THE VENTILATION SYSTEM OF THE CHURCH OF ST ANDREW, ADFORTON, HEREFORDSHIRE

Introduction

St. Andrew, Adforton was built as a Chapel of Ease to Leintwardine parish in 1874 to the design of the architect J.P Seddon. It is simple and small, with a timber barrel vault ceiling under a pitched roof. The church is set above the A4110, in a tiny churchyard. It is now one of a group of churches in the Parish of Wigmore. The church doubles as a community centre, holding events by Arts Alive, parties, pantomimes and so on. There are kitchen facilities and toilets. Disabled access with assistance.

As part of the Stage I grant offer it was requested that research work be carried out into the ventilation system found in the church.

The research is intended to discover:

- What was the system expected to and did it achieve it’s purpose
- To what extent was ventilation of any sort built into other churches of the period.
- What were the influences on the designer(s) to install such a system.
- Had the designers used the system previously.
- Did they use the system subsequently, either in the same way or in modified form
- Is the system of practical value as a retrofit in other churches today.

Research Methodology

Examine and describe the ventilation scheme installed
Make a judgement as to it’s effectiveness
Internet search for:
  Records of the design of St Andrews
  Background of the designer(s) involved
  Ventilation guidelines of the time – if any
  Other locations of churches with ventilation systems
The ventilation system at St Andrew’s

The most evident features are the seven circular metal ventilator ‘rosettes’ with adjustable chokes on the reveals below all the nave windows. All could be opened once excess paint was removed. Six of these cover vertical pipes, which connect into the void below the (suspended) floor, one via a duct through the solid floor beneath the font. The seventh has a small void below it and seems to be a dummy for consistent appearance. The four at the sides link to stone grilles in the exterior low level masonry. The cross void ventilation is facilitated by corresponding air ducts through the solid floor of the nave aisle. There was almost certainly a fifth stone grille and vertical pipe connected to a rosette adjustable ventilator prior to the nave’s south west window opening being extended to make a doorway to the new kitchen. (See diagram below) There is no evidence of the makers name on the rosettes. See appended report upon the investigation produced by Mr A. J. G Swainson (Parishioner).
Stone grille beneath W.10

Stone grille beneath W.12

Stone grille beneath W.1 just visible at left end of boxing

Rosette ventilator on flat cill (W.2)

Rosette ventilator on sloping cill (W.10)
Possible purposes of the vertical ducts and adjustable rosettes.

The ventilators may have been included for the following reasons.

i) To provide some cool air and lessen the need for window opening. It could be supposed that this would be useful particularly on days when outside temperatures were high. Warm air introduced directly into a cool interior would provide risk of condensation on cold surfaces compared to the introduction of cooler air from the underside of the building.

ii) To provide some movement of cool air across the face of the window glass and thereby lessen the risk of condensation when outside temperatures were low.

iii) To avoid draughts direct from open windows.

There is no evidence to suggest that the vents were used in conjunction with a heating appliance. Some users of the building remember the existence of a freestanding stove. This was located along the south wall of the nave and had a metal flue which penetrated the wall immediately behind it to the outside air. The blocked opening can be seen in the south wall. However, in this location, the stove would have stood upon what is now a timber floor and there is no evidence remaining for a masonry base upon which the stove may have been supported. The original drawing, which is in the possession of the parish does not show any means of ventilation or of heating at all other than the small fireplace in the vestry. This may suggest that the stove was retro fitted, that there was in fact no heating and ventilation scheme, combined or otherwise, provided by Seddon, that the existing ventilators were only for fresh air intake and perhaps introduced by the building contractor and not the architect. Presently, St Andrew's has windows incorporating opening lights, whether these were retro fitted or not, is not known.

The vents have until recently been jammed shut and therefore it is not known if the vents were effective in any of the ways as suggested above. Evidence of water staining on internal lower window masonry suggests that condensation has occurred due to warm air meeting cold glass surfaces and because no grooves and drains at the base of glass panels were provided. Only future use over time will now demonstrate the usefulness or otherwise of the system. The users of the building do report however that the vents are effective for providing ventilation and they have to be closed when the building is in use for reasons of comfort.

Documentary evidence and the Ventilation of Victorian Churches

The Victorian age was known for its inventiveness and experimentation, and there are many examples of heating systems and equipment known and recorded. A publication produced by the CIBSE Heritage Group, ‘The warming and Ventilating of Victorian & Edwardian Churches’ describes many schemes and designs produced by a number of engineers of the period. The majority of
schemes recorded however were for larger scale buildings compared with the small country chapel of St Andrew's Adforton, and ventilation schemes were often associated with heating the building.

There was considerable interest in improving the ventilation and heating of churches throughout the Victorian period. A pioneer in this respect was Thomas Tredgold, whose book ‘The principles of warming and ventilating public buildings’ was first published in 1824. The Queen’s doctor, Neil Arnott wrote a book ‘On warming and ventilating’, published in 1838, Among many others were David Boswell Reid’s ‘Illustrations of Ventilation’ (1844) and William Walker’s ‘Useful Hints on Ventilation’, which came out in 1859, just a few years after Seddon began practising in partnership with Prichard.

Ultimately the dilemma facing designers was that of ‘warmth without ventilation or ventilation without warmth’, and was a subject in the minds of 19th century architects. Voysey, a pupil of Seddon at the time St Andrews was built, later introduced single opening panes to his windows together with patented window stays for greater versatility ‘so that he could enjoy fresh air without suffering a draught’ (from a recorded quote by Voysey’s daughter), he also professed that lower ceilings may be better ventilated than high ceilings (A. H. Mackmundo, art cit.), and in some buildings he designed an interior ventilator grille decorated with birds ‘to make rooms healthy, you need a circulation of air, not space for foul air to collect in’.

To date there seems to be no examples recorded of similar simple ventilation systems as found at Adforton. Clearly a comprehensive survey of other churches would need to be undertaken to establish if this system is unique or if it has been employed elsewhere, either as a ventilation system or in conjunction with a heating appliance. The majority of churches are ventilated by means of opening windows, and ventilation of under floor voids by means of grilles in external walls. Many churches have no ventilation for the interiors at all.

**The Architect**

The design was commissioned as a Chapel of Ease in the Parish of Leintwardine.

The architect who designed the church was John Pollard Seddon (1827-1906) a renowned English architect and designer who produced a prodigious number of architectural designs for buildings of various types, many in and around London, in Wales, but also in Shropshire, Herefordshire, Norfolk and Ireland.

Seddon was born in London. His father was a cabinet makes and his elder brother Thomas became a painter of the Pre-Raphaelite school. John later formed friendships with some of the leading lights of that movement. Both brothers were inspired by the writings of John Ruskin.

In 1847 Seddon began an apprenticeship with the architect Thomas Leverton Donaldson, establishing his own practice in 1852 after a tour of Europe. His first commission was a hotel in mid Glamorgan. Here he formed a partnership with architect John Prichard, who had worked for Pugin. For the next ten years they were ecclesiastical architects in Llandaff, building and restoring churches and other religious buildings. They also designed the War and Foreign Offices in Whitehall.

The partnership was dissolved in 1862, a few years before Prichard’s death in 1866. Seddon continued to design buildings up to his death in 1906. As well as ceramics, stained glass and metalwork, he also designed Arts and Crafts furniture. He worked with other architects, particularly John Coates Carter, (a partner from 1885 to 1904) and designers of the day, lectured and wrote, and published many articles. From May 1874 to 1879, Seddon was a tutor to C F A Voysey, who became his chief assistant for a year prior to leaving. Voysey set up his own practice in early 1882.

It is possible, therefore, that Voysey had some part in the design or the drawing of St Andrew’s, Adforton. St Peter’s, Ayot in Hertfordshire and Hoarwithy Herefordshire are recorded to have been initiated in the same year as St Andrews but it is the architectural features which are of interest and so described rather than mundane features such as ventilation designs. Other work carried out
by Seddon in Herefordshire include a school at Whitchurch (1858), St Mary’s Kentchurch (1858) and
the Parsonage there, Little Dewchurch School and Parsonage (1861), and the parsonage at St
Catherine’s Church Hoarwithy (1870s).

Conclusions
Documentary research relating to the ventilation system found at Adforton was inconclusive, mainly
because building descriptions available focus upon architectural features and philosophies rather than
mundane heating and ventilation systems. Systematic and in depth research, including site visits and
perhaps a great deal of travelling, would be required to fully investigate the significance or otherwise
of the ventilation system found at Adforton St Andrews, and this would be beyond the scope of this
report.

Evidence suggests that the metal rosettes found existing in the window cills at St Andrews Adforton
were included during the construction period, but were not necessarily as part of the original design
by the architect. Presently there is no documentary evidence to suggest that the ventilation system
was designed by Seddon, it is possible that it was introduced by the builder during the construction.
It is likely that they were included to introduce of fresh air only rather than being in conjunction with
a heating installation.

References
The warming and ventilating of Victorian and Edwardian Churches (Brian Jefferies and Frank J Ferris,
a CIBSE Heritage Group publication.
John pollard Seddon (Michael Darby, Catalogue of architectural drawings in the Victoria and Albert
Museum).
C F A Voysey (Wendy Hitchmough, Phaidon)
Heating and Ventilation, (English Heritage, 2009)
Heritage Group website for the Chartered institution of Building Services Engineers.
Victorian and Edwardian heating (Brian Roberts, CIBSE)
APPENDIX 1 Investigation carried out by members of the congregation

St. Andrew’s Church Adforton, Ventilation Investigation.
None of the seven ventilator rosettes under the windows could be opened due to a build-up of paint. The excess paint was removed by scraping and the ventilators were opened. There was some concern that the ventilators were ineffective as it was assumed that all ventilators originally connected directly to external airbricks in the wall immediately below each one. No airbricks could be found below the ventilators at the west end, 6 and 7 on the diagram. There was no airbrick under ventilator 2. Temporarily fitting a powerful electric fan over ventilator 7 gave good air flow and draught was detected at the external airbricks. Temporarily blocking the airbricks produced air flow from ventilators 1, 3, 4, 5 and 6 with none from 2. It was concluded that the vents, excluding No. 2, connected to the under-floor void and thence to the outside via the airbricks. Sighting through the airbricks on the north side showed that there are ducts through the solid floor of the aisle as the opposite airbricks on the south side could be seen. Although it could not be seen there must be a duct under the solid floor at the west end connecting vent 7 to the under-floor void. As vent number 2 did not appear to be functioning at all the rosette was removed to reveal a solid wall beneath a shallow void behind with no sign that the vent had ever been connected.

In conclusion: It would appear that the ventilation system as originally installed is now functional and ventilates the under-floor void as well as the nave. Vent No. 2 is a dummy and was presumably fitted for cosmetic reasons.

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