

# Peterborough DAC

## Electrical work in churches (5th edition)

### Guidance note

#### DAC Policy

All electrical works should be undertaken by contractors enrolled with either the NICEIC, NAPIT or ECA and a completion certificate must be issued. A Contractor's Declaration, available from the DAC Office, should be completed and sent to the DAC along with the final specification for the works. Before any works commence the PCC must consult its Insurer and get written authorisation for the project.

The Church Buildings Council publish a useful booklet on electrical works, which is available directly from the CBC or Church House Publishing.

The location and design of the electrical installation is hugely important. The aesthetic impact of equipment and cabling must be considered very carefully and an architect or surveyor should be consulted to ensure that damage to the character and fabric of the building is minimised. The placing of equipment and cable runs should also have regard to any future plans that might be evolving so that they do not hamper future work.

No fixings should be made into ashlar (worked stone) or on/around moulded stonework. Fixings should be into mortar only. Poor or thoughtless installation of electrical equipment can leave permanent damage when, in a few years' time, technology moves on and one installation has to be replaced by another, leaving the building with scars from each generation of electrical work. The design and implementation of the scheme is crucial and must not be left to a contractor on the job.

#### Particular issues

##### 1. Standards

The DAC's expectation is that the whole installation, or any works to it, will be carried out in strict accordance with the most recent British Standard Requirements for Electrical Installations (Institute of Electrical Engineers Wiring Regulations). Works should also be in line with the recommendations of the Council for Care of Churches and the PCC's insurance company (usually EIG). The written authority of the latter must always be obtained before the faculty application is made.

##### 2. Matters relating particularly to installations in church buildings

The DAC has found that the following matters are often a cause for concern:

###### 2.1 Switch gear

- This should be mounted adjacent to the incoming service in a readily accessible position that is carefully designed, located and, where necessary, placed in a cupboard designed in such a way that it takes account of the often sensitive setting of the interior of the church.

- The installation should be visually discrete and unobtrusive. If it is not in a cupboard all the equipment should be mounted on a neatly designed board set off from the wall with minimum fixings (usually four only) into the joints of historic fabric. On no account should it be fixed directly to the wall.

## 2.2 Wiring

- The DAC's preference is that wiring will be done using mineral insulated copper covered cable with PVC sheath (double insulated) all operatives on the site must be conversant with this type of wiring.
- In exceptional circumstances the DAC and EIG may accept an installation using FP200 (gold) cabling provided that the work is undertaken by an NICEIC, NAPIT or ECA contractor and is installed in accordance with the Regulations for Electrical Installations issued by the Institution of Electrical Engineers (IEE), Current Edition, under the relevant British Standard. However, where the cable might be subject to mechanical damage either MICC should be used or the cable should be protected by metal conduit.
- In suitable locations lighting track may be used for connection to luminaires.
- The cables shall be dressed to remove all irregularities and to follow the contour of the surface, so as to provide a neat and inconspicuous installation.
- On completion of any run, it will be painted to match the surface of the structure to which it is fixed.
- Cabling should match the background to which it is fixed; either by virtue of its manufacture or by painting it; exposed cable should never be obtrusive.
- English Heritage advises: "Our normal requirement is that fixings should be into mortar joints and not into masonry or brickwork. We also no longer support the method of running cables within mortar joints as a way of hiding the cables. With chasing of walls also unacceptable due to the loss of fabric this leaves surface fixing, either with or without some form of trunking system as the main option. It is best therefore to consider agreeing cable routes with the contractor before work commences".

## 2.3 Switches

- Switches must be located as sensitively as possible so that they do not damage historic fabric or intrude on the eye. Where mounted in conspicuous positions the assembly should be painted to match the background to which it is fixed.

## 2.4 Light fittings

- Where the flex is visible it will conform to the colour of the fitting or chain suspensions.
- All luminaires must carry the CE mark and preferably a European Test House (e.g. BSI) approval.
- Exterior luminaires should be rated at least IP44 for ingress protection. IP65 is more suitable for floodlights and luminaires in severe conditions.
- A separate guidance note on lighting installations is available

## 2.5 Appliances

- Any electrical appliances should be securely fixed to minimise the risk of damage and fire.
- Wherever possible appliances will be concealed so that their impact on the appearance of the building is minimised.

- In the case of appliances related to sound systems, musical instruments or audio-visual equipment the PCC is strongly advised to provide a secure storage cupboard to minimise the risk of theft.

## 2.6 Labels

- All labels to comply with Regulations
- All switchgear and distribution boards shall be externally labelled in accordance with the regulations. Neatness is essential.
- A clearly printed circuit chart shall be provided for each distribution board, showing the circuit number, size of HRC fuse or MCB, description and location of the points fed, also location of any equipment vulnerable to standard tests. This chart should be provided with a clear rigid acrylic or polycarbonate cover.

## 2.7 Bonding

- Where gas or water supplies exist in the Church, there shall be main equipotential bonding to the main electrical earth terminal.
- Lightning protection systems will also be bonded to the main electrical earthing terminal (regulation 413 -02-02).
- All exposed metal work in toilets; boiler house etc. will be supplementary bonded.
- The whole installation must comply with bonding requirements of the latest British Standard requirements for electrical installations (I.E.E. Wiring Regulations).

## 2.8 Testing

- At the completion of the contract the installation shall be inspected and tested in accordance with British Standard and the results forwarded to the Architect, together with a Completion and Inspection Certificate.

## 2.9 As fitted drawings

- At the completion of the Contract, a drawing, scale not less than 1/100, will be forwarded to the PCC and architect/surveyor, showing the position of all cable runs, lighting fittings, appliances etc. as installed, together with a schematic wiring diagram or schedule, showing the sides of all switchgear, distribution boards, and sub-main cables.

## 2.10 Handover

- Allowance shall be made for handing over the finished installation to the PCC representative/architect/surveyor, including printed instructions for the correct operation and maintenance of all appliances also any adjustments that may be necessary, to ensure the maximum efficiency of the lighting scheme.

## 3. Professional input

### 3.1 Architect or surveyor

- PCCs are strongly advised to involve their architect or surveyor in preparing a brief for electrical works to ensure that what is proposed will be appropriate for the PCC's particular circumstances.
- In many cases the architect or surveyor's agreement regarding cable routes and location of appliances will be a condition of the DAC's advice to the Chancellor about a faculty application.

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### **3.2 Contractor**

- The Contractor must be currently NICEIC, NAPIT or ECA enrolled contractor and must carry out the work under IEE (BS) Rules. A DAC Contractor's Declaration must be completed – copies available from the DAC office.

### **3.3 Designer/consultant**

- PCCs are advised that there are often advantages, particularly for a major project where new appliances or light fittings are involved, in commissioning a report and specification from a designer or consultant. This can then be put out to tender to contractors. Whilst many PCCs baulk at paying fees for such input it can be beneficial in ensuring the best possible scheme and comparable tenders.

### **Information that will be needed for a Faculty application**

- A plan of the church showing the extent and location of the proposed works including cable routes and where fittings are to be installed
- A declaration completed by an NICEIC/NAPIT/ECA Contractor (copies from the DAC office)
- Full details of the proposed work, including why it is necessary and how the proposals will address any problems with the current installation.
- Details of all wiring, including the route, colour, fixing and quality of the cables to be used.
- Illustrations of all appliances, fittings and equipment including catalogue photographs, dimensions, colour and method of fixing.
- Photographs of the church showing any existing fittings
- Photographs of the proposed location of new fittings. Ideally these should be marked to show the intended position. If it is possible for the new fitting to be held in place or a piece of card or paper of the same size of the fitting temporarily placed in the location. This provides a clear picture of the likely visual impact of the proposals.

### **Wider consultation**

- It is possible that English Heritage or other bodies will need to be consulted about proposals. If the DAC believes that this is the case the PCC will be advised early on in the consideration of the work. The DAC will do its best to help the PCC to achieve good communication with whatever bodies have to be involved. The consultation may only require correspondence but in some cases a site meeting will need to be convened. Occasionally the DAC will not advise consultation at the outset but the Chancellor will require it when the faculty application is made, however such cases are very rare.
- The church insurers should be informed of the proposed works and approval obtained.
- If the specification has not been drawn up by the church architect the DAC is likely to suggest that s/he should be consulted about fixing and location of equipment, cable routes and design of fittings that might have a visual impact on the church. The PCC may find it helpful to do this at the outset rather than after the DAC has discussed the proposals.