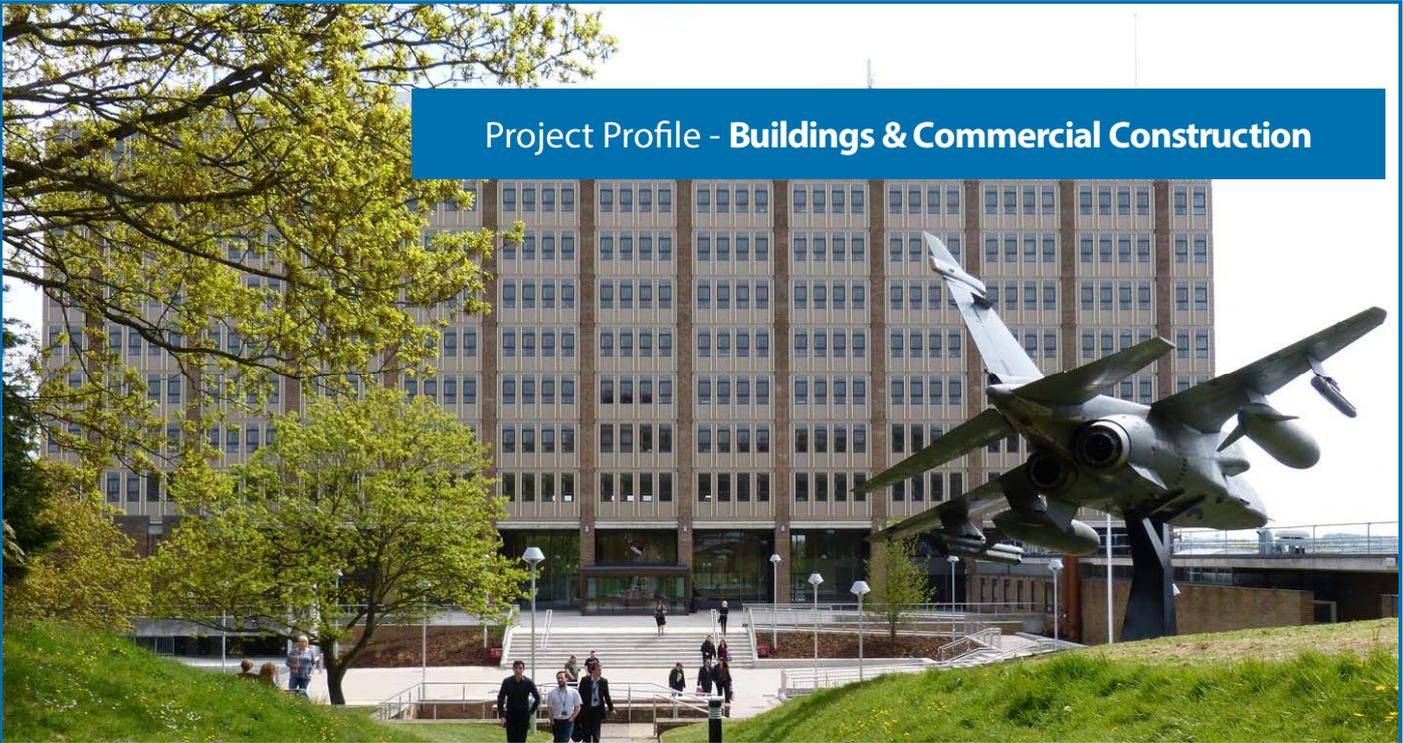


Project Profile - Buildings & Commercial Construction



PROJECT

Norfolk County Hall, Norwich

SUMMARY

Concrete repairs, anti-carbonation coatings and waterproofing works

PRODUCTS

Monomix, Monolevel FC, Monodex Smooth, Fastfill, Cemprotect Elastic

CLIENT

Norfolk County Council

CONSULTANTS

NPS Group

MAIN CONTRACTOR

R G Carter Ltd

SUB-CONTRACTOR

JB Specialist Refurbishments Ltd

BACKGROUND ►

Norfolk County Hall is a familiar landmark in Norwich, dominating the skyline to the east of the city centre. The 11-storey building was originally opened by Her Majesty the Queen in 1968 and houses some 2,000 council staff who cover a number of essential services for the residents of Norfolk. Following more than 40 years of use, the building was showing its age and routine inspections of the exterior showed many of the decorative blocks had become loose and in some cases detached. There were also problems with asbestos, poor insulation, ineffective waterproofing to the roof and concourse podium decks and a need for localised concrete repairs. All options were considered by the council, including leasing buildings or building a new one on a greenfield site, and it was eventually decided the most affordable option was to refurbish the existing building. A £32m renovation project was subsequently carried out in order to keep the building operational for the next 25 years.

The work was carried out whilst the building was operational, so two floors were worked on at a time so as to keep disruption to a minimum, with 160 workers involved in the project every day. The interior has been modernised with an open plan design, which has subsequently increased occupancy to over 3,000 staff. A number of energy efficiency improvements have also been made to reduce carbon emissions and save the Council over £200,000 a year.

THE SOLUTION ►

Flexcrete products were specified to waterproof 2,000m² of concourse podium decking where the existing waterproofing system had failed, allowing water to percolate through to the despatch bays below and rooms housing the four back-up generators. Following removal of the paving and the failed system, repairs were carried out to the deck using **Fastfill**, a rapid setting, single component structural mortar. Allowing foot traffic within just 45 minutes of application, it is ideal for the repair of areas which cannot be taken out of service for long periods and just 7.5mm of **Fastfill** provides the same level of waterproofing as 100mm of typical concrete. **Cemprotect Elastic**, an elastomeric, cementitious modified coating with excellent cracking bridging properties, was then applied to provide a seamless waterproofing system over the deck. Able to be applied to damp substrates at temperatures as low as 5°C, its dense matrix offers complete protection from water ingress, even at 10 bar pressure (100m head of water), as well as very high diffusion resistance to carbon dioxide gas to provide long-term protection to concrete. On completion, the concourse was overlaid with paving of the client's choice.

Flexcrete products were also used to reinstate general areas on soffits where carbonation and water ingress had caused corrosion of the reinforcement and spalling of the concrete, particularly in the basement rooms and canopy to the loading and dispatch area. **Monomix**, a polymer and microsilica enhanced cementitious repair mortar, was chosen because of its ease of use and ability to be applied to soffits in thicknesses up to 80mm in a single application. Requiring no primer, surfaces only need to be saturated but free from standing water prior to application. To provide an aesthetic finish and maximum protection to the concrete from further degradation, **Monolevel FC** was used as a fairing coat to fill minor voids and defects and provide an even surface. **Monodex Smooth**, a high performance anti-carbonation coating, was then applied which provides the same degree of protection as 300mm of good quality concrete cover. All products used are CE Marked in accordance with BS EN 1504 Products and Systems for the Protection and Repair of Concrete Structures, which was a specific requirement of the client.



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