सरदार वल्लभभाई राष्ट्रीय प्रौद्योगिकी संस्थान, सूरत
SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT
સરદાર વલ્લભભાઈ રાષ્ટ્રીય પ્રૌદ્યોગિકી સંસ્થા, સુરત
शिक्षा मंत्रालय, भारत सरकार द्वारा NITSER अधिनियम के तहत स्थापित राष्ट्रीय महत्व का संस्थान
(An Institute of National Importance, Established under NITSER Act by Ministry of Education, Govt. of India)
SVNIT

Condition Assessment Report for

Fr. ANGELO SCHOOL

CLIENT

Assistant Engineer,
PWD Sub Division No-I(R&B)Dadra and Nagar Haveli Silvassa

Date of Visit: 24/09/2025

2025

DEPARTMENT OF CIVIL ENGINEERING
SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY
SURAT-395007, GUJARAT

Condition Assessment Report for FR AGNELO ENGLISH SCHOOL,SILVASSA

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INDEX

Contents

Condition Assessment Report

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FR AGNELO ENGLISH SCHOOL,SILVASSA

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PWD Sub Division No-III(R&B)Dadra
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ANNEXURE - INDEX

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1. PREAMBLE

The Assistant Engineer,PWD Sub Division No-III(R&B)Dadra and Nagar Haveli Silvassa, has requested to give the Structural Condition Assessment Report of, **FR AGNELO ENGLISH SCHOOL,SILVASSA** via **PWD Office letter No.PWD/WCD-I/R&B/2025/326, on dated 06/09/2025** .Reconnaissance survey, photography and non-destructive testing were carried out along with collection of preliminary data in presence of officials of PWD, Silvassa. SVNIT Experts visited the site .

2. STRUCTURE LOCATION

FR AGNELO ENGLISH SCHOOL is located in Silvassa UT of DNH.

3. BUILDING HISTORY

Sr. no	Descriptions	Type of Structures
1.	Building 1,2	RCC Structure
2.	Building C	RCC Structure

SVNIT, Surat has been provided detailed RCC Structural drawing, Approved Municipal drawing, Working drawing, Soil Bearing Capacity report, material test reports done during construction of building, Structural Design calculations, etc. For references, This report is prepared based on the past experience of 34 years & NDT test results

4. GENERAL &TECHNICAL OBSERVATIONS

Following points were observed during site visit.

- Above buildings are RCC structure.
- Column is found O.K
- No buckling is found.
- Conditions of Column is found O.K.
- No reinforcement is exposed.
- Beam is found O.K
- Reinforcement of RCC Structure is not exposed in atmosphere.
- Column and beams are found ok.
- Floorings are found O.K
- No settlement is observed.
- No cracks are developed .

- Wall are found in line and level.
- No cracks are found in wall.
- Colours are not faded.
- No seepage is observed.
- No leakage is observed.
- No Dampness is found
- Staircase are found in good condition.
- Majority of the walls of the Structure is found in good Conditions. Buckling of wall is not observed as well as walls are not out of plumb.
- The spoiling of Structure plaster is not observed.
- Deflection is not observed in beam and Slab.
- In Daman & Silvassa every year very high rainfall in range of 100 inch/year is observed. During rainy season reinforcement corrosion rates increase. Because of reinforcement corrosion reinforcement (Main & Distribution Steel) bar diameter and length increase volumetrically, further increase concrete cracking at surface and inside concrete. Cracking also provide extra passage of oxygen and water supply from atmosphere/rain. This process further accelerates deterioration.
- During daytime and night time temperature variation also resulted in differential thermal expansion of concrete and steel. This cyclic temperature variation effect resulted fast deterioration of structural component. More over bonding of steel and concrete also affected.
- Daman & Silvassa is in Seismic Zone – III as per IS: 1893 – 1984 and IS: 1893 - 2002 for seismic criteria of designing structures, "$\propto_0$factor" has been modified from $\propto_0$ = 0.04 to $\propto_0$ = 0.16 which is four times as shown in Annexure III. So it is implicit that, this building requires seismic retrofitting measures in present condition. This also shows increase of seismic activity of this area as compare to past.
- In some part of building soft storeys exists so future extension / any alteration will increase loading and more prone to seismic damage, according to Indian Seismological

Research Centre (ISRC) – Gandhinagar indicates 1000 seismic shocks in Gujarat in last year, which will oscillate the building largely and create wall cracking for "earthquakes energy dissipation" (Normally for this type of structure fundamental time period T is less than 0.3 second) hence major seismic energy will be dissipated by cracking only and not by oscillation.'

- For new building design of this shape as per IS: 4326, "CRUMPLE JOINTS" are essential for seismic separate oscillations of different parts of building. As per above code this Structure is designed .
- Now because of seismic activity in India for increasing lateral resistivity of building, we are designing all building structures considering ductile detailing as per IS: 13920-1993. This must be implemented in construction of new building.
- All other photographs are as shown in Annexure II

5. BRIEF DETAIL OF REBOUND HAMMER TEST

(As per IS 13311- Part 2)

When the various performance characteristics of concrete in a structure are required to be assessed, the Non Destructive Testing is taken into consideration to estimate the overall quality, uniformity and residual compressive strength of structural elements. The Rebound hammer is an easy to use instrument, which provides a quick and simple non-destructive test for obtaining an immediate indication of concrete strength in various parts of a structure.

The methodology adopted for Non Destructive Testing by Rebound Hammer method is in such a way that, when the plunger of rebound hammer is pressed against the surface of the concrete, the spring-controlled mass rebounds and the extent of such rebound depends upon the surface hardness of concrete. The surface hardness and therefore the rebound are taken to be related to the compressive strength of the concrete. The rebound is read off along a graduated scale and is designated as the rebound number or rebound index.

The conversion of rebound number to compressive strength can be achieved by producing a calibration graph for the concrete concerned. This is undertaken by testing previously sampled concrete cubes strength or cores which extracted from the sample test location and crushed to determine the in-situ strength. The calibration chart may then be used to convert rebound

number to estimated cube strength. If it is not possible to produce a calibration graph, most manufacture of rebound hammer are supplied with a conversion curve, which will enable the average rebound value to be converted to an estimated concrete strength in N/mm^2. The angle (Horizontal, Vertical & inclined) of application needs to be taken into account to give the correct reading.

The Schmidt hammer measures the true rebound co-efficient, so called "Q - Value". It represents the physical rebound co-efficient. The Schmidt hammer measures the velocity of impact and of rebound, immediately before and after the impact, computing the fraction of energy restored by the specimen under test. The Q-Value is virtually free of error sources inherent in traditional concrete test hammers measuring the "compressive strength"

For testing, smooth, clean and dry surface is to be selected. Any loosely adhering scale observed, is to be rubbed with a grinding wheel or stone, consisting of medium grain texture silicon carbide or equivalent material (the points of impact on the specimen was not nearer an edge than 20 mm and should be not less than 20 mm from each other). The same points should not be impacted more than once. The points of impart should be more than 20mm from edge and should not be less than 20 mm from each other.

The rebound numbers are influenced by a number of factors like type of cement, type of aggregate, surface condition and moisture content of concrete curing and age of concrete and carbonation of concrete surface etc.

Considering the limitation of the method into account the Rebound hammer is still a valuable tool in the NDT to assess the condition of in-situ concrete, rapidly, impartially and in difficult locations.

6. REBOUND HAMMER TEST METHOD

On site, Non Destructive test was carried out considering Rebound Hammer Test on date 18/08/2015. Observations are taken at almost 10 different locations on RCC structure. On the column, existing plaster was removed, and subsequently the reading was taken.

Surface-Preparation: The structural member to be tested is prepared for the testing by a simple procedure. The layer of plaster over the structural member is removed by simple hammer so that the surface of the concrete is exposed and ready for rebound-hammer test. Surface preparation was done so easily without any extra effort.

Rebound Hammer Test :-

Rebound Hammer Test is done to find out the compressive strength of concrete by using rebound hammer as per IS:13311 – (part 2) 1992.

7. TEST RESULTS OF REBOUND HAMMER

- NDT test is conducted and Rebound Hammer Value is observed below .

Sr. No	Description	Rebound Hammer Value	Required Strength
1.	**Ground Floor**		
	Column 1,Column 2,Column 3	28,26,28	20 N/MM^2
	Beam1,Beam 2,Beam 3	24,24,26	20 N/MM^2
2	**First Floor**		
	Column 1,Column 2,Column 3	26,24,24	20 N/MM^2
	Beam1,Beam 2,Beam 3	28,26,28	20 N/MM^2
3	**2nd Floor**		
	Column 1,Column 2,Column 3	26,28,28	20 N/MM^2
	Beam1,Beam 2,Beam 3	28,28,28	20 N/MM^2

8. CONCLUSION

Based on Our team's past technical experience and judgements of about 36 years, team can conclude that RCC components having good strength .Above building may be used for next 05 years without any Heavy maintenance and Repairing if Vertical extension is not done.

9. IMPORTANT NOTE:

This certificate or report may not be published for commercial purpose except in full or part unless permission for the publication of an approved abstract has been obtained from SVNIT,Surat.

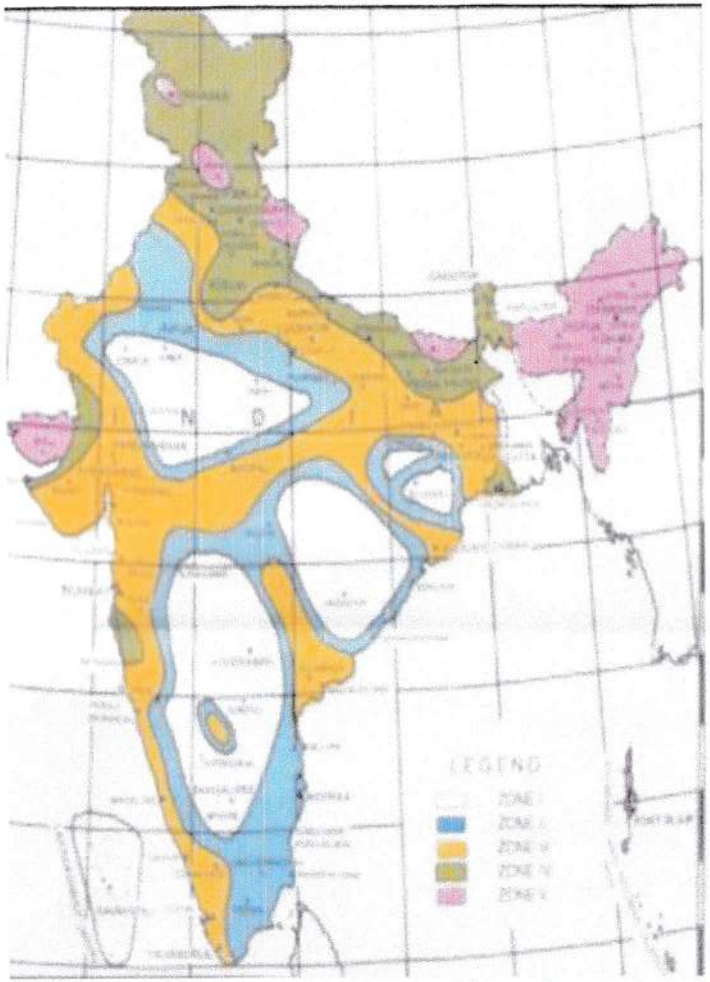
This report was prepared based on our experience& visual judgment. Moreover, theabove report was based on observations made till date 24/09/2025, only. If any addition or alteration/ structural modifications or breaking of any structural components, by any person, the agency is made then our expert team is not at all responsible.

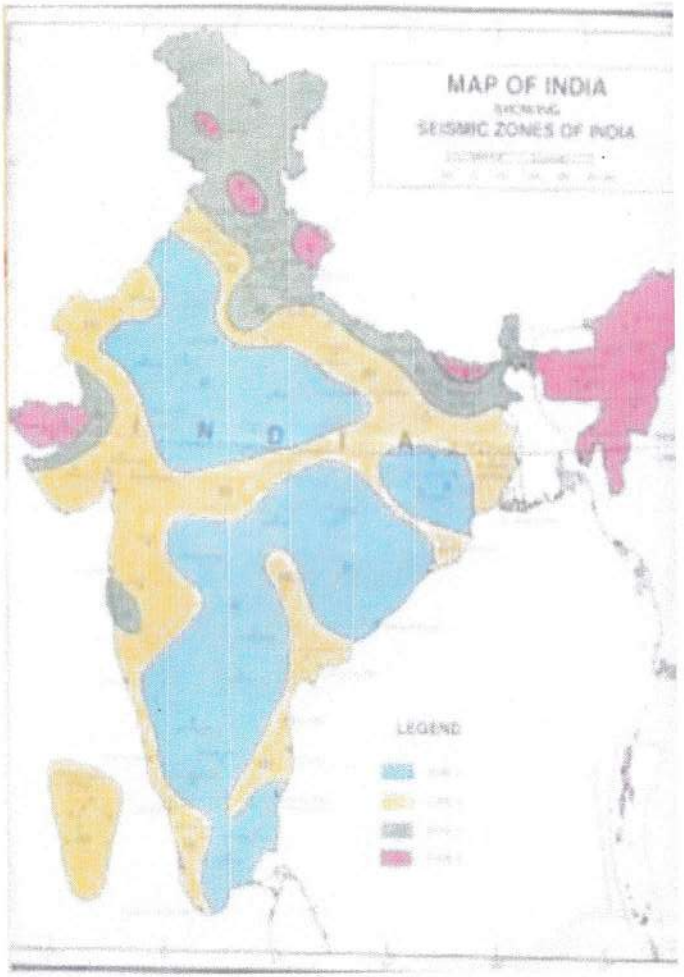
The particulars set out in this report are for the exclusive use of ***Assistant Engineer,PWD Sub Division No-I(R&B)Dadra and Nagar Haveli Silvassa*** and is copy right and the property of ***SVNIT,Surat.*** No responsibility or liability is accepted as a result of the use of this report by any other party, and is not to be used for any other purpose. It must not be used for any legal purpose.

Dr. Rakesh Kumar
Professor, DCE
SVNIT ,Surat

ANNEXURE

Annexure I

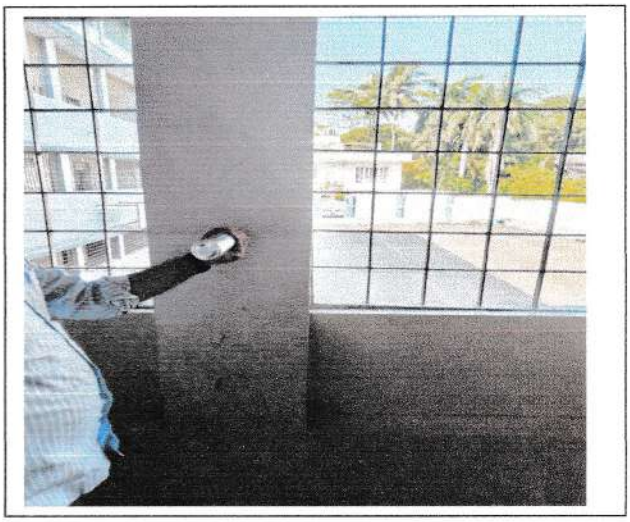




Comparison between the old and new Indian Standards IS:1893-1984 IS:1893 –2002

Annexure II

SITE PHOTOGRAPHS



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