

www.heconline.co.in

HERITAGE ENGINEERING



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+91 81435 32542/ +91 63016 00200

WHAT WE DO

We are an engineering company established to look after the needs of infrastructure owners, industries and contractors to ensure integrity management of their assets.

We provide services in health audit and preservation of your assets by our subject matter experts who have more than 30 years experience in infrastructure, oil & gas and petrochemical industries.

We cover residential, commercial, industrial and heritage infrastructure affected by concrete deterioration due to reinforcement corrosion, acid attack, fire damage, seismic damage, blast damaged and poor construction quality.



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WHY DO YOU NEED US?

- ▶ Concrete deterioration is being reported in the existing infrastructure as it is getting older day by day.
- ▶ Concrete deterioration causes reduction in structural capacity and service life of the structure.
- ▶ The deteriorating structures need a professional approach to rehabilitate them.
- ▶ Prior to carrying out expensive repairs, condition and structural assessment, which takes much less expense and time than the repairs, must be carried out by professionals.
- ▶ The outcome of the assessment will result in an economical and durable repair.
- ▶ Heritage Engineering is a professional company with subject matter experts in health assessment, structural assessment and repair to make your structure stronger and last longer.



OUR SERVICES

**STRUCTURAL
DESIGN**

**HEALTH
ASSESSMENT**

**REPAIR
DESIGN**

**REPAIR &
REHABILITATION**

**CATHODIC
PROTECTION**



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STRUCTURAL DESIGN

Structural design and detailing for residential and commercial villas, multi-storey and high-rise buildings.

Structural design of industrial structures, such as, steel sheds, platforms, pipe racks, pipe supports, equipment foundations, water treatment plants, sewage treatment plants, silos, jetties and berths, sub-stations, retaining walls.

Structural assessment of existing structures as per ACI 562.

Structural upgrade (example: for constructing additional floors)

Structural upgrade of Heritage structures



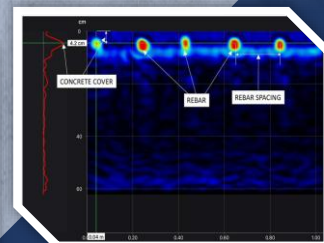
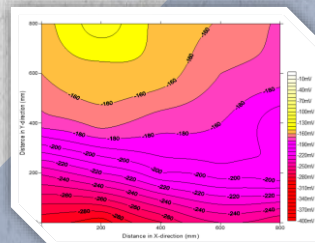
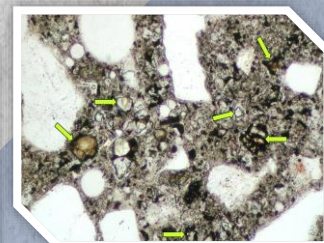
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HEALTH ASSESSMENT

- Health audit/assessment of residential, commercial, industrial and heritage structures
- We carry out preliminary field inspection to assess if there is need for detailed investigation
- Detailed investigation involves locating extent of deterioration, extracting concrete core samples and test for compressive strength, chloride profile and pH, corrosion potential mapping, corrosion rate, rebound hammer testing, concrete resistivity, upv, up echo, GPR imaging and other corrosion tests as required.
- As an outcome of the investigation, we issue *Assessment Report* comprising causes and extent of deterioration, remaining service life, remaining structural capacity and repair techniques.



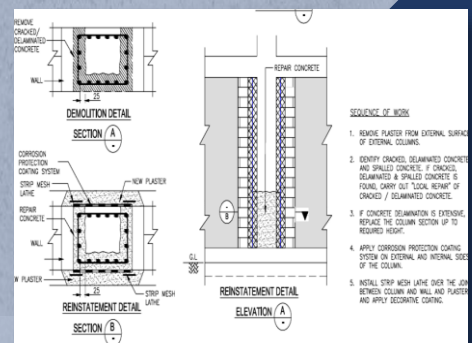
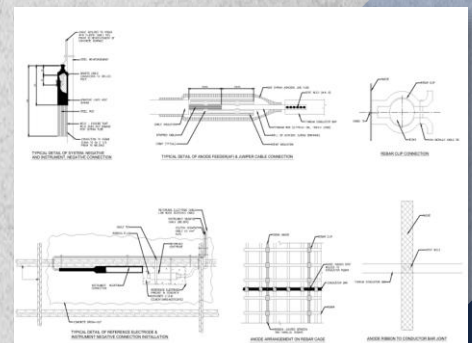
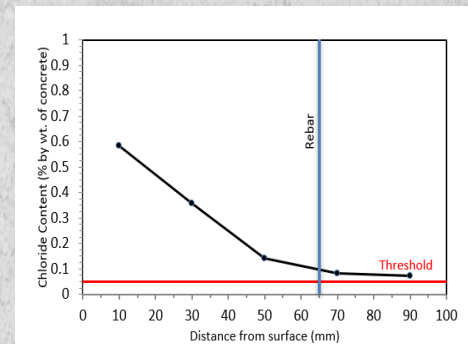
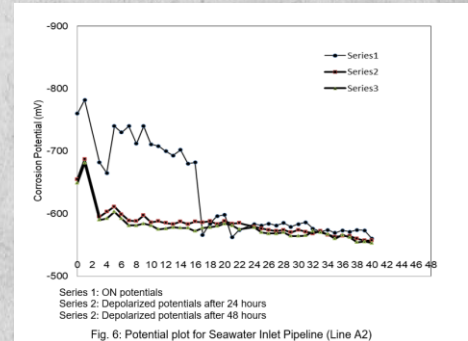
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REPAIR DESIGN

- As an outcome of the detailed investigation, we also provide a detailed Design Report.
- The Design Report includes detailed procedures to restore structural capacity and to extend service life of the structure.
- We recommend different techniques for structural restoration/upgrade, such as, concrete jacketing, GFRP wrapping, CFRP wrapping.
- Service life extension is achieved by techniques, such as, protective coatings/linings and cathodic protection.
- We also provide Tender Document for repair of the structure, which can be issued to repair contractors. It includes scope of work, specifications, BOQ and IFC drawings.



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REPAIR & REHABILITATION

- We know the mechanisms of deterioration, rehabilitation and protection of reinforced concrete structures. Our SMEs have extensive experience in repair and rehabilitation.
- We provide complete investigate, design and build services for deteriorating structures.
- We carry out repair and rehabilitation to make the deteriorating structure stronger and last longer.
- We repair and rehabilitate all types of structures including:
 - Structures affected by reinforcement corrosion
 - Fire damaged structures
 - Blast damaged structures
 - Earthquake damaged structures
 - Parking garages and basements
 - Heritage structures



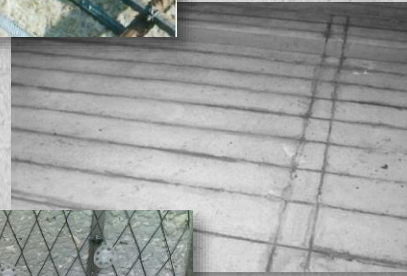
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CATHODIC PROTECTION

- Pre-design survey
- System design and engineering
- Materials supply
- Installation, testing and commissioning
- Pre and post commissioning reports
- Monitoring and maintenance
- Interference surveys and mitigation
- Troubleshooting and mitigation
- Upgrading existing systems for
 - Reinforced concrete structures
 - Pipeline (carbon steel, PCCP, CCP)
 - Tanks bottom
 - Tanks internal
 - Jetties
 - Well casings



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TESTING FACILITIES

- Concrete core extraction
- Concrete powder sample extraction
- Locating reinforcing bars and measuring concrete cover
- Rebound Hammer test
- Concrete resistivity using Four-pin Wenner probe
- Corrosion potential mapping
- Carbonation depth
- Ultrasound Pulse velocity
- Ultrasound Pulse echo
- Ground Penetrating Radar (GPR) scanning
- Chemical analysis of concrete samples (pH, chloride and sulfate contents)
- Corrosion rate measurement of reinforced concrete members
- Load testing



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TRAINING COURSES

STRUCTURAL DESIGN

Basic structural design of reinforced concrete

Basic structural design of steel

Design using structural design software

- STAAD Pro
- SAFE
- ETABS

HEALTH ASSESSMENT & REPAIR

Mechanisms of concrete deterioration

Design durable concrete structures

State-of-the-art techniques for health assessment of concrete structures

Repair techniques for deteriorating concrete structures

Cathodic protection of reinforced concrete structures

CATHODIC PROTECTION

Basic corrosion and cathodic protection

Cathodic protection design of steel structures

Cathodic protection system maintenance

Cathodic protection troubleshooting and rectification

NACE CP-1
Cathodic protection tester

NACE CP-2
Cathodic protection technician

NACE CP-3
Cathodic protection technologist



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OUR KEY PERSONNEL

DR. SYED EHTESHAM HUSSAIN

B.E in civil eng'g from Osmania University. M.E in structures from Indian Institute of Science, Bangalore and Ph.D. in concrete durability from King Fahd University, Saudi Arabia and NACE certified CP Specialist. Has more than 30 years of experience in health assessment, repair design, rehabilitation, strengthening, durability of reinforced concrete structures as well as design and installation of cathodic protection systems for concrete structures, pipeline, tanks and jetties. Published about 22 technical papers in International journals and conferences.



ENGR. MOHAMMED ABDUL SALEEM

B. Tech in civil engineering from JNTU, Hyderabad and M. Tech in structural engineering, JNTU, Hyderabad. Has 25 years of experience in structural design, project management, FEED, EPC contracts, seismic design, health assessment and structural assessment & upgrade. Covered residential buildings, commercial buildings and industrial structures. Worked extensively in Oil & Gas, Petrochemical, Infrastructure industries.



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HERITAGE ENGINEERING



Our Approach...

Visit your site to see and discuss the problem

Make a brief presentation to explain solution options

Submit our formal technical and cost proposal

Carry out the work to your satisfaction

Follow-up visits on as needed basis



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