




The deterioration of structures, structural elements and components over time is inevitable. It is possible however to predict the state of deterioration on several factors, namely: materials used in construction, severity of the surrounding environment and deterioration mechanisms present. Therefore, tools such as durability design, durability assessments and durability planning are vital elements in minimising the long-term corrosion risks of any asset.

**Durability design** is the practice of minimising the overall cost of the total design life of structural components taking into account both the ongoing maintenance required to achieve long term performance, and the maximum design life. The most efficient designs from a durability and corrosion perspective are generated by incorporating corrosion mitigation techniques and engineered materials selection to enhance the effectiveness of the design process, in the effort to reduce long term expenditure on asset protection and maintenance.



Extrin has extensive experience in assessing durability issues for a wide range of assets including large scale mining structures, desalination plants and port facilities, to smaller scale residential and commercial buildings. Extrin can provide practical advice of what material will be suitable for use within the proposed location, taking into account all macro and micro environments which will be present. Extrin has a diverse knowledge base and can provide comment on a wide variety of construction materials such as concrete, metals, composite materials and protective coatings.

Extrin understands the benefits of durability design and planning in construction. Our approach to durability planning encompasses the following key criteria:

-  **Risk of Deterioration**
-  **Cost of Preventative Measures**
-  **Cost of Control Strategies**

Our understanding of durability allows us to deliver a well-balanced and optimised whole life cost design.



## What extrin can do...



-  **Durability Plans**
-  **Materials Selection**
-  **Protective Coatings**
-  **Waterproofing membranes and sealants**
-  **Concrete Mix Design and Performance Criteria**
-  **Modeling of Deterioration Parameters**
-  **Cathodic Protection and Prevention**
-  **Chemical Attack Resistance Concrete**



### **Asset/Infrastructure Assessment**

- Corrosion Management Audit
- Asset Condition
- Failure Investigation
- Criticality Review

### **QA/QC**

- Coating Inspections
- Project Management
- Repair Integrity Analysis
- Shutdown Planning and Maintenance Management



### **Microbial Investigation**

- Site Inspections
- Analytical Testing Mechanism Determination
- Remediation

### **Cathodic Protection**

- Complete System Design
- System inspections and testing
- Material Procurement
- Coordination of installation



### **Concrete Services**

- Durability Assessments
- Mix Design Review
- Protective Coatings
- Refurbishment works
- Project Management

### **Corrosion Training Services**

- Corrosion Awareness
- Corrosion Prevention
- Corrosion Detection
- Other Client-Specific Training Courses

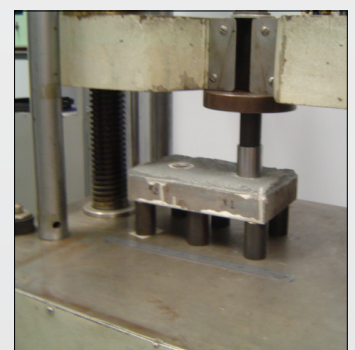


### **Failure Analysis**

- Failure Catalyst Analysis
- Review and Recommendations
- Asset inspection and testing

### **Analytical Services**

- Water Analysis
- Corrosion Product Testing
- Metallurgical Testing
- Product Trials
- Concrete Testing



Visit our website for more information on our services and projects undertaken



**“Consultants in Corrosion Management”**

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