

Shortwood School, Telford, 150kW



The Borough of Telford and Wrekin Council amalgamated Erccall Junior and Barn Farm Infant Schools on a new site within the Wellington area of Telford. The new primary school includes 16 class bases for 480 pupils and a nursery for 32 pupils. The school also includes facilities to be used by the community outside school hours.

The design utilises two of the existing site buildings, the brick and tile nursery building and the listed barn which was restored, to form the new school reception and staff accommodation. The buildings are linked together via an enclosed glass walkway to control access and give the feeling of a single site. The school was opened September 07

Why a Bioenergy Scheme

Environmental targets and rising school fuel bills have prompted many local authorities to install biomass boiler installations.

One of the design team's primary aims was to achieve The Borough of Telford and Wrekin Council's most sustainable building, with a building which has the minimal environmental impact possible through the whole life of the building while improving the ecological value of the area.

Below; TDS boiler



Wood fuelled boilers Biomass energy services District Heating

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Above; Boiler room and fuel store
Below; Close up of steel fuel store, showing the blown fuel inlet and air outlet pipes

The biomass boiler system and innovative energy monitoring are used as a teaching aid to promote suitable living and inspire the future generation. The boiler house has been constructed with a glass wall and includes a local display to show the school children the biomass technology which is used to heat their school.

Biomass Boiler

A KWB TDS 150kW biomass boiler, 2000 litre buffer tank, steel hopper and associated plant was installed by Econergy. The system operates with standby gas boilers to feed underfloor heating and domestic hot water supplies.

Technical Summary

The TDS is a compact high performance boiler which can achieve up to 93% efficiency. All functions are fully automatic, from the fuel feed and combustion control, right through to cleaning and ash removal.

The KWB fuel-extraction system uses a floor level, rotary-blade stirrer and conveying worm on a sturdy, double-bearing hollow shaft which is adapted to on-site conditions.

Operation

- Econergy designed the hopper which was manufactured by sub contractors.
- The octagonal steel wood fuel hopper is 4m high and 4m across and holds up to 40 cubic metres of fuel.
- Econergy partner, Midland Wood Fuel, supplies the woodchip.
- The woodchip is blown into the fuel store, from the delivery lorry which parks a few metres away in the car park.
- Each delivery contains approximately 33 cubic metres.
- Depending on usage this lasts between two and three weeks.
- The woodchip automatically feeds into the boiler when required via the fuel transfer system into the purpose built boiler room.

Carbon Saving

As a result of its innovative design it is predicted Shortwood's carbon footprint will be reduced by 67% which equates to a reduction of 80 tonnes of CO₂ per year.