CONCRETE PRESERVATION PROCESS

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PROBLEM

- Cracks
- Spalls
- Delaminations
- Corrosive Environment
- Water Leakage
- Change of Use
- Age
- Deflection
- Hazardous Event
- Life Extension
- Wear

EVALUATION

Visual Inspection
- Photographic Logs
- Quantity Estimation

Non-Destructive Testing
- GPR
- Sonic / Ultrasonic
- Remnant Magnetism
- Sounding
- Corrosion Potentials
- Corrosion Rate

Destructive Testing
- Coring/Strength
- Petrography
- Chloride Profile
- Carbonation

Structural Monitoring
- Scheduled Assessments
- Document Review
- Inspection logs
- Remote Monitoring
- Maintenance Recommendations

CAUSE

Environmental Exposure
- Corrosive
- Chemical Attack
- Fire
- Carbonation
- Poor Drainage

Concrete Problems
- Shrinkage
- ASR
- Freeze/Thaw
- Permeability

Other
- Overloading
- Change of Use
- Code Change
- Structural Catastrophe
- Deferred Maintenance
- Original Defects

ARE REPAIRS REQUIRED?

NO

YES

REPAIR STRATEGY ANALYSIS

Owner Criteria:
- Urgency
- Budget
- Expectations
- Service Life
- Facility Ops
- Maintenance
- Intended Use

Structural Criteria:
- Structural Engineering
- Historic Considerations
- Aesthetics
- Materials Selection
- Operating Environment
- Maintenance Requirements

Constructibility Criteria
- Access
- Staging
- Schedule
- Training

Sustainability & Preservation:
- Reduced Footprint
- Re-purpose
- Repair vs. Rebuild
- Life Cycle Costing
- Environmental Impact

Pricing & Delivery:
- Fiscal Year
- Structured Pricing
- Lump Sum
- Time & Material
- Design-Build

REPAIR OPERATIONS

Demolition

Surface Preparation

Concrete Repair Methods:
- Crack Repair
- Surface Repair
- Structural Repair
- Stabilization
- Shotcrete
- Strengthening
- Waterproofing
- Post-Tension Repair

Cathodic Protection:
- Galvanic
- Impressed Current
- Electrochemical Treatments

Surface Protection:
- Coatings
- Linings
- Jackets
- Overlays

Communication:
- Owner Updates
- Regular Reporting
- Differing Conditions
- Safety Meetings
- Work Permits
- Near Miss Reporting

QUALITY CONTROL

Submittals

Quality Control
- QC / QA Plan
- Mock-Ups

Non-Destructive Testing
- Sounding
- Sonic/Ultrasonic

Destructive Testing
- Bond Strength
- Compressive Strength

Record Keeping
- Batch Numbers & Bag Weights
- Verification of Quantities
- Environmental Conditions
- Material Testing
- Other Documentation

Long-Term Monitoring
- Cathodic Protection
- Structural Health

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