

Suffolk Wildlife Trust's HQ, IP6 9JY

In 2009 Suffolk Wildlife Trust completed the extension and refurbishment of its administrative headquarters in Ashbocking. The objective was to create additional office space that would be cost effective to run and provide a comfortable environment to work in. The older parts of the building also required improvement to reduce heat loss during the winter and reduce solar gain in the summer.

Brooke House is an 18th Century cottage that was originally extended and converted into an office in 1993. At that time night storage heaters were installed to provide space heating and building regulations didn't require double glazing. Insulation requirements were also minimal.

In 2007 the Trust started looking at all its properties with a view to reducing energy use and therefore the cost of heating the buildings.

Design Process

In opting to use a ground source heat pump it meant having to use boreholes for the ground collectors rather than trenches which are a much cheaper option. This was because of space limitations in the grounds. The heat pump uses 4 ground collecting loops, three being 50m deep boreholes and the fourth being a loop in a large pond in the grounds. The installers intend to use monitoring equipment to compare the efficiency of each system.



Key features

Original Building

- Additional 150mm loft insulation
- Secondary double glazing or new double glazing units
- Entrance porch to reduce air exchange

New Build Extension

- Timber frame construction
- Increased thickness of walls & roof above building regulation requirements
- Under floor heating
- Warmcel recycled paper insulation
- Ground source heat pump
- Low energy lighting
- Natural materials used
- Roof Solar PV System

Overview

Age, Type: post 2000, Business

Cost of measures: £185,000

A later added 7.5 kWh Solar PV System produces around 6,000 kWh per year. The cost was a further £15,000.

If you have any specific questions about this case study, these can be directed to the building owner via the website

www.greensuffolk.org/sgbn

Evaluation

The energy saving measures (insulation and double glazing) undertaken in the older part of the building have yet to be fully evaluated but we expect to have made significant savings in both energy use and cost.

We have been able to leave 30% of the night storage heaters switched off as they are no longer required (typically where there were two in a room one has been switched off). In addition, those that were on were operating at a lower setting than previously. The staff working in the offices have noticed a real improvement in the working environment.

The ground source heat pump has been a huge success. Based on its operating hours for an 11 month period (which included the very cold winter 09/10 period) the heat pump has used electricity costing £105. The heat pump is heating approximately 150 square metres of office space.

The efficiency of the heat pump is in part attributed to the thermal efficiency of the building and the effectiveness of the insulation.



Funding

Capital grants for the ground source heat pump were secured from the Low Carbon Building Programme and the Community Sustainable Energy Programme.

Professional Contacts

- ❖ **Clean Energy Consultants** were used to undertake a feasibility study looking at whether a ground source heat pump would meet the benchmark requirements for a capital grant. This was an essential step in securing grant aid for the heat pump.
<http://www.cleanenergyconsultancy.co.uk/>
Telephone: 01953 798 112

- ❖ **Econic Ltd**
<http://www.myriadceg.com/heat-pumps/>
Telephone: 01603 277 040

- ❖ **Canham Builders**
Telephone: 01379 676 467