eco-congregation

an environmental toolkit for churches

Module 7

greening the cornerstone

Guidelines for caring for church premises

Eco-congregation (England & Wales) is a project of
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Module 7 – greening the cornerstone

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An introduction to environmental stewardship of church premises

Church premises require care and resources to run and maintain them. Often such work is undertaken by a property steward or committee, sometimes assisted by a caretaker. These individuals or groups ensure that resources are used wisely to maintain the bricks, mortar and fabric in order that the worship, life and mission of their church may flourish.

A growing range of issues are involved in managing property including day-to-day running, maintenance, health and safety, accessibility and, at a time when caring for God's creation is so important, environmental issues too. Because church premises can be fairly large, old and listed and have an intermittent usage, it is not always easy to identify which environmental measures are the most appropriate or effective for a particular church. Module 7, 'Greening the cornerstone', is designed to help property stewards and committees to consider environmental issues in their planning, decision-making and action. The suggestions given are based on good environmental practice and, in addition, some of the measures may offer long-term savings of both money and time.

'Greening the cornerstone' draws on the experience of churches who have adopted good environmental building practice. The module contains two main types of material.

Part 1

General good environmental practice, applicable to most church premises

Part 2

How to obtain a professional environmental consultation, to gain the best advice for a particular set of premises

Part 1 –Good environmental practice for managing church premises

Getting started

Some property stewards/committees may choose to undertake their own environmental review or audit of their premises. Undertaking such a review can enable churches to prioritise actions, particularly those that can be implemented easily or with minimal cost and those which offer the greatest savings. Other actions might be considered within a rolling programme of maintenance. Three general recommendations from Eco-Congregation Award winning churches are:

1 Identify current good practice

2 Celebrate new achievements

3 Don't try to do everything at once!

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Energy

In a temperate climate such as in the UK, church premises need heat and light to make them useful and comfortable places for people to meet each other and worship God. However, it is important to save energy because:

1. The production of energy from fossil fuels pollutes the air and contributes to global warming
2. The production of energy usually involves the depletion of finite resources from the earth
3. Saving energy saves money for use in other ways by the church

The effects of climate change, or global warming, are already starting to be visible and are likely to get worse. They include rising sea-levels, an increase in storms and flooding in some places and drought in others and changes in the distribution of some disease-bearing organisms. People in Britain and Ireland contribute as much as 50 times more to climate change than those in the poorest countries, but it is the poor who will feel its worst effects. It is estimated that, by 2050, rising sea levels, severe weather and crop failures could create 150 million refugees.

By implementing a few measures, churches have demonstrated that it is possible to save energy and save money, and sometimes increase the comfort of the buildings at the same time. The following advice comes from the experience of the Church of Scotland 'Better Heating' scheme (contact details given later in this module).

Heating

1. The most important of all: Ensure that the church has a frost protection system functioning to protect 'wet' systems from freezing in cold weather. The cost is low compared with the cost of repairing damage due to burst pipes.
2. Install thermostatic controls to prevent overheating
3. Install suitable time/switch controls with separate time channels for each heating circuit. There are flexible programmers available with a seven day period which can maximise energy savings
4. Tamperproof thermostats are good and thermostats which allow dual temperature setting for sedentary and active groups are even better
5. Try to restrict access to plant rooms and heating time controls
6. Thoroughly ventilate the church at the end of Sunday services to allow moisture- laden warm air out rather than lock it in for a week
7. Investigate centrally negotiated utility tariffs with denominational property officers
8. Try to avoid use of electricity as the main means of heating the building, especially if the usage is high
9. Commission an energy or environmental survey of church premises, or a second survey if the church hasn't had one for some time
10. Take comfort from the fact that it is not possible to heat a church to the satisfaction of an entire congregation. Some people will always be too hot while others are too cold. The best that can be done is to strike a good balance

In addition note that with old buildings, there is the added dimension that a failure to put in enough heat can lead to damp problems and ultimately deterioration of the fabric which is costly to repair. Some experts might recommend some background heating, which does not necessarily cost a lot in 'heavyweight' buildings.

Lighting

For immediate action

- Replacing standard light bulbs with low energy compact fluorescent bulbs can cut energy consumption by up to 80%. Such bulbs last 10 times longer than regular bulbs so are particularly useful to fit in high or inaccessible places
- Place neatly printed 'switch-off' signs by lights. Consider adding a strapline, e.g. "Helping St. Judes care for God's creation"
- Make full use of natural light by keeping windows clean

When upgrading facilities

- Have lighting in the sanctuary arranged to come on in strips across the building. This will enable lighting to be provided for just the front few pews for smaller congregations
- Consider fitting sensors that turn lights on if movement is detected and off after a period of no movement
- If changing fluorescent striplights, check that you are fitting the most energy efficient 'high frequency' models
- Seek professional advice

Managing bookings to reduce energy use

Reduce the number of days when heat is switched on.
Many church premises, particularly halls and ancillary rooms, are used at different times by a variety of groups throughout the week. A church which heats the premises on Tuesday for a coffee morning, on Wednesday for an afternoon playgroup and on Thursday for an evening meeting is likely to use more heat than a church that combines the three bookings into one day.

Arrange bookings to maximise use of residual heat.
Some activities require less heat than other activities. A church which heats a hall for a sedentary afternoon activity might find that there is sufficient residual heat remaining to provide background heat for a later booking involving physical activity, such as an evening badminton club, without actually needing to extend the heating period.

Grants

Some utility companies have subsidised energy saving schemes and products – check your local supply company for current offers. Additional grants are sometimes available to install energy saving measures for those in receipt of certain benefits. There are a variety of grants available to promote energy efficiency. Check out what the church (for the sanctuary, ancillary buildings and the vicarage/manse/presbytery) might be eligible for by contacting:

- The Energy Savings Trust
- Energy Grants Agency (for Home Energy Efficiency Scheme grants)

(contact details given in the Directory of Useful Resources at the back of the module)

- Your Local Authority
- Denominational property officer

A further financial consideration is to check whether your church qualifies to pay a reduced rate of VAT for building maintenance or improvement.

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Sources of Advice

Energy Savings Trust

The Energy Savings Trust provides information for households to reduce their home energy bill, including an energy audit. They have a national office a range of regional offices/centres.

Contact: Web: www.est.org.uk Tel. 0845 727 7200

The Carbon Trust

The Carbon Trust operates a programme called 'Action Energy' part of which is aimed at Small and Medium Enterprises (SMEs). They offer a free site based consultancy for organisations with a £50,000+ annual energy spend and a free telephone based consultancy for users with a lower spend (typical churches). Consultant should be able to give impartial advice, as opposed to selling a particular kind of system. It may be helpful to have the following information available before you phone:

- Annual energy spend (gas, oil and electricity)
- Building usage (i.e. two hours on Sunday or multi-use during the week)
- Existing heating system
- Potential budget available
- Approximate volume of premises
- Existing energy conservation measures, if any (e.g. insulation) – the age of the building may give the consultant some clue

You can also request an Information Pack

Contact: Action Energy Web: www.envirowise.gov.uk Tel. 0800 58 57 94
Carbon Trust Web: www.carbontrust.co.uk Tel. 0800 08 52 005

Energy Study Pack

The Methodist Church has produced an Energy Study Pack which is designed to help people share in the debate about energy production and use. It asks questions such as: can we generate the energy needed to allow all the peoples of the earth to enjoy life free from poverty? The control of disease, provision of adequate standards of housing, sanitation, education and employment all demand energy. How can we provide that energy without irreparably damaging the ecosystems on which life depends?

The pack contains programmes for group study, the technical information necessary to inform that study, and biblical and theological reflection. A CD-ROM is included. It is available (£7.50) from Methodist Publishing House.

Contact: Methodist Publishing House, 4 John Wesley Road, Werrington, Peterborough, PE 4 6ZP. Tel. 01733 325002, Fax: 01733 384180
Email: sales@mph.org.uk, Web: www.mph.org.uk

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Vicarage/manse/presbytery

Many churches are responsible for maintaining a house where a minister, vicar or priest lives. There are a number of steps that can be taken to improve the energy efficiency of their home, so cutting fuel costs and improving comfort. The following is an extract of some guidelines from Module 10 'Green choices', which apply to any domestic home.

- Installing at least 20 cm (8 inches) depth of loft insulation can save around 20% of heating costs
- Houses with boilers older than 15 years are likely to benefit by changing to a more fuel-efficient model. Modern gas-condensing boilers are particularly efficient as they recycle some of the energy from exhaust emissions
- Around 35% of heat energy is lost through walls that are not insulated. By installing cavity wall insulation, up to 60% of this heat can be saved. Installation in an average house (3 bedroom semi-detached) costs around £450 and costs can be recovered in savings made over about four years
- Fitting low-energy light bulbs requires an initial capital outlay but can reduce energy consumption by up to 80% and the bulbs can last up to 10 times longer, saving both money and the need to change bulbs frequently
- Up to 20% of heat can be lost by draughts around windows, doors and floors. Fitting draught excluders can save heat and money. **It is important to ensure that adequate ventilation is maintained, particularly in rooms with gas or solid fuel fires**
- Fitting a jacket around a water cylinder may cost around £10 (DIY fitting) but save up to £20 per year
- Providing a shower in the bathroom can allow the minister or priest to save both water and energy. Taking a daily shower instead of a bath can save up to £10 per year on the fuel bill
- Fitting and using timer and thermostatic controls can significantly reduce energy consumption, without any loss of comfort

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Green Electricity

Green electricity is electricity produced from renewable energy sources, as opposed to from our finite fossil fuel reserves. It is environmentally desirable because the fuel source is renewable and because its production doesn't emit greenhouses gases into the atmosphere and hence doesn't contribute to global climate change. Traditionally the main source of green electricity has been hydro electricity but in recent years wind installations have increased. There are a number of drivers to raise the proportion of electricity generated from renewable sources, including:

- Government targets
- Some subsidies
- The increasing number of households and organisations that choose to purchase electricity from a green source

Most of us are connected to the National Grid, so we can't choose where the electricity that comes down the wires to the church comes from. However, we can buy green electricity. When you choose to buy green electricity what happens is that you commit your supplier to purchasing at least the amount of electricity that you use from a renewable source. The more people who sign up, the more electricity the supplier will have to purchase from a green generator.

As with any product, there are a number of options. The most important issue to clarify with any supplier of a 'green' electricity tariff is: what is the 'added value' that this company is giving you when you subscribe to their tariff? How are they giving you more than the Government requirement for electricity generation from renewable sources? Are they:

- delivering more than the Government requires?
- facilitating new capacity?
- engaging in other environmental capacity eg offset schemes?

Operation Noah

Operation Noah is a Climate Change Campaign set up by Christian Ecology Link and endorsed by the Environmental Issues Network of Churches Together in Britain and Ireland. It calls on people to:

- Sign the Climate Covenant urging the UK government to lead the search for a global solution to Climate Change
- Take action themselves by switching to green electricity
- Spread the word with the resources available

If you would like to get your church involved, contact Operation Noah at the address below. They can supply free campaign leaflets and other information .

Operation Noah, 9 Nuthatch Drive, Earley, Reading, RG6 5ZZ. Tel. 01949 861516, E-mail: noah@christian-ecology.org.uk, Web: www.operationnoah.org

Story from St John's Hartley Wintney

St John's, Harltley Wintney in Hampshire has switched to purchasing green electricity. Ruth Jarman persuaded the PCC that caring for creation was more important than just price when choosing an electricity supplier. You can read how she did it at the climate change campaign 'Operation Noah's' web site www.christian-ecolcogy.org.uk/noah under 'Ethical energy for your church' and 'Choosing ethical energy'.

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Selected energy actions by Eco-Congregation Churches

St John's Church, Spittal	Moved smaller, mid-week meetings and services to smaller rooms
All Saint's Church, Wretton	Switched to green electricity
Dorking Society of Friends Meeting	Installed draft-proofing
St John the Evangelist, Hurst Green	Fitted low energy bulbs throughout church
St Peter's, Claybrooke Parva	Fitted efficient gas-condensing combi Boilers
Church of the Ascension, Ealing	Commissioned an energy consultation
Selly Oak Methodist Church	Up-rated heating with a zoned system
Kirkwall East Church	Incorporated low energy lighting circuits, a high standard of insulation during their building renovations
Evesham Methodist Church	Installed insulation above their ceiling
Dalbeattie Parish Church	Installed roof insulation and a high-efficiency boiler.
All Saint's, West Bromwich	Created a glazed and roofed partition within their sanctuary to provide a place for midweek worship without the need to the whole church
St Mary the Virgin, Easington Village	The children built a model low energy house from cardboard to demonstrate good practice at home
Christ Church URC/Methodist, Ross-on-Wye	Gave away household energy audits at their annual fayre and a low energy light bulb (both from their local energy advice centre) to everyone who completed it
St Matthew and St James, Liverpool	Installed safe cycle storage facilities

What energy saving measure could your church adopt?

Story from Westray Church of Scotland – our own wind turbine!

In 2001 and 2002 Westray Church underwent extensive restoration and redevelopment to transform their cold, damp and inflexible building into one which is much more modern and comfortable. As part of the refurbishment they installed a ground source heat pump which uses natural heat from the ground to heat the church building. They then decided to pursue the idea of renewable energy further by installing a wind turbine. The main aims were to reduce the annual energy costs while at the same time increasing temperatures to a comfortable level in the building. It was also seen as very important to use a clean and environmentally friendly source of energy. The project secured funding in the form of an 81% grant from the Scottish Executive and a Scottish Community and Household Renewables Initiative (www.est.ork.uk/schri) implemented by Highlands and Islands Enterprise Community Energy Unit for Orkney and Shetland. The project was completed in March 2003 and the wind turbine now powers two storage heaters in the sanctuary and one in the vestry. The wind turbine is efficient, low maintenance and a very visible symbol of a congregation demonstrating its commitment towards God's creation.

Note: Some churches are ideal buildings for solar installations, particularly those built on an east - west axis, as they have an extensive south facing roof.

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Additional good **building management practice**

The following section includes a list of general points for consideration. It is not intended to be a comprehensive list for implementation in every church. Some may be appropriate for immediate action, some for placing within a rolling programme of maintenance and others for when plant is being changed or premises redeveloped.

In the toilet/washroom

For immediate action:

- Install water 'hippos' in cisterns to save 1 litre of water per flush

When upgrading facilities:

- Install taps in washrooms with spray fittings that use less water
- Install dual flush toilets
- Consider installing water saving devices to gents urinals (these are required in new installations)
- Also refer to the points about disabled facilities and baby change under 'access' below

Some churches, particularly those in rural locations, may not have a toilet because they don't have access to running water. One possible solution is the installation of a composting toilet, which can operate without running water or main drains. Hygienic hand-wipes are available for facilities without running water.

Water

Connect a water butt to a down pipe to collect 'grey' water from the roof for watering

Storage

- Provide facilities, safely located, for collecting recycled goods
- Provide safe storage for bicycles for building users

Notice board

Install a 'green' notice board. This can be used to advertise items such as:

- Car sharing groups
- Local bus timetables, including for Sunday
- Contact details of local environmental organisations

Lifecycle of materials

Church organisations, like domestic households, use resources in the maintenance of their life. Churches can lower their impact on the environment by considering the lifecycle of products. For example, in buying consumables, churches can choose to purchase goods that have the best environmental credentials. Criteria include:

1. Being constructed of a high percentage of recycled products
2. Having a high percentage of components which can be repaired or replaced
3. Having a high percentage of components which can be recycled following use
4. Having a relatively long operational life

Access

In addition to saving energy and water, it is important to make church premises accessible to all users. Consider the following:

- When reviewing building accessibility, particularly for the disabled, consider access at the entrances, to individual rooms including the worship area, toilets and other facilities. If the premises are not accessible by all users, consult with a prospective user(s) to devise a solution for your premises. Additionally the local authority may have an Access Officer who can give advice
- Baby change facilities (preferably available for male & female parents/carers), which can often be incorporated into an existing or planned wheelchair accessible toilet
- A loop system for the hard of hearing
- Prioritised parking for those with disabilities
- That signs in the building are clear to assist the visually impaired

To promote a society where all disabled people can participate fully as equal citizens, the Disability Rights Commission (DRC) was established by an Act of Parliament. The DRC offers a helpline, legal advice, support, and policy advice to government and others. This includes a framework for a statutory code of practice that requires those who provide goods and services to the public, including churches, to make their premises accessible to disabled people. The code became law in 2004.

Contact: Disability Rights Commission (DRC)
DRC Helpline, Freepost MID 02164, Stratford-upon-Avon CV37 9BR
Helpline telephone: 08457 622633, Textphone: 08457 622644, Fax: 08457 778878
Email: enquiry@drc-gb.org, Website: www.drc-gb.org

Story about Dorking Quaker Meeting's Award

When I suggested my Quaker Meeting work for an Eco-Congregation Award they were not enthusiastic! They were happy for my Environment Audit to 'green' up the Meeting House but didn't see the need for any award. However, as our 'greening' efforts progressed, the groups who hire our Meeting House began to comment positively on how 'green' we were, and the visible indication of our efforts came to be seen as part of our ministry. A demonstration of our witness that the love of God's creation should be taken seriously and that by making changes in the way we live we can help to preserve the beauty and variety of the world we live in, prevent pollution, reduce injustice, and indirectly, help to prevent conflict. Also, as we became increasingly aware of the damage being done to the world, we felt it important to encourage others to make similar changes.

So, with encouragement from Eco-Congregation, Dorking Quakers changed their minds, applied for the Eco-Congregation Award and were quite proud to be the first Quaker Meeting to receive it. We arranged to have it presented at the local Churches Together meeting to encourage other churches and achieved excellent publicity in local papers and various Quaker publications. I've recently had phone calls from two other Quaker Meetings now thinking of applying for the award, so have encouraged others.

Anne Brewer, Dorking Quaker Meeting. Visit www.dorking.quaker.eu.org

Payback time

Some steps to reduce energy or use of other resources cost money to implement but can cut the consumption of energy or other resources so saving money in the long term. One example is installing low energy light bulbs. These bulbs can cost considerably more than the price of a regular bulb but they are still cheaper to install and use in the long run because:

1. they last up to ten times longer than conventional bulbs, so saving the cost of purchasing nine regular bulbs and
2. they use about 20% of the energy used by a conventional bulb, so the running costs are 80% less

The 'payback' time is the length of time it takes for the savings made to equal the cost of buying and running the bulb. Beyond this time period, use will save money compared with the cost of using a regular bulb.

Different energy saving measures can have different payback times. It is useful to consider the payback time in any energy-saving recommendations that are made. The shorter the payback time, the quicker savings are made.

Further 'payback' considerations

If you are considering installing new plant (e.g. a boiler, new heating system, windows), consider a specification which offers better energy efficiency (e.g. a gas condensing boiler, a heating system with thermostatically controlled circuits, windows with low emissivity glass) and calculate the payback in terms of the additional cost of installing the plant with a better energy efficiency than standard plant against the saving in energy made.

Many householders may look for a 'payback' period of 2-5 years. They may not invest in energy-saving measures if the payback is greater than 10 years, calculating that if they move house in the period, they won't benefit financially from the investment. However, a church may expect their premises to be used well into the future, and so can afford to invest in energy saving measures with a relatively long payback.

For some churches the 'payback' time is not as important as witnessing to their local community that they care for God's creation in practical ways. In the past, churches used their resources to build towers and steeples not only to contain church bells but also to act as an ever-present visible witness to the place of God in their community. For some churches, witnessing to their care of God's creation may be more important than seeking a particular payback period. Perhaps churches in the 21st century will choose to witness to the God of creation by installing photo-voltaic tiles on their roof to generate electricity rather than building a tower.

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Case study: the Church of the Ascension, Ealing

The Church of the Ascension commissioned a BRE Design Advice consultation through its participation in the Eco-Congregation pilot study. The church subsequently received a report outlining the nature of the building and a set of recommendations to be dealt with in the forthcoming years. The following is a summary extract of the report:

Overview of the premises

The sanctuary was built in 1939 with a church hall added in 1961. The sanctuary is of brick construction with a tiled roof with a heating system comprising a gas boiler with cast iron radiator system without a temperature control mechanism. There is no fabric insulation. The church hall, which is heated electrically, has a part barrel, part flat roof, in both areas covered in mineral felt.

Occupancy

The sanctuary is used twice each Sunday and for occasional midweek/Saturday services. The Church hall is used for school activities most weekdays and for various groups (e.g. badminton) in the evenings.

Recommendations for action

Following an analysis of the:

- current fuel costs (broken down by gas and electricity and between the hall and sanctuary)
- heating plant
- lighting system and controls
- heat loss and insulation (doors, roof, floor, windows)

A series of actions with phased implementation was recommended (see the report on next page).

What the Church of the Ascension did…

Within the first nine months of receiving the report the Church of the Ascension implemented a number of the immediate and short-term recommendations including:

- The economy tips for setting the thermostat
- Installing door closers
- Draught-proofing other doors and windows
- Insulating pipes and undertaking alterations with recommended venting in the boiler room

Gillian Harrison, the Green Apostle from the church who arranged the consultation commented

"*The report was illuminating – it made us think about our energy use, how much we waste and how much we could save. We wish that we had known about having a professional audit six months earlier when a breakdown in our hall heating led us to replace the old electric system with a new electric one which we now realise is inefficient and expensive to run. However, now we have got the consultation report we are working our way through the recommendations and view it as our 'maintenance Bible' for our future programme of maintenance and repairs*."

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Recommended Actions to save energy for the Church of the Ascension

1. Immediate management and audit measures

- Set the heating boiler to come on earlier in the depths of winter, but switch it to come on later and switch off earlier during milder autumn and spring periods
- Ensure that a record is kept every time the boiler is serviced together with any recommendations and pertinent data, e.g. flue gas emission figures
- Record weekly or monthly gas, electricity and water meter readings and incorporate into resource monitoring and target planning for the church
- Check the need for domestic hot water and restrict use as appropriate

2. Low-cost or short-payback period (less than 2 years)

- Fit insulation around the heating pipes within the boiler room and move the vent from an adjacent corridor to an outside wall, to reduce internal cold draughts
- Fit thermostatic valves to radiators in vestries and subsidiary rooms
- Fit draught stripping to all external doors and lobby doors and self-closer to main lobby door
- Fit draught seals to windows where opening is required
- Replace all remaining tungsten light bulbs with compact or tubular fluorescent fittings (consider adopting high frequency type for tubular fluorescent)
- Replace all remaining tungsten light bulbs with compact or tubular fluorescent fittings (consider adopting high frequency type for tubular fluorescent)

3. Medium cost or medium payback period (approx. 2-5 years)

- Replace time clock on the main heating boiler circuit with a controller and fit room thermostats in Nave and Chancel to provide weather compensated (variable temperature) flow with external temperature sensor, optimum start and stop (self-learning for boiler and pump) and programmable space heating by time and temperature
- Replace electric on-peak space heating: options include gas-fired condensing boiler with multi-circuit system

4. Work at refurbishment stage or incurring longer payback (approx. 5-10 years)

- Replace gas boiler with condensing type
- Upgrade insulation to building fabric
- Insulate single glazing with fixed secondary glazing with opening frames for ventilation

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Case study: Callander Kirk's DIY environmental audit

Callander Kirk, in Scotland, devised their own environmental audit as part of their participation in the Eco-Congregation pilot study. Their audit covered the following areas of Church life:

- Energy
- Waste incl. paper, water + miscellaneous
- Purchasing policy
- Grounds
- Transport

Having undertaken the DIY audit, they compiled a report for their Congregational Board highlighting 'plus' and 'minus' points. The following is an excerpt from their energy section:

- An old building, which has a high ceiling, thick walls and roof ventilation. The thick walls give good insulation and act as a heat sink when fully warmed up. However, the duration of use usually precludes it from being efficient. Every effort is made to use the heating as efficiently as possible

- Low energy light bulbs are used throughout the main body of the church with fluorescent lights being used for most of the remainder. There are some halogen spotlights and a floodlight which are used in specific areas.

- Windows are rarely cleaned although lighting is almost always needed when the church is in use

- Draughts from windows and doors are a problem. The main door to the church is fitted with a hot air curtain to prevent heat loss from the building when the doors are in use. It is unlikely that windows could be fitted with secondary glazing. Some doors could possibly be improved.

Recommendation: That an energy audit be commissioned for the Callander Kirk buildings to enable planning and decisions to be made on the basis of professional advice.

Callander Kirk's DIY audit covered a number of aspects of church life, including stewardship of their church premises. It helped them to identify a number of areas of good practice, for example the installation of low-energy light bulbs, and a set of recommendations for consideration/follow-up including, in the area of energy management, to have a professional consultation/survey.

Further **Resources**

Heating your church by W Bordass and C Bemrose, Publ. 1996
Church Information Office, Council for the Care of Churches £6.50

Heat and Light – a practical guide to energy conservation in church buildings
by B Marks, Publ. 1994 St Andrew Press, Edinburgh £4.95

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New build **or rebuild**

If you are considering building church premises from new, or undertaking either an extension or rebuild to existing premises, it is strongly recommended that you commission an environmental consultation to aid the development of your plans.

Additionally, bear in mind that building construction involves the use of materials, all of which have used varying amounts of energy in their production. Some, like timber, have a low "embodied energy" value, being a natural, renewable resource (if obtained from a sustainable source). Others, such as brick and stone, are natural but require the use of more energy to create the final product. Yet others, such as PVC, use high levels of energy in their production and are made from non-renewable materials. If we consider the "embodied energy" of materials, it makes environmental sense to retain, repair or recycle as much as possible and to minimise the use of materials which use up non-renewable resources.

Case study: Building work at Herringthorpe United Reformed Church

In 1991, as part of their work to develop their mission, Herringthorpe URC compiled a list of seven values to which the church committed itself and against which it could plan and measures its activities. The sixth principle states:

"*We commit ourselves as a church to have a practical concern for the community and the environment locally and world-wide"*

For the following three years the church was involved in major repairs to the building, due to subsidence, which gave the opportunity for extending the existing premises at the same time. Environmentally-concerned members were able to put forward practical suggestions to the building committee at the earliest stages, so that a number of them were incorporated into the plans.

Decisions implemented in the rebuild included:

- Have a pitched roof to reduce maintenance and resource use in the long term
- Build a 'weather porch' to reduce heat loss
- Install wall lights using low energy bulbs to reduce energy consumption
- Source hardwood for the floor from a sustainable 'farmed' source
- Use softwood for internal panelling because it did not contribute to the rainforest destruction
- Install 12mm double glazed windows to reduce heat loss
- Re-use some of the original building materials, including bricks
- Select the optimum size of windows to achieve a balance between gaining good natural light and minimising heat loss
- Arrange for programmed gas heating in most areas, with local 'zone over-rides' minimising energy waste from partial building usage
- Install a kitchen heat recovery unit

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Part 2 - Professional environmental consultations

One of the challenges of being a property steward is knowing the best way of maintaining and running a church building. Many stewards are aware of good practice in domestic homes but are not always aware of is which measures are most appropriate and cost effective for their church building. For example, whilst in homes it is good practice to conserve heat through features such as loft insulation, it may not be so worthwhile in a sanctuary only used for a couple of hours on a Sunday, because it doesn't matter if the residual heat goes through the roof after the congregation have left!

A professional environmental consultant can tailor advice to an individual building and help property stewards to shape a planned programme of maintenance minimising the use of resources and energy and maximising long-term savings. Part 2 includes information about two consultancy schemes followed by a case study.

The Church of Scotland 'Better Heating' scheme

In 1978 the Society, Religion and Technology Project of the Church of Scotland launched an energy efficiency scheme aimed at church premises, ancillary buildings and the 'Manse' (the church-owned house where the minister lives). The scheme is now administered centrally by the General Trustees of the Church of Scotland, who employ two specialist consultants on heating and lighting for the purpose. Through the scheme, churches commission a professional energy audit that gives them a set of key recommendations.

Approximately two thirds of Church of Scotland churches have made use of the scheme so far. Of these, 60% have made significant savings in energy compared with taking no action and the average saving is 20% of the energy bill. Many of these savings were gained through better management and control of existing heating systems, and introducing draught control.

The scheme is paid for in part by local churches (a sliding scale of fees based on energy usage) and in part through a central grant from the Church of Scotland. For an information pack about the scheme in Scotland together with a schedule of fees, contact :

The Better Heating Scheme, Church of Scotland General Trustees, 121 George St, Edinburgh EH2 4YN. Tel. 0131 225 5722, Email: gentrustees@cofscotland.org.uk

The scheme is available for churches of any denomination in Scotland and has been used by churches elsewhere in Britain as well.

An environmental consultancy

Design Advice at the Building Research Establishment (BRE) co-ordinate an Environmental Consultation scheme. Through this scheme a consultation is arranged through a local/regional accredited environmental consultant who subsequently provides a comprehensive report detailing prioritised recommendations for actions. Whilst such reports usually attract a fee, the advice can potentially save considerable sums over many years.

For more details of approved local/regional environmental consultants contact:
Design Advice, Building Research Establishment, Bucknalls Lane, Watford WD25 9XX Tel 01923 664500 Email environment@bre.co.uk

Module 7 – greening the cornerstone

Stories from Eco-Congregation Award winning churches…

Dorking Society of Friends worship in an historic Meeting House within the centre of Dorking. Over the last few years they have sought to maintain and enhance their premises in line with their environmental commitments. Their projects have included:

- Installing recycling facilities for consumables used on the premises including paper, glass and tins. Additionally, the room booking sheet for community groups outlines their environmental commitment and requests that groups use the facilities provided
- Having recycling facilities for household items including plastic and batteries
- Changing their cleaning materials to an environmentally sensitive brand
- Switching their electricity supplier to Unit(e) who supply green electricity
- Using non-petroleum based paints on exterior woodwork and assessing their durability
- Renovating their old sash windows and fitting draft proofing

When undergoing a major redevelopment, **Bramford Road Methodist Church** sought to build in good environmental criteria to the plans. Their development necessitated the demolition of an old church house but over 60% of the materials were recycled. They also fitted compact fluorescent light bulbs and low energy lights and installed double glazing in all new windows and in old and new doors.

St Peter's Church of England, Claybrooke Parva, Leicestershire is a listed church in the centre of the village. Their recent refurbishment was undertaken in line with their commitments as an Eco-Congregation. They installed a pair of new high-efficiency gas-condensing boilers and redecorated the interior with environmentally-friendly paint. They faced a particular challenge with lighting as they wanted to install new low energy lights throughout the sanctuary. To achieve their aim they had to go through protracted negotiations with English Heritage before being finally allowed to install lighting that was both low energy and acceptable for a listed building.

Evesham Methodist Church chose to build in good environmental criteria as part of a phased redevelopment of their Church premises. Phase one included digging down into their basement, with volunteer labour shifting over 400 cubic metres of soil, concrete and rubble to create additional space and using the materials to form the basis of a new terrace alongside the river. The space was then insulated with cavity block walls in addition to the 0.5m thick external walls and had double glazed doors and windows fitted. It includes a new kitchen, toilets including facilities for disabled, a quiet room, resources room and two halls. Phase two, aiming to refurbish the main church building, started after additional funds had been raised. The ceiling was insulated, a ceiling dome was installed to allow more natural light into the welcome area, dual flush toilets have been installed and a rain water butt has been fitted to a down pipe to provide water for the garden.

St Matthew and St James, Mossley Hill, Liverpool installed secure cycle storage facilities for those visiting the church.

Module 7 – greening the cornerstone

A Directory of **useful organisations**

Don't forget to first consult any property advice division that your denomination may have who might be able to offer advice on particular issues and possibly information about the availability of grants.

Centre for Alternative Technology, Machynlleth, Powys SY20 9AZ
Tel 01654 705989 Fax 01654 702782
Email info@cat.org.uk Website www.cat.org.uk

The Council for the Care of Churches (CCC) (whose primary function is to advise Church of England Churches in England on the use, care, development and conservation of churches, their contents and their churchyards) publish a number of useful books/guides about good practice.

The Council of Care of Churches, Church House, Great Smith Street, London SW1P 3AZ Tel 020 7898 1866 Fax 020 7898 1881 Email enquiries.ccb@c-of-e.org.uk

To enquire about or order publications (available to all denominations) contact
Church House Bookshop, Church House, 31Great Smith Street, London SW1P 3BN
Tel 020 7799 4064 Fax 020 7340 9997
Email bookshop@c-of-e.org.uk Website www.chbookshop.co.uk

Design Advice, Building Research Establishment, Bucknalls Lane, Watford WD25 9XX Tel 01923 664500 Fax 01923 664787 Email environment@bre.co.uk

Disability Rights Commission
DRC Helpline, Freepost MID 02164, Stratford-upon-Avon CV37 9BR
Helpline telephone 08457 622633, Textphone 08457 622644 Fax 08457 778878
Email enquiry@drc-gb.org Website www.drc-gb.org

Energy Grants Agency
Tel 0800 181 667

Energy Savings Trust
Tel 020 7222 0101 Fax 020 7654 2444 Website www.est.org.uk
For general information on energy efficiency Tel 0845 727 7200
To find your local Energy Efficiency Advice Centre Tel 0800 512 012

English Heritage
Customer Services Department, PO Box 569, Swindon SN2 2YP
Tel 0870 333 1181 Fax 01793 414926
Email customers@english-heritage.org.uk Website www.english-heritage.org.uk

CDAW: Welsh Historic Monuments
Welsh Assembly Government, Plas Carew, Unity 5/7 Cefn Coed, Parc Nantgarw, Cardiff CF15 7QQ
Tel 01443 33 6000 Fax 01443 33 6001
Email cadw@wales.gsi.gov.uk Website www.cadw.wales.gov.uk

About **Eco-Congregation**

Eco-Congregation is an ecumenical environmental project for churches in Britain and Ireland. It provides free resources, support and an Award scheme to help churches to consider environmental issues in the context of their Christian life and mission and to take positive action. Eco-Congregation was originally developed by the environmental charity ENCAMS on behalf of Churches Together in Britain and Ireland (CTBI). It is now overseen by CTBI and delivered by a partnership of organisations.

In England, Eco-Congregation is managed by A Rocha UK and supported by a grant from the Methodist Relief and Development Fund. The office base is at
Groundworks Sheffield, The Innovation Centre,
217 Portobello, Sheffield, S1 4DP

Tel: 0114 263 6421
Email: ecocongregation@arocha.org
Web: www.ecocongregation.org/englandwales

In Scotland, Eco-Congregation is managed and delivered through a partnership between Keep Scotland Beautiful (an Associated company of ENCAMS) and the Society, Religion and Technology Project (SRT) of the Church of Scotland. It is endorsed by Action of Churches Together in Scotland (ACTS) and is supported financially by the Scottish Executive's Sustainable Action Fund. Contact

Tel: +44 (0)131 556 2953
Email: ecocongregation@srtp.org.uk
Web: www.ecocongregation.org/scotland

Churches in Wales are supported by Eco-Congregation based at Groundworks Sheffield