

**REPORT ON STRUCTURAL SURVEY
AT
ST BARTHOLOMEWS CHURCH
LAYSTON, BUNTINGFORD**

FOR

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Job. No. SL99/5109

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1.0 INTRODUCTION

- 1.1 It is proposed that a charitable trust be set up to look after this redundant church. This report has been commissioned to examine the condition of the structure and identify works required to stabilise any structural defects and preserve the fabric against deterioration. The work is prioritised into that which should be attended to as a matter of urgency and that which should be carried out on a longer term basis.
- 1.2 It is desired that as much of the work as possible be carried out by volunteers some of whom may have general building skills. I have highlighted areas where due to the specialised nature of the work or for safety reasons work must be carried out by professionals. Some of the work undertaken by volunteers should be instructed by an Architect or Surveyor to ensure that correct materials and techniques are employed.
- 1.3 In preparing this report I have had a sight of the 1997 inspection report which is carried out at five yearly intervals for the Church of England.

2.0 DESCRIPTION

2.1 The building is a medieval church situated on an isolated site surrounded by trees and farmland with a modern cemetery situated on the opposite side of the entrance road.

2.2 For description purposes the building may be divided into three sections:

2.2.1 The Tower

The tower is a flint structure with limestone quoins, window surrounds and string courses. A tiled roof with a very small spire is set within raised parapets. Beneath this is a timber floor and bell frame with two of the original bells *in situ*. Under the bell floor is a further timber floor which supports timber struts reinforcing the bell structure above. Access is by a spiral stone stair up to the bell chamber but the roof can only be reached by the provision of a ladder. No access to this roof was obtained.

2.2.2 The Nave

The nave is a roofless ruin. All that remains is the north and south flint walls and window stonework. The porch on the south side has a timber roof structure with asbestos cement sheet covering.

2.2.3 The Chancel

The chancel at the east end has been converted into a chapel in recent years with a tiled roof on a timber structure supported by flint walls which have been rendered externally and plastered internally. The floor is tile covered and at the west end there is a large oak sectional hinged door with a window above.

3.0 ROOFS

- 3.1 The roof to the chancel is covered with plain clay tiles extensively covered with moss. They appear generally in good condition but with a few broken ones. The moss should be removed to prevent deterioration of the tiles and broken tiles replaced.
- 3.2 The lead flashings to the chancel arch parapet should be replaced.
- 3.3 The gutters and downpipes are in good condition and will only require routine cleaning and painting.
- 3.4 The timber roof structure is in good condition free from significant defects or deterioration.
- 3.5 The roof to the porch has been covered by asbestos cement sheeting laid to a pitch with parapet gutters at each side. The side gutters have been crudely repaired with a plastic gutter and staining on the timber underneath indicates that it has been leaking.
- 3.6 The timber structure appears in good condition below.
- 3.7 The roof covering should be replaced by a more appropriate material. Ideally this should be lead but I am aware that at a low level and in this remote location this would be vulnerable to theft. A zinc or high performance felt may be a more practical material.
- 3.8 As a short term measure the gutters could be relined and the present sheeting retained.
- 3.9 The roof to the tower has been renovated in recent years and there is no evidence of leakage. This was not inspected due to access difficulties but reference to the Church of England surveyors report indicated a number of deficiencies.
- 3.10 The lead covering to the spire is in poor condition and the iron brackets holding the weather vane have been screwed on top of this leading to a poor weather proofing detail to this element. This was observable through binoculars from ground level. The lead covering should be replaced.
- 3.11 The lead covering to the tiled roof hips is reported to have been fixed with galvanised nails which would restrict thermal movement and lead to premature of the lead.

- 3.12 The zinc rainwater disposal chutes in the corners are reported to be in poor condition requiring repair.
- 3.13 The parapet gutters are reported to be formed in concrete without a waterproof coating. This is a vulnerable area and the consequences of leakage into the walls of the tower and the timber structure are such that a lead lining should be considered in near future as a sound long term measure.
- 3.14 Routine maintenance to clear the gutters of debris should be instituted.
- 3.15 The timber structure comprises of two cross beams in cruciform layout supporting a central post under the spire which also supports the rafters. The timbers are in fair condition generally but some deterioration of the cross beams at the centre is apparent due to the effects of roof leakage in the past and beetle attack and similarly the wall plate to the rafters has also suffered. There is no sign of structural distortion or sagging of this roof but the timbers should be thoroughly inspected and treated as necessary by a timber preservation specialist. Some repair work may be necessary following this inspection.

4.0 FLOORS

- 4.1 The tiled floor to the chancel is in good condition and no work is required to this.
- 4.2 The belfry floor and bell frame floor in the tower are in fair condition. There is evidence of beetle attack on the timber but the whole is structural sound as regards access for maintenance.
- 4.3 The floors and frame are covered in dust and they should be thoroughly cleaned and inspected by a timber preservation specialist and treated as necessary. Some repair work may be necessary following this inspection.

5.0 WALLS

- 5.1 The walls to the chancel are in generally good condition. On the north wall there is a patch of detached render which requires local repair.
- 5.2 The south wall has distorted and is leaning outwards at the top locally above the window and door. This is probably due to thrust from the timber roof beam. There is no sign of cracking, suggesting that this is a historic movement and that the situation has stabilised. The extent of the lean is not great in relation to the wall thickness.
- 5.3 This defect should be monitored from time to time check for any movement and if detected it may be necessary to tie the feet of the roof beam to stabilise the thrust.
- 5.4 The stone surround to the south window has cracked and spalled locally. This will require specialised stone repair.
- 5.5 Damp penetration is evident internally on the northwest corner of the chancel and this can be traced to the diagonal external section of wall with a blocked door or niche on its face. The top of this section of wall has cracks at its junction with the chancel and allows water to penetrate. These cracks should be sealed with mortar.
- 5.6 The parapet above the chancel arch is badly cracked and eroded by water penetration and the arch below has an old crack in it. There is a temporary covering of felt on the top of the northern parapet. If left unattended to this part of the structure will deteriorate rapidly and become unsafe.
- 5.7 The parapet will require partial rebuilding with repairs to the arch crack, a new coping and flashing to the tiled roof.
- 5.8 There is damp at low level on the southwest corner of the chancel. The external ground level is higher than the floor and a ditch has been formed around the chancel. This is overgrown and requires cleaning to enable water to drain away from the walls.
- 5.9 Walls to the nave are fully exposed to the weather and the internal top faces have been weathered with slate. The external parapet upstand is rendered and cracking and spalling has occurred which if not repaired will allow water penetration into the core of the wall. It is important to carry out repairs to this render.

Ivy growth on the walls should be removed to prevent damage to the mortar.

- 5.10 The southern wall has developed an outward lean at the top but there is no cracking associated with this suggesting that this is a historic movement. The extent of the lean in relation to the wall thickness is not great and the wall is structurally stable. The verticality of this wall should be monitored from time to time to confirm that further movement is not taking place.
- 5.11 The stone mullions to the south wall windows have deteriorated badly and the iron glazing bars are corroding. The iron work should be cleaned and painted. The stonework cannot be repaired and will have to be replaced by a specialist.
- 5.12 The walls to the porch are generally in good condition but there are open cracks in the parapet at the south west corner and above the entrance arch. These should be filled to prevent water penetration. Structurally the walls are sound.
- 5.13 The tower walls are structurally in sound condition with no significant cracking or bulging. The surface is weathered and a number of open joints in the dressed stonework and in flint areas will need re-pointing in the not too distant future.



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6. REPAIR SCHEDULE

Item

6.1 Items which should be attended to within one year

- 3.1 Clean moss from chancel roof and repair tiles.
- 3.8 Porch gutters
- 3.10 Lead covering to the spire. This should be carried out professionally. Budget cost £2,000.
- 3.12 Replace rainwater clutes. This should be carried out professionally. Budget cost £800.
- 3.15 Timber preservation to tower roof. This should be carried out professionally. Budget cost £500.
- 4.3 Timber preservation to tower floor and belfry. This should be carried out professionally. Budget cost £1,200.
- 5.1 Repair render to chancel wall
- 5.5 Repair leaking crack on chancel wall.
- 5.7 Rebuild parapet and repair crack to chancel arch. This should be carried out professionally. Budget cost £10,000.
- 5.8 Clear ditch around chancel.
- 5.9 Repair render to parapet of nave walls and remove ivy growth.
- 5.12 Repair cracks to porch parapet and arch.
- 6.2 Items which should be planned in the next five years
- 3.7 Renew roof to porch. This should be carried out professionally. Budget cost £1,500.
- 3.13 Lead line tower gutters. This should be carried out professionally. Budget cost £2,000.
- 5.4 Repair to chancel stone window surround. This should be carried out professionally. Budget cost £500.

- 5.11 Replace decayed stonework to south windows on the nave. This should be carried out professionally. Budget cost £4,000.
- 5.13 Re-point areas of tower.
- 6.3 There are general areas of work such as cleaning gutters, general painting, clearing of undergrowth, trimming of trees etc which will form part of the continuing maintenance of this building and should be carried out on a regular basis.