



Sustainability In Concrete Structures

# Durability Assessment of Reinforced Concrete Structures



[www.xypex.com.au](http://www.xypex.com.au)



Xypex Australia: Sustainability In Concrete Structures

## INTRODUCTION

Xypex Australia is pleased to announce the establishment of a new service to our Clientele by performing a “Durability Assessment of Concrete Structures”, this allows Xypex Australia to deliver a complete package of service, from an assessment of the Concrete structure through to providing solutions that will assist in the determination of rehabilitation requirements. By performing a Durability Assessment of the structure, will provide the Asset Owner with information that will assist, in making an informed decision pertaining to scheduling maintenance, rehabilitation, and replacement operations, of their Assets more efficiently and precisely.

Corrosion of steel reinforcement has been established as the predominant factor causing widespread premature deterioration of concrete structures. As a result, the Maintenance & Repair costs of Concrete Structures currently constitutes a major part of the expenditure on infrastructure.

Reinforcing steel corrosion monitoring is a vital part of planned maintenance and residual service life prediction of Concrete Structures. Corrosion monitoring can be effective by giving quantitative information about the development of the steel reinforcement corrosion, in concrete due to chloride ingress or carbonation front.

The problem of accurately and rapidly assessing the rate of the corrosion of steel in reinforced Concrete Structures has been a problem in the Concrete Industry for some time. Maintenance and planning of restoration of the Reinforced Concrete Structures, as well as quality control needs a rapid non-destructive inspection technique that detects, corrosion activity of the steel reinforcement in the early stages to predict the residual service life of the structures accurately.

## METHOD

Xypex Australia is using a non-destructive electrochemical method which has been introduced for field application to assist with interpretation of corrosion risk assessment, based on half-cell potential measurements of the steel reinforcement. According to many conducted laboratory and field studies it has been demonstrated that this method can yield precise values of steel corrosion rate.

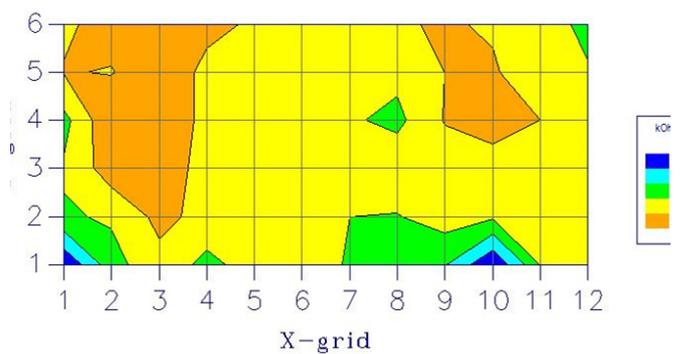
## OUTPUT

The output of the measurements can be expressed as follows:

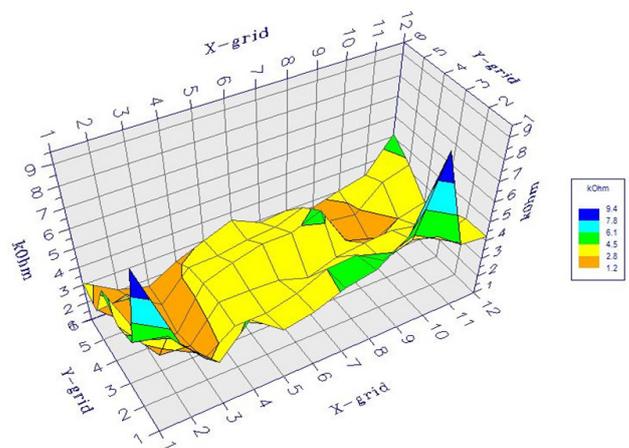
- Corrosion Rate
- Corrosion Potential
- Concrete Electrical Resistance

Based on the measurement results, residual service life of the structure can be estimated and consequently Maintenance and Rehabilitation Operations can be planned.

The output of different parameters measurements can be presented by both 2D and 3D mapping as follows:



Concrete electrical resistance [2D]



Concrete electrical resistance [3D]

## PROVIDED SERVICES

Xypex Australia provides a complete package including, Concrete Structure Durability Assessments and detailed repair methodology with the following procedure:

- Technical Inspection (all levels)
- Durability Assessment of the Structure (NDT)
- Provided Comprehensive Technical Report
- Precise Prediction of Residual Service Life of the Structure
- Provided Detailed Solutions to Repair and Rehabilitation of the Structure

For information about this service, please contact Xypex Australia on (02) 6040-2444 or visit our website at [xypex.com.au](http://xypex.com.au)