

CASE STUDY: ENERGY SAVING IN A LISTED BUILDING



Audit Year: 2010

GTBS Award: GOLD

Business Name: Colton House

Business Type: Guest House

Location: Staffordshire, ENGLAND

Website: www.coltonhouse.com

Colton House is a Grade II* Listed Building set in a picturesque village on the edge of Cannock Chase and offers high quality guest accommodation. The business joined the scheme in 2010 at a GOLD award level. The owners consider sustainability to be important and have incorporated a number of energy saving measures into their business model. Of particular note is the considerable efforts undertaken to make a Grade II* listed building energy efficient. Walls in the house have been lined with high performance rigid urethane whenever the opportunity presented itself during renovations or decoration and would not interfere with original features. In the roof the owners have used multi layer foil insulation giving an R value of $1.9\text{m}^2\text{K/W}$ compared with 2.15 for 50mm of urethane insulation. Heat recovery has also been installed to recover heat from toilets to heat the halls.

High Efficiency Boilers

Two A-rated Keston boilers have been fitted. Only one runs at a time. The boilers are controlled by an external optimiser that senses the changes in temperature outside and allows the boilers to respond to this change efficiently. Radiators are a combination of under floor and skirting radiators each fitted with a thermostatic valve or control unit for full control. Water is heated by a separate 28Kw A-rated Keston boiler chosen because the mode of operation for hot water is different to the heating cycle and thus allows all boilers to work at their best efficiency.

LED Lighting

LEDs use less energy and last longer than traditional incandescent or CFL bulbs. The owners have replaced these with Exergie LEDs. Each bulb has a projected lifespan of 30,000 hours, uses 4.0 watts and contains no mercury. Projected energy saving over the lifetime is £176.70 per unit. This saving is based on the energy costs over the lifetime of a standard 35watt bulb at £199.50, the Exergie unit costing £22.80 and electricity cost of 19p/KWh. The payback is around 2-3 months.

Double Glazing

The owner's proposal to double-glaze the windows (about 18sq m) was to reduce the carbon footprint of the business and contribute to ensuring additional guest comfort. It is estimated that the proposal will save close to 2 tonnes of carbon dioxide emissions per year over single glazing. The proposal was initially rejected by local planning authorities, however the owners persevered and eventually after three years have finally won permission to install new double glazed units to the rear of the building. There is nothing in the legislation to prevent the use of double glazing. Indeed it tells the potential double glazing fitter what they need to do to make it acceptable. New slim edge seals have made the ability to comply much easier and not lose the character of the windows. All windows at the rear will now be double glazed. The single glazed windows on the front of the building have been draught proofed.

Web Links

Low Energy Design: www.exergi.co.uk
Listed Building guidance: www.english-heritage.org.uk, www.cadw.wales.gov.uk, www.historic-scotland.gov.uk, www.doeni.gov.uk, www.buildingsofireland.ie