# Case Study
# St Congar's Church
# Badgworth

ELLIS &Co.

Craftsmen in the Conservation of Historic Buildings

**Conservation of the bell tower including structural support and restoration of lime render.**

Ellis and Co were commissioned to complete the conservation and restoration of the tower of St Congar's Church, with grant funding from English Heritage. This Grade II church dating from the 14th Century has been on English Heritage's at Risk Register due to damage from water and vibrations in the bell tower. Now the fine bell tower has been reroofed, its stonework conserved, and its original finish of lime rendering and lime washed walls restored. The materials we used were informed by conservation research into the finish and weathering of different samples of lime render. The churchyard remained open to the public throughout.

*St Congar's Church before and after the conservation work*

Damp, bell vibrations and historic cement repairs had loosened masonry and created wide gaps in the stonework. The cement pointing was removed and the stonework cleaned.

Steel beam being raised through the bell tower. The new steel and timber construction will hold the bell tower together.

Stainless steel beams and anchors were installed in the bell tower to support the church bells and hold the tower together. The bells themselves were removed and stored safely for a programme of further restoration.

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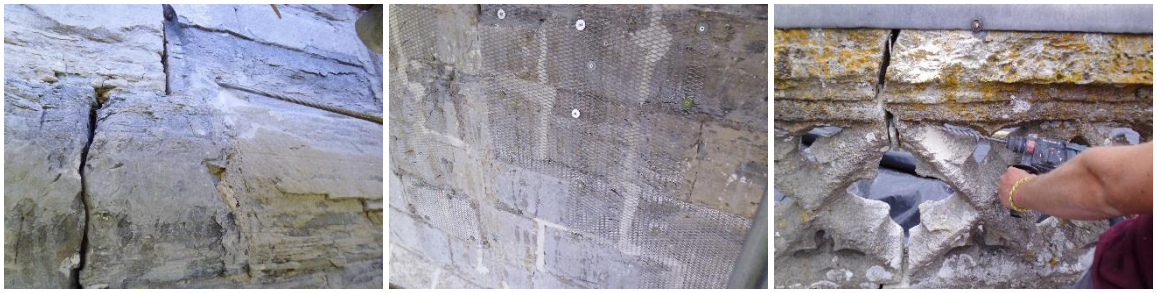
Additional supports were installed around the window in the towers' deadening chamber, and floor joists in the belfry were replaced with new air dried oak.

A gentle pressure steam system which is sensitive to historic stonework and chemical free was used to clean the stonework. Ellis and Co masons repaired a series of large cracks in the masonry.



*Repairs in progress showing removal of poor historic repairs and securing repointed stonework with steel mesh.*

Structural Cintec anchors were installed to provide structural support around damaged lintels. Stainless steel lath supports were used to consolidate larger cracks in the masonry. The roof parapet stones were unstable due to poor cement repairs so were restored by Ellis and Co masons. Missing louvres in the belfry windows were replaced with new ones carved by Ellis and Co Stone masons to match original materials in shape colour, texture and size.

*Specially commissioned lead shutes in place supported by steel fixings, and new belfry louvres blend with originals.*

The 1930s roof was perished and loose flashings, intruding vegetation, and short lead shutes had caused water damage and beetle infestations in the beams bearing the roof. Our joiners extended the rafters with modern oak inserts. With this firm structure in place we re-leaded the roof and fitted new lead drainage gutters and shutes held in place by stainless steel supports to making the roof watertight.

The church is a working building and our craftsmen were sensitive to the needs of people visiting the graveyard while the work was underway.