply appropriate water proofing polymer coating on the prepared surfaces. Coating should be flexible, hard and UV-resistant as per consultant's direction.

2. Repair to Parapet Walls :-

a) Remove the existing damaged plaster and damaged coping.

b) Provide new coping beam if the existing coping is damaged.

c) Provide new water proof plaster in 2 coats as per specifications.

d) Provide 2 coats of elastomeric water proof paint of approved make on the plastered surfaces.

3. Repair to R.C.C. Water Tanks :-

a) Remove existing damaged water proof plaster from inside.

b) Grout the junctions with non-shrink cement slurry using nozzles and pressure pump.

c) Provide water-proofing polymer membrane coating from inside, all over the repaired surface, as directed.

d) Provide water proof plaster over membrane coating from inside to protect the coating and cure the same.

4. Chajja Water Proofing :-

a) Remove the existing damaged IPS.

b) Repair any damage to R.C.C. by PMM/Micro Concrete with additional reinforcement wherever necessary.

c) Provide appropriate water-proofing treatment on top surface led to slope and as directed.

d) Provide new IPS with wata at will junction. Ensure drip mould at bottom.

5. Outside wall water proofing :-

a) Remove cracked and de-bonded plaster and repair.

b) Open separation joints and seal the gap with PMM. Grout the gaps with non-shrink cement grout using nozzles through PMM.

c) Replace damaged plaster by new W.P. plaster in 2 coats using a bond coat.

d) Provide water proof elastomeric paint on outer surface as directed.

6. Basement Wall Water Proofing from inside :-

a) Expose the inside leakage areas and cracks by 'V' groove formation.

b) Grout the cracks with non-shrink cement or polymer grout as specified.

c) Provide coating to the inside concrete surface using crystallizing polymer slurry to seal the pores in concrete with surface penetration method.

d) Provide water proof Membrane coating from inside as directed.

e) Provide W.P. membrane coating on floor and dado as directed.

f) Provide new coba and check for any leakage and provide tiling with proper joints.

g) Seal damaged door frame bottoms with Micro concrete or PMM.

8. Repair for Minor Leakages in Bath Room :-

a) Seal Tile joints by polymer water proofing putty.

b) Water proof the 'Trap's as per '7d' above.

c) Seal door frame damaged bottoms using Micro concrete or PMM.

9. R.C.C. Repairs:-

A. Repair by using (Polymer Modified Mortar) PMM :

a) Provide necessary steel props to reduce load on damaged R.C.C. member.

b) Provide damaged R.C.C. portion carefully by chiseling.

c) De-rust the reinforcement.

d) Provide 2 coats of passivator/corrosion inhibitor coat to reinforcement.

e) Prepare polymer mortar as per specifications.

f) Moisten the surface and apply a bond coat (1:0.5 on surface to be repaired.

g) Hand press PMM in thin layer (? 20mm) on specified bond coat.

h) Additional thickness of PMM shall be provided if required, next day using a bond coat again. (It is advisable to embed small Pea-gravel to get a good grip for additional layers of PMM).

i) Cure for 4 days and finish with plaster.

Note : PMM must be mixed in a mortar mixer or use mechanical stirrer.

B. Repair by R.C.C. jacketing :

a) Same process as above up to d.

b) Provide additional Reinforcement for jacket as directed and passivate it.

c) Provide shuttering around the distressed member to achieve required thickness of Jacket around R.C.C. Provide a suitable (Epoxy based) bond coat on concrete surface prior to fixing shuttering. (bond coat should be tacky till the jacket work is complete)

d) Prepare mix of M25 or as specified grade concrete and pour it in the shuttered area. Compact the concrete by rodding and tapping on outer surface.

e) Remove shuttering after 3 days and cure with water properly.

f) Finish the surface with plaster as specified.

g) The surface can be coated with anti-carbonation polymer coating if directed to do so.

C. Repair by using Micro Concrete for jacketing :

a) Same process as above up to

b) Prepare mix of Micro Concrete powder adding 12.5% water. Stir well before pouring in the shuttering area. (Use mechanical stirrer for mixing).

c) Remove shuttering next day and cure the new jacketed surface for 4 days.

d) Finish the surface with plaster and anti-carbonation coat as directed.

Note : 20% of Micro concrete powder can be replaced by Pea-gravel, if permitted by the Consultant.

10. Plaster – Repairs :

A. External Plaster :

a) The external plaster shall be applied in two coats and finished with sand face by sponge. Mortar for plaster must be mixed as per specifications using a mechanical mixer. Use a bond coat on surface before plastering if specified so.

b) The existing plaster, if cracked, damaged or de-bonded, the loose and damaged plaster shall be removed carefully by chipping or by light chiseling, and care should be taken not to damage the inside wall surface.

c) Joint between new and existing good plaster, should be tapered at 450 for good bond.

d) If the plaster is to be applied on repaired concrete surface, the same shall be made rough to provide a key to the new plaster. If brickwork is to be plastered, the joints shall be raked out at least 10mm deep to get a good key effect.

e) The surface to be plastered shall be cleaned of loose dust, thoroughly watered earlier, and kept adequately wet before plastering, A suitable bond coat may be applied before plaster, if specified so.

f) If plaster is carried out in patches, approved bond coat may be applied on wall surface prior to new plaster. The external plaster shall be applied in two coats as per specifications.

g) The first coat applied is 10 to 12mm thick mortar mix (1:4 generally). Water proofing additives and Polypropylene fibers can be mixed in 1st coat of mortar mix. The surface shall be even and without any undulations so as to have a second coat of thickness 8 to 10mm roughly. The first coat is roughened to provide a key to the second coat. The 1st coat shall be thoroughly watered and cured for seven days before the second coat is applied.

h) The second coat generally is of mortar mix (1.3) using water proofing and activities. We have should be controlled and mortar applied evenly using a trowel and finished to required granular texture by a sponge. The surface of plaster should be cured for 8 days. Mortar must be prepared in mechanical mixer and used within 20 minutes of mixing.

i) In case of large panels of plaster, it is advisable to introduce 'Breaker Bands' at suitable intervals to avoid cracks in plaster.

B. <u>Dash Coat Plaster</u> :

Whenever outside face of brick wall is uneven or damaged due to defective construction of wall, there could be local depressions varying even upto 20 to 60mm thickness. In such case a pre-treatment of leveling or filling the depressions by applying additional layer of 'dash coat' using (1:3) C.M. 1st coat of plaster may be applied on this leveled surface. It may be necessary to apply a bond coat before dash coat to get a firm grip on brick wall. 'P' gravel can be impregnated in dash coat for good grip of 1st coat. Dash coat has to be cured for 3 to 4 days.

Measurement of finished plaster shall include all Grooves, Bands, Drip Moulds, Cornices etc.

C. Internal Plaster :

Plaster on internal areas, which are not exposed directly to rain and weather, is applied in one coat and finished smooth. The plastering mix shall be (1:4) and process will be similar to 1st coat of external plaster. This will be finished on surface by 3 mm thick Birla white putty.

11. BRICK WORK / BLOCK WORK :

a) All bricks shall be immersed in a drum or tank of water till bubbles cease to come up before being used in the work. No broken bricks shall be used, excepted as closure. The course shall be truly horizontal and the work strictly plump.

b) Joints shall be broken vertically, and they shall not exceed 10mm in thickness. The brick work shall not be raised more than 12 courses a day (1.0 m height). Freshly mixed mortar of specified proportion shall be used.

c) All joints in brickwork shall be properly raked out to 10mm as the work proceeds. The work shall be well watered three times a day for 8 days and afterwards twice a day for 10 days.

d) Half brick interior partition walls shall be provided with 12mm thick R.C. (1:2:4) stiffeners with 2 nos. 8mm for bars as reinforcement. R.C.C. stiffeners shall be provided at every 1m vertical spacing. In case, wall length is more than 3M than vertical R.C.C. stiffeners of same size shall be provided at 1.5 M C/C.

12. MISCELLANEOUS REPAIR WORK :

a) **PCC Plinth Protection :-**

This is to be provided on outer periphery of the building and adjoining to the outside plinth wall. Excavate about 750mm wide and 300 mm deep around the building. Provide hard 230 thick Rubble packing and 150 thick (1:2:4) concrete laid to slope with smooth finish, over the soling as plinth protection. 'Wata' should be formed at the junction of wall periphery.

b) **Paver Blocks** :-

Surrounding area of the building up to compound wall should be covered by compacted Rubble Soling and paver blocks laid on 50mm thick (Sand + Cement) prepared bed. Joints should be filled with same mix. Paver blocks are generally 50 to 65 mm thick.

c) **IPS :-**

This shall consist of 38mm thick PCC flooring laid in cement concrete (1:11/2:3) mix. It shall be mixed like cement concrete, and laid in panels of 3m x 3m to avoid cracks. After completion, it shall be finished with chequered pattern on surface as directed. The surface shall be kept watered for a period of 10 days. Joints between panels shall be filled with (sand + Bitumen) mix (1:2).

Note : Actual finished area shall be measured for payment.

13. Flooring / Tiling :-

(i) Shahabad Flooring

(ii) Polished Kotah stone Flooring

(iii) Ceramic Glazed Tiling

(i) **Shahabad Flooring :-**

The Shahabad stones shall be of average of 35mm thick, specified sizes. It should be of best quality and approved by the consultant. The flooring shall be set in cement mortar bedding of mix (1:3), and finally set in cement float. They shall be laid to slope as directed. The rate for the work shall be inclusive of supplying, fixing and setting in place with CM and finishing the joints with cement putty.

Measurement shall be on laid surface area.

(ii) **Polished Kotah Stone Flooring** :-

The Stone flooring shall consist of machine cut and polished stone, laid in cement mortar bedding in particular pattern as directed by consultant and shall be of uniform specified thickness. These stones shall be free from cracks and flakes. The joints shall be neatly finished with cement putty. Cut size of these stones are generally 300mm x 300mm unless noted otherwise. The rate shall be inclusive of supplying, laying, fixing and polishing etc., on laid surface area.

(iii) **Ceramic Glazed Tiles** :-

Ceramic glazed tiles shall be of approved quality. They shall be of uniform colour and factory glazed. Tiles shall not be less than 6mm thick and shall be free from warped surfaces, cracks and shall be true and straight. Tiles shall be laid to required slope on floors and truly vertical on walls. A bedding of 20mm thick cement mortar and is set in cement float with close joints and set to level.

For walls, the backing shall be of cement mortar 12mm thick. The joints of tiles shall have coloured cement pointing to match with the colour of tiles. The surface between the W.C. pan and the top of the tiles shall be finished in white cement along the curve of the pan.

Note : Actual finished area shall be measured for payment.

14. Pluming and Sanitary Piping :-

1) **Plumbing Pipes :-**

These are G.I. pipes to class 'C' approved by Statutory Municipal Authority for supply of drinking water. All joints in the water lines shall be screw joints and made leak proof by use of proper plumber's putty. All fittings, bends, T's and valves should conform to relevant I.S. standards and shall be of approved quality. The G.I. piping should be hydraulically tested for safe working without leakages. Pipes should be properly clamped on G.I. Brackets.

2) **Sanitary Pipes :-**

Sanitary pipes and fittings should conform to relevant I.S. standard specifications for PVC/C. I. Piping, wherever specified. All sanitary piping should be smoke tested for any leakage at joints. All joints should be sealed by plumber's putty. Sanitary pipe fittings and accessories shall be as per standard practice. The vertical pipes should be properly clamped on G.I. brackets to wall surface. Proper vent lines, anti-syphon lines, gully traps etc. should be provided as per statutory by-laws. Rain water outlets should be connected from roof/terrace levels through G.I. jail and drop on to plinth.

Note : Measurement should be on laid length on running meter basis.

15. Painting :-

A. Exterior Painting :-

Exterior surface to be painted shall be level, clean, washed and free from any dust, cracks, or algae. Paint is classified in following 3 categories :-

(i) **Cement Paint :-**

These are cement based paints and are applied in 3 coats. A base coat of primer should be applied on moist surface. Primer coat shall be mixed in (1:2) (Powder:Water) proportion. After the primer coat the surface shall be applied with 2 coats of (1:1) paint. Painted surface shall be cured for a week.

(ii) **Acrylic Emulsion Paint :-**

Surface cleaning process shall be similar as in (i) above. A primer coat shall be applied as specified. After the primer has set in, the surface shall be finished with acrylic paint in 2 coats with 10% dilution with water. The paint shall be of reputed, approved manufacturer's produce and shall be of reputed, approved manufacturer's produce and shall be guaranteed for 5 years against fading and 'water proof' quality. The film thickness is measured in microns and for 2 coats it shall not be less than 75 micron.

(iii) **Elastomeric Acrylic Paint :-**

Shall be as per reputed manufacturer's specifications and shall be of film thickness not less than 100 micron. These films shall have stretchable qualities to bridge minor

'plaster cracks', if any and paint shall be guaranteed for 8 years against fading waterproofing, etc.

B. Interior Application Paints :-

There are 2 types of interior wall paints :

a. Water Based :-

i. Distempers :-

These can be oil bound or acrylic distempers.

ii. Plastic Paints :-

These are acrylic emulsion paints. These are washable types.

b. Solvent Based Paints :-

i. Lustre Finish :-

These are non-porous and silky finish paints and are dust free.

ii. Flat Oil Paint :-

These are non reflective and smooth finish.

Procedure for painting will involve.

- Surface Preparation :-

Dry the surface and clean the dust by sand paper.

- Application of putty and primer :-

Fill all pores by putty and make the surface level. Fill all cracks.

Primer will be applied for better adhesion.

- Application of paint :-

Generally 2 coats are applied with brush or roller. Desired finish and colour may require 3rd coat.

Note : Measurement shall be based on actual painted area.

C. PRECAUTIONS DURING PAINTING WORK :-

1. **Flaking off paint :-**

Surface should be dry and clean. Putty should be properly covered.

2. **Blistering or Swelling of Paint :-**

If air, moisture or solvent is trapped between the surface and paint film, swelling takes place.

3. **Spoiling of Paint at some location :-**

This can happen at plaster surfaces which have developed cracks due to drying, shrinkage etc. This can also be due to leaching of calcium hydroxide releasing salts at surface. To avoid this, it is advisable to seal all cracks with crack filler prior to starting painting.

7. REGULAR MAINTENANCE

Every Building / Structure must have specific maintenance program with proper rules for alteration and renovation.

The following steps would help in proper maintenance of the structure.

- Attend to seepage / leakage problems immediately i.e. proper filling the flooring joints, skirting joints, window sill joints and internal leakage problems etc.
- Plant growth, visible cracks must be investigated and attended to.
- Additions / alterations must be carried out under proper technical guidance.
- Renovations must be carried out under proper technical supervision. (Especially Windows toilets).
- Carry out periodic checks / sealing around plumbing / drainage lines.
- It is suggested to avoid frequent washing of staircase landing areas.
- Plants should not be kept in balconies or they may be kept in trays to collect the water, which should be cleaned regularly.
- Heavy grills / kaddapa with brackets should not be used, as they overload the balcony, resulting in heavy deterioration of balcony.
- **Since the building is above 30 Yrs., we recommend no structural changes to be done inside that will weaken the whole structure. Utter most precaution should be taken to avoid damages to structure during flats repairing / renovation etc.**

8. CONCLUSION

Conclusion:- Looking at the extent of deterioration and quality of concrete and as per the NDT reports, The building is Categorized as C2-B, No eviction only structural repair.

- **The Repair/Restoration work should be done under the supervision of Registered/Empanelled structural engineer of MCGM.**

All observation are made on visual survey. No suppression or extrapolations has been adopted. Foundation assessment of any manner has not been done. This report relate to the findings of our team on the date of survey. The process of deterioration will continue and the level of distress will go on increasing with time.

This report stands valid provided no major structural changes or major alterations / addition like tampering of walls, removing of walls, chiseling of concrete, puncture beams, slabs, columns etc. or major loading changes etc are carried out. This report should be considered as a status survey / audit report and shall not be considered as habitation guarantee. Also, we should not be held responsible if immediate structural repairs are not done.

Our responsibility is limited to the technical advice given in this report. The legal. Procedural and operational matters which include instructions for implementation, supervision and execution of work on site will be the responsibility of society and parties using this report.

Yours faithfully,
For. ARVIND SINGH CONSULTANTS.

Proprietor
Arvind U. Singh
B. E. (Civil), MIE, Chartered engineer
BMC Registered Structural Engineer License No: STR/229/S

PROFORMA-B

	Sub.	**STRUCTURE AUDIT FOR STABILITY OF THE BUILDING**	
	Name and Add of Consultant.	**ARVIND SINGH CONSULTANTS. 302/38, OPP SAINATH CHSL, ANAND NAGAR, SANTACRUZ (E), MUMBAI – 55.**	
1.	**Name and Add of the Bldg. (Reg.No.-Ascon.)**	**Roof Top CHSL, Sher E Punjab Colony, Andheri East, Mumbai-400093.**	
2.	**C.T.S. No. / Ward**		
3.	**No. of Storey**	**A-wing G+3 Upper floors B & C-wing G+4 Upper floors**	
4.	**Year of Construction**	**Unkown**	
5.	**User Department**	**Residential Building**	
6.	**Mode of construction of existing bldg.**		
	• **Foundation**	**R.C.C Structure**	
	• **Floors**	**R.C.C Structure**	
	• **Walls**	**Brick Masonry**	
	• **Beams**	**R.C.C Structure**	
	• **Columns**	**R.C.C Structure**	
	• **Roof**	**R.C.C Structure**	
7.	**History of Repairs done year wise** • **Slab recasting / guniting** • **Column Jacketing**	**Unknown**	
	• **Structural Repairs**	**Unknown**	
	• **Tenantable Repairs**	**Unknown**	
	• **Roof / Waterproofing**	**Unknown**	
	• **Plumbing**	**Unknown**	
	• **Addition / Alteration if any**	**Unknown**	
8.	**Date of Inspection by Consultants**	**03rd – 06th December, 2025**	
9.	**Date of report**	**18th January, 2026**	
10.	**Condition of -**		
	• **Internal plaster**	**Major distress and cracks in RCC members at several place**	
	• **External plaster**	**Seen in repairable condition.**	
	• **Plumbing**	**Seen in average condition.**	
	• **Drains lines / chambers**	**Seen in average condition.**	
11.	**Observation –**		
	• **Doors & Windows don't close**	**No**	
	• **Columns & steel exposed**	**Yes, in some flats.**	
	• **Settlement uneven flooring gaps between and skirting & floor**	**Yes, in some flats.**	
	• **Foundation settlement**	**No**	
	• **Deflection / Sagging**	**Yes, in some flats.**	
	• **Major cracks in Column / Beams**	**Yes, in some flats.**	
	• **Seepage / Leakages**	**Yes, in some flats.**	
	• **Staircase area / Column condition**	**Seen major and minor damages.**	
	• **Lift walls**	**NA**	
	• **U.G. Tank**	**NA**	
	• **OHT / Column condition**	**Seen in repairable condition.**	
	• **Parapet at terraces**	**Major/Minor plaster cracks at many places.**	
	• **Chajjas**	**Leakage and Cracks at many places on chajja.**	
	• **Common areas**	**Major/Minor plaster cracks at many places.**	
	• **Toilet blocks**	**Major/Minor plaster cracks at many places.**	
	• **Terrace / Water proofing**	**Minor\Major Damage and hollow parts at many places.**	
12.	**Test carried out on structure / observations thereof**	**Finding**	**Range as per IS Code 13311 - 1992**

	NDT	**i. Ultrasonic pulse velocity Test**	**Report Attached**	**Doubtful quality of concrete (below 3.0 km/s)**
		ii. Rebound Hammer Test	**Report Attached**	**Poor quality of concrete (as per IS:13311(Part2)**
		iii. Half Cell Potentiometer Test	**Report Attached**	**Corrosion activity of the reinforcing steel in that area is uncertain**
		iv. Carbonation Test on Concrete	**Report Attached**	**Concrete is carbonated**
		v. Chloride Sulphate & pH Test:	**Report Attached**	**IS 456-2000**
		vi. Cover Meter Test	**Report Attached**	
		vii. Core Cutting Test	**Report Attached**	**IS:516-1999**
13.	**Distress Mapping Plan & Photographs with caption below about description of structural member and its location**		**Structural members seen in distress condition in some flats photographs and observation sheet attached.**	
14.	**Brief Description of repairs to be done**			
	• **Water proofing**		**Terrace and chajja required Waterproofing repairs.**	
	• **External plaster**		**Civil and structural repairs are required.**	
	• **Structural repairs:**		**Structural and civil repairs are required in some flat as per observation sheet.**	
	• **Column jacketing**		**No**	
	• **Slab recasting**		**No**	
	• **RCC cover to be replaced**		**No**	
	• **Beam recasting**		**No**	
	• **Partial Evacuation during repairs needed**		**No**	
	• **Propping**		**No**	
15.	**Conclusions of Consultants-**		**Observation**	**Key reason**
	• **Whether structure is livable / or whether it is to be evacuated / pulled down**		**Livable**	**RCC members seen in distress condition.**
	• **Whether structure requires tenantable repairs / major structural repairs & its time frame**		**Major structural repairs required.**	
	• **Whether structure can be allowed to occupy during course of repairs**		**No**	
	• **Nature / Methodology of repairs**		**Attached in Audit Report**	
	• **Whether structure requires immediate propping. if so, its propping plan / methodology given**		**No**	**Nil**
	• **Whether other immediate safety measures required – what is specific recommendation?**		**No**	**Nil**
	• **Enhancement in life of structure after repairs / frequency of repairs required in extended life period.**		**Every 5-8 Years under regular maintenance**	**Nil**
	• **Projected repair cost / sq. ft.**		**NA**	**Nil**
	• **Projected reconstruction cost / sq. ft**		**NA**	**Nil**
	• **Specific remarks, whether building needs to be vacated / demolished / repairable.**		**Major structural repairs required.**	**Nil**
	• **Whether structure in extremely critical condition**		**No**	**Nil**
16.	**Critical Observation**		**NA**	
17.	**Classification of Buildings.**		**Category**	**Auditors' final conclusion**
			C2-B	**No eviction only structural repair.**

Yours faithfully,

For. ARVIND SINGH CONSULTANTS.

(ARVIND SINGH)
Proprietor
B.E. (Civil), MIE, Chartered Engineer
Registered Structural Engineer License No. : - STR/229/S

PRECISE
NDT PVT. LTD
IDENTITY OF PERFECTION

INVESTIGATION

BY NDT TECHNIQUES

FOR

STRUCTURE

OF

BUILDING

‘Roof Top CHSL’

Sher-E-Punjab Colony, Andheri East,
Mumbai - 400 093.

By

PRECISE NDT PVT. LTD.

Office No. 14, Sudarshan Gupta Chawl, Behind Rolex Shopping Center,
Station Road, Goregaon West, Mumbai – 400 104.
E-mail- ndtprecise20@gmail.com, CIN: U74999MH2020PTC351862
Cell: 7039662127/8767677566

CLIENT NAME & ADDRESS

M/S Arvind Singh Consultants

302/38, Opp Sainath C.H.S.L., Anand Nagar, Vakola,
Santacruz (E), Mumbai – 400 055.

Tests Carried Out On Dt. 05.12.2025		
Ultrasonic Pulse Velocity	:	05 No.
Rebound Hammer Test	:	05 No.
Carbonation Depth Test	:	02 No.
Half Cell Potential Test	:	02 No.
Concrete Core Compressive Strength	:	01 No.
Chemical Analysis Test	:	01 No.
Cover Meter Test	:	01 No.

PRECISE NDT PVT. LTD
IDENTITY OF PERFECTION

'ULTRASONIC PULSE VELOCITY (UPV) TEST

Reference: IS 516 (Part 5/sec 1) 2018

Report Date:	24.12.2025	Report No. PN/DEC/2025/2270
Visit (inspection) Date:	16.12.2025	
Laboratory Name & Address:	**Precise NDT Pvt. Ltd.,** Office No. 14, Sudarshan Gupta Chawl, Behind Rolex Shopping Center, Station Road, Goregaon West, Mumbai– 400 104	
Client Name &Address:	**M/S Arvind Singh Consultant,** 302/38, Opp Sainath C.H.S.L., Anand Nagar, Vakola, Santacruz (E), Mumbai – 400 055.	
Structure (site) Name:	Structure of **'Roof Top CHSL'**, Sher-E-Punjab Colony, Andheri East, Mumbai-400093.	
Age of Structure:	--	Story's of Structure: G+4 & G+3 Floor
Concrete Surface Temperature:	28ºC	Mode of Structure: RCC
Reference IS Code:	IS 516 (Part 5/sec 1) 2018	Instrument used: UPV (Rtul Co.)

Sr. No	Mem. ID	Mem. Type	Surface Condi.	Mem. Level	Type of Probing	Distance (mm)	Time (μ sec)	Actual Velocity (Km/s)
1	C1	Column	Dry	Gr. level	Surface	400.00	199.40	2.01
2	C2	Column	Dry	Gr. level	Surface	400.00	190.20	2.10
3	C3	Column	Dry	Gr. level	Surface	400.00	187.80	2.13
4	C4	Column	Dry	Gr. level	Surface	400.00	188.20	2.13
5	B1	Beam	Dry	Gr. level	Surface	400.00	211.60	1.89

Velocity Criteria for Concrete Quality for concrete ≤ M25 only as per Clause 2.5.2 Table 1 of Amend. No. 1 Nov. 2019 of IS 516 (P-5/S-1)2018

Sr. No.	Average Value of Pulse Velocity (Km/Sec.)	Concrete Quality	No. of reading in different categories	Overall Avg. reading (Km/Sec.)
a)	Below 3.5	Doubtful	5.00	2.05
b)	3.5 – 4.5	Good	--	--
c)	Above 4.5	Excellent	--	--

Important:

As per Clause 2.5.2 able 1 of Amend. No. 1 Nov. 2019 of IS 516 (P-5/S-1)2018: For concrete (>M25): Quality of concrete Doubtful for Pulse Velocity Below 3.75 Km/Sec., Good for velocity between 3.75 – 4.50 Km./Sec. & Excellent for velocity above 4.50 Km/Sec.

As per IS 516(Part5/Sec.1)2018: 2.4.3.2.5: Surface probing in general gives lower pulse velocity than in case of cross probing, the difference could be of the order of about 0.5 km/s. In surface probing method the pulse velocity may be increased by 0.5 km/s, for values > 3.0 km/s.

As per IS 516(Part5/Sec.1)2018: The pulse velocity of saturated concrete may be up to 5 percent higher than that of similar dry concrete. In general, drying of concrete may result in somewhat lower pulse velocity

As per IS 516(Part5/Sec.1)2018: Clause B-1.3: Variations of the concrete temperature between 5°C and 30°C do not significantly affect the pulse velocity measurements in concrete. At temperatures between 30 to 60°C there can be reduction in pulse velocity up to 5 percent. Below freezing temperature, the free water freezes within concrete, resulting in an increase in pulse velocity up to 7.5 percent.

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Authorized Signatory

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**** End of UPV Test Report ****

PRECISE NDT PVT. LTD
IDENTITY OF PERFECTION

REBOUND HAMMER TEST (RBH)

Reference: IS 516 Part 5 Sec 4 2020

Report Date:	24.12.2025	Report No. PN/DEC/2025/2270
Visit (inspection) Date :	16.12.2025	
Laboratory Name & Address:	**Precise NDT Pvt. Ltd.,** Office No. 14, Sudarshan Gupta Chawl, Behind Rolex Shopping Center, Station Road, Goregaon West, Mumbai– 400 104	
Client Name &Address:	**M/S Arvind Singh Consultant,** 302/38, Opp Sainath C.H.S.L., Anand Nagar, Vakola, Santacruz (E), Mumbai – 400 055.	
Structure (site) Name:	Structure of **'Roof Top CHSL'**, Sher-E-Punjab Colony, Andheri East, Mumbai-400093.	
Age of Structure:	--	Story's of Structure: G+4 & G+3 Floor
Concrete Surface Temperature:	28ºC	Mode of Structure: RCC
Reference IS Code:	IS 516 Part 5 Sec 4 2020	Instrument used: Rebound Hammer H-225N

Sr. No.	Member ID	Member Type	Surface Condi.	Member floor level	Rebound Number	Angle of Hammer	Equiv. Cube Strength (Mpa)	**Corrected results** for carbonation effect (Mpa)
1	C1	Column	Dry	Gr. level	25.00	0°	17.00	11.39
2	C2	Column	Dry	Gr. level	31.00	0°	26.00	17.42
3	C3	Column	Dry	Gr. level	25.00	0°	17.00	11.39
4	C4	Column	Dry	Gr. level	27.00	0°	20.00	13.40
5	B1	Beam	Dry	Gr. level	27.00	0°	20.00	13.40

Interpretation Of Results as per IS 516 Part 5 Sec 4 2020	
As per Clause No. 8.1	The rebound indices are indicative of compressive strength of concrete to a limited depth from the surface. If the concrete in a particular member has internal micro-cracking, flaws or heterogeneity across the cross-section, rebound hammer indices will not indicate the same. The estimation of strength of concrete by rebound hammer method cannot be held to be very accurate & probable accuracy of prediction of concrete strength in a structure is +- 25 percent.
As per Clause No.8.2	Because of the various limitations in rebound hammer test, the combined use of ultrasonic pulse velocity (UPV) test [IS 516 (Part 5/Sec 1)] and rebound hammer test is a must for proper interpretation
As per Clause No. 8.3	In cases the quality of concrete assessed by UPV is doubtful, no assessment of concrete strength shall be made from rebound hammer test
As per Clause No. 7.1.3	A wet surface will give rise to underestimation of the strength of concrete calibrated under dry conditions. In structural concrete, this can be about 20 percent lower than in an equivalent dry concrete.
As per Clause No. 7.1.5	Carbonated concrete gives an overestimate of strength which in extreme cases can be up to 50%. The carbonation depth shall be checked in cases where the age of concrete is more than 6 months.

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6. The test points were taken as suggested by the customer.

**** End of RBH Test Report ****

PRECISE NDT PVT. LTD
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'CARBONATION DEPTH' TEST (CD)

Reference: BS EN 14630: 2006

Report Date:	24.12.2025	Report No. PN/DEC/2025/2270
Visit (inspection) Date :	16.12.2025	
Laboratory Name & Address:	**Precise NDT Pvt. Ltd.,** Office No. 14, Sudarshan Gupta Chawl, Behind Rolex Shopping Center, Station Road, Goregaon West, Mumbai– 400 104	
Client Name &Address:	**M/S Arvind Singh Consultant,** 302/38, Opp Sainath C.H.S.L., Anand Nagar, Vakola, Santacruz (E), Mumbai – 400 055.	
Structure (site) Name:	Structure of **'Roof Top CHSL'**, Sher-E-Punjab Colony, Andheri East, Mumbai-400093.	
Age of Structure:	--	Story's of Structure: G+4 & G+3 Floor
Concrete Surface Temperature:	28ºC	Mode of Structure: RCC
Reference IS Code:	BS EN 14630: 2006	

Sr. No.	Member ID	Member Type	Member floor Level	Total depth of specimen (drilled hole) in 'mm' (by drilling)	**Carbonated depth in 'mm'**
1	C1	Column	Gr. level	60.00	29.00
2	C2	Column	Gr. level	60.00	25.00

Important as per Clause 2.1 in 'IS 516 (Part 5/Sec 3) : 2021':

Carbonation process leads to cause a reduction in the *p*H value of the concrete, which causes de-passivation of protective layer (concrete) of the reinforcement bars and initiates their corrosion.

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**** End of CD Report ****

PRECISE NDT PVT. LTD
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HALF CELL POTENTIAL (HCP)

Reference: IS 516 (Part 5/Sec 2): 2021

Report Date:	24.12.2025	Report No. PN/DEC/2025/2270
Visit (inspection) Date :	16.12.2025	
Laboratory Name & Address:	**Precise NDT Pvt. Ltd.,** Office No. 14, Sudarshan Gupta Chawl, Behind Rolex Shopping Center, Station Road, Goregaon West, Mumbai– 400 104	
Client Name &Address:	**M/S Arvind Singh Consultant,** 302/38, Opp Sainath C.H.S.L., Anand Nagar, Vakola, Santacruz (E), Mumbai – 400 055.	
Structure (site) Name:	Structure of **'Roof Top CHSL'**, Sher-E-Punjab Colony, Andheri East, Mumbai-400093.	
Age of Structure:	--	Story's of Structure: G+4 & G+3 Floor
Concrete Surface Temperature:	28ºC	Mode of Structure: RCC
Reference IS Code:	IS 516 (Part 5/Sec 2) : 2021	

Sr. No.	Member ID	Member Type	Member floor Level	HCP Results (-V)
1	C1	Column	Gr. level	-0.236
2	C2	Column	Gr. level	-0.268

- Criteria as per IS 516 (Part 5/Sec 2): 2021

Sr. No.	Half cell potential reading, cu/cuSO4	Likely Corrosion Condition	No. Of readings	Overall Avg. Of reading
1	>-0.200 V	Low (there is a greater than 90 percent probability that no reinforcing steel corrosion is occurring in that area at the time of measurement)	--	--
2	-0.200 V to -0.350 V	Corrosion activity of the reinforcing steel in that area is uncertain	02.00	-0.252 V
3	< -0.350 V	High (there is a greater than 90 percent probability that reinforcing steel corrosion is occurring in that area at the time of measurement)	--	--

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**** End of HCP Report ****

PRECISE NDT PVT. LTD
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CONCRETE CORE COMPRESSIVE TEST (CT)

Reference: IS 516 (Part 4) : 2018

Report Date:	24.12.2025	Report No. PN/DEC/2025/2270
Visit (inspection) Date:	16.12.2025	
Laboratory Name & Address:	**Precise NDT Pvt. Ltd.,** Office No. 14, Sudarshan Gupta Chawl, Behind Rolex Shopping Center, Station Road, Goregaon West, Mumbai– 400 104	
Client Name &Address:	**M/S Arvind Singh Consultant,** 302/38, Opp Sainath C.H.S.L., Anand Nagar, Vakola, Santacruz (E), Mumbai – 400 055.	
Structure (site) Name & Age:	Structure of **'Roof Top CHSL'**, Sher-E-Punjab Colony, Andheri East, Mumbai-400093.	
Age of Structure:	--	Story's of Structure: G+4 & G+3 Floor
Concrete Surface Temperature:	28ºC	Mode of Structure: RCC
Reference IS Code:	IS 516 (Part 4) : 2018	Equipment Used: CTM-01

Sr. No	Memb ID	Memb. Type	Core length L (mm)	Core Dia. D (mm)	Core weight (Kg.)	C/s area mm2	Max Load (KN)	Actual Comp. strength (N/mm2) (Mpa)	Correcti-on factor for l/d ratio	Corrected comp. Strength (after Dia& l/d ratio N/mm2_)	Equivalent core comp. Strength (N/mm2)
1	C1 Gr. level	Column	106.90	68.05	0.846	3637.50	39.77	10.93	0.953	11.04	**13.80**

Acceptance Criteria as per IS: 456-2000 (Reaff: 2016) Clause No. 17.4.3:

Concrete in the member represented by a core test shall be considered acceptable if the average equivalent strength of the cores is equal to at least 85% of the cube strength of the grade of concrete specified for the corresponding age and no individual core has a strength less than 75%

Important Factors:

1. Core length & weight after trimming & capping of specimen
2. Correction factor for diameter as per clause 8.4.1 for Dia. less than 100mm
3. For h/d ratio correction factor are as per IS: 516 (Part 4) : 2018
4. Equivalent cube compressive strength: 1.25 x corrected cylinder compressive strength as per clause 8.4.2 of IS: 516 (Part 4) : 2018

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Notes:-

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2 The report is based on site conditions made available at the time of testing.

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**** End of CT Report ****

PRECISE NDT PVT. LTD
IDENTITY OF PERFECTION

DETERMINATION OF PH, SULPHATE & CHLORIDE CONTENT (CHEMICAL TEST)

Reference: IS 456-2000 (RA 2011)

Report Date:	24.12.2025	Report No. PN/DEC/2025/2270
Visit (inspection) Date :	16.12.2025	
Laboratory Name & Address:	**Precise NDT Pvt. Ltd.,** Office No. 14, Sudarshan Gupta Chawl, Behind Rolex Shopping Center, Station Road, Goregaon West, Mumbai– 400 104	
Client Name &Address:	**M/S Arvind Singh Consultant,** 302/38, Opp Sainath C.H.S.L., Anand Nagar, Vakola, Santacruz (E), Mumbai – 400 055.	
Structure (site) Name:	Structure of **'Roof Top CHSL'**, Sher-E-Punjab Colony, Andheri East, Mumbai-400093.	
Age of Structure:	--	Story's of Structure: G+4 & G+3 Floor
Concrete Surface Temperature:	28°C	Mode of Structure: RCC
Reference IS Code:	IS 456-2000 (RA 2011)	

Sample collected from Specimen				**Test Parameters**		
Sr. No.	Member ID	Member Type	Member Level	PH Value (Potential of Hydrogen)	Chloride (CL) Content as Kg/Cum. of Reinforced Concrete	Sulphate (SO3) as % of mass of Cement in the Concrete Mix
1	C1	Column	Gr. level	9.87	0.173	1.043

- **Permissible limitsIS 456-2000 (RA 2011):**

Test Parameters	Permissible limits
PH Value (Potential of Hydrogen)	Not less than 8.00
Chloride as CL (Kg/Cum)	For RCC, Max. 0.60 Kg/Cum.
Sulphate as SO3 (%)	Less than 4 %

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**** End of Chem. Report ****

PRECISE NDT PVT. LTD
IDENTITY OF PERFECTION

COVER METER TEST (CM)

Reference: BS 1881 Part 201

Report Date:	24.12.2025	Report No. PN/DEC/2025/2270
Visit (inspection) Date :	16.12.2025	
Laboratory Name & Address:	**Precise NDT Pvt. Ltd.,** Office No. 14, Sudarshan Gupta Chawl, Behind Rolex Shopping Center, Station Road, Goregaon West, Mumbai– 400 104	
Client Name &Address:	**M/S Arvind Singh Consultant,** 302/38, Opp Sainath C.H.S.L., Anand Nagar, Vakola, Santacruz (E), Mumbai – 400 055.	
Structure (site) Name:	Structure of **'Roof Top CHSL'**, Sher-E-Punjab Colony, Andheri East, Mumbai-400093.	
Age of Structure:	--	Story's of Structure: G+4 & G+3 Floor
Concrete Surface Temperature:	28°C	Mode of Structure: RCC
Reference IS Code:	BS 1881 Part 201	

Sr. No.	Mem . ID	Member Type	Member Level	Column Size (mm)	Along Length (mm)	Clear Concrete Cover (mm) Avg.	Spacing between vertical steel (mm) Avg.	Spacing between stirrups (mm) Avg.
Note: Plaster thickness includes in member size & concrete cover								
1	C1	Column	Gr. level	280 X 560	280.00	78.00	124.00	180.00
					560.00	95.00	123.33	180.00

Summary:

Mem . ID	Column Size (mm)	Avg. Clear Concrete Cover (mm)	No. of Vertical Bars	Avg. Spacing between stirrups (mm) Avg.
C1	280.00 X 560.00	86.50	8.00	180.00

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