



How to ...

Use energy responsibly in your church

Why use energy responsibly?

There are two strong reasons for doing this. Firstly, it helps to ensure good use of the parish's money; secondly it limits or reduces our impact on climate change. You can achieve this by reducing your energy consumption, and by switching to a low carbon electricity supplier. A more ambitious option – not covered by this 'How to' guide – would be to generate your own renewable energy. This may be well worth considering, but only *after* you have made sure that you use energy effectively and do not waste it.

If work on the fabric is required for any reason, do take the opportunity to see what you can do to reduce energy consumption at the same time. The Swindon Quakers did this, as described in Appendix 1. While there are restrictions on what can be done in historic buildings, there may still be worthwhile changes that can be made. Please contact the Diocesan Advisory Committee (DAC) for advice.

This 'How to...' guide is a starting point, not the last word! Please contact Chris Priddy, chris.priddy@bristoldiocese.org if you have any experience that might be useful to others and could be shared.

Making a start

Before any work is carried out on buildings or fabric, the first step is to find out how much energy is currently used and what it costs. Then you can assess how much is wasted, and the potential for reducing your energy consumption.

- Appoint an energy manager, and ask her/him to report on recent energy bills and consumption - ideally over several years and split by month or quarter.
- Invite your congregation to get involved. Some members may have useful skills and be able to help you. Some may be surprised to learn what they can do to save energy, as individuals or families. Others may find fuel bills difficult to pay, and be glad of advice on how to keep warm on a low budget.
- Carry out an energy audit. This could be a self-audit, or you could employ a professional. One professional energy adviser indicated that he would typically charge ~£500 for a site inspection, writing a report with recommendations and then meeting the parish committee to discuss his findings. If you do your own self-audit, make sure that one of the team is well informed about the issues, and use a tried and tested audit form.
- It may be useful to carry out a water audit at the same time. Water is precious in its own right, and wasted hot water is also wasted heat.

Details of how to carry out a self-audit can be found under 'Further Information'. A list of professional advisers is available in Appendix 2.

Ways of reducing energy consumption

Much can be achieved by raising awareness among the users of your church buildings, so that, for example, rooms are heated only when and where needed.

Your audit will suggest physical improvements that may include some of the following:

- The buildings – walls, loft/roof, glazing/doors, floors, ventilation/draught proofing and eliminating ‘cold bridging’ spots.
- Heating systems – controls (e.g. timing, zones, thermostat locations), boiler efficiency, lagging pipes, use of electric space heaters, water heating.
- Electrical appliances – e.g. cookers, fridges.
- Low energy lighting.

The Severn Wye Energy Agency’s Energy Efficiency Guide gives more detail; the web link is given under Further Information.

Sources of finance

See the ‘How to ... Fundraise for your project’ guide.

Green electricity

Low carbon electricity is being promoted through

- The Big Church Switch (<https://www.bigchurchswitch.org.uk/>)
- Parish Buying (<https://www.parishbuying.org.uk/categories/energy.html>)
- Church of England Shrinking the Footprint campaign (<http://www.churchcare.co.uk/shrinking-the-footprint>)

Switching to green electricity does make a worthwhile difference, and is not necessarily expensive! Do shop around for the best deal, as you would with your domestic electricity supplier.

Further Information

Available from the Severn Wye Energy Agency:

- *Energy Efficiency for Community Buildings*. This is a guide to assessing buildings (pp.14-16), heating systems (pp.17-23), electrical appliances (pp.5-13) and water supply (p.24). It contains useful detail and can be used with the SWEA’s audit form. http://www.severnwyenergy.org.uk/fileadmin/Resources/SevernWye/Publications/Energy_Efficiency_for_Community_Buildings.pdf
- *Sustainable Energy Self Audit Guide*. This contains a set of questions with some guidance on what to consider, with spaces for your answers. It includes a worksheet for estimating your carbon footprint. Click <http://bit.ly/29Z1u79> to open the 2012 guide

Available from the Centre for Sustainable Energy:

- *Improving Energy Efficiency in Community Buildings*. This complements the SWEA guide by giving an overview of the whole process. <https://www.cse.org.uk/downloads/file/energy-survey-proforma-enabled.pdf>
- *Energy Survey*. Again, this has wider scope than the SWEA self audit and is less detailed. It goes as far as recording the actions you decide to take and estimating the potential savings. <https://www.cse.org.uk/thesource/download/an-energy-survey-proforma-76>

Available from A Rocha:

- *Eco-church survey*. This is aimed specifically at churches, and contains sections on worship and teaching, buildings, land, community & global engagement and lifestyle. <http://cdn.ecochurch.arocha.org.uk/wp-content/uploads/2016/01/Eco-Church-Survey.pdf>

Appendix I – An example / case study:

Energy Saving Measures at the Swindon Quaker Meeting House

Background

The main hall of Swindon Quakers' Meeting House was built in 1901. The need for remedial work was flagged by the 5-yearly inspection in 2010, which reported that the floor was deteriorating and would have to be replaced within 5 years.

This work was carried out in 2012/13, and at the same time improvements to the room's insulation were made. The total cost was £15,229. The combined effect, along with with the earlier installation of a condensing boiler, was to reduce gas consumption by approximately 50%.

Description of the building

The main hall has brick cavity walls with a 1" cavity, which has not been filled because of the history of damp walls on the site. The floor was suspended, and was repaired in the 1970s with a chipboard floor and insulation panels laid between the joists. The windows were replaced with double glazed uPVC units in the 1980s. The roof is slate and has a ventilated roof space. The ceiling is tongued and grooved boarded and has rock wool above, originally 50mm, upgraded to 250mm in 2011. 30% of the ceiling area is sloping under the slates, and lined with tongued and grooved boards.

The remedial work

The inspector recommended a solid floor, as a repaired timber floor would be likely to need further renewal in future, due to the high level of damp below the meeting room (it is on Swindon Old Town's spring line). The question of insulating and dry lining the walls was considered by the premises committee, as the meeting room would have to be emptied to renew the floor, and disruption would be minimised by doing both jobs together. A committee member went to the Woodbroke Quaker Training Centre's 'Greening your meeting' week end, where there was general agreement that meetings should improve the insulation and heating efficiency of meeting houses where funds allowed.

Some investigation was then needed to resolve the following questions:

- Were special provisions needed to deal with the damp prevalent below the meeting room and in the walls?
- What material should be used for the insulation? Oxford meeting have used a natural breathable material, while most dry lining is carried out using polymer foam products.
- How thick should the insulation be? Commercial products range between 25 and 100mm. Cotteridge meeting used 75mm, many buildings have 50mm.

These questions were answered by consulting the inspector and other Quaker contacts, and through web research. We opted for:

- For the walls, 50mm of phenolic insulation foam integral with plasterboard (Gyproc super). The sloping part of the ceiling was treated in the same way.
- Treated wooden battens to support the lining, with a damp proof membrane behind the wood for the lowest 1 metre. This improves the insulation as it makes an additional air gap of 25mm.
- 75mm insulation in the concrete floor.

Estimates were then obtained from two local builders. Initially the quotes were for bonding the insulated board direct to the wall. The final quote was revised as we felt it necessary to include battens to avoid damp problems in the future. We accepted the cheaper quote. The work was scheduled for August to minimise disruption to the meeting and our tenants. The dry lining included removing and replumbing the radiators, and also removing and rewiring the electrical sockets and fire exit sign. Excess furniture was stored in a Friend's garage.

The costs were:

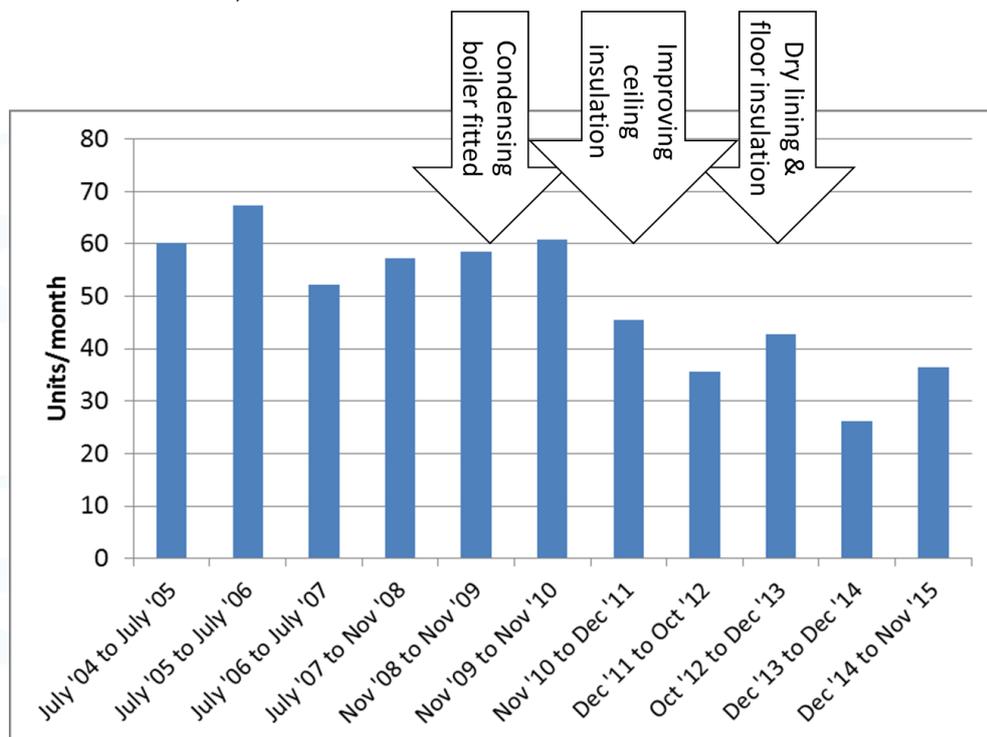
	Accepted quote	Final costs
Floor	£4,259 + VAT = £5,111	£5,111
Dry lining	£7,765 + VAT = £9,318	£9,318
Decoration		£670
Carpet removal and refit		£130
<i>Total</i>		<i>£15,229</i>

Outcomes and achievements

The benefits of the work are:

- No rotting material below floor level, fungal spores or damp smell.
- Reducing our carbon footprint and energy bills. See below for details.
- A more comfortable meeting room.
- Some reduction in traffic noise.
- Everything has had a good clean.
- We can use the meeting house to show what can be done to reduce the carbon footprint of old buildings, of which Swindon has many.

Roughly speaking the gas consumption has halved since 2010. Part of this was achieved by the insulation work described here, and part by installing a condensing boiler in 2009. The improvements will not self-finance, in terms of energy costs alone, in the near future. Swindon Friends felt that our capital was losing its value, that the cost of the work would only increase in future, and that local builders needed work at the time.



Time period	Units/year
Up to Nov '10	711
From Dec '13 onwards	373
% reduction	48%

Note: a unit of gas is 11.2 kWh, and costs ~50p (mid 2016)

Appendix 2 – Professional Advisers on Energy Use in Churches and Community Buildings

Disclaimer: This is not a comprehensive list of professional advisers that can assist you, nor are those listed endorsed by the Diocese to work with you. The list consists of advisers we know and those who have been recommended by our churches.

Name	Contact details	Services offered
Mike Neate	mike@eco-dc.co.uk	

If you would like to recommend an adviser to be added to this list, please contact Chris Priddy, chris.priddy@bristoldiocese.org to let us know.

