Project Profile - **Utilities**

PROJECT

Whitewell of Tyrie Reservoir, Aberdeenshire, Scotland

SUMMARY

Waterproofing of two service reservoir roofs totalling 2,000m^2

PRODUCTS

Cemprotec EF Primer, Cemprotec Elastic, Cemprotec Geo80

CLIENT

Scottish Water

CONTRACTOR

Fraser Bruce Group

BACKGROUND ▶

Scottish Water is the fourth largest water and waste water services provider in the UK. Providing drinking water to almost 2.5 million households and 150,000 business customers, Scottish Water supplies 1.34 billion litres of drinking water every day to an area of over 30,000m^2, a third of the area of Britain.

One of the assets which Scottish Water manages is Whitewell of Tyrie Reservoir which services Fraserburgh in the north of Aberdeenshire. Two service reservoir roofs had deteriorated over time and required waterproofing protection. The reinforced concrete roofs to the two cell structure had previously been protected with an oil-based bituminous membrane and were also covered with gravel. Routine flood testing revealed that the membrane had failed and to remove the possibility of potential contamination of water stored in the reservoir, an effective and long-lasting refurbishment was required.

THE SOLUTION ▶

Fraser Bruce Group, Scotland's leading structural repair and waterproofing contractor, recommended the use of **Cemprotec Elastic**. They had prior successful experience of using this product on reservoir roofs in the Highland Region and knowing that such roofs are often fully saturated with a high vapour drive, felt that the low resistance to water vapour backed by its WRAS Approval made **Cemprotec Elastic** an ideal choice for these projects. It was subsequently specified and **Cemprotec EF Primer** was initially applied before **Cemprotec Elastic** was applied in grey.

Cemprotec Elastic is an elastomeric, cementitious modified, polymer rich, waterborne coating and is designed for application to damp or wet substrates. Pre-packaged, it is supplied as a two component material which is easily mixed on-site and can be applied by brush or simple spray techniques, making the product ideal for use in remote locations where reservoirs are usually found. A 2mm coating of **Cemprotec Elastic** is totally resistant to water under 10 bar pressure (100m head of water) to prevent ingress, yet is highly vapour permeable allowing the free passage of water vapour from the saturated substrate without the risk of blistering and bubbling. It also has exceptionally high carbon dioxide diffusion resistance and provides the equivalent to 135mm of good quality concrete cover to give additional protection from carbonation. Another property which is critical on roofs is the ability of the coating to bridge dynamic cracks and when tested to BS EN 1062-7 for crack bridging, **Cemprotec Elastic** achieves Class A5 >2500µm (static) and Class 4.1: 0.2-0.5mm (dynamic).

In this case, the roof was to be left exposed where the proven resistance of **Cemprotec Elastic** to degradation under UV exposure from sunlight, as well as its excellent freeze/thaw resistance, made it an ideal choice. However, **Cemprotec Elastic** also has proven root resistance properties, confirming suitability for green roof applications for the many situations where reservoirs are subsequently covered to blend in with the countryside. **Cemprotec Elastic** is CE marked in accordance with BS EN 1504 Part 2 Surface Protection Systems for Concrete, and also has a water based formulation. As a result, it releases no hazardous solvents or odour during application, which is a critical consideration for reservoir refurbishment projects as it is safe to apply even whilst facilities are in operation. **Cemprotec Elastic** was reinforced with **Cemprotec Geo80,** a thermally bonded, non-woven geotextile to give increased toughness to the coating and enhanced crack bridging properties.

FM 41091 Quality
EMS 597350 Environmental
OHS 597351 Health & Safety

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