



**RVS QUALITY
CERTIFICATIONS PVT. LTD**
An ISO 9001, 14001, 45001 Certified Company.

**STRUCTURAL ASSESSMENT & INTEGRITY CHECK
OF CIVIL & CONCRETE STRUCTURES**



ABOUT RVS GLOBE

RVS globe was established with a mission to provide excellent services to customers by providing quality services of high standards in the following categories

- ✔ Core Cutting & Saw Cutting of Civil / Industrial Structures
- ✔ Non-destructive testing (NDT) to Various structures
- ✔ Structural strength & durability assessment of Bridges and Commercial Buildings
- ✔ Retrofitting of Buildings
- ✔ NDT Solutions for Structural Investigation, Evaluation & Restoration
- ✔ Bridge Inspection and Structural Assessment
- ✔ Structural Inspection and Audit of Industrial Establishments

Our team makes judicious use of state of the art testing equipment's, techniques and vast experience of senior civil engineering professionals for arriving at the optimal solutions

We design cost effective retrofitting for enhancing serviceability, safety and durability of buildings ,bridges and other structures. We also provide professional services in construction management, quality assurance, structural designing, tenders, contracts & arbitration matters



WHAT IS NON DESTRUCTIVE TESTING OF CONCRETE ?

Non destructive testing of concrete is a method to assess the properties and strength of concrete in existing structures without causing damage. These tests for concrete are employed to assess compressive strength and other properties of existing structures, providing immediate results and revealing the actual strength and properties of the concrete. While standard methods involve testing specimens for compressive, flexural, and tensile strengths, drawbacks include delayed results, variations between specimen and actual structure concrete due to different curing and compaction conditions, and dependence of strength properties on specimen size & shape. Despite the inability to directly measure strength properties, various non-destructive assessment methods have been developed.



NEED OF NON DESTRUCTIVE TESTING (NDT) OF CONCRETE : -

The purpose of Non Destructive Testing of Concrete encompasses the following:

Estimating in-situ compressive strength
Assessing uniformity & homogeneity
Evaluating quality adherence to standard requirements
Identifying areas of lower integrity in comparison to other sections
Detecting the presence of cracks, voids, and other imperfections,
Monitoring structural changes in concrete over time
Identifying reinforcement profile and measuring cover,
bar diameter
Checking the condition of grouting in prestressing cable ducts.

NON DESTRUCTIVE TESTING (NDT) :



Ultrasonic pulse velocity test



Rebound hammer testing



Cover meter testing



Pile Integrity Testing



Half Cell potential testing



Carbonation depth measurement



Infrared Testing



Core extraction & compression test

ADVANCED NDT:



Pile Integrity test



Borescope / Remote visual testing



Reinforcement corrosion mapping



Sulphate & Chloride profile test

Methods of Non-Destructive Testing of Concrete

The different methods of Non-Destructive Testing of Concrete encompass the following:

Rebound hammer testing

Ultrasonic Pulse Velocity Test

Cover meter test

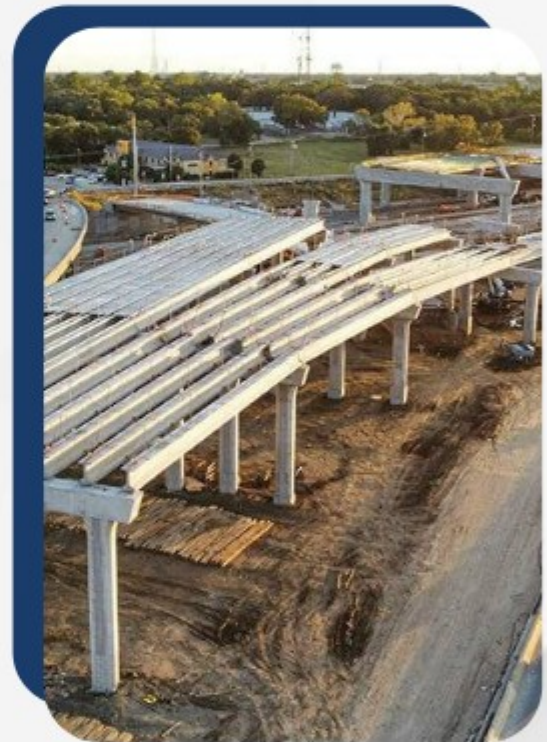
Half Cell potential testing

Carbonation depth measurement

Core extraction & compression test

Pile Integrity Testing

Infrared (IR radiography) testing



1.REBOUND HAMMER METHOD

The rebound hammer, represented by the Schmidt hammer, correlates surface hardness to concrete strength. It consists of a spring-controlled hammer mass that measures rebound distance as per ASTM C805, ISO 516 standard. The Schmidt hammer provides a cost-effective & quick method for strength indication, but accuracy is influenced by factors such as surface smoothness, specimen size, moisture conditions, and more.



2.ULTRASONIC PULSE VELOCITY TEST

The ultrasonic pulse velocity test, a dynamic non-destructive test, measures the time taken for an ultrasonic pulse to pass through concrete as per **ASTM 597,IS 516** Standard Ideal for establishing concrete uniformity, it can be used on both existing and under construction structures. Pulse velocity readings correlate with concrete quality, and the method can detect defects, estimate hardening rate, and predict strength within certain limits.



Advantages and Limitations of Dynamic Non Destructive Test

Ultrasonic pulse velocity tests are effective for establishing concrete uniformity, detecting defects, and estimating strength within limits. However, interpretation challenges may arise due to factors affecting pulse velocity, and accuracy diminishes as concrete ages.

3.REBAR LOCATOR

Re-bar location is a central activity for anyone involved in on-site testing of reinforced structures. It measures cover thickness, determines the diameter of fittings for a known protective layer, locating re-bars is a necessity when drilling, cutting coring as well as a preliminary operation required for most other non-destructive investigations. Other typical applications include conformity check of new buildings, investigations on unknown structures & corrosion analysis. The eddy current pulse induction principle is the only imaging technology not influenced by concrete composition and humidity, which leads to a high cover accuracy under every scenario.

The Profoscope uses electromagnetic pulse induction technology to detect rebars.



Advanced signal processing allows :

- ✔ Localization of a rebar
- ✔ Determination of the cover
- ✔ Localization of the mid-point between rebars.
- ✔ Estimation of the bar diameter

4.HALF CELL POTENTIAL TESTING

the half-cell potential test is the best corrosion monitoring technique tested as per **ASTM C 876 – 15** standard test method for corrosion potentials of un coated reinforcing steel in concrete.

it is used to determine the probability of corrosion within the rebar in reinforced concrete structures. corrosion, which is an electro chemical process, occurs in concrete when oxygen and moisture are present. the actual corrosion is an exchange of energy within different sections of the uncoated reinforcing steel.

this is used to locate corroding steel reinforcement. the reference half-cell potential test is copper in a copper sulphate solution.

by taking half-cell potential measurements a fixed distance apart, a grid of half-cell potentials can be quickly made and thus, areas delineated with a high probability of corrosion of the reinforcing steel.



5. CARBONATION TEST

Carbonation of the concrete, caused by carbon dioxide and Sulphur dioxide in the atmosphere to cause gradual neutralization of the alkalinity from the surface inwards, a process known as carbonation. It also has the effect of reducing the pH. Cement paste normally has a pH of about 13, which provides a protective layer (passive coating) to the steel reinforcement against corrosion. This alkalinity causes the formation of a passive oxide layer around the steel reinforcement. Concrete will react with atmospheric carbon dioxide.

The Carbonation testing is most commonly carried out as per ASTM C1910/C1910M-23 by spraying the phenolphthalein indicator on freshly exposed surfaces of concrete broken from the structure or on split cores.

Carbonation depth is assessed using a solution of phenolphthalein indicator that appears pink in contact with alkaline concrete with pH values in excess of 9 and colorless at lower levels of pH.

Hence there may be corrosion in the zone ahead of the front defined by the indicator. In general, the change in pH occurs in this zone which is only a few millimeters ahead, and the phenolphthalein method provides a good indication of the location of the depassivation.



6. CUT AND PULL OUT (CAPO) TEST

Cut and Pull Out (CAPO) is a reliable test method to determine the in-situ CAPO Test services of RCC structures. The CAPO test results are found to be within 8% of the results obtained from conventional methods.

CAPO test is carried out in accordance with the guidelines laid out in ASTM C900, BS-1881: Part 207 and EN-12504-3.

RVs globe has considerable experience of conducting the CAPO tests on various infrastructure projects for health monitoring of bridges, buildings etc. to estimate the in-situ strength of concrete.



7. PILE INTEGRITY TEST

Our testing administrations incorporate Pile Integrity Testing (PIT); Dynamic Pile Testing (DPT); Cross Hole Sonic Logging (CHSL); heap length estimating and consultancy on the limit and functionality of heaps. We utilize the most recent site testing gear and examination programming to give a quick, productive and savvy administration as per ASTM D5882

OUR PILE INTEGRITY TESTER INCORPORATES:

- ✔ Soil testing research center/Geotechnical examination.
- ✔ Static pile load test up to 2500T burden in pressure, pull out, parallel.
- ✔ Dynamic burden trial of pile.
- ✔ Pile respectability test.



NDT SOLUTIONS FOR STRUCTURAL INVESTIGATION, EVALUATION AND RESTORATION

Structural health assessment of institutional, commercial and residential buildings, design of restoration solutions and Structural Stability Certification:

The application area includes; condition assessment of old buildings, quality assurance of new buildings and forensic investigation as a part of quality audits. Methodology of assessment and restoration scheme normally includes one or more of the following processes

- ✔ Visual inspection to ascertain visible deterioration and distress
- ✔ Detailed In-situ concrete quality test for compressive strength and uniformity
- ✔ In-situ reinforcement condition evaluations for probability and extent of corrosion
- ✔ Identification and mapping of structural cracks Identification of weak zones in the structures
- ✔ Detecting seepage/leakage and dampness using Thermal Imaging Technique
- ✔ Analysis of test data and assessment of strengthening required in the structure



BRIDGE INSPECTION AND STRUCTURAL ASSESSMENT

- ✔ Application area includes; Structural health assessment of distressed bridges, assessment of the structural and durability performance of existing old bridges, viaducts, flyovers, subways and culverts and foot over bridges (FOB).
- ✔ Detecting distressed component & deteriorated area by visual inspection
- ✔ Detailed nondestructive testing
- ✔ Indication of in situ condition of concrete and reinforcement

DURABILITY ASSESSMENT OF CIVIL STRUCTURES

Critical features of the structures affecting their durability are mapped and analyzed by:

- ✓ Crack analysis by crackoscope and Ultrasonic equipment
- ✓ Determination of extent of corrosion in steel rebars
- ✓ Detecting location and extent of delamination
- ✓ Measurement of concrete cover by cover meters
- ✓ Carbonation depth measurement in concrete
- ✓ Concrete permeability measurement



STRUCTURAL INSPECTION AND AUDIT OF INDUSTRIAL ESTABLISHMENTS

We do comprehensive audit of existing industrial buildings, factories and warehouses which includes

- ✓ Structural Safety Audit
- ✓ Electrical Safety Audit



CORE EXTRACTION & COMPRESSION TEST

To drill holes in concrete, core-cutting is a fast, accurate, and clean way. It requires much fewer labor hours which in turn leads to very lower running costs and it is much faster and more efficient...In creating precise holes and cuttings with minimal or non-existent damage to the surroundings it is extremely effective. It eliminates dust and reduces the quantity of waste. This process does not transfer the beats to the nearby structures and keeps them secure and during the drilling operations, it structurally sounds.

- ✓ Chimney Holes
- ✓ Slab Holes
- ✓ Beam Cutting
- ✓ Saw cutting
- ✓ slab cutting work
- ✓ Drilling anchoring



TYPE OF CUSTOMERS & CONTRACTORS WHO REQUIRED OUR SERVICES ARE AS BELOW

- ✔ **Civil Construction contractors**
- ✔ **Structural Repair and Retrofitting**
- ✔ **Modifications / Extensions of old structures**
- ✔ **Industries like manufacturing units, chemical industries**
- ✔ **Architects , design consultants**
- ✔ **Facility managers of commercial buildings**
- ✔ **Infrastructure maintenance**
- ✔ **Restoration of Fire Damaged Buildings**
- ✔ **Property managers of commercial buildings**
- ✔ **House & Commercial Complex owners & buyers**
- ✔ **Hospitality Industry**



CIVIL ENGINEERING TRAINING & CERTIFICATIONS

1. CONCRETE NDT

- Rebound Hammer (Schmidt or Swiss Hammer) Test
- Ultrasonic (UPV) Test
- Profometer (Rebar Locator) Test
- Pull-out test
- Carbonation test
- Half cell potential test
- Corrosion Analysis Test
- Resistivity Meter Test
- Impact Echo Test



2. QA/QC CIVIL

- Qa/qc civil Engineer
- QA/QC civil inspector
- QA/QC civil Manager



3. QUANTITY SURVEYING

4. TOTA STATION

5. DESIGN COURSES

- Auto cad(Civil)
- STAAD pro
- 3ds max
- Skech up
- Revit Achitecture
- Interior Design



6. ISO LEAD AUDITOR COURSES

- ISO 9001:2015 LEAD AUDITOR TRAINING
- ISO 14001:2015 LEAD AUDITOR TRAINING
- ISO 45001:2018 LEAD AUDITOR TRAINING
- ISO 27001:2022 LEAD AUDITOR TRAINING
- ISO 22001:2018 LEAD AUDITOR TRAINING



7. SAFETY COURSES

IOSH:

- Iosh managing safely
- Iosh working safely

OSHA:

- Osha -30hr construction safety
- Osha -30hr general safety



DIPLOMA COURSES

- General safety
- Construction safety
- Oil&gas safety
- Fire&safety
- Health safety environment
- Industrail safety
- Firstaid



NABL CONSULTANCY

As the number of laboratories has grown in several years, the government realized the necessity for some guidelines to oversee their operations. To regulate the activities of such labs, the National Accreditation Board for Testing and Calibration Laboratories was established under the Society Act. RVS is one of the reputed agencies providing NABL consultancy in Hyderabad

- ✓ Sample taken are properly handled.
- ✓ Quality standards should be among best practices.
- ✓ All the procedures and processes that labs use are right.
- ✓ Environment of the place where tests are being done is good.
- ✓ Calibration standards are complied

ADVANTAGES OF GETTING NABL ACCREDITATION

- ✓ It helps in getting more number of customers.
- ✓ Quality of test being performed improves.
- ✓ It reposes confidence among customers.
- ✓ Compliance of laws is assured by getting NABL certification in INDIA.
- ✓ Profitability of firm is increased



FOLLOWING ARE TYPES OF LABS THAT REQUIRE NABL CERTIFICATION IN INDIA.

- Mechanical labs
- Chemical labs
- Biological labs
- Electro-Technical Fluid Flow labs
- All electrical and electronic labs

WHY TO GET NABL REGISTRATION FROM US?

- We here do all type of NABL Consultation.
- Give 24/7 support
- Guarantee the lowest price for NABL Consultation
- 100% trusted services.

SPECIALISED INSPECTION SERVICES

RVS GLOBE provides Load Testing and Certification, Load Testing Services in India and across the globe. We are Third Party Inspection agency approved under statutory provisions of Industrial Safety (Factories Act, 1948), Govt. of Telangana & Andhra Pradesh (Issuance of Form II) or under Provisions 2(d) of Dock Worker's (Safety, Health & Welfare) Regulations, 1990, Govt. of India. (Issuance of Form II, III, IV, VIII) for following services

LOAD TESTING AND & STATUTORY COMPETENT PERSON CERTIFICATION

- ✓ Lifting Tools and Tackles
- Lifting Gear inspection
- ✓ Cargo Handling Units (Containers / Baskets)
- ✓ Cranes (Mobile, EOT, Tower)
- ✓ Spreader Beam / Lifting Beam
- ✓ IBR Boiler Inspections

CALIBRATION SERVICES

- ✓ Load Cell / Dynamometers
- ✓ Weighment
- ✓ Counter Weights / Dead Weights



Our Clients



L&T Construction



POWER MECH



NTPC and GE Joint Venture



VASAVI
GROUP
Your Dream We Deliver



PRIYA CEMENT
Lives Forever



Ambuja
Cement



ADITYA BIRLA GROUP



MADHUCON
GRANITES LIMITED



TATA
SIKORSKY
A GEORGE BARTLE COMPANY



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