

Grange Farm, Harewood Park, 110kW



The project was completed in June 2007, when it was viewed by His Royal Highness The Prince of Wales.

Grange Farm lies within Harewood Park, part of the Duchy of Cornwall estate in Herefordshire. The Duchy of Cornwall took ownership in 2000 and since then a multi-million pound regeneration project has been underway to restore and rejuvenate the buildings and unique landscape of the Park.

The re-development of Grange Farm is part of that regeneration process. The project comprises the renovation of a 17th century farmhouse, and repair and conversion of four former barns into high quality office, workshop and living accommodation. All of the four barns, and the Farmhouse, are linked to the boiler room via a heat network comprising 165 metres of insulated, flexible, underground heat pipes.

Econergy Midlands partner, Midlands Wood Fuel, decided to install a Turbomatic 110 kW boiler with a 2,000 litre buffer tank for this project. The Turbomatic boiler is a premium product from Austrian company Froling.

Technical Summary

- The Turbomatic boiler is 92% efficient.
- The boiler is fed automatically via auger from an adjacent store using a 3.5m diameter spring arm fuel feeder.

- Automatic self cleaning and de-ashing.
- Automatic ignition.
- High efficient combustion system which ensures low emission under the EN303-5 standard.
- Fully modulating down to 30% of boiler output.



Above; Froling Turbomatic boiler



Above; The Great Barn, during restoration

The Turbomatic wood chip boiler is the sole boiler providing 100% of the heating and hot water requirement.

Carbon Saving

Increasing levels of greenhouse gases have a high impact on climate change or global warming. Carbon dioxide, a main contributor to greenhouse gas, is produced every time we use energy from fossil fuels—oil, coal and natural gas.

Woodfuel is 'carbon neutral', leading to reductions in emissions of Carbon dioxide by offsetting the use of fossil fuels. Wood fuelled boilers therefore contribute to meeting emission reduction targets.

The boiler will generate around 220,000 kWh of renewable energy each year for Grange Farm, saving 44 tonnes of Carbon Dioxide per year.

Operation

- Fuel is delivered to the site using the Midlands Wood Fuel chip tanker from the Herefordshire depot.
- A heat contract is in place between Midlands Wood Fuel and the Duchy. This is based on the monthly heat output of the boiler, recorded by heat meter.
- Further heat meters are installed at each individual office / workshop unit. This enables the Duchy to charge the tenants on a monthly basis for the heat used.
- During the heating season, it is anticipated that a fuel delivery will be required every 20—25 days.
- Annual consumption is estimated to be around 60 tonnes.

Fuel Specification

The Turbomatic 110kW requires woodchip specification at G30 based upon the ONORM M 7133 quality standard. Moisture content of the woodchip is provided at no more than 35% moisture content.

Grants

The wood boiler was part funded by a Bioenergy Capital Grant from the Big Lotteries Fund



Above; The rear of The Granary and Farmhouse



Above; The Low Range (left) and side of The Stables

Wood fuelled boilers **Biomass energy services** **District Heating**

Tel: 0870 0545 554 www.econergy.ltd.uk e-mail:sales@econergy.ltd.uk