

CASE STUDY

Structure Repair, Corrosion MCI & Coatings

MAKERS

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PROJECT

The Quadrangle Cheltenham

STRUCTURE

Commercial and retail building

CLIENT

Royal Bank of Scotland

CONTRACT VALUE

£280,000

CONTRACT



The Quadrangle was constructed in 1973 by owners land and House Developments providing some 5300m² of office and retail complex, it replaced the Victorian New Club building which had stood on the site since 1874. Since 2009 the building had been surrounded with a scaffold fan to isolate the general public from falling concrete facade caused by carbonation of the concrete.

Pressure from local MP Martin Horwood and key tenant departures meant that current owners RBS needed to seek expert advice in order to reverse this trend. Makers were approached to assess the structure and produce a specification and a repair mechanism to repair the external facade.

The reconstituted stone storey height panels were highly carbonated which allowed heavy corrosion of the embedded steel reinforcement to occur resulting in the spalling of significant sections of the facade. The missing and damaged sections had to be brought back to the original profile to ensure the integrity of the structure.

Detail work was applied using the Conipur M8652 product. The spray system cures on contact as the two parts are heated separately and are mixed at the point of nozzle. The material is applied to the required consumption over the whole area.

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Repaired full storey facade panels



Finished Detail

Association Membership



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A high pressure water jetter was applied to the external surface to remove the laitance and then hammer tested to reveal the extent of the required repair. Carbonation and chloride tests were undertaken and sent off to the laboratory for analysis and used to aid design.

Loose and de-bonding facade were removed to expose the corroding steelwork and then the surrounding concrete was removed to expose the affected steel which was cleaned and prepared before receiving a slurry primer.



Pre-blended proprietary repair system was hand placed to the required depth to ensure the repairs were built out to match the existing profile. Migratory corrosion inhibitors were applied to arrest any further deterioration through chloride attack and once cured the repairs were masked with the application of elastic anti-carbonation coatings to provide protection to the whole of the structure. This transformed the building's outward appearance using a sympathetic colour to blend in with the surrounding regency architecture.

The building was made watertight by replacing the old movement and window joints with high performing, low modulus sealants which ensured the total treatment of the facade at its weakest points.

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