

## ST JAMES CHURCH, ST HELIER

**CLIENT:** JERSEY PROPERTY HOLDINGS

**ARCHITECT:** ANDREW HARVEY

**CONTRACT ADMIN:** CURRIE & BROWN

**MAIN CONTRACTOR:** ROK CONSTRUCTION

**STRUCTURAL ENGINEER:** T&G LTD

St. James Church is on the east side of town on St. James Street. It is a listed building operated by the States of Jersey as an arts venue.

The church is in early 19th century Gothic Revival style and provides a powerful focal point for the area. Most notable is the unusual west front with its slim twin towers with foliated pinnacles'



### DESCRIPTION

Deep clean of the front towers using DOFF and TORC systems (from Stonehealth), careful disassembly of the failing elements of the pinnacles and then restoration of the pinnacles, extensive crack repair and localised repointing.

## CLEANING

The building was heavily soiled, especially on the rendered and precast elements at the top of the building. There was a combination of biological growth on the more exposed portions and accumulation of carbon residue/staining on the more sheltered portions. Two specialist systems, designed for gentle but effective cleaning of conservation projects, were employed to affect the cleaning of the building.

### DOFF system

This is a superheated water system that enables the user to use a combination of low pressure and high temperature (up to 150° C) to remove engrained dirt and biological matter. (see photos right).

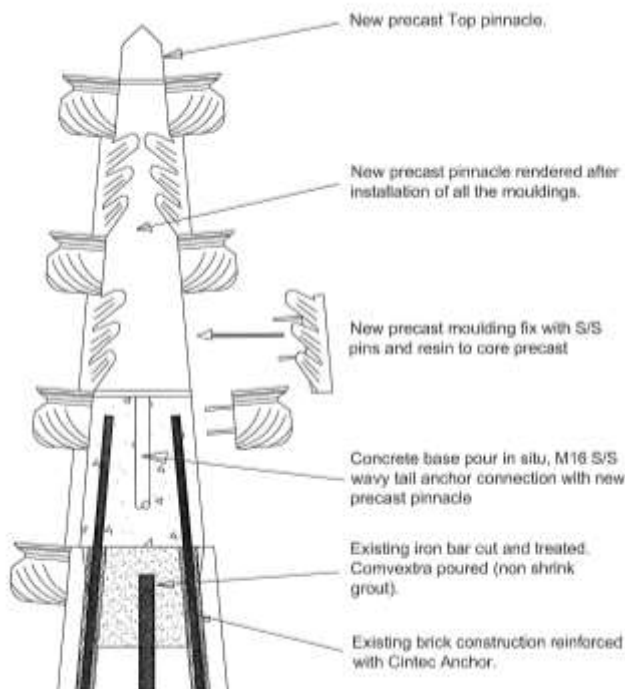


### TORC system

The TORC system creates a gentle swirling vortex using a mixture of low air pressure, little water and a safe inert fine granulate. It was used here to remove the carbon build-up found in the more sheltered corners of the architectural detailing (see photos left).

## PINNACLES - UPPER PART REBUILT

After the completion of the cleaning stage it was discovered that the 8 top pinnacles were in very bad condition and had to be structurally reinforced.



The pinnacles were reduced down (1) to 400mm. The existing iron bars were cut (2) and treated and the COMBEXTRA (non-shrinking grout) was poured. Then Cintec Anchors (3) were installed by Geomarine and the reinforced

concrete caps poured in-situ (4). Installation of the top precast piece then followed by resin anchoring a stainless steel bar into the cap (5), (lime: cement and sand (1:1:6)). Then the new cast mouldings were installed (6) and a final render coat applied over stainless steel mesh (7), (see photos 1-patric7)



1



2



3



4



5



6



7



### CENTRAL FINIAL

The central finial between the two towers on level 8 was in poor condition. There was extensive cracking and the top portion had fallen away. The structural engineer decided to keep the finial and re-stabilise it rather than replacing the entire portion. See photos left.



### REPAIRS TO CRACKED RENDER AND CONCRETE

Throughout the masonry on the building there was extensive cracking of the render and cast elements.

The cracks were opened up with the use of die grinders (large dremels) to a width of approx. 10—20mm and a depth of 20-30mm. The shoulders of the cuts were left square with the surface and the debris cleaned out. The cuts were 'painted' with an epoxy primer consolidant. They were then, whilst the primer was still tacky, injected with thixotropic resin which sealed the crack and helped to knit the fabric together. They were then finished with a mouldable epoxy putty which was pressed into the cracks so that they finished flush. Beach sand was then pressed into the putty to blend them in with the surrounding render.

### REPOINTING

There was a small amount of repointing of the random granite wall (15%) using St Astier NHL 3.5 Lime and sharp sand (1:3).



## CANOPY MOULDINGS — RESTORATION

Found at the base of each of the pinnacle tops were four canopy mouldings which appeared to have originally comprised of four parts. The canopy mouldings presented a lot of cracks and some of them had completely fallen off. Presumably shrinkage cracks had deteriorated over time thereby permitting the ingress of water leading to further deterioration.

The canopies that had failed were replaced with new one-piece precast units, cast from one of the failed originals, which were “hung” from specially adapted Cintec anchors which connected to a stainless steel plate cast into the back of the pre-cast canopy (All designed by T & G Ltd). Once in place the piece was further restrained with a further two anchors. All the other existing canopies were also secured using Cintec Anchors



## MOULDINGS – RESTORATION & REPRODUCTION

These exhibited a large amount of shrinkage cracking. On the side mouldings this was repaired through the prescribed crack repair method. In other places they were damaged by the spalling of steel wire reinforcement which had to be dug out, treated and repaired.

The cracks had their biggest impact on the tracery elements many of which had fallen away. These were replaced by new precast items that had 6mm stainless steel (A4) reinforcement and fixing pins cast into them that were then drilled and resin fixed in place with the joints being made with mouldable epoxy putty.



## REPRODUCTION OF MISSING FEATURE

The photos below show the making of new moulds using resin. Several of the mouldings were re-cast in this way.

