DERBY DIOCESAN ADVISORY COMMITTEE

GUIDANCE NOTES FOR PCC’S, ARCHITECTS AND CONTRACTORS INTENDING TO CARRY OUT ELECTRICAL WORKS IN CHURCHES INCLUDING RE-LIGHTING

Derby DAC in accordance with advice given by Ecclesiastical requires that any person/s undertaking electrical work in a church building must be a certificate holder of the National Inspection Council for Electrical Installation Contracting (NICEIC) or a member of the Electrical Contractor’s Association (ECA) or a member of National Association of Professional Inspectors and Testers (NAPIT). Electricians or electrical contractors who are only registered to undertake work on domestic installations under Part P of the Building Regulations are not acceptable for work on churches.

The Health and Safety legislation (Electricity at Work Regulations 1989) requires that every electrical installation must be properly maintained. It is essential to incorporate an Electrical Test, to be carried out by a suitably certified electrical contractor, into the Quinquennial Inspection procedure, the Test Certificate then becoming a part of the Quinquennial Report. Whenever the electrical test is carried out, the test certificate must be shown to the architect at the quinquennial inspection.

The procedures and parameters of the test are set down in the ‘Regulations for the Electrical Equipment of Buildings’ published and amended from time to time by the Institution of Engineering and Technology.

Where new or remedial works to electrical systems (including lighting) or the installation of any new equipment to be connected to an electrical supply is to be carried out in a church building, the work must comply with “BS 7671:2008 (2011) Requirements for Electrical Installations”, now the 17th Edition of the Regulations as amended.

These Guidance Notes set out the principal requirements of the Diocesan Advisory Committee for anyone proposing to submit an application for a Faculty to carry out new or remedial work in a church building. They are not intended to be comprehensive: PCC’s are recommended at an early stage in any proposals to draw the attention of their architect and contractor to the following publications :

Church Lighting, Council for the Care of Churches. 1997 - Church House Publishing
Wiring of Churches, Council for the Care of Churches. 2001 – Church House Publishing
(Available from Church House Bookshop, 31 Great Smith Street, London SW1P 3BN
telephone 020 7898 1305 or order securely from online catalogue www.chbookshop.co.uk )

Diocesan Advisory Committee
Church House
Full Street
Derby DE1 3DR

October 2001
(Amended June 2009, October 2011)
Guidance Notes A
Guidance for Parishes submitting a faculty application for re-wiring and/or re-lighting of churches including the installation of any plant which requires an electrical supply. Any application must be accompanied by a copy of an up-to-date Electrical Test Certificate signed by a Contractor as described in Note 2 below.

In order to make their recommendations, the Diocesan Advisory Committee will require the following information:

1. The name and address of the architect (Note 1);
2. The name and address of the electrical contractor (Note 2);
3. A copy of the latest Electrical Test Certificate (Note 3);
4. An adequate plan of the church showing the position of all fittings, switchgear, mains distribution boards and the point of entry of the service cable;
5. A specification setting out fully the work to be carried out, the rating and manufacturer's catalogue number of new switchgear &c, the proposed system of wiring, and the method of entry of the service cable or cable exits for external fittings;
6. In the case of fittings to be mounted visibly within the church, drawings, photographs or marked catalogues with, in the case of luminaires, details of the wattages of lamps to be used in each;
7. Confirmation of approval from the insurance company with which the church is insured against fire before the work is commenced;
8. Confirmation that any proposed new lighting scheme will achieve the generally accepted illuminances for church buildings. (Note 4)
9. Clause 102 of the Clean Neighbourhoods and Environment Act 2005 has implications for PCC’s with floodlit churches and for those proposing to introduce such works. However, appropriate design and the siting and choice of luminaires can be used to mitigate against the worst effects of light pollution. The DAC, in considering any proposals for schemes of floodlighting, will expect applicants, whether PCC’s, architects or contractors, to show that the extent of any extraneous light pollution has been minimised.

Note 1 The architect who normally carries out the Quinquennial Inspection of the church or who has been specially commissioned to supervise the proposed works.

Note 2 The main contractor must be a certificate holder of the National Inspection Council for Electrical Installation Contracting (NICEIC) or a member of the Electrical Contractor’s Association (ECA) or a member of National Association of Professional Inspectors and Testers (NAPIT). Electricians or electrical contractors who are only registered to undertake work on domestic installations under Part P of the Building Regulations are not acceptable for work on churches.

Note 3 This should normally have been commissioned by the quinquennial inspecting architect and in many cases will form the starting point for commissioning remedial works to the electrical system. It should NOT be used as a specification for the work.

Note 4 These are set out in Church Lighting, Appendix 1.
Guidance Notes B
Guidance for contractors and architects engaged in re-wiring and/or re-lighting works in churches

1. All cable, conduit or trunking routes whether entirely new or for replacement cables must be agreed with the project architect before work begins. Every opportunity must be taken when existing cable, conduit or trunking is being replaced to consider whether more appropriate or visually unobtrusive routes might be available. See Guidance Notes C for acceptable cable types.

2. Cables must not be run through or over major architectural features such as piers, columns, capitals or bases nor should any fittings be affixed to such features.

3. Removal of plaster, mortar, brickwork or stonework for the chasing of cable runs must only be carried out with the approval of the project architect in advance of the work.

4. Structural or moulded timber must not be drilled, notched or sawn on any surface.

5. Where fittings, furniture or panelling need to be drilled, every care must be taken to minimise the visual impact of such work by choosing the least conspicuous position.

6. Trunking, conduit or cable sleeving should be of an appropriate colour to be agreed with the project architect.

7. All wall fixing plugs for cable clips, trunking or conduit saddles and for switchgear and fittings should be as small as practicable having regard for the duty they have to perform. The approval of the project architect must be sought where the condition of plasterwork, brickwork or stonework is such that unusual methods of fixing need to be used.

8. A drawing to an appropriate scale of the proposed routing of all cables should be submitted to the project architect for approval before the work commences.

9. Proper precautions should be taken to protect the organ and any other furniture or works of art which cannot be removed to safe keeping prior to the works commencing.

10. Due care must be taken by the project architect to ensure that contractors, sub-contractors and workmen behave in a fitting manner for a house of God by prohibiting smoking or other inappropriate activities.

11. It is suggested that appropriate clauses to ensure the above recommendations are met be included in any contract document together with those relating to the work itself.

12. General Contract Clauses which should be included are set out in the attached (Appendix 4, Church Lighting, Council for the Care of Churches. 2001).
Appendix
(Adapted from Appendix 4 in Church Lighting. Council for the Care of Churches, 2001)

Contract clauses
It is recommended that the following clauses (or their equivalent) be included where appropriate in any specification for a re-wiring and/or re-lighting scheme in a church, especially where it will continue in use during the works. These clauses are in addition to those in Guidance Notes B, Guidance for contractors and architects engaged in re-wiring and/or re-lighting works in churches.

Avoidance of disruption
1. The Contractor is working in an occupied building and the safety of the Purchaser's staff and visitors shall at all times be properly preserved by the Contractor.
2. Where appropriate it must be stressed that the church will continue in use throughout the progress of the works and the Contractor's gear shall be cleared away to permit services and other activities to proceed unhindered and in safety. The Contractor will be required to make the necessary arrangements with the minister or an authorised representative at daily or weekly intervals, defining those areas where work is to be carried out and the Contractor shall, so far as is reasonably practicable, arrange the places of work to fit in with the normal operation of the church. In particular, areas required for use must be left clear and clean at the end of each working day.

Builders' work
3. Except where expressly authorised by the Purchaser or representative, the Contractor may not carry out any work on the fabric of the building which may cause damage or defacement. Except where screwed traps already exist, the Contractor is not to lift floor boards nor cut away nor remove any timber or decorated plaster work, etc. without prior permission. All such work must be carried out only by skilled workers nominated or approved by the Purchaser, and the Contractor shall give reasonable notice of such requirements so that appropriate arrangements can be made.
4. Where the Contractor must provide fixings to walls, etc. in finished areas, the position and nature of these fixings must be agreed in advance. The Purchaser or Engineer may direct that any such holes or fixings be provided by skilled workers nominated or approved by the Purchaser.
5. The specialist contractor or skilled workers carrying out such builders' work may be sub-contracted to the Electrical Contractor, or directly retained by the Purchaser, as may be decided by the Architect, Engineer or Project Manager. Without prejudice to the above, the Contractor should allow in the tender for all necessary routine builders' work, such as cutting away and making good in the intake cupboard, stores, ceiling voids and other areas where there are no special finishes which might be damaged. However, such work is in all cases subject to the consent of the Purchaser or representative.
Protection of contents, wall paintings, etc.
6. Consultations with the Purchaser's representatives shall include the identification, well in advance, of those items in and around the building which will need protection. Adequate time must be allowed for specialist staff to remove or protect these items as appropriate before any work is started.
7. The Contractor shall also allow for providing sufficient clean dust sheets to protect the building and such items as are not removed from working areas, from dirt and damage, and for protection of any delicate items which might be liable to damage.

Work in or near the organ
8. Where work is required in or near the organ the Contractor shall approach whoever is responsible for maintaining the organ well in advance, obtain agreement to what is to be done, and comply with any necessary protective measures.

Aiming and training lighting fittings
9. The aim and exact location of all fittings shall be discussed before installation and shall be confirmed by a site trial after dark with a sample fitting of each type on a temporary lead. Where possible the aim of each fitting shall be locked mechanically after this has been verified by trial.

Availability of light fittings
10. The fittings specified are to be placed on order at the commencement of the Contract. Any problems with delivery or availability shall be reported immediately. Unauthorized substitution of lamps or equipment will not be permitted.
Guidance Notes C

1. Introduction

Cables used for electrical wiring in church buildings

Electrical wiring in churches poses a number of potential hazards. After arson, electrical faults are perhaps the most damaging cause of fire in a church building although it is generally accepted that the quality of church wiring is now as good as it has ever been thanks to periodic inspection and the use of appropriate types of wiring and methods of electrical circuit protection. Additionally, Health and Safety requirements require that users of, or visitors to the building are protected from the dangers of electric shock and also that in the event of fire the hazardous fumes generated by burning cables are minimised.

The Derby Diocese DAC along with most other DAC’s and Ecclesiastical require that all new wiring in churches should be either fire proof or fire resistant unless mechanically protected in an appropriate conduit or trunking.

This brief Guidance Note describes the two most common types of such cables used in churches, MICC and FP200, and identifies their particular advantages and disadvantages.

2. Basic Description of Cables

2.1 MICC or Pyrotenax cables

**Mineral-Insulated Copper-Clad cable** is a variety of electrical cable made from copper conductors inside a copper sheath, insulated by inorganic magnesium oxide powder. The name is often abbreviated to MICC or MI cable, and colloquially known as *pyro* (since 1937 the original manufacturer and vendor for this product in the UK is a company called Pyrotenax).

A similar product sheathed with metals other than copper is called *mineral insulated metal sheathed* (MIMS) cable. The cable comprises copper conductors inside a circular copper tube, the intervening spaces filled with dry magnesium oxide powder forming an insulator. However, since magnesium oxide is hydroscopic the cables when in use have to be terminated in brass sealing assemblies to prevent the ingress of moisture. Since MI cables use no organic material as insulation (except at the ends), they are more resistant to fires than plastic-insulated cables. Additionally, when engulfed in fire, the unsheathed types produce no significant toxic fumes. The sheathed types are available covered with a Low Smoke and Fume (LSF) plastic sheath, coloured for identification purposes which also provides additional corrosion protection for the copper sheath.
2.2 **FP200 and similar Cables**

A number of manufacturers are now producing a fire resistant cable in which the conductors are separately insulated using a silicone rubber compound, all contained within a laminated aluminium tape screen protected by a smoke and halogen free (LSOH) sheath. The market leader is the Prysmian FP series which employs a superior form of insulation around the conductors. The sheaths are available in a small number of standard colours.

3. **Advantages and Disadvantages.**

3.1 **MICC Cables** have many advantages including good physical strength, high fire withstanding capability, relatively small diameter, protective copper sheath and proven long life when installed correctly. It is unattractive to rodents and when sheathed has a good resistance to corrosion. Disadvantages include comparatively higher cost than other forms of wiring and the need for particular skills in installing it.

3.2 **FP200 Cables** have one great advantage over MICC cables. They are cheaper to buy and install than MICC but do not have the same level of fire resistance or durability. For the same current rating they are slightly larger in diameter and although lighter and more flexible than MICC are more difficult to bend to small radii.

**Note on Multicore and PVC sheathed (PVC/PVC twin and earth cables)**

Unless mechanically protected either by conduit or appropriate trunking, PVC sheathed cables should be avoided. They lack the mechanical protection of MICC or FP200 cables and can be attractive to rodents. When exposed to flame PVC insulated cables also release toxic fumes. Increasingly cable manufacturers can now supply Low Smoke Halogen Free (LSHF) cables which overcome this problem but still lack the mechanical properties of MICC or FP200 cables.

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Contact: Mrs V Davis – DAC Secretary
Tel. 01332 388683 e-mail: dac@derby.anglican.org