

HERITAGE BUILDINGS: APPLYING BsEST PRACTICE

The work of English Heritage's specialist building services engineers is centred on the sensitive application of modern building regulations to historic buildings and monuments.

By Geraldine O'Farrell



Original multi-gang switch plate for lighting at the John Rylands library



WHEN LISTED historic buildings and scheduled monuments are mentioned, the IET Wiring Regulations (BS 7671:2008 (2011)), or indeed any aspect of electrical services are unlikely to be among the first things on anyone's mind. However, for the members of the BsEST (Building services Engineering and Safety Team) the association of historical buildings with building regulations is an integral part of every working day.

This small team of chartered engineers works within English Heritage, the government's advisory body on England's historic places. It includes, among other specialists, a small group of electrical and mechanical building services engineers with decades of experience in design both within and outside the heritage field. The team handles a varied portfolio of work, mostly advising on and overseeing building-services work within third-party heritage buildings and English Heritage's own national properties.

As well as interpreting the many codes of practice and British Standards linked to building services, the team's role is to ensure that the unnecessarily rigid application of the same guidelines and standards does not destroy or permanently disfigure buildings of huge historic importance.

Guidance

To this end, BsEST members have written English Heritage's own guidance on a variety of topics to assist heritage property owners and guardians in applying British Standards and adhering to other safety and standards issues. These are available both from the HELM (Historic Environment – Local Management) and the English Heritage websites.

The guidance offered covers general services, internal and external lighting, surge protection and lightning protection. In addition to the more traditional services the BsEST team members have also written guidance on photovoltaic and solar thermal installations, and their impact on heritage buildings, energy conservation, and micro wind generation; a short-form document on heat pumps will be released shortly.

These guidance notes are written in an accessible way and without too much technical language, enabling the widest audience possible to gain understanding from reading them.

In addition to all the new services work that the engineers are involved

with, one group member is also working on the energy-monitoring of the entire English Heritage estate. The BsEST team is also actively incorporating smart-metering and green-champion schemes across the organisation.

English Heritage also actively encourages the preservation of early examples of building services which are often destroyed in the misguided belief that they have no historic value of their own: they are deemed reusable and part of England's industrial archaeology.

John Rylands Library

One good example of how BsEST engineers promote the retention and possible reuse of existing early building-services systems can be found in the form of an early electrical system in the John Rylands Library, part of Manchester University since 1972. The striking Victorian Neogothic building, located in Manchester's Deansgate and designed by the architect Basil Champneys, is one of only five National Research Libraries and now houses the third-largest academic library in the United Kingdom.

It took ten years to build, and was inaugurated on 6 October 1899 with the first day of opening to the public being the 1 January 1900. It was erected as a permanent memorial to entrepreneur and philanthropist John Rylands by his third wife Henriqueta, who purchased some of the finest private book collections of the day including the famous Althorp Library from the 5th Earl Spencer in 1892, comprising 43,000 books, including some 4,000 printed before 1501.

All this valuable paperwork was deemed too great a fire risk to install gas lighting, so electrical lighting was installed throughout, in addition to a sophisticated ventilation and heating system. The same wonderful light fittings and accessories are still employed today, along with the brass wiring trunkings and original multi-gang light switches (although the latter are for display purposes only, the lighting controls being provided by modern units hidden 'back of house').

In 2003 a major refurbishment and new entrance wing project was started, funded by the Heritage Lottery Fund and other partnership donations. It was decided then that the original systems should be re-employed as much as possible, and the appointed consultants worked closely with English Heritage to ensure that original systems were brought back into use wherever possible. ➤

Sensitive retention of original lighting fixtures in Manchester's John Rylands Library

St Alban the Martyr interior, with hanging luminaires



█ In instances where lighting had to be supplemented because of a change of use, there was no attempt to blindly copy or attempt a 'faux' version of the original luminaires; instead modern contemporary light fittings were employed that were sympathetic to the original, or so understated as to make little visual impact. The rhythm of the building layout was used to help blend the old with the new, following locations already used by the existing installation.

The brass trunkings bear a close resemblance to the cable containment systems found at the National Trust's property Craigside in Northumberland, built by Lord Armstrong in 1863, which were manufactured using wood.

Craigside was the first house to be lit using hydroelectric power and the first 'proper installation' of electric lighting according to Joseph Swan. These cable ways had a ridged surface to indicate where the wiring ran beneath so that nails or screws would not damage the cables beneath when the lids were fixed down.

In addition to this trunking, features such as wooden handrails on some of Craigside's staircases were employed as cable routes – hardly adhering to the 17th edition, but it worked.

In both buildings early fuse-boards still survive. As to how much discrimination between boards was achieved is another matter, but both buildings are still here, many years later, so standards must have been satisfactory at the very least.

St Alban the Martyr

Churches form a high proportion of an English Heritage engineer's work, mainly because so many are buildings of great significance and they will often throw up rare survivors of relatively early lighting. One such church is the grade 2 St Alban the Martyr in Swaythling, Southampton, built in 1933 and designed by the famous architects Welch, Cachemaille-Day and Lauder.

It contains hanging luminaires that were also designed by the architectural company and arranged in such a way as to show off the GLS lamps they employed. The fitting was made up of two highly decorated and gilded armatures which provided the cable route down to the individual lamps.

They are very decorative but, given the lumen output of early lamps, it is doubtful they would have produced much light. One question presented to

the BsEST team was whether the fittings ever had shades fitted. This question was probably prompted by the fact that bare GLS lamps are now rarely used. The team advised that the use of shades was doubtful, as lamps from that period were not very efficient and any shade would have cut down an already inadequate light output.

Never humdrum

There are many more instances of the weird and wonderful that could be cited in this article, but it would then run to many pages. The intention has been to provide just a flavour of the exciting, ingenious, rare and extraordinary early engineering artefacts that BsEST engineers to work with and around. It is a job that is never humdrum or monotonous. Every visit to a new site will, nine times out of ten, throw up a new and unusual engineering problem or find, and that is what makes it so enjoyable. ✎

English Heritage:

www.english-heritage.org.uk

Historic Environment – Local

Management: www.helm.org.uk

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