

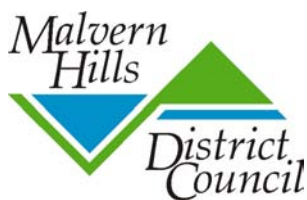
Act on Energy

7 April 2011

# Malvern Hills Village Hall Scheme



## Energy Report for Kempsey Community Centre



The following report has been based on the site visit carried out on 18 March 2011 and seeks to identify the most cost effective energy saving measures that could be implemented.

## **Type of construction, ventilation & insulation**

The Community Centre is a large early Victorian building, possibly built as a school and dating from around 1849. Part of the rear of the building is occupied by a commercial hair dressing salon which has a vaulted ceiling and a small office for Parish Council business with a flat roof. There is a commercial nursery/crèche in part of the front of the building which has an upper floor office and the main hall occupies the rest of the front and this has a recently added insulated false ceiling under the original vaulted ceiling. The walls are all solid brick with no internal or external insulation. Most of the floor area is a suspended timber floor but only the main hall has been insulated. The office has a concrete floor and most of the windows are double glazed with the exception of the hair salon and the external doors are not draught proofed.

## **Heating, water & lighting**

The main areas of the centre are heated by two high efficiency gas fired boilers in the roof void over the corridor with a separate boiler and system for the nursery. The boilers are less than 5 years old and controlled using a timer, a central room thermostat and thermostatic radiator valves. There is a low demand for hot water which is met by a hot water storage cylinder heated from an electric immersion heater and instantaneous electric point of use water heaters in the hair salon. The nursery has a combination boiler installed in the first floor office providing hot water for their needs. Lighting is generally by fluorescent strip lights and other low energy lamps which are manually switched in groups and individually.

## **Energy management**

There is limited energy management of the hall with meter readings being taken but comparative checks with other energy suppliers and tariffs are not being made. Both gas and electricity charge Climate Change Levy which is normally waived for charities and VAT at 17.5% which is normally 5% for charities. It would be worth checking with your suppliers. It would be a good idea to record meter readings every month to make sure the suppliers are not overcharging.

On checking the electricity bills it appears that the meter was changed in March 2010 and from then to 12 January 2011, 18,200kWh have been consumed. From January 2010 to January 2011 the charge has been £6,683 for 22,187kWh making an average cost (including VAT etc) 30p/kWh. This is very expensive and you should renegotiate or change supplier. The gas supplier bills don't make much sense with all but one of the readings being estimated and most of the charge being credited.

## **Suggested Improvements**

The hall is currently used every day for meetings, parties and events which is thought to be about right.

When suggesting energy efficiency improvements, I only propose to look at the most cost effective ones and specifically those with the shortest pay back periods where possible.

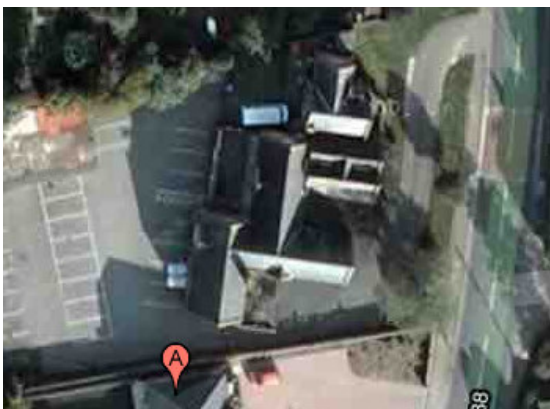
The existing heating systems for the building are effective and with high efficiency boilers fitted, these should have relatively low heating bills although this cannot be confirmed from the British Gas bills. The systems are appropriately controlled and no real improvement is needed. The hot water storage cylinders in the roof void over the corridor are capable of meeting a much higher hot water demand than exists and their use would best be discontinued with electric point of use heaters used where necessary. It would also be beneficial to fit reflective foil panels behind radiators, particularly those on external walls, to reduce the heat loss through the wall behind the radiator. A narrow shelf over each radiator would also tend to deflect the convected air from behind the radiator into the room rather than heating the wall.

Other improvements would be associated with reducing the heat loss from the structure of the building. There are some roof voids above the first floor offices in the nursery part of the building which could potentially be insulated to 250mm.

The vaulted ceiling in the hair salon could not easily be insulated other than fixing rigid insulation boards under the existing ceiling which would not be very cost effective. An alternative may be to use slow rotation ceiling fans mounted at high level to re-circulate the hot air that accumulates under the high ceiling to break up the stratification of air that occurs in high rooms and this will reduce the heat load and heat loss.

There is a considerable area of external wall that could potentially be insulated internally although this would be costly and disruptive but could reduce the heat loss of the hall by up to 25%. However, this could be done in sections depending on the maintenance programme of the hall. The best method would be to fix 50mm polyurethane insulation boards to the wall and finish with plasterboard. A less expensive but also less effective alternative is to fix a flexible insulating lining material such as “Sempatap” to the wall and this can be decorated directly with paint or paper. However, this is a relatively long payback improvement.

## Renewable Energy



Aerial view (Google)



South and East elevation

The centre has a reasonable expanse of south facing pitched roof over the main hall although the pitch is steeper than optimum and it may also be over-shaded in the late afternoon by the adjoining pitched roof over the hair salon. This may be suitable for a photovoltaic array to generate electricity and an annual income for the hall and is worthy of further investigation.

## **Energy Efficiency promotion**

The village hall is a major focus for community activity and is in a position to provide a lead to local residents. When it comes to saving energy in homes, there are many positive benefits from carrying out the type of improvements suggested in this report and the village hall can play an important role in promoting this in a number of different ways.

It may be that the village would like to host an energy saving exhibition in the hall to promote what you plan to do and encourage private homes to do the same. If that is the case then Act on Energy would be able to assist you by helping you organise an event and promote it to local residents. We can provide exhibition stands, literature and demonstrations of energy saving measures. We could also arrange for other organisations to be present to deal with renewable energy enquiries and possibly get heating and insulation installers to be available to give free advice. Other communities where this has been done have used it as an opportunity to raise the profile of the hall and to raise funds, typically by organising a coffee and cake morning at the same time or a book sale.

## **Grants and Funding**

Malvern Hills District Council is offering a grant of 50% of the cost of energy saving improvements up to a maximum of £1,500. If you intend to carry out any of the improvements listed below please contact Act on Energy for a grant application form.

Funding is strictly on a first come first served basis so check with Act on Energy that funding is still available before proceeding with any of the improvements. Return your completed application form together with a copy of receipts for the work carried out to Act on Energy. Payment will be made from Malvern Hills District Council after the work has been completed.

There are no other specific grants that we are aware of for improving the energy efficiency of village halls although it would be worth speaking with Worcestershire County Council regarding funding.

There is useful information contained on their website, including the following:-

- Worcestershire LEADER Programme (contact Elspeth Fry on 01905 622390)
- Rural Community Building Loan fund ([www.acre.org.uk](http://www.acre.org.uk))
- Landfill Communities fund (managed by Welcome to our Future)

It may also be worth including energy saving measures to other more general funding bids such as National Lottery “Awards for All” just to demonstrate the sustainable nature of the bid.

Community First will also be able to help you with advice on submitting funding bids for community buildings and they can be contacted on [www.comfirst.org.uk](http://www.comfirst.org.uk) (or call Rob Grunsell on 01432 262972)

## Summary of energy efficiency measures and recommendations

	<b>EXISTING DESCRIPTION</b>	<b>CURRENT EFFICIENCY</b>	<b>RECOMMENDATIONS</b>
<b>WALLS</b>	Solid brick	Poor	Internal wall insulation
<b>ROOFS</b>	Insulated false ceiling	Very good	None
	Loft voids assumed un-insulated	Poor	Insulate where possible
	Vaulted Ceiling	Poor	Ceiling fans
<b>FLOOR</b>	Suspended timber where un-insulated	Poor	Seal around edges to reduce draughts
	Solid Concrete	Average	None
<b>WINDOWS</b>	Double glazed windows	Good	None
	Single glazed windows	Poor	None
	External doors	Poor	Fit draught proofing
<b>MAIN HEATING</b>	Gas fired boilers	Very good	None
	Radiators	Average	Fit foil panels and shelves
<b>HEATING CONTROLS</b>	Timer, room thermostat and TRVs	Good	None
<b>WATER HEATING</b>	Electric point of use	Average	None
	Storage cylinder	Redundant	Discontinue use
<b>LIGHTING</b>	Fluorescent tubes and CFLs	Good	None
<b>RENEWABLE ENERGY</b>	None		PV system potential