



SERVICE BROCHURE

GLOBAL LAB
BUILT ON TRUTH

ACCREDITED
as per ISO/IEC: 17025-2017 by NABL

ABOUT GLOBAL LAB

Global Lab, a leading provider of testing and calibration services in India, commitment to providing top-quality services to its clients. Founded in 2009, Global Lab has a proven track record of excellence, having served over 10,000 customers, including government bodies and multinational corporations.

With laboratories strategically positioned in Mumbai, Thane, Navi Mumbai, Kolkata, Guwahati, Bhubaneswar, and Surat, Global Lab is able to cover every facet of India. The company prioritizes efficiency, reliability, and customer-centric innovation in all of its work.

WHY CHOOSE US?

Global Lab is a prominent independent testing and calibration service provider in the construction industry and its associated fields.

Global Lab is accredited as per ISO/IEC 17025: 2017 by NABL, and is committed to providing its customers with the highest quality testing and calibration services available. The company leverages advanced software for paperless operations and the 'Autovity' SaaS-based LIMS to ensure seamless processes.



Global Lab is the one of the selected laboratory to provide more than 400 tests & more than 80 calibrations under NABL accreditation.



10000+
PROJECTS SERVED



9562+
SATISFIED CLIENTS



500+
TEST & CALIBRATION METHODS



150+
PROFESSIONALS & EXPERTS

OUR SERVICES



Calibration Services



Mechanical Testing



CCS Concrete Consultancy



Chemical Testing



Pile Testing



Structural Health Monitoring



Field Soil Testing



Concrete Durability Test



Concrete Mix Design



Concrete NDT & Maturity Testing



Metal Hardness Testing

OUR ETHOS:



Authenticity



Accuracy



Transparency



Reliability

DIGITIZED OPERATIONS

At Global Lab, we believe in staying ahead of the game by leveraging the latest technology and innovative solutions. In line with the Government of India's "Digital India" program, our laboratories have implemented a state-of-the-art SaaS-based QLMS software called 'Autovity' across all our facilities.



Calibration Services

Force | Pressure | Mass | Acceleration & Speed | Thermal | Dimension | Volume | Density

MECHANICAL CALIBRATION

Force

01

At Global Lab, we take pride in being a leading Calibration Lab offering NABL Calibration services for Force Measuring Instruments. We specialized in calibrating force measuring instruments within the range of 2kN - 3000kN, catering to clients across Pan India and abroad..

When it comes to force measurement, accuracy and reliability are of utmost importance. That's why at Global Lab, we ensure accuracy of calibration of force measuring instruments to meet industry standards and specifications. Our team of skilled technicians and engineers utilizes advanced calibration equipment and techniques to meet the National & International requirements.



Our wide range of force measuring instruments:

Uniaxial Testing Machines (UTM), Compression Testing Machines (CTM), Flexure Testing Machines (FTM), Hydraulic Jacks, Hydraulic Presses, Point Load Testers, Marshal Stability Testers, CBR Machines, Triaxial & Direct Shear Test Machines in Compression Mode

Weighing Balance

02



Global Lab is one of the selected lab who has NABL accreditation for Analytical Weighing Balance. Global Lab offers the Analytical Weighing Balance calibration services at Pan India & Abroad.

NABL Calibration Services

Analytical Weighing Balance: LC- 0.1mg, Range up to 200g, Analytical Weighing Balance: LC- 1mg, Range up to 500g, Analytical Weighing Balance: LC- 0.1g, Range up to 30kg, Analytical Weighing Balance: LC- 2.0g, Range up to 60kg, Analytical Weighing Balance: LC- 10.0g, Range up to 100kg

Acceleration & Speed

03



At Global Lab we provide comprehensive calibration service to meet requirement of performance evaluation of instrument. We are offering RPM calibration service accredited as per ISO/IEC 17025:2017 by NABL.

If you require precise measurements of rotation per minute, our specialized services can meet your needs. Our team is equipped with the expertise and equipment necessary to accurately measure the RPM of motors, mixers, engines and other rotating components. We understand the significance of RPM in evaluating operational performance, efficiency, and reliability.

Key Points:

- Range : 20-20,000 RPM (NABL Calibration Service)

Dimension

04

Global Lab offers the Dimension Calibration services at our Vasai Lab, Mumbai, Maharashtra.

NABL Calibration Services

- IS Test Sieves, Uniaxial Extensometer, Profile Projector
- Angle Protector, Graticules.
- LVDT Calibration, Digital Vernier, Cement Mould, Concrete Moulds, Proctor Mould, Marshal Mould, Concrete Beam Mould, Shrinkage Mould, Core cutter, Sand Pouring Cylinder, Cement Flow Table, Concrete Flow Table, Concrete Cylinder
- Shrinkage Mould, Temple, Temping Rod, Micro meter Range, Slump Cone, Vicat Apparatus
- Concrete Beam Mould

Non - NABL Calibration Services

- Measuring Tapes, Taper Scale, Pitch Gauge, Radius Gauge, Vernier Height Gauge, Dial Indicator- Lever Type, Feeler Gauge



Thermal

05

Global Lab is one of the selected lab who does Thermal Calibration. Global Lab offers the Thermal Calibration services for the range -20°C - 1200°C under NABL Accreditation at our Vasai Lab, Mumbai, Maharashtra.

Measuring Services:

- Hot Air Oven, Muffle Furnace, Curing Tank
- Accelerated Curing Tank, Humidity Chamber
- Water Bath, BOD, Environmental Chamber, Freezer, Incubator





Mechanical Testing Services

Cement | Flyash | Microsilica | Aggregates | Concrete Rebar | Soil | Tiles | Couplers | Metallic Materials | Rebar/Anchor Pull out | Ready Mix Plaster | Bricks Gypsum | Tiles Adhesive | Grout | Block Joining Mortar | AAC Block | Concrete Block | Paver Block | Plywood | WMM | GSB | Track Ballast | Bitumen | Rock

Mechanical testing of construction materials is crucial for assessing their quality and suitability. Tests include tension, compression, flexural, impact, hardness, fatigue, shear, and abrasion testing. These tests provide valuable information on strength, durability, and performance for design and construction purposes.

Mechanical Testing Services of:

- 1 Cement
- 2 Flyash
- 3 Silica Fume
- 4 Ground Granulated Blast Furnace Slag
- 5 Coarse Aggregates
- 6 Ceramic Tiles
- 7 Common Burnt Clay Brick
- 8 HT Wire Stand
- 9 Structural Steel
- 10 Bitumen
- 11 Binding Wire
- 12 Square & Rectangular Hollow Steel Section
- 13 Stainless Steel Bars & Wires
- 14 Cementitious Grout
- 15 Epoxy Grout
- 16 Fusion Bonded Epoxy Coat Bar
- 17 Harden Concrete
- 18 Flyash Brick
- 19 AAC Block
- 20 Hollow Solid Concrete Block
- 21 Paver Block
- 22 Reinforcement Bar
- 23 Fine Aggregates
- 24 Steel Coupler
- 25 Track Ballast
- 26 Soil & Rock
- 27 Gypsum Plaster
- 28 Ready Mix Plaster & Mortar
- 29 Block Joint Mortar
- 30 Tile Adhesive



Chemical Testing Services

Cement | Flyash | GGBS | Microsilica | Aggregates | Concrete | Rebar | Couplers | Metallic Materials | Gypsum | Water | Admixture | Soil | Structural Steel

Our state-of-the-art laboratory and expert professionals ensure that your materials meet the highest standards. We offer a wide range of testing services covering cement, fly ash, aggregates, and admixtures. Our rigorous testing procedures provide quality assurance, safety compliance, and performance evaluation for your materials. We help identify and solve any issues, delivering reliable results with quick turnaround time. Trust Global lab for accurate and dependable chemical testing to ensure the quality, safety, and compliance of your construction materials.

Chemical Testing Services:

- 1 Cement
- 2 Flyash
- 3 Silica Fume
- 4 Ground Granulated Blast Furnace Slag
- 5 Coarse Aggregates
- 6 Harden Concrete
- 7 Concrete Admixture
- 8 HT Wire Stand
- 9 Structure Steel
- 10 Steel Tube
- 11 Fine Aggregates
- 12 Steel Coupler
- 13 Stainless Steel Bars, Plates, & Strips
- 14 Construction Water
- 15 Gypsum Plaster
- 16 Structural Steel
- 17 Soil





Pile Testing Services

Pile Integrity | Pile Dynamic | Pile Pullout Test | Static Load Test
on Pile | Pile Lateral Load Test | Pile Cyclic Vertical Load Test

PILE TESTING

Pile Dynamic Testing

01

We offer pile dynamic test accredited as per ISO/IEC 17025 : 2017 by NABL.

Objective:

Dynamic Load Testing is a fast, reliable, and cost-effective method of evaluating foundations. This Test gives more information in less time as follows: Pile Load Bearing Capacity / Shaft resistance / Shaft resistance along with the shaft / Toe Resistance / Max Tensile Stresses & Compressive Stresses / Tensile Stresses & Compressive Stresses along with the shaft.



What to report the results?

- Pile shaft Capacity from force and velocity record.
- Pile Toe resistance, Shaft Resistance & distribution of shaft resistance along the pile shaft.
- Pile Net Settlement & Max Displacement during impact.
- Max Compressive stress & Compressive stresses along the shaft length during Impact.
- Max Tensile stress & Tensile stresses along the shaft length during Impact.
- Pile Integrity Status.

PILE TESTING

Pile Integrity Test

02

Pile Integrity Test is carried out as per ASTM D 5882. We ensure reliable and accurate results with our state-of-the-art equipment and experienced technicians, we can detect defects such as cracks, voids, and soil inclusions which may affect the performance of the pile.

We offer Pile Integrity Test accredited as per ISO/IEC 17025 : 2017 by NABL.



How it is done?

Pile integrity test (PIT) is non-destructive method used to evaluate the quality of deep foundation piles. By striking with a handheld hammer on the pile head and measuring the response with sensors, potential defects or damage can be detected. PIT provides cost-effective and reliable results, aiding in the identification of anomalies and of pile foundations. Expert interpretation is crucial for accurate assessment and informed decision-making in construction projects.

PILE TESTING

Pile Pull Out Test

03

Experience the precision and reliability of Global Lab's Pile Pullout Test services. Our expert team conducts rigorous testing of Concrete Piles, adhering to the standards set by IS 2911 Part-4.

We offer Pile Pullout Test accredited as per ISO/IEC 17025 : 2017 by NABL.



Key Points:

This test gives uplift Pile pull out load & Displacement Relation.

PILE TESTING

Pile Static Load Test

04

Global Lab is your trusted provider of Pile Static Load Testing services, offering capabilities of up to 2000T in accordance with IS 2911 Part-4.

We offer Pile Static Load test accredited as per ISO/IEC 17025 : 2017 by NABL.



Key Points

Static Load Tests measure the response of a pile under an applied load and are the most accurate method for determining pile capacities.

PILE TESTING

Pile Lateral Load Test

05

Global Lab offers the Pile Lateral Load Test of Concrete, steel Piles by complying the requirement of IS 2911 Part-04.

We offer Pile lateral Load Test accredited as per ISO/IEC 17025 : 2017 by NABL.



Objective:

Pile Lateral Load Tests measure the response of a pile under an applied lateral load.



Field Testing of Soil Services

Field CBR | Plate Load Test | K value Test | Field Density Test

At Global Lab, we combine state-of-the-art equipment, expert professionals and adherence to industry standards to deliver accurate and reliable field testing services. Trust us for thorough assessments, informed decision-making, and the successful execution of your soil-related projects.

FIELD TESTING OF SOIL

Plate Load Test

Global Lab is equipped to carry out Plate Load Tests with utmost precision and accuracy. This test is crucial in determining the bearing capacity and settlement of soil, especially in areas where construction is planned. Our state-of-the-art facility, along with our team of experienced professionals, ensures that the Plate Load Test is conducted as per the standards as per IS 1888.

We offer Plate Load Test accredited as per ISO/IEC 17025 : 2017 by NABL.



Interpretation of the results:

- The data obtained from the Plate Load Test is analyzed to determine the ultimate bearing capacity, settlement characteristics, and deformation modulus of the soil.
- Load-settlement curves are plotted to visualize the relationship between the applied load and resulting settlement.
- The test results help in assessing the soil's load-bearing capacity, understanding its behavior under load, and estimating settlements for design purposes.

Field Density Testing

02

Field Density Test performed as per IS 2720 Part :28/Part : 29 which provides valuable information about in-place density and compaction characteristics.

We offer soil field density test accredited as per ISO/IEC 17025 : 2017 by NABL.



Key Points

- The Field Density Test is a quick and cost-effective method to evaluate the compaction quality and in-place density of soil or compacted materials.
- It helps in ensuring that the required compaction specifications are met, which is crucial for the stability and performance of structures.

Field CBR Test

03

Global Lab is equipped to carry out Field CBR Tests as per IS 2720 Part 31 with utmost precision and accuracy. Field California bearing ratio carried out to evaluate the strengths of sub-grade and bases for roads and runaway pavements.



Key Points:

Measurements of applied load and plunger penetration are made at regular intervals and plotted onto a curve. The CBR bearing value is expressed as a percentage ratio against a standard load requirement for the penetration of 2.5mm and 5.0mm.

Modulus of Sub-grade (k-Value)

04

Soil k-Value Test also known as the Modulus of Sub-grade Test which performed as per IS 9124 . Our experienced team utilize advanced equipment to assess the stiffness and strength of sub-grade soils.

We offer soil k-Value test accredited as per ISO/IEC 17025 : 2017 by NABL.

Leverage our expertise to optimize pavement performance, identify weak sub-grade areas, and make informed decisions for cost-effective infrastructure development.



Benefits of the K-Value Test (Modulus of Sub Grade Test):

- **Design Optimization:** The k-Value Test helps optimize pavement designs by providing valuable information about the stiffness and strength of sub-grade soils. This allows for more accurate pavement thickness design and selection of appropriate materials.
- **Performance Assessment:** By evaluating the modulus of sub-grade, the test enables the assessment of the sub-grade's ability to support the pavement structure and distribute loads. This helps in predicting pavement performance and identifying potential issues.
- **Cost-effective Solutions:** With the k-Value Test, engineers can make informed decisions regarding pavement construction and maintenance, leading to cost-effective solutions. By identifying weak sub-grade areas, appropriate measures can be taken to mitigate potential failures.





Concrete Durability Test Services

RCPT | Rapid Chloride Migration | Concrete Depth of Water Penetration | ISAT | Mass Concrete Temperature Monitoring Drying Shrinkage | Modulus of Elasticity

CONCRETE DURABILITY TEST

Rapid Chloride Migration Test of Concrete

Global Lab offers the Rapid Chloride Migration test of Concrete, which is conducted in accordance with NT Build 492. This test provides crucial information about the durability of concrete in chloride-rich environments, helping clients assess and mitigate the risk of corrosion in their structures.

We offer Concrete RCM test accredited as per ISO/IEC 17025 : 2017 by NABL.

Interpretation of Results:

- The RCM test provides an indication of the concrete's resistance to chloride ion penetration.
- A lower chloride migration coefficient signifies better resistance to chloride ingress.

Benefits:

- The RCM test offers a rapid and quantitative assessment of concrete's resistance to chloride migration.
- It helps evaluate the durability of concrete structures exposed to chloride-rich environments.



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CONCRETE DURABILITY TEST

Rapid Chloride Penetration Test

02

The Rapid Chloride Penetration Test (RCPT) is a quick and widely used test to assess the chloride ion permeability of concrete. RCPT Test performed as per ASTM C 1202. It measures the concrete's resistance to chloride penetration by subjecting a specimen to an electrical potential. Lower charge values indicate better resistance.

The RCPT is beneficial for evaluating concrete durability in chloride-rich environments.

We offer Concrete RCPT test accredited as per ISO/IEC 17025 : 2017 by NABL.



Interpretation of the result:

- The RCPT provides an indication of the concrete's resistance to chloride ion penetration.
- Results are typically reported as the electrical charge passed or the chloride penetration depth.
- Lower charge values or shallower penetration depths indicate better resistance to chloride ingress.

Benefits:

- The RCPT is a rapid test that provides a quantitative assessment of concrete's resistance to chloride penetration.
- It helps evaluate the durability of concrete in chloride-rich environments, such as coastal or de-icing salt exposure.

CONCRETE DURABILITY TEST

Concrete Depth of Water Penetration

03

Concrete depth of Water Penetration we performed as per IS 516 Part 2 Sec 1 which is under scope of NABL Accreditation.

This test measures concrete sample's ability to resist water under pressure.



Methods:

- Concrete specimen (150mm Size Cube) shall be exposed water pressure of 4.5 to 5.5 bar acting normal to the mould filling direction, for a period of 3 days (72 hours). This pressure shall be kept constant throughout the test.
- It shall be checked weather and when the exposed specimen faces shows signs of permeation.
- Immediately after the pressure has been released, the specimen shall removed & split with the face which was exposed to water facing down by using steel bars lying on top of the specimen.
- The Maximum depth of the penetration shall be measured in mm, and extent of permeation established.
- The mean of the maximum depth of penetration obtain from three specimen shall be taken as test result.

CONCRETE DURABILITY TEST

Concrete Initial Surface Absorption Test

04

Initial Surface Absorption Test (ISAT) for Concrete performed as per BS 1881 : Part 208. This Test is under scope of NABL Accreditation.

Key Points:

- **Purpose:** Assess concrete's permeability and resistance to liquid ingress.
- **Test Specimens:** Carefully prepared concrete specimens representing the material being tested.
- **Test Setup:** Concrete specimen placed on a raised platform, water poured on the surface.
- **Applications:** Quality control, mix design selection, evaluating surface treatments.
- **Measurement:** Precise measurement of water absorption rate over time.
- **Calculation:** Determination of initial surface absorption rate.
- **Interpretation:** Insights into concrete's surface permeability and resistance.
- **Global Lab Expertise:** State-of-the-art facilities, experienced professionals, adherence to international guidelines for accurate results.



CONCRETE DURABILITY TEST

Concrete Drying Shrinkage Test

05

The Concrete Drying Shrinkage Test is conducted to measure the extent of shrinkage that occurs in concrete as it dries and loses moisture as per IS 516 Part-6.

This test helps assess the potential for cracking and deformation in concrete structures due to drying shrinkage.

Key Points:

- **Test Specimens:** Specially prepared concrete specimens resembling the actual material.
- **Initial Measurement:** Precise measurement of specimen dimensions before drying.
- **Drying Conditions:** Specimens exposed to controlled low humidity or specific drying conditions.
- **Dimensional Changes:** Regular measurements track changes in length, width, and thickness.
- **Calculation:** Percentage of drying shrinkage calculated based on dimensional changes.
- **Significance:** Understand concrete behavior, predict cracking, and design appropriate reinforcement and control joints.
- **Test Standards:** ASTM C 157, IS 516 Part 6



CONCRETE DURABILITY TEST

Modulus of Elasticity of Concrete

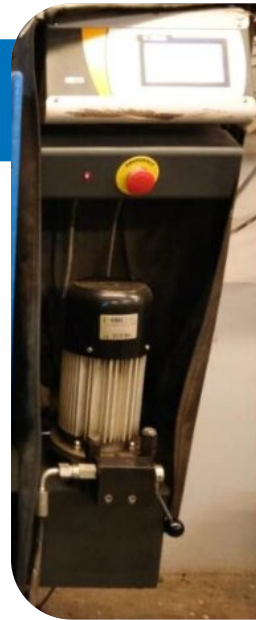
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The modulus of elasticity is a fundamental property that measures the stiffness and flexibility of materials.

In the context of concrete, it refers to the ability of the material to deform elastically when subjected to external loads. Global Lab performs Concrete Modulus of Elasticity Test as per ASTM C 469. This Test is under scope of NABL Accreditation.

Key Points:

- **Measurement:** Determined through specialized laboratory tests like static or dynamic modulus of elasticity test.
- **Factors Affecting Modulus:** Influenced by concrete mix design, aggregate properties, curing conditions, and age of the concrete.
- **Significance:** Crucial for structural design & analysis, understanding concrete behavior, ensuring safety and performance.
- **Relationship with Strength:** Indirectly related to compressive strength, generally increasing as concrete strength increases.
- **Limitations:** Modulus of elasticity varies based on concrete type and age, subject to change over time due to creep and shrinkage.



CONCRETE DURABILITY TEST

Mass Concrete Temperature Monitoring

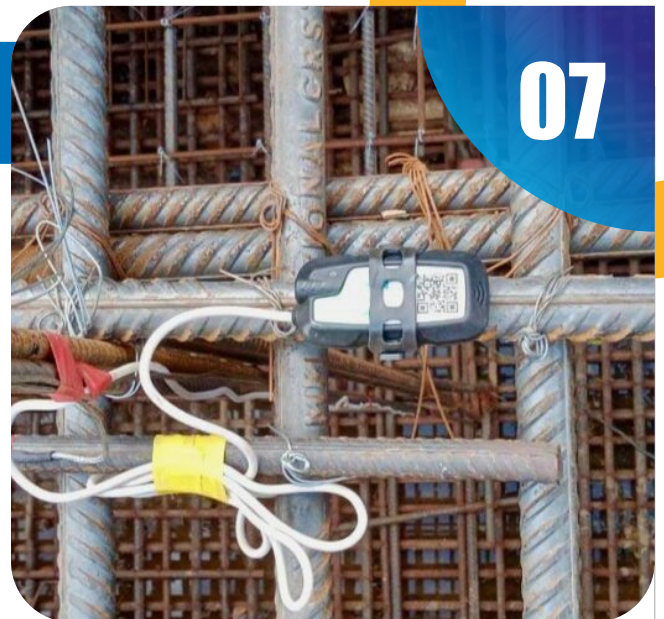
07

Mass concrete temperature monitoring is a crucial practice employed during the construction of large concrete structures, such as dams, bridges, and high-rise buildings.

It involves the continuous measurement and recording of the internal temperature of the concrete mass to ensure proper curing and prevent thermal cracking.

Key Points:

- **Purpose:** Manage concrete heat, control temperature rise, and prevent cracking.
- **Sensors:** Strategically placed to capture accurate temperature data.
- **Data Collection:** Continuous recording of temperature readings.
- **Analysis:** Identify abnormal temperature rise and assess thermal behavior.
- **Control Measures:** Adjust concrete mix, use cooling techniques, and apply insulation.
- **Schedule Adjustment:** Optimize concrete placement timing and curing methods.
- **Compliance:** Meet construction codes and guidelines for durability.
- **Expert Guidance:** Experienced professionals ensure effective temperature monitoring.





Concrete Mix Design Services

Normal Mix Design up to M 40 Grade, High Performance Concrete Mix Design, Self-Compaction Concrete Mix Design, PQC Mix Design, Color Concrete Mix Design, Light Weight Concrete Mix Design

CONCRETE MIX DESIGN

High Performance Concrete Mix Design

Our experts at Lab are specialized in high performance concrete mix design. We have extensive knowledge and experience in creating optimal concrete mixtures that meet the required strength and durability specifications.

Trust us to provide precise and efficient mix designs for your concrete projects, ensuring high-quality and reliable result.



Benefits:

- **Exceptional Strength and Durability:** High-performance concrete offers superior strength and durability characteristics, ensuring long-lasting and resilient structures.
- **Enhanced Workability:** Our mix designs optimize workability, allowing for ease of placement and ensuring proper consolidation without compromising performance.
- **Reduced Maintenance Costs:** High-performance concrete's excellent durability properties minimize the need for repairs and maintenance, resulting in long-term cost savings.

CONCRETE MIX DESIGN

Normal Mix Design up to M 40 Grade

02

Our experts at Lab specialize in concrete mix design, including normal mix designs up to M40 grade. We have extensive knowledge and experience in creating optimal concrete mixtures that meet the required strength and durability specifications.

Trust us to provide precise and efficient mix designs for your concrete projects, ensuring high-quality and reliable results up to M40 grade

Key Points:

- Normal mix design up to M 40 grade typically focuses on achieving compressive strength requirements ranging from M10 to M40 Grade.
- The mix design follows established guidelines and specifications, such as those provided by relevant codes and standards (e.g., Indian Standards, ASTM).
- The selection of aggregate sizes and gradation plays a crucial role in achieving the desired workability, strength, and durability of the concrete mix.
- The water-cement ratio is carefully controlled to ensure proper hydration of the cement and to maintain the desired workability while preventing excessive shrinkage or cracking.



CONCRETE MIX DESIGN

Self-Compaction Concrete Mix Design

03

Self-compacting concrete (SCC) mix design is a specialized approach to proportioning concrete that is highly flowable and can easily fill and compact in congested reinforcement areas without the need for external vibration.

Here are the key points about self-compacting concrete mix design:

Key Points:

- **Flowability:** SCC has high flowability, filling all corners and gaps without mechanical consolidation.
- **Workability and Segregation Resistance:** SCC maintains workability and prevents segregation or blocking, ensuring uniform distribution of aggregates and cement paste.
- **Viscosity and Cohesiveness:** SCC achieves the right balance of viscosity and cohesiveness to prevent excessive bleeding or segregation.
- **Fine Aggregate Content:** SCC contains more fine aggregates to enhance flowability and filling ability.
- **Binder Content:** Optimal cementitious material content, including cement and supplementary cementitious materials, ensures desired strength and durability.



PQC Mix Design

04

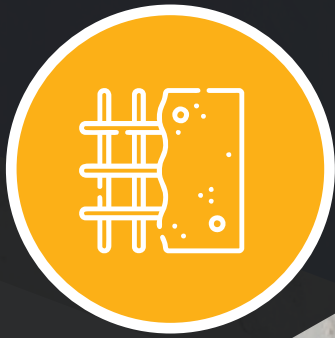
Global Lab specialises in PQC mix design, ensuring the optimal combination of materials, proportions, and construction practices to deliver durable and high-quality road pavements that meet performance and longevity expectations.



Key Points:

- **Strength and Durability:** Resists heavy traffic, abrasion, and environmental factors.
- **Optimal Aggregates:** Carefully selected for improved packing and mechanical properties.
- **Cementitious Materials:** Proportions optimized for strength and reduced shrinkage.
- **Workability and Consistency:** Balanced for efficient placement and uniform properties.
- **Smooth Surface Finish:** Provides safe and comfortable driving with skid resistance.
- **Quality Control:** Rigorous testing and monitoring ensure compliance with specifications.
- **Longevity and Low Maintenance:** Designed for long service life and minimal upkeep.





Concrete NDT & Maturity Test Services

Rebound Hammer | UPV | Half Cell Potential | Carbonation | Rebar Mapping & Cover depth | Concrete Crack Depth & Crack Width | Endoscopy | Concrete Maturity Testing

CONCRETE NDT & MATURITY TEST

Rebound Hammer Test

Global Lab conduct Rebound Hammer Test on Harden Concrete as per IS 516 Part 5 Sec 4. This test provide information about estimated compressive strength of Concrete without destructing/extracting sample. This test is under scope of NABL Accreditation.

Our experienced and qualified team uses state-of-the-art equipment and up-to-date testing procedures to deliver accurate and reliable results, ensuring the safety and longevity of our clients' concrete assets.

Key Points:

- **Assessing Compressive Strength:** By establishing a correlation between rebound index and compressive strength, we can estimate the likely strength of the concrete.
- **Evaluating Uniformity:** The test helps determine the uniformity of the concrete, ensuring consistency in quality throughout the structure.
- **Quality Assessment:** We assess the quality of the concrete based on standard requirements, ensuring it meets the necessary specifications.
- **Comparing Concrete Elements:** The test allows for a comparison between different elements of concrete, ensuring the quality of each component in relation to the others.



Ultrasonic Pulse Velocity Test

02

Global Lab is proud to offer NABL accredited Ultrasonic Pulse Velocity (UPV) testing services, adhering to the requirements of IS 516 Part 5 Sec 1. Our goal is to provide you with precise and reliable results.



Key Points:

- **Homogeneity Assessment:** We evaluate the uniformity of the concrete, ensuring consistent quality throughout the structure.
- **Detection of Imperfections:** The test helps identify cracks, voids, and other imperfections in the concrete, ensuring structural integrity.
- **Monitoring Structural Changes:** We detect any changes in the concrete structure that may occur over time, allowing for timely maintenance or repair interventions.
- **Quality Assessment:** The test assesses the quality of the concrete in relation to industry standards, ensuring compliance with requirements.
- **Comparative Analysis:** We compare the quality of different concrete elements, ensuring consistency and compatibility between components.

Half Cell Potential Test: Assessing Corrosion Activity in Reinforced Concrete

03

At Global Lab, we offer precise, accurate, and reliable testing of the electrical half-cell potential of uncoated reinforcing steel. Our services are accredited by NABL and comply with the requirements of ASTM C 876.



Key Points:

- **Rapid and Cost-effective:** Non-destructive survey method for quick corrosion evaluation.
- **Rehabilitation Guidance:** Determines the extent of corrosion, aiding in effective repairs.
- **Quality Assurance:** Ensures the durability of repaired concrete structures.
- **Service Life Prediction:** Estimates the remaining service life, assisting in maintenance planning.

Carbonation Test

04

At Global Lab, we offer precise, accurate, and reliable carbonation testing services. Our tests are accredited by NABL and comply with the requirements of EN 14630.



Key Points:

- **Objective:** The carbonation test measures the depth of the carbonated layer near the surface of hardened concrete, providing insights into the carbonation process. It can be conducted on-site or in the lab using test specimens or concrete cores.
- **Understanding Carbonation:** Carbonation is a natural process where carbon dioxide from the air reacts with the calcium-bearing phases in concrete, converting them into calcium carbonate. Cement paste, with calcium hydroxide (Ca(OH)_2), has a high pH of at least 12.5.
- **Choose Global Lab for accurate carbonation testing.** Our expertise ensures reliable results and valuable information about the carbonation depth in your concrete structures.

Rebar Mapping & Cover depth of concrete

05

At Global Lab, we offer precise, accurate, and reliable testing for concrete cover depth and bar diameter. Our tests are accredited by NABL, following the requirements of BS 1881:204 for measurement of cover depth.



Purpose:

- This test is used to estimate the position, depth, and size of reinforcement within concrete. It provides valuable information on their usage, applications, expected accuracy, and factors that may affect the results. Concrete cover refers to the minimum distance between the surface of embedded reinforcement and the outer surface of the concrete (ACI 130). The depth of concrete cover can be measured using a cover meter.
- **Rely on Global Lab for comprehensive testing of concrete cover depth and bar diameter.** Our expertise ensures accurate results, enabling you to maintain the integrity and quality of your reinforced concrete structures.

Crack Depth and Crack Width Monitoring: Ensuring Concrete Integrity

06

At Global Lab, we offer comprehensive crack depth and crack width monitoring services for concrete structures. By accurately assessing the depth of cracks and monitoring the condition of crack bars, we provide valuable insights into the integrity and stability of your concrete elements



Key Points:

- **Crack Depth Measurement:** Advanced techniques for precise assessment of crack severity in concrete.
- **Crack Width Monitoring:** Specialized equipment to monitor condition and displacement of crack bars.
- **Early Detection:** Prompt intervention and prevention of further damage through early identification of issues.
- **Structural Integrity Assessment:** Comprehensive understanding of concrete element integrity for informed decision-making on repairs and maintenance.
- **Safety Assurance:** Regular monitoring ensures occupant safety and prolongs structure lifespan by addressing cracks and reinforcing elements promptly.

Concrete Endoscopy

07

Choose Global Lab for Concrete Endoscopy: With our cutting-edge equipment and experienced professionals, Global Lab provides precise and reliable concrete endoscopy services. Trust us to deliver accurate assessments and comprehensive reports, ensuring the longevity and safety of your concrete structures.

Purpose:

- **Non-Destructive:** Thorough inspection without damaging the structure, minimizing disruptions and costs.
- **Visual Inspection:** Real-time video and high-resolution images reveal reinforcement, cracks, voids, and other defects.
- **Issue Detection:** Uncover hidden problems like corrosion, delaminating, spalling, and structural anomalies.
- **Assess Structural Integrity:** Evaluate overall integrity and identify areas in need of repair or maintenance.
- **Informed Decision-Making:** Gathered information aids in planning repairs, maintenance, and structural rehabilitation.

Concrete Maturity Test

08

At Global Lab, we specialize in concrete maturity testing, a reliable method for evaluating the compressive strength of concrete. Our expertise in this field allows us to accurately determine the strength of concrete based on its maturity, providing valuable insights for construction projects. Trust us to deliver precise and reliable results using the maturity method for concrete compressive strength evaluation.

Purpose:

- **Concrete Maturity Testing:** Accurate and reliable testing method for assessing the maturity of concrete during the curing process.
- **Maturity Measurement:** Monitoring and recording the temperature and time history of concrete to determine its maturity index.
- **Strength Prediction:** Using maturity data to estimate concrete strength development and assess its suitability for specific construction activities.
- **Quality Control:** Maturity testing enables effective quality control measures, ensuring proper concrete curing and optimal construction timelines.
- **Cost and Time Savings:** By accurately predicting concrete strength, maturity testing allows for optimised construction schedules and potential cost savings.



Metal Hardness Testing Services

Rockwell Hardness Test | Brinell Hardness Tests | Charpy Impact Test

Rockwell Hardness Test

01

The Rockwell hardness test measures hardness by pressing an indenter into the surface of the material with a specific load and then measuring how far the indenter was able to penetrate. The indenter is made of either a steel ball or a diamond. Rockwell Hardness Test is under scope of NABL Accreditation.

Test Method: ASTM E 18, ISO 6508-1, IS 1586- Part-1

Key Points:

- **Products:** Aluminum Alloys, Copper Alloys, Unhardened Steel, Cast Metal, Hard Cast Iron, Steel, Deep Case Harden Steel, Titanium
- **Industries served:** Manufacturing, Heavy Engineering etc.



Brinell Hardness Test

02

Brinell hardness is determined by forcing a hardened steel or carbide ball of known diameter under a known load into a surface and measuring the diameter of the indentation with a microscope.

The Brinell hardness number is obtained by dividing the load, in kilograms, by the spherical area of the indentation in square millimetres.

Brinell Hardness Test is under scope of NABL Accreditation

Test Method: ASTM E 10, ISO 6560-1, IS 1500 Part-1

Key Points:

- **Products:** Steel/Iron, Copper Alloys, Aluminium alloys
- **Industries served:** Manufacturing, Automobile, Heavy Engineering, Power Tools Making etc.



Charpy Impact Test

03

The Charpy impact test is a high strain-rate test that involves striking a standard notched specimen with a controlled weight pendulum swung from a set height. The impact test helps measure the amount of energy absorbed by the specimen during fracture. Charpy Impact Test is under scope of NABL Accreditation.

Test Method: BS EN ISO 9016, IS 1757 Part-1, ISO 148-1

Key Points:

- **Products:** Carbon Steel, Low alloy steel, Stainless Steel, Tool steel, ferro super alloy, Copper alloy etc.
- **Industries served:** Aeronautics, Railways, Ship Building, Manufacturing etc.





Concrete Consultancy Services



At our concrete consultancy firm, we offer a specialized service dedicated to providing our clients with expert advice, guidance, and solutions in the realm of concrete technology, construction, and materials. Our team of experienced concrete consultants possesses in-depth knowledge and expertise in various facets of concrete, ranging from its properties and mix design to durability, construction techniques, testing, quality control, and troubleshooting.

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When you engage our services, our concrete consultants work closely with you, whether you are a construction company, engineer, architect, or developer, to understand your unique project requirements. We then provide tailored solutions that align with your specific needs. Throughout the entire lifecycle of your project, from the design and planning stage to the construction and maintenance phase, we offer valuable insights and recommendations to ensure optimal results.



Common Areas where Concrete Consultancy are sought

Concrete Mix Design”

Advising on the selection of suitable concrete mix proportions to meet specific project requirements, including strength, durability, workability, and other desired properties.

Quality Control & Assurance”

Implementing quality control measures to ensure that concrete materials, batching, and construction processes meet industry standards and project specifications.

Concrete Testing and Analysis:

Conducting various tests and assessments on concrete samples to evaluate their properties, strength, durability, and performance characteristics.

Troubleshooting and Failure Analysis:

Investigating and analyzing concrete-related issues, such as cracks, failures, or durability problems, to identify the causes and provide recommendations for remediation.

Specifications and Compliance:

Assisting in the development and review of concrete-related specifications, standards, and compliance requirements for construction projects.

CONCRETE CONSULTANCY SERVICES

Some Key Points

Elevate your concrete projects with our upscale consultancy services. We specialize in concrete mix design, ensuring optimal proportions for strength, durability, workability, and desired properties. Our guidance on quality control and assurance guarantees compliance with industry standards and project specifications.

Our comprehensive concrete testing and analysis assess properties, strength, durability, and performance characteristics. In case of issues like cracks or failures, our troubleshooting and failure analysis services provide effective recommendations for remediation.

Collaborating with us, you'll benefit from our expertise in developing and reviewing concrete-related specifications, standards, and compliance requirements. Together, we'll optimize your concrete endeavors, ensuring quality, durability, and minimized risks.

Partnering with our esteemed consultancy firm grants you access to industry insights, empowering you to make informed decisions and achieve successful outcomes in your concrete construction projects.



Structural Health Monitoring Services

Structural health monitoring (SHM) is a field of engineering that deals with the continuous monitoring and evaluation of the performance and condition of a structure to prevent damage, ensure safety, and extend its lifespan. It involves the use of sensors and monitoring systems to detect and analyze structural deficiencies or defects, such as cracks, corrosion, or fatigue in real time.

Importance:

Reinforced concrete structures are widely used in numerous infrastructures, such as buildings, bridges, tunnels, dams, and roads, due to their high strength, resistance to fire, and durability. However, these structures are subjected to various environmental and loading conditions, such as temperature variations, moisture, vibrations, and traffic loads, which can affect their structural integrity and lead to damage or failure.

Therefore, RCC structure monitoring is crucial to detect and diagnose any potential issues before they become severe and costly. By implementing SHM techniques, owners, and operators of RCC structures can ensure their safety, efficiency, and longevity, and avoid unplanned maintenance or replacement.



How Does Structural Health Monitoring Work?

Visual inspection

Traditional visual examination using cameras or drones to identify visible defects or anomalies.

Non-destructive testing (NDT):

Techniques like ultrasound, X-ray, or acoustic emissions to scan and analyze internal or surface layers without causing damage.

Strain gauges:

Sensors measuring strain or deformation to detect abnormal strains or cracks.

Accelerometers:

Real-time monitoring of structural dynamic characteristics due to damage or performance changes.

LVDT (Linear Variable Differential Transformer):

Measures linear displacement, often used in structural monitoring to record displacement from live loads and temperature variations.

Other methods include temperature sensors, acoustic emission sensors, tiltmeters, inclinometers, and more.

STRUCTURAL HEALTH MONITORING

Benefits

- Ensures safety: Structural Health Monitoring (SHM) helps identify potential issues and structural deficiencies in real-time, ensuring the safety of the structure and its occupants.
- Prevents damage: By continuously monitoring the structure, SHM allows for early detection of problems, preventing them from escalating and causing significant damage.
- Extends lifespan: Timely detection and mitigation of structural issues through SHM techniques can help extend the lifespan of the structure.
- Reduces maintenance costs: SHM helps in identifying and addressing issues before they become severe, reducing the need for costly repairs or replacement.
- Improves efficiency: By monitoring the performance of the structure, SHM allows for optimized maintenance planning and resource allocation, leading to improved operational efficiency.
- Enhances structural integrity: SHM aids in maintaining the structural integrity of the building, ensuring that it performs as intended throughout its lifespan.
- Provides data-driven insights: SHM generates valuable data and insights about the behavior and condition of the structure, enabling informed decision-making for maintenance and future improvements.
- Enables proactive maintenance: SHM facilitates proactive maintenance strategies, allowing for timely repairs and interventions to address structural issues.
- Supports sustainability: By maximizing the lifespan of structures and reducing the need for replacements, SHM contributes to sustainability efforts by minimizing resource consumption and waste.



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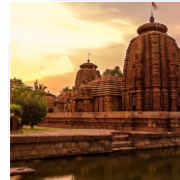
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