# DIOCESE OF CHELMSFORD

# DIOCESAN ADVISORY COMMITTEE

# ENVIRONMENTAL IMPACT OF BUILDING WORKS & SERVICES IN CHURCH BUILDINGS

## GUIDELINES TO ASSIST PARISHES

**Revised January 2013**

# ENVIRONMENTAL IMPACT OF BUILDING WORKS & SERVICES IN CHURCH BUILDINGS

## SCOPE

1. To explain how the DAC's approach to works to churches takes into account "green" issues and how aesthetic questions might best be approached.

## INTRODUCTION

2.1 When considering works to churches DACs have to take into account methods of worship and pastoral needs together with the architectural/historic importance of the buildings. In all these matters there are other underlying considerations which may be classed as environmental issues. These will be matters which affect the local, regional or universal environment. Some will be principally good housekeeping, others may have no immediate local effect but may have consequences on the other side of the world.

2.2 This paper seeks to highlight these issues and to put forward guidelines which would enable consistent judgements to be made taking into account environmental matters for Faculty applications.

2.3 All those concerned with work to historic churches, incumbents, churchwardens and architects, should be aware of British Standard BS 7193:1998 "Guide to the principles of conservation of historic buildings" which contains much useful advice and guidance.

## MATERIALS

3.1 Up until 150 years ago secular buildings, except for some in urban areas and the most "showy" elsewhere, were constructed with local materials. Historically most parish churches sit somewhere between the vernacular and the grand and, although local materials predominated, where funds were available materials were imported from some distance, such as stone in Essex which was even brought from across the Channel. No doubt then, as now, transport was a major cost factor and of course waterways, rather than roads were favoured for heavy materials, particularly in a county like Essex with such an extensive coastline and numerous navigable rivers which, 500 years ago, would have been major highways.

3.2 Today such localised materials are not generally available, although materials such as brick, sand and gravel can often be obtained relatively local.

3.3 When choosing materials consideration must be given to :

a) is the source renewable or sustainable; and
b) are other matters such as transportation costs such that an alternative should be sought?

3.4 If newly developed materials are being considered, have they been tested for a long enough period to be certain that they have neither in-built hazards nor a limited life expectancy? There are lessons to be drawn from the hasty universal adoption of medium density fibreboard which proves to have dangers to operatives and may have longer term dangers when built-in.

## MAINTENANCE AND ENERGY

4.1 The longevity of any building depends upon regular maintenance. With churches the quinquennial inspection provides the basic grid and, within these five years, the parish should set up their own regime of monthly, quarterly, annual and biannual inspections for everything from drains to roofs, inside and out.

4.2 All repairs to historic churches, and most of those to later buildings, should be carried out in like-for-like materials unless the original material has proved particularly unsuitable. Where the original material is no longer available, for instance stone from a worked-out quarry, great care must be taken to ensure that the replacement is suitable in all respects, colour, texture, weathering characteristics etc. Timber to be used in both new work and repairs should be carefully chosen. As well as being suitable for its purpose and compatible with the building, timber should be obtained only from renewable sources.

4.3 When repairs are carried out there may be opportunities to increase the insulation of some elements. This should be approached with care. For instance re-roofing may be seen as an ideal opportunity to felt the roof, overlooking the fact that in so doing ventilation in the roof space is reduced, whereas such ventilation has been a major factor in ensuring the longevity of so many medieval roofs.

## INSULATION

5.1 Similarly new floors may be seen as a chance to insulate and damp proof. The former may be acceptable, subject to archaeological considerations, but the insertion of a damp proof membrane may result in moisture under the floor being driven elsewhere with detrimental effects.

5.2 Over many years it has been considered that the SPAB (Society for the Protection of Ancient Buildings) approach to the repair of historic buildings has been the most appropriate way to repair historic churches. However in recent years this philosophy has been challenged in some quarters. For instance, in the case of renaissance or Georgian buildings where damage to decorative elements has occurred, there is a strong argument for a new-made repair because the appearance of the detail is known and can be replicated exactly. This same argument could be applied to a mediaeval moulding on a pier base, part of which has eroded away. It may be that the damaged part can be remade with a new stone, shaped to match the existing profile, without damage to the medieval stonework and in such a way as to be reversible.

## HEATING

6.1 Heating historic churches is a perennial problem. Generally speaking it is not cost effective (nor building friendly), to attempt to heat the whole space. Heat generally should be directed to people rather than structure and, for most cases, this will prove to be the most economical option. Many historic items in churches including furniture, hatchments, memorials etc., can be damaged by too much heat and too many changes in temperature. (See the DAC Guidance Note on "Church Heating").

6.2 When considering church heating the organ must always be thought about. It is advisable to consult the Diocesan Organ Advisor when changes to the heating are contemplated.

6.3 Although heat loss through glazing cannot be avoided, parishes would be well advised to ensure that lead work to windows is tight and air gaps are sealed. Similarly doors should be discreetly fitted with draught excluders.

6.4 Choice of heating sources is often restricted, particularly in rural churches, by what is available. Although the introduction of an alternative source, a new gas main or a new 3-phase supply, may be expensive in capital outlay, this may be outweighed by long term savings on heat bills. Additionally, if there is an alternative source it will put the parish in a good negotiating position to arrange a competitive deal. When gas is selected as the main fuel the dangers of fire in a building

which is only occupied part time must be borne in mind. Alternative fuel sources such as solar power, may not be appropriate to mediaeval churches but might be suitable in new buildings.

6.5 Many churches are now partitioning off separate areas for church rooms, crèches, kitchens etc. These schemes offer opportunities to provide individual heating arrangements for each part, allowing comfort precisely where it is needed. Each secondary system can be designed specifically for that particular use and need not relate to the main heating system of the church.

6.6 The choice of paints or other surface finishes needs great care. Materials which are synthetic or produce impermeable skins are not good practice, nor should untried and untested materials be used.

6.7 Works in churches and churchyards are likely to have effects upon flora and fauna. Inside the building bats can pose problems, but care should be taken to ensure that they are not harmed during works. Similarly many churchyards, because they have not been subjected to chemical sprays, provide habitats for increasingly rare species of plants and lichen and these should be protected during building work.

6.8 Ancient churches are palimpsests of history and any work which takes place is likely to reveal a part of that history. Therefore during works any earlier features revealed should be considered by an expert before anything is destroyed.

## DESIGN

7.1 In the design of new works opportunities arise to make the work as environmentally sympathetic as possible.

7.2 New works will be governed by what has been said before on the use of materials, but that should not inhibit the production of low energy, low maintenance structures.

7.3 High insulation values will be demanded by the Building Regulations, but these should not be seen as maximum requirements but rather as minimum, which may, where possible, be exceeded. Again it would be preferable to avoid new untried materials. For instance, instead of relying upon cavity fill insulation where such materials are unreliable and likely to cause bridging of the cavity, it is better to use thicker block inner skins which will have aesthetic advantages (see below).

7.4 New design must take minimum maintenance as a serious criteria. For instance if roof valleys are used they should be easily accessible for cleaning by volunteer labour. Painting should be reduced as far as possible and the use of untreated oak for doors and windows can be commended. If thick walls are part of the design and frames are set well back in reveals, the doors and windows will not be subjected to excessive weathering.

7.5 Consideration should also be given to traditional methods. For instance rainwater gutters could be omitted if the design has a good overhang and the rainwater is taken away via paved channels around the building.

## REFERENCES


British Standard — BS 7913:1998

Forestry Stewardship Council — 01686 413 916
FSC UK
11-13 Great Oak Street
Llanidloes
Powys
SY18 6BU
Email: info@fsc-uk.org
Website: www.fsc-uk.org

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## POLICY

1. The DAC will consider the environmental impact of all Faculty applications.

2. The DAC will expect all parishes, when making Faculty applications, to take into account the DAC's advice notes on environmental impact.

3. When making Faculty applications parishes and their architects will be expected to follow the guidance set out in BS 7913:1998 and ensure that specifications take into account environmental issues.

**This is one of a series of guidelines published by the Diocesan Advisory Committee**

**Copies can be downloaded from the Diocesan website:**

**www.chelmsford.anglican.org/parishes/dac/dac_notes**

**or can be obtained from the**

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