GLOBAL
CONCRETE CONSULTANT
TRUST IS GAINED, TRUTH IS DELIVERED...

A UNIT OF GLOBAL LAB - MUMBAI

CORPORATE BROCHURE

ABOUT US

Global Concrete Consultancy is a concrete consultancy provider unit of **Global Lab (Mumbai)** which is a leading ISO/IEC 17025:2017 accredited by NABL testing and calibration service provider in the construction and related industries.

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, Non-Destructive testing, quality control, and troubleshooting.

OUR SERVICES

- Concrete Consultancy
- Structural Health Monitoring
- Concrete Mix Design
- Concrete NDT & Maturity Testing
- Concrete Temperature Monitoring
- Structural Audit

OUR ETHOS:

- Authenticity
- Accuracy
- Transparency
- Reliability

DIGITIZED OPERATIONS

At GCC, 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.

Concrete Consultancy Services

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 life-cycle 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.

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.

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 Mix Design
Services

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

CONCRETE MIX DESIGN

High Performance Concrete Mix Design

01

Our experts 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 optimized 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 desired 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 50 Grade

02

Our experts are specialized in concrete mix design, including normal mix designs up to M50 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 M50 grade.

Key Points:

- **Normal mix design up to M 50 grade typically focuses on achieving compressive strength requirements ranging from 20 to 50 (MPa).**
- **The mix design complying the requirements 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 specialised 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 external vibration.**
- **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

01

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.

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 compressive 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 acceptable concrete member.**

CONCRETE NDT & MATURITY TEST

Ultrasonic Pulse Velocity Test

02

Global Lab is proud to offer 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 to 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.**

CONCRETE NDT & MATURITY TEST

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 as per ISO/IEC 17025 : 2017 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 as per ISO/IEC 17025 : 2017 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 as per ISO/IEC 17025 : 2017 by NABL, following the requirements of BS 1881:204

Purpose:

- **Rebar Mapping : This test is used to estimate the position, depth, and size of reinforcement within concrete.**
- **Cover Depth : The distance between the surface of embedded reinforcement and the outer surface of the concrete is measured using a cover meter.**

We are using most advance equipment for Rebar Mapping & Cover meter test. Our expertise ensure accurate results to ascertain quality of reinforce concrete structure

Crack Depth and Crack Width Monitoring: Ensuring Concrete Integrity 06

At Global Lab, we offer comprehensive crack depth and crack bar 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 width.**
- **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.**

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.

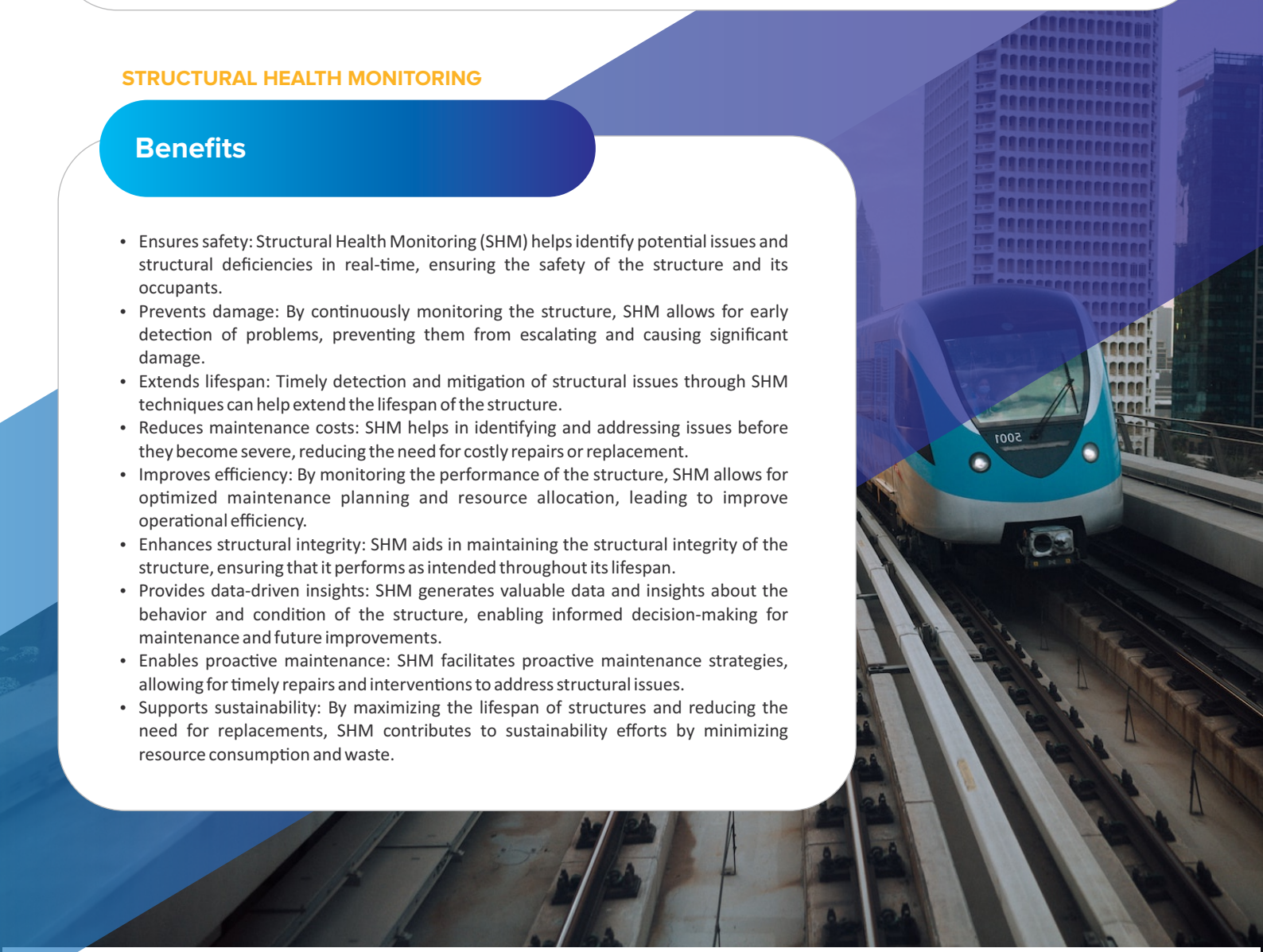
LVDT (Linear Variable Differential Transformer):
Measures linear displacement, often used in structural monitoring to record displacement from live loads and temperature variations.

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 improve operational efficiency.
- Enhances structural integrity: SHM aids in maintaining the structural integrity of the structure, 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.



Concrete Temperature Monitoring Services

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.**

PROUD TO BE PART OF PRESTIGIOUS

PROJECTS

Lodha One World Project - Worli (Mumbai)

Minerva Tower - Lokhandwala (Mumbai)

Omkar - 1973 - Worli (Mumbai)

Oberoi Sky City - Borivali (Mumbai)

Prestige Jasdan Classic - Mahalaxmi (Mumbai)

Peninsula Salsette - Byculla (Mumbai)

Piramal Ananya - Byculla (Mumbai)

One Marina - Marine Lines (Mumbai)

Oberoi Enigma - Mulund (Mumbai)

Oberoi 360 West - Worli (Mumbai)

Bullet Train Project

Mumbai Metro - Mumbai

PROUD TO BE PART OF PRESTIGIOUS

PROJECTS

Mumbai Coastal Road Project - Mumbai

Trans Harbour Link Project - Mumbai

Navi Mumbai Metro

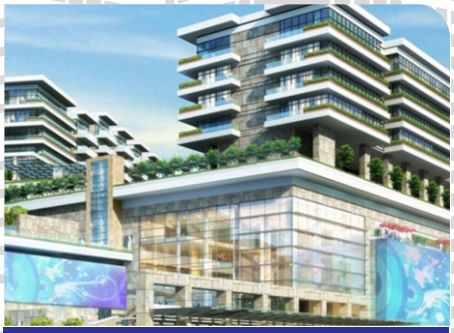
Dhubari to Phulbari Bridge - Assam

Statue of Unity - Gujarat

Ram Mandir Project - Ayodhya

BAPS Temple - Surat

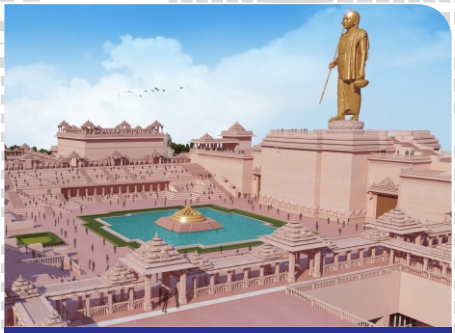
Indira Gandhi Hospital Project- Delhi



DAICEC Project - Bandra Kurla (Mumbai)

Statue of Equality - Mumbai

New Parliament Building - New Delhi



Statue of Oneness - Omkareswar

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