Durability Assurance

vinsi PARTNERS

Consulting Engineers
Corrosion & Asset Control
Durability

Overview

Vinsi Partners acknowledge and understand that all engineering materials will deteriorate with time, at rates dependent upon the type of material, the severity of the environment and the deterioration mechanisms involved.

Project briefs commonly demand long design lives of assets, asset elements and the components of structures and buildings. Durability assessment, durability design and durability planning is vital in minimising the risks of long-term deterioration of structures, structural elements and components.

Vinsi Partners has expertise in assessing durability for a variety of structures and buildings. The macro and micro environments to which the assets and asset components are exposed are varied and aggressive. Material types are wide ranging including concretes, metals, plastics, protective coatings and proprietary items.

We understand the flow through effects of durability from initial planning to construction. Our approach qualifies the risk of deterioration, the cost of preventative measures, the feasibility and cost of remedial actions and ongoing preventative maintenance. These need to be balanced to arrive at the best whole-of-life cost and optimised value for money.

Vinsi Partners takes great pride in the knowledge that our engineering advice is independent without any conflict of interest associated with the supply of materials, equipment or laboratory testing services.

Our Durability Service Advantages

1. Increased likelihood of achievement of design life of structures and buildings.
2. Reduced life cycle costs.
3. Reduced maintenance and repair costs.
4. Establish predictable maintenance actions and costs.
5. Initiate accountable maintenance management.
6. Minimise down-time in long term operations.
7. Prediction of materials performance in their service environments.
8. Establishment of a continuous link in durability objectives between design, construction and maintenance.

Our Durability Clients

Our experienced and well credentialed staff have assessed durability Australia wide for a variety of structures including: – Marine, Bridges, Tunnels, Desalination Plants, Wastewater and Water, Mining, Industrial, Advanced Waste Treatment and Buildings.

Our Durability Services

1. Pre-tender and Tender

- Durability objective requirements.
- Durability methodologies.
- Tender durability assessment and design.
- Tender durability plans.

2. Design

- Durability assessment.
- Durability Plans/Durability Reports.
- Durability Checklists.
- Concrete technology:
  - concrete mix parameters;
  - deterioration modelling;
  - performance criteria;
  - specification guidelines;
  - concrete mix design review.
- Materials selection:
  - stainless steels and other metals;
  - GRP and other plastics;
  - protective coatings;
  - proprietary items.
- Analysis and modelling:
  - corrosion rates;
  - chloride diffusion;
  - carbonation;
  - early age cracking of concrete;
  - chemical attack;
  - waterproofness.
- Input into construction drawings, specifications, risk assessment, inspection and monitoring requirements and maintenance manuals.
- Cathodic protection/prevention design.
- Stray current evaluation and mitigation.

3. Construction

- Addenda to Durability Plans/Durability Reports.
- Input into construction work method statements.
- Review of material testing results and QC records.
- Advice on non-conformances.
- Remedial method guidelines.
- Maintenance schedules and strategy input.
- Inspection and monitoring requirements.

4. Operation and Maintenance

- Specifications or guidelines for maintenance.
- Specialist inspection, testing and monitoring support.
- Specialist monitoring equipment considerations.
- Provision of ongoing technical assistance.