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Church Cathedral and Historic Building Treatment Specialists

DENNIS T. ROBERTSON, 155 CASTLE ROAD, BEDFORD, MK40 3RT.

Mrs. H.R. Weatherall, Dip.Arch RIBA.,
Marshall Sisson,
Architect,
Harcourt Offices,
Hemingford Grey,
Huntingdon,
Cambs.
PE18 9BJ.

18th November 1997.

Dear Mrs. Weatherall,

ST BARTHOLOMEW'S CHURCH, GREAT GRANSDEN - OUR REF: 7140

In response to your recent communication, a survey, principally of the Tower, has now been carried out as requested. My assessment is as follows:-

TOWER:

Roof - This is a shallow pitched structure surmounted by a small pyramid style spire.

The roof is supported by two diagonal beams crossing from corner to corner which rest at their centre point on a substantial beam lying on an axis East/West.

Heavy plates are inserted between the diagonal beams to support rafters forming the spire, also common rafters spanning from the base of the spire to wall plates.

The structure seems to have origins circa mid 17th Century. Repairs also seem to have been carried out circa late 18th Century when a number of hand made bolts were inserted.

Roof and spire timbers are some distance above the Belfry therefore thorough examination is not possible. However on the South West face of the spire king post there seems to be a large volume of bore dust centred around the junction between this post and a number of braces.

From a distance the dust seems to be that generated by furniture beetle infestation.

All roof and spire timbers appear to have been carefully selected and thus avoided extensive deathwatch beetle infestation.

Timbers over the walls, behind the plates and beneath parapet gutters are concealed therefore no comment can be made on their condition.

Using the precarious means of access to roof trap, I was able to examine closely only a few timbers. It would appear that both diagonal cross beams, also two sections of plate have been infested by deathwatch beetle in the past and there is evidence of current activity.

Belfry - The six ring Bellframe is set diagonally across the Tower with a bell situated across each corner and two bells in the centre.

The frame is very substantial but from its style appears to have been installed perhaps mid 17th Century.

It was repaired probably during the early part of the 19th Century, by installing various sections of steel. Steel and new bolts were also probably installed earlier this Century.

Most timbers at high level in the Bellframe seem never to have been seriously affected by decay or wood boring insect activity. The sapwood edges of many were infested by furniture beetle in the past but most of this seems to have died out naturally.

However on all four walls, where the principal sill beams overlap set beneath the louvres, every junction has suffered severe decay as a result of windblown weather penetration. To exacerbate this problem, deathwatch beetle infestation affects the ends of all sill beams. This infestation also ascends some of the cross bracing and spreads a little way along the beams.

On each wall there are two crossing points beneath each pair of louvres.

Most sill beams have at least 1 metre of bearing on brick or stone along the West and East sides but little more than 300mm on the North and South wall. Masonry appears to be corbelled out into the Clock Chamber ceiling and thus seems to provide a little more support in a couple of places.

Bellframe bell wheels and head stocks all seem relatively modern and appear in excellent condition. Odd spots of furniture beetle in the wheels seems to need a bit of localised attention but that is all.

Exit from the Belfry onto the spiral stairs is somewhat precarious over a series of timber battens wedged within the masonry. Each of the battens, the board in front of the Bellframe which they conceal, also the timber treads and posts forming the upper level of spiral stairs all seem reasonably dry and free from serious decay or wood boring insect activity at the present time. Sapwood edges of some have been infested by furniture beetle in the past but I could find no fresh bore dust indicating current activity.

As one turns and looks back, the date "1658" is carved into the upper member of the Bellframe, indicating its probable construction date.

Belfry Louvres - Slats are set wide apart, consequently allowing a vast volume of windblown weather to enter.

In recent years this has been restricted by installing polythene which is now beginning to disintegrate.

Belfry Floor - This is visible on the underside from within the clock chamber. A series of six main floor beams lie on an axis East to West, also two pairs of short beams connecting with a cross timber which helps form the trap to which the bells are raised and lowered.

The timbers are roughly hewn but seem to have been carefully selected therefore probably were part of the mid 17th Century's refurbishment of the Tower.

The ends of some beams appear to suffer current deathwatch beetle infestation especially beneath the infested sill beams. The most severe area of infestation is on the South wall.

Belfry floorboards are medium width softwood which retain a high percentage of sapwood where current furniture beetle infestation was observed.

The West trimmer to the central trap seems to have fractured and dropped slightly. However two bolts pass through and may be connected to sill beams above therefore suspending part of the floor. However the timber also rotates, consequently floor joist tenons rest on part of the fracture.

Clock Chamber - The door is part oak/part softwood and there is evidence of current furniture beetle infestation.

The access stairs are softwood surrounded by similar casing. The sapwood edges have been infested by furniture beetle and there is evidence of current activity but this is only slight.

A large cylindrical bell chime mechanism stands in the centre of the floor, also clock casing enclosed in pre-treated softwood timber and various weight mechanisms. The floor is fairly clean therefore appears to be swept regularly. However in a few places furniture beetle infestation seems to affect some floorboards, also the bell rope guides.

There is no guard around the escapement on the end of chimes cylinder immediately at the head of the access stairs. This could prove to be quite hazardous to the unwary visitor.

When the Clock Chamber floor is viewed from the underside one discovers two substantial floor beams on an axis East to West supporting medium width softwood floorboards. Less substantial timbers are situated against the North and South walls.

Although the principal timbers contain a high percentage of sapwood, and have been infested by furniture beetle in the past, I could find very little fresh bore dust to indicate current activity. However the sapwood edges of most floorboards are currently infested.

Silence Chamber - This appears to be a Victorian structure from above and below consisting of medium width tongued and grooved floorboards lying on an axis East to West with central floor trap.

In one or two places there are slight traces of bore dust indicating minor but current furniture beetle infestation.

Sapwood edges on the access door have been affected but no bore dust was discovered to indicate current activity.

When the heavily stained rectangular pattern of principal floor timbers are examined from below, there is little evidence of past or even present wood boring insect activity to be of concern.

Tower spiral stair access door is oak and for its age seems in excellent condition. Furniture beetle infestation has affected some sapwood edges but no sign of current activity.

Tower West door seems to be Victorian oak heavily stained and free from obvious problems.

All four walls of the Tower ground stage appear to suffer extensive rising damp. Lime plaster has been patched using hard cementitious render which may be part of the problem.

Perhaps it is time to consider applying corrective measures. Installation of an njection Mortar damp-proof course would resolve most of the problem.

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It was reported by the Tower Captain's wife that a few emergent deathwatch beetles are found on the floor in the Church, particularly at the East end of the South Aisle and Nave.

For this reason I attempted to gain close inspection using my long ladder.

It would appear that most roof timbers throughout Chancel, Nave and both Aisles have origins circa mid 17th Century. The result is carefully selected timber which did not appear to suffer serious wood boring insect activity when installed. Perhaps reconstruction of gutters introduced deathwatch beetle infested timber, consequently most beam ends have been affected to some degree or other.

Several have been repaired, probably during the late 19th Century, when new sections of wall plate were installed, also angels attached to the lower end of suspended wall posts in both Aisles. Corbels in the Nave also seem to have Victorian origins.

From the isolated points of inspection I could find little evidence of current deathwatch beetle infestation. However slight traces of fresh bore dust near a few beam ends suggest that beetles are surviving deep in the heart of the larger timbers. These insects appear to be regenerating their species following spray treatment of the exposed timbers approximately 27 years ago.

These timbers were only spray treated many years ago. It has been proven in recent years that this method does not reach deep-seated beetle attack especially in beam ends.

Without doubt some beetles have survived in timbers beneath gutters, such as wall plates and beam ends.

I suspect that some beetles found on the floor in the Aisle are emerging from infested South wall panelling. Pew floor joists may be oak therefore could also be infested. However floorboards are trapped by underseat panels therefore not easily lifted in order to inspect supporting structures.

Rust stains around the floorboards nails indicate damp underfloor conditions, not an uncommon problem. This usually suggests blockage of cross ventilation between North and South walls resulting from lack of maintenance.

Victorian floors usually contain some form of ventilation but it is always difficult to locate and requires regular maintenance.

Many Pews appear to have ancient origins, perhaps mid 17th Century now repaired and integrated into the Victorian furnishings which copy the style.

Floors appear to have been repaired in a few places therefore perhaps some measure of remedial treatment was applied by the person responsible, if it proved necessary.

RECOMMENDATIONS:

Tower - There seems to be many places where wood boring insect activity affects timberwork, especially at roof level and around the Belfry. I believe it has been suggested the bells be re-hung in a new steel frame at the position of the existing Clock Chamber, with Clock Chamber fittings moved to a lower level. The old frame will presumably be left in position, although dis-used. If this were to be the case, then minimal repairs are required to ensure defective sill beams are not permitted to slip from their bearing surfaces.

If the frame was to continue its current use, I am sure extensive repair would be required to Bellframe members immediately in front of the louvres.

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Belfry louvres do little to prevent excessive ingress of moisture.

Ultimately more effort is required to deflect windblown weather perhaps by closing the gap between louvres or extending them outward much further but even then some moisture will affect sill beam ends. Perhaps the beam ends should be repaired using inert material such as steel or even resin.

Louvres seem free from serious wood boring insect activity or decay. There is little point in applying treatment as it would be washed away very quickly therefore all the effort would be wasted.

The Clock Chamber floor now appears to suffer wood boring insect activity therefore in need of attention. However, the Silence Chamber floor seems in excellent condition, therefore only requires surface treatment of floorboards.

Presumably, the Tower is to be refurbished to some degree centred around the re-location of the Belfry.

Ideally when this occurs and most of the Clock Chamber mechanism has been removed, all exposed accessible timbers forming the Tower roof and Spire, the old Bellframe and Clock Chamber floor, also the surface of the Silence Chamber floorboards, should be thoroughly prepared and treated.

Some form of access would be required to reach the Tower roof. Balancing ladders on top of the existing Bellframe could prove quite hazardous, therefore perhaps a platform should be constructed using conventional scaffolding.

To thoroughly prepare and treat the aforementioned timbers would be a 3 day operation therefore cost £1,685 (One thousand six hundred and eightyfive pounds) plus V.A.T.

Church roofs - The level of infestation seems relatively slight therefore should not be considered particularly severe at the present time. However eventually it may be necessary to reach the deep seated beetle attack using pressure injection and prevent severe damage occurring in the long term. Ideally this would be best applied when roofs are re-leaded, but could be carried out sooner rather than later on the interior using our mobile scaffold tower for access.

Localised remedial treatment to the exposed underside of Nave and Aisle roof structures would be a 2 day operation, therefore cost in the region of £1,135 (One thousand one hundred and thirtyfive pounds) plus V.A.T.

Whilst dealing with local treatment to the roofs, infested South Aisle wall panelling could be heavily sprayed in an attempt to reduce beetle damage. Ultimately, the defective panelling should be removed from the wall for repair and more thorough treatment.

Perhaps this should be carried out when the adjacent pew floor is repaired and treated. In the not too distant future, most pew floors will require some form of attention. However, many pews will require removal in order to lift sufficient floorboards and thus provide adequate access to the supporting timbers.

Once this level of disturbance is considered, one must also be aware that some form of repair may be required, therefore provisions included in a specification.

When it becomes necessary to repair floors, I shall be pleased to provide an estimate for remedial treatment when and if required.

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We reserve the right to review this estimate if the work is not completed within 6 months from the date of this survey report. The usual main contractors discount has been included.

Where complete treatment and reinstatement of specific areas is carried out as per our recommendations, then a 20 year Warranty will be provided in full.

However, if insurance cover is required to protect the Warranty, our invoice will include a £40 fee for registration with the Guarantee Protection Trust.

In any event, upon completion of the work, payment must be made in full to validate this document.

We have complied with current legislation and informed English Nature that there is evidence of bats roosting in this building.

If any of my proposals are acceptable, I shall be pleased to arrange for the work to proceed upon receipt of your instructions.

Yours sincerely,

DENNIS T. ROBERTSON