

STABILITY REPORT OF PM SHRI KENDRIYA VIDYALAYA, MG RAILWAY COLONY BENGALURU, 560023



By

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INTRODUCTION

STABILITY REPORT OF PM SHRI KENDRIYA VIDYALAYA, MG RAILWAY COLONY BENGALURU, 560023

1.0 INTRODUCTION

With reference to the above regarding Conditional Assessment of Stability report of PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023. for Structural Stability and Safety by conducting Non-Destructive Tests, PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023, was inspected by inspected by the testing team, Department of Civil Engineering, UVCE, Bangalore University, J. B. Campus, Bengaluru-560056 on 10th August 2026.

During the inspection, discussions were held with authorized authorities of PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023. to conduct Non-Destructive Tests namely Rebound Hammer Test and Ultrasonic Pulse Velocity Test on the selected structural members at all floor levels to assess the existing compressive strength of hardened concrete.

Non-Destructive Tests, namely Rebound Hammer Test and Ultrasonic Pulse Velocity Test were conducted on selected structural members at all floor PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023, on 10th August 2026.

While conducting Non-Destructive Tests the following personnel were present:

- | | |
|----------------------------|---|
| 1. Dr. Rudal Dubey | Principal
PM Shri Kendriya Vidyalaya, MG Railway
Colony Bengaluru, 560023 |
| 2. Dr. Chethan. K | Associate Professor,
Dept of Civil Engineering,
UVCE, Bangalore University,
Bengaluru – 560056 |
| 3. Prof S. Bhavani Shankar | Associate Professor,
Dept of Civil Engineering,
UVCE, Bangalore University,
Bengaluru – 560056 |
| 4. Dr. H. C. Mudda raju | Associate Professor,
Dept of Civil Engineering,
UVCE, Bangalore University,
Bengaluru – 560056 |

PHYSICAL INSPECTION

2.0 PHYSICAL INSPECTION

A Detailed Physical Inspection and Testing was carried out on 10th August 2026.

The following observations were made and Recorded: -

1. PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023, is a RC Frame Structure consisting of Ground Floor First Floor and second Floor.
2. As per the information obtained from the authorized authorities PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023, the building was constructed in the year 2004
3. Non-Destructive Tests conducted in PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023, are shown as follows:
 - A) General Front and side view shown from Fig. No.01 to Fig.No. 04.
 - B) General corridor and staircase shown from Fig. No. 05 to Fig.No. 06.
 - C) General classroom area view shown from Fig. No. 07 to Fig.No. 08
 - D) Rebound Hammer Testing are shown from Fig. No. 09 to Fig. No. 14.
 - E) Ultrasonic Pulse Velocity Testing is shown from Fig.No. 15 to Fig. No. 20.

PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023

12°58'51.82"N 77°34'04.34"E



3.0 PHOTOGRAPHS

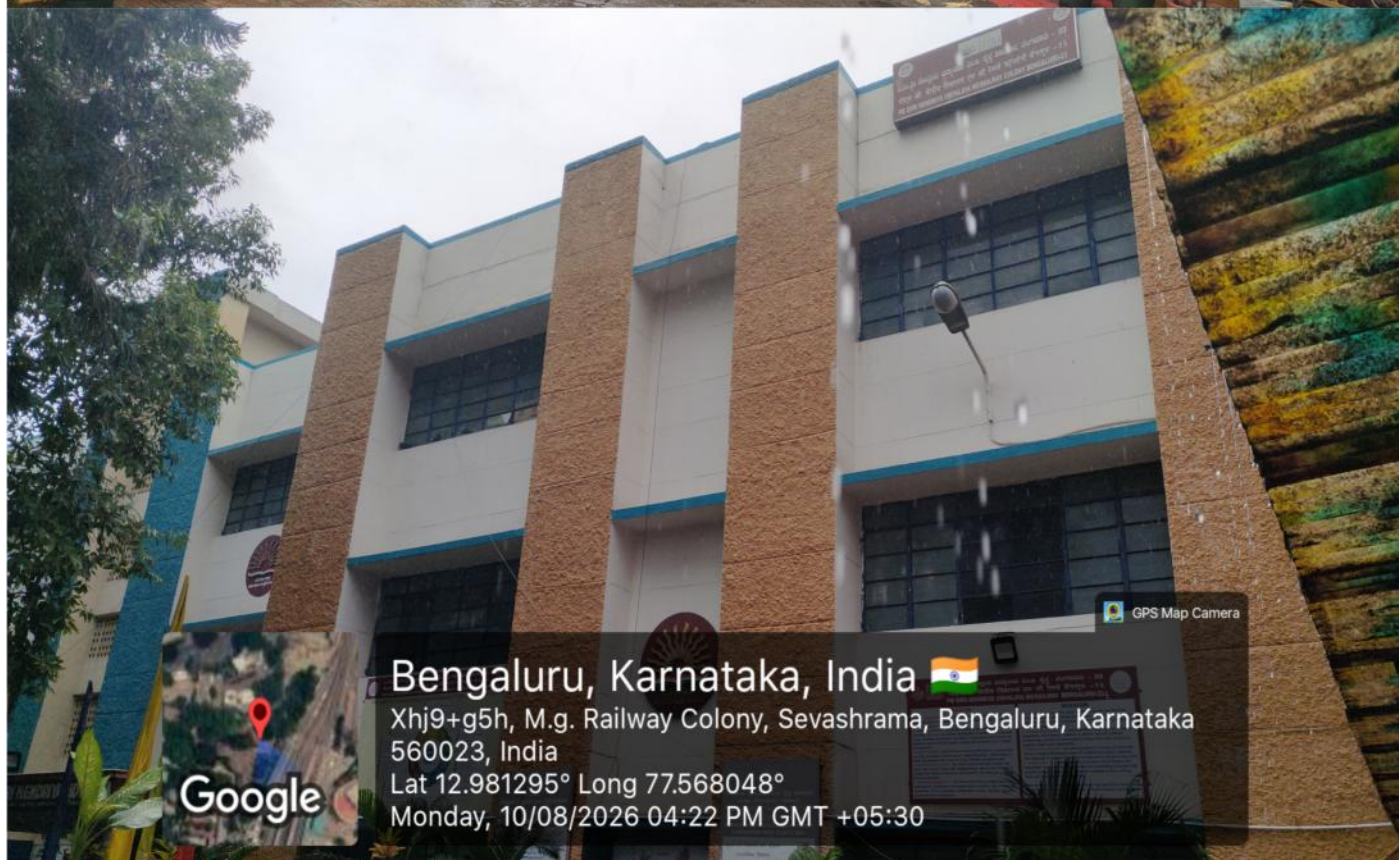


FIG.NO. 1 & FIG. NO. 2: GENERAL FRONT VIEW AND SIDE VIEW OF PM SHRI KENDRIYA VIDYALAYA, MG RAILWAY COLONY BENGALURU, 560023

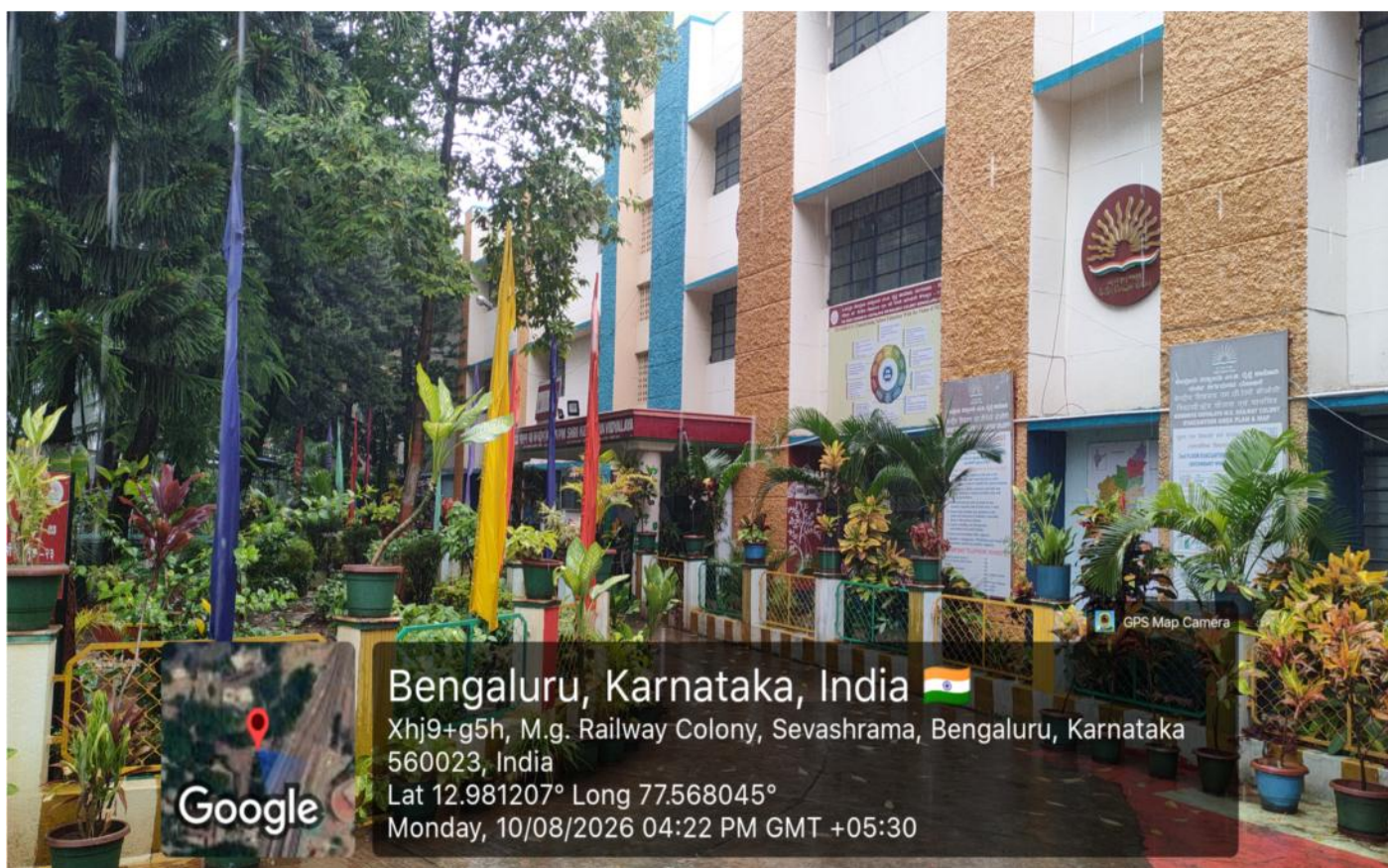


FIG. NO. 3& FIG. NO. 4: GENERAL SIDE VIEW OF PM SHRI KENDRIYA VIDYALAYA, MG RAILWAY COLONY BENGALURU, 560023



FIG.NO. 5& FIG. NO. 6: GENERAL CORRIDOR AND FRONT VIEWS AT PM SHRI KENDRIYA VIDYALAYA, MG RAILWAY COLONY BENGALURU, 560023

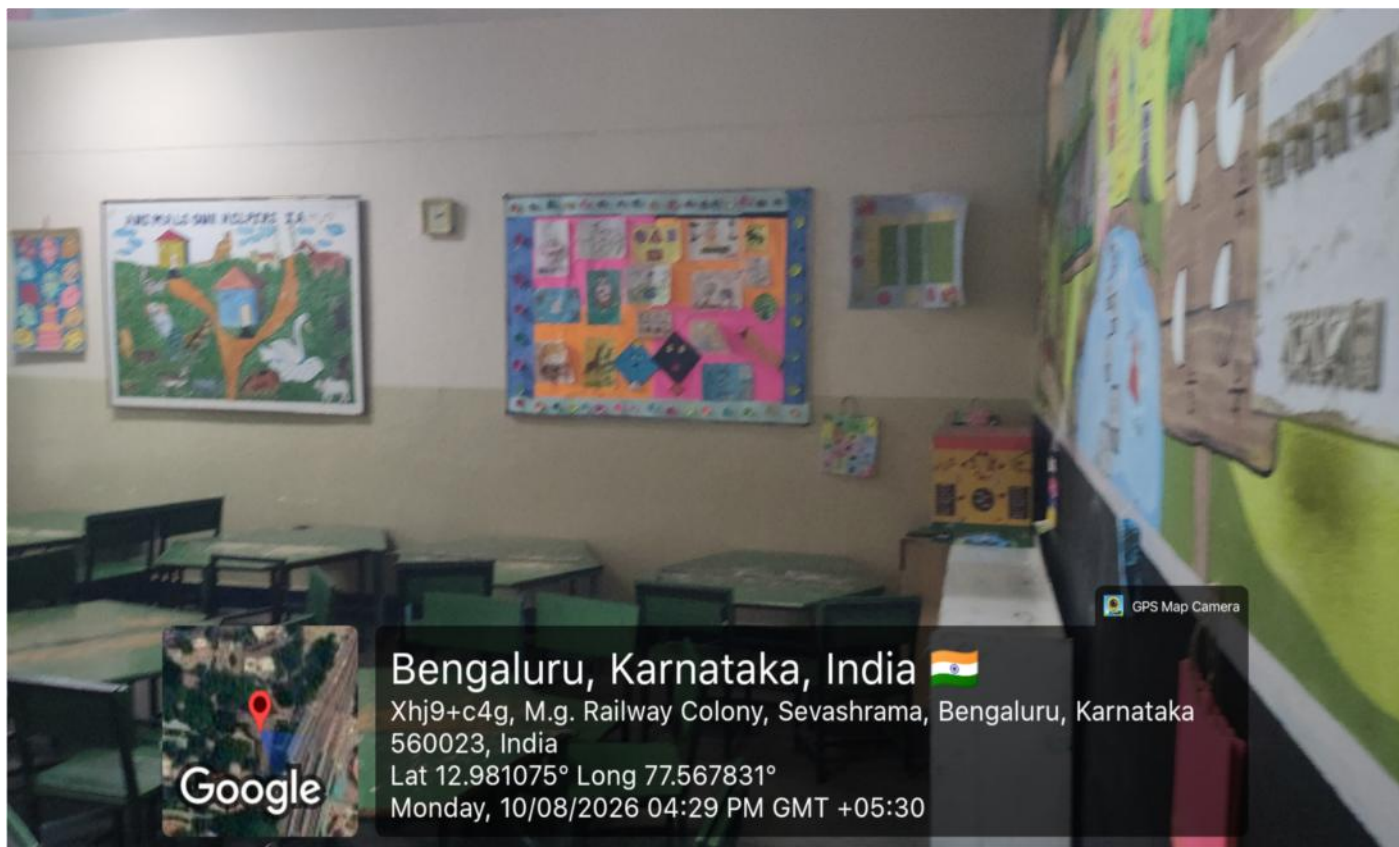


FIG. NO. 7 & FIG.NO. 8: GENERAL CLASSROOM VIEWS AT PM SHRI KENDRIYA VIDYALAYA, MG RAILWAY COLONY BENGALURU, 560023



FIG. NO. 9& FIG.NO. 10: REBOUND HAMMER TEST AT SELECTED COLUMN PM SHRI KENDRIYA VIDYALAYA, MG RAILWAY COLONY BENGALURU, 560023



FIG. NO. 11& FIG.NO. 12: REBOUND HAMMER TEST AT SELECTED BEAM PM SHRI KENDRIYA VIDYALAYA, MG RAILWAY COLONY BENGALURU, 560023

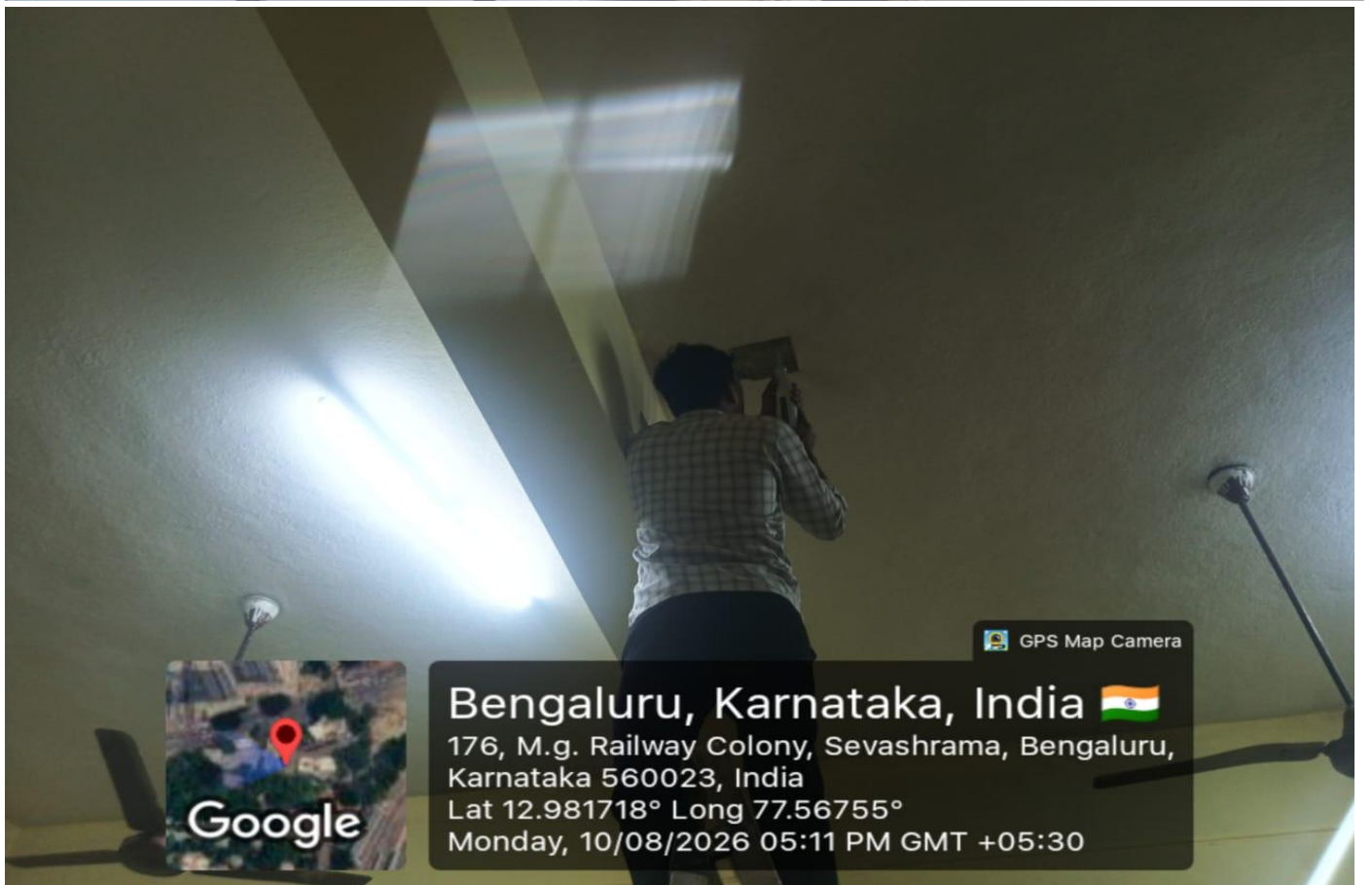


FIG. NO. 13& FIG.NO. 14: REBOUND HAMMER TEST AT SELECTED SLAB PM SHRI KENDRIYA VIDYALAYA, MG RAILWAY COLONY BENGALURU, 560023



FIG. NO. 15& FIG.NO. 16: ULTRASONIC PULSE VELOCITY TEST AT SELECTED BEAM PM SHRI KENDRIYA VIDYALAYA, MG RAILWAY COLONY BENGALURU, 560023

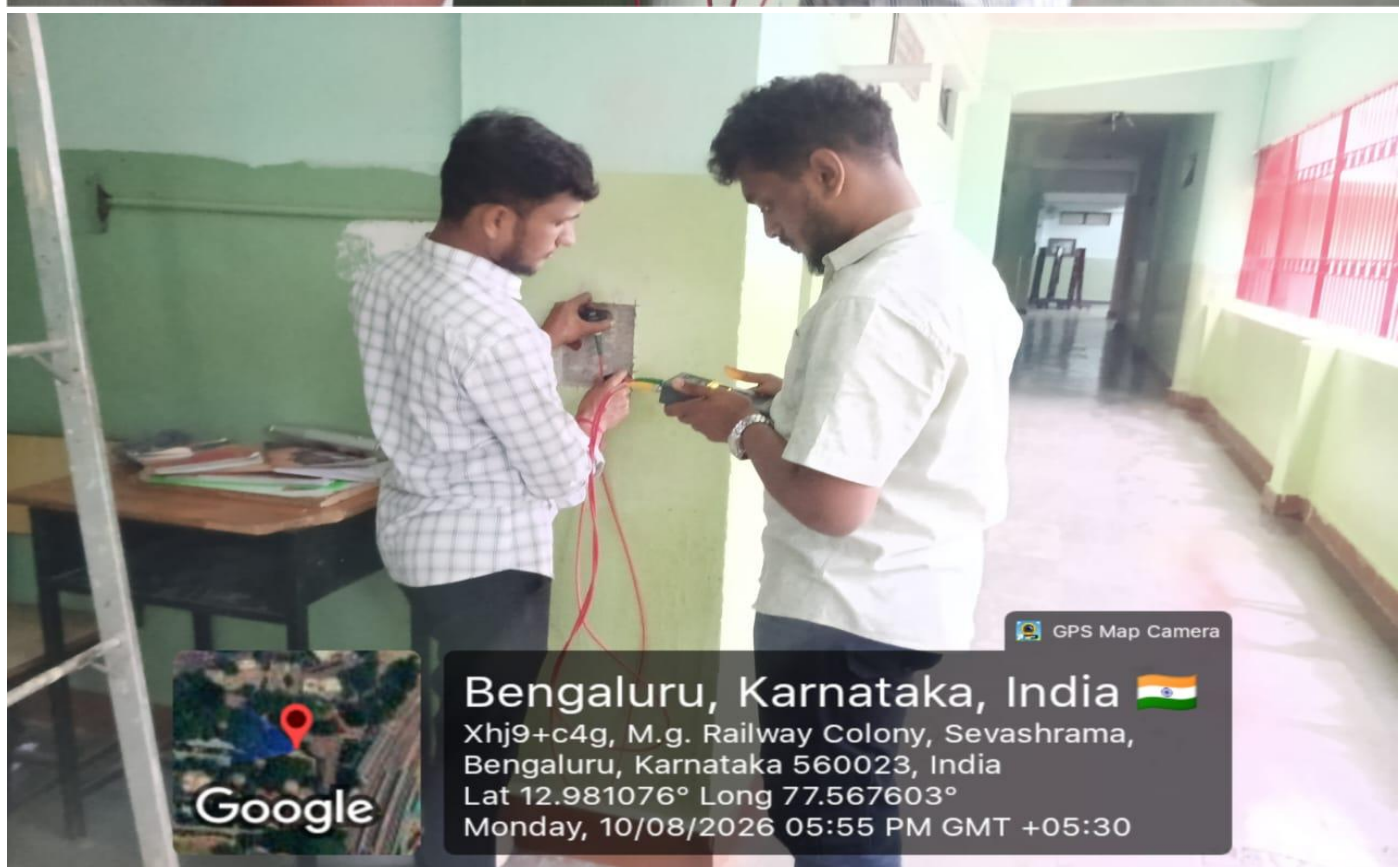


FIG. NO. 17& FIG.NO. 18: ULTRASONIC PULSE VELOCITY TEST AT SELECTED COLUMN PM SHRI KENDRIYA VIDYALAYA, MG RAILWAY COLONY BENGALURU, 560023

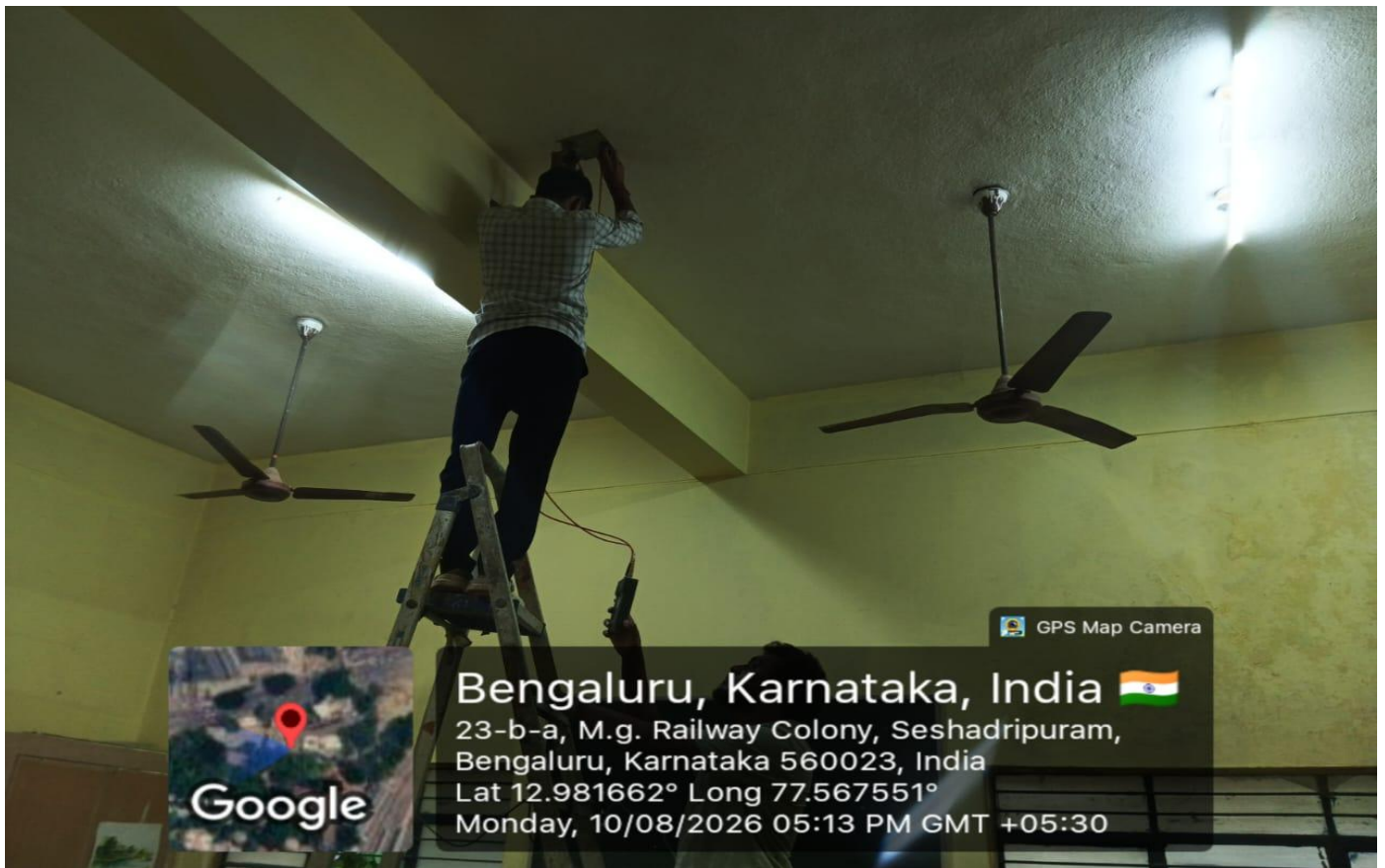


FIG. NO. 19& FIG.NO. 20: ULTRASONIC PULSE VELOCITY TEST AT SELECTED SLAB PM SHRI ENDRIYA VIDYALAYA, MG RAILWAY COLONY BENGALURU, 560023

NON-DESTRUCTIVE TESTS

4.0 NON-DESTRUCTIVE TESTS:

The following Non-Destructive Tests were conducted:

- 1) Rebound Hammer Test
- 2) Ultrasonic Pulse Velocity Test

4.1 REBOUND HAMMER TEST:

The Rebound Hammer Test was carried out at Ground Floor, First Floor and Second Levels of the building using the versatile Schmidt Hammer from M/s Proceq, Switzerland. The tests were conducted as per the guidelines in Indian Standard IS: 516 (Part 5/Sec 4): 2020 – Hardened Concrete – Methods of Test, Part 5 Non-destructive Testing of Concrete, Section 4 – Rebound Hammer Test (First Revision). The reference chart of the rebound hammer number and the corresponding compressive strength is presented in Table .1.

The instrument used is Schmidt hammer of Switzerland make. The compressive Strength of concrete under consideration reported are approximately +/-25% of actual strength of concrete with reference to IS: 516 (Part 5/Sec 4): 2020.

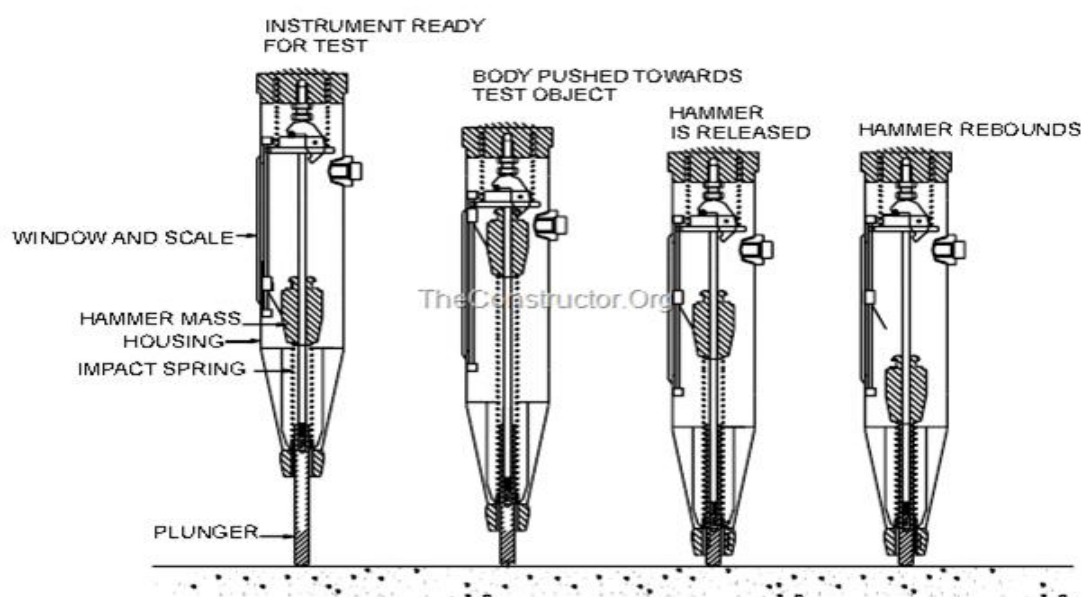


FIG NO A: WORKING OF REBOUND HAMMER

4.2 ULTRASONIC PULSE VELOCITY TEST:

Ultrasonic Pulse Velocity test was conducted on the selected Structural members at Ground Floor, First Floor and Second Floor Levels of the building in order to assess the quality / strength of in-situ concrete. The tests were conducted using **PUNDIT** (Portable Ultrasonic Non- Destructive Digital India (Tester) equipment from M/s. Proceq, Switzerland. The guidelines as per Indian Standard IS: 516 (Part 5/Sec 1): 2018 – Hardened Concrete – Methods of Test, Part 5 Non-destructive Testing of Concrete, Section 1 – Ultrasonic Pulse Velocity test (First Revision) was followed. The reference chart of the Ultrasonic Pulse Velocity test results is presented in Table 2.

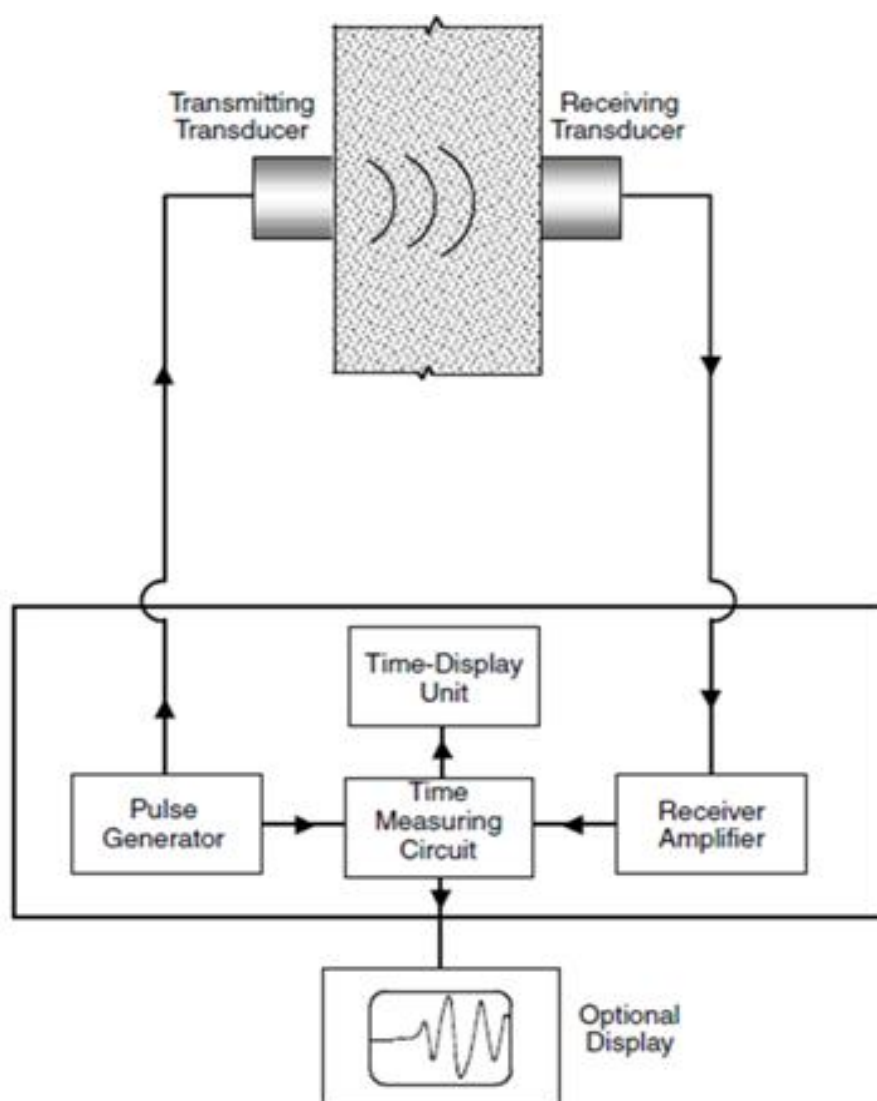


FIG NO B: WORKING OF PUNDIT

TABLE - 1: REFERENCE STRENGTH CHART FOR REBOUND HAMMER TEST

Technical reference : Based on the Lab Calibration

REBOUND NUMBER	ESTIMATED COMPRESSIVE STRENGTH RANGE (N/Sq.mm)
22 to 26	10 to 14
26 to 30	14 to 18
30 to 34	18 to 22
34 to 38	22 to 26
38 to 42	26 to 32
42 to 46	32 to 36

TABLE - 2: VELOCITY CRITERION FOR CONCRETE QUALITY GRADING

IS: 516 (Part 5/Sec 1): 2018 – Hardened Concrete – Methods of Test

Part 5 Non-destructive Testing of Concrete

Section 1 – Ultrasonic Pulse Velocity test (First Revision)

No.	Pulse Velocity by cross probing (km / sec)	Concrete Quality Grading
1.	Above 4.40	Excellent
2.	3.75 to 4.40 <i>For Concrete Grade (> M25)</i> 3.50 to 4.40 <i>For Concrete Grade (≤ M25)</i>	Good
3.	3.00 to 3.75 <i>For Concrete Grade (> M25)</i> 3.00 to 3.5 <i>For Concrete Grade (≤ M25)</i>	Doubtful
4.	Below 3.00	Poor

Note: In case of “doubtful” quality it may be necessary to carry out further tests.

TEST RESULTS

5.1 REBOUND HAMMER TEST AND ULTRASONIC PULSE VELOCITY TEST RESULTS

PROJECT: PM SHRI KENDRIYA VIDYALAYA, MG RAILWAY COLONY
BENGALURU, 560023

FLOOR LEVEL : All Floors

DATE : 10th August 2026

SL No	Location	Rebound Hammer Results		UPV Results	
		Average Rebound Number	Compressive Strength (N/mm ²)	Pulse Velocity (km/sec)	Grade
Ground Floor					
1	COLUMN (1)	36	22 to 26	3.55	GOOD
2	COLUMN (2) CR	38	22 to 26	3.53	GOOD
3	COLUMN (3) CR	34	22 to 26	3.72	GOOD
4	COLUMN (4) CR	35	22 to 26	3.77	GOOD
5	BEAM (1)	38	22 to 26	3.62	GOOD
6	BEAM (2) CR	36	22 to 26	3.57	GOOD
7	BEAM (3) CR	34	22 to 26	3.51	GOOD
8	BEAM (4) CR	34	22 to 26	3.55	GOOD
9	BEAM (5) CR	35	22 to 26	3.71	GOOD
10	SLAB (1)	36	22 to 26	3.69	GOOD
11	SLAB (2) CR	34	22 to 26	3.84	GOOD
12	SLAB (3) CR	35	22 to 26	3.70	GOOD
13	SLAB (4) CR	36	22 to 26	3.61	GOOD
14	SLAB (5) CR	37	22 to 26	3.58	GOOD
15	STAIR (1)	35	22 to 26	3.59	GOOD
16	STAIR (2)	37	22 to 26	3.51	GOOD
First Floor					

1	COLUMN (1)	35	22 to 26	3.53	GOOD
2	BEAM (1)	36	22 to 26	3.55	GOOD
3	SLAB (1)	36	22 to 26	3.65	GOOD
4	COLUMN (2)	34	22 to 26	3.62	GOOD
Second Floor					
1	COLUMN (1)	35	22 to 26	3.63	GOOD
2	BEAM (1)	36	22 to 26	3.56	GOOD
3	SLAB (1)	38	22 to 26	3.75	GOOD

INFERENCE

6.0: INFERENCE

The following inference is drawn:

The Assessed Quality of Hardened Concrete in Selected Structural members tested at all floor levels of PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023, are as follows:

- The Compressive strength of concrete is found to be **22 – 26 N/mm²**. The reference chart of the rebound hammer number and the corresponding compressive strength of the Non-Destructive test results by Rebound Hammer as per Indian Standard IS: 516 (Part 5/Sec 4): 2020 – Hardened Concrete – Methods of Test, Part 5 Non-destructive Testing of Concrete, Section 4 – Rebound Hammer Test (First Revision) are depicted in the Table-1.
- The quality of concrete is found to be **GOOD** as per Ultrasonic Pulse Velocity Test results as per Indian standard IS: 516 (Part 5/Sec 1): 2018 – Hardened Concrete – Methods of Test, Part 5 Non-destructive Testing of Concrete, Section 1 – Ultrasonic Pulse Velocity test (First Revision). The reference chart of the Ultrasonic Pulse Velocity test results is depicted in Table-2.

CONCLUSION

7.0 CONCLUSION

The Quality and Grade of Concrete adopted in the PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023, building is as per the construction standards and specifications. The Structures are designed for the gravity loads as per the relevant Indian standard codes PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023, building is found to be structurally stable and complies with the requirements of the relevant IS Code of Practices. PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023, building is properly maintained and is in good condition without the sign of structural distress. PM Shri Kendriya Vidyalaya, MG Railway Colony Bengaluru, 560023, is **Safe and Sound** for the purpose of Utilization.

REFERENCES

8.0 REFERENCES

1. IS: 516 (Part 5/Sec 4): 2020 – Hardened Concrete – Methods of Test, Part 5 Non-destructive Testing of Concrete, Section 4 – Rebound Hammer Test (First Revision).
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6. Non-Destructive Testing of Concrete Structures, edited by Prof. S. K. Kaushik et al, proceedings of the INDO – US workshop on Non Destructive testing, Indian Concrete Institute, Roorkee, December 17 – 18, 1996.
7. Bungey, J.H., The testing of Concrete Structures', second, edition, Survey University Press, Distribution in the USA by Chapman and Hall, New York.
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