

## Liverpool Cathedral: Roof and high-level repairs

*Awarded a series of four grants between July 2014 and November 2016 totalling £1,035,000*

### The need

Liverpool is the largest cathedral in the UK and one of the largest in the world. Although it was begun in 1904 and only completed in 1978, because of its scale and in some areas the use of novel 20th-century construction methods and materials, the repair costs it now faces are comparable to those of a major medieval building. There had been falls of loose masonry and concrete from heights of up to 50m in the cathedral interior and its vast porches, presenting a risk to the public and resulting in areas being fenced off. The copper roof to the nave was originally fixed without reference to the severe exposure to high winds it experiences, which create a suction effect which pulls the copper panels upwards. This and vibrations had allowed 'star fractures' to develop in the weakened copper panels, creating leaks, and there was also a risk of sections of roof flying away in the wind. A substantial area of roof was replaced in the early 1990s following storm damage, but its fixtures were failing. In addition there was widespread concrete deterioration to the cathedral's roof structure, partly caused by water leaking from the damaged roofs.



The nave roof repair in progress. Photo credit: Ulrike Knox.

### Outcomes

There is now a much-reduced risk of falling masonry at the cathedral. There are also fewer cracks and leaks, meaning the cathedral is drier and warmer. The nave roof is now watertight and there is reduced risk of uplift from the strong winds.

### Economic and social impact

The projects supported jobs in traditional masonry work and copper working. They also gave the architect, the cost consultant and structural engineer in the design team a regular income and ability to plan ahead for the cathedral's strategic programme of repairs, the subject of a major fundraising appeal. They also learnt a great deal about designing for certain microclimates and dealing with asbestos.

Liverpool Cathedral welcomes between 450,000 and 500,000 casual visitors annually; it is consistently the No. 1 attraction of 'Things to do in Liverpool' on TripAdvisor and has several times won the Liverpool City Region annual tourism award for Best Large Visitor Attraction, most recently in May 2018. The Education Department has held First World War interactive theme days for school groups since 2014, reaching hundreds of children, and created a First World War trail for families. Special exhibitions have covered nursing during the First World War, the role of women, and one based on work with local army cadets to research the history of their barracks and unit and connections with the cathedral. In 2017, the focus shifted to Captain Noel Chavasse (d.1917), the only double-winner of the Victoria Cross in the conflict and the son of Liverpool's second Bishop, the Bishop responsible for the commissioning and the early stages of construction of the cathedral.



The completed nave roof. Photo credit: Ulrike Knox.



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### Works completed and timescale

The works began in May 2015 with the re-laying of the Nave and Lady Chapel roofs. In January 2015 the high-level repairs to the first bays of the nave aisles and the Welsford and Rankin porches began, which involved pointing and conservation mortar repair. In June 2017 the second phase of the nave roof repair commenced which involved replacing the copper sheeting of the roof and fixing it with a new timber substrate to resist wind lift. It also involved the removal of some asbestos. The final project consisted of concrete repairs to the structure of the western roof, and the installation of access for maintenance. The western end roof soffit was also painted with anti-carbonation paint. This final project was due to be completed in June 2018.



One of the cathedral's vast porches under repair. Photo credit: Ulrike Knox.

### The Cathedral

Designed by Giles Gilbert Scott, who was only 22 when he won the design competition for the new Merseyside Diocese, the enormous church is in the Gothic style but with remarkable proportions, giving it a sense of huge height and light. The tower is over 100m high and gives magnificent views, now enjoyed by visitors on an 'at heights' tour. The cathedral has to be largely self-reliant in funding projects; in 2014 it launched a strategic fundraising programme to raise a £24m endowment by the celebration of their Consecration Centenary 2024.



Armed Forces Day 2014 was the regional commemoration of the outbreak of the First World War . Photo credit: Liverpool Cathedral.