



Eden Local Agenda 21 Cumbria Green Build Fortnight 2007

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Cumbria Woodlands – Tour of Biomass Boiler Systems

Cumbria Woodlands develop practical projects to improve the economic and sustainable use of Cumbria's forest resources. Promoting wood fuels is one facet of their activities. During Green Build Fortnight, thirty five people, including heating engineers, woodland owners and residents of stately homes, joined Cumbria Woodland's bus tour of three recently installed woodfuel heating systems.



Use of woodfuels is stimulated by:

- A desire to reduce CO₂ emissions associated with heating
- Rising fossil fuel prices
- Timber companies seizing the initiative to develop new markets for their products
- Recognition that economic uses for timber make funding available for better woodland management
- Job creation for local people.

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Tour stop 1: West Cumbria Wood Products Ltd is a not-for-profit community company, whose aim is to promote local wood fuel for environmental and community purposes, and to have a long-term future as a viable business. They are creating local demand for wood, initially by setting-up woodfuel heating systems at 3 pilot sites in Eskdale: St Begas Primary School, Eskdale Youth Hostel and a cluster of village homes in Eskdale Green. By forming business relationships with woodland owners, the project is ensuring supplies of fuel from sustainably managed woodlands in Eskdale and the vicinity. The Green Build Tour visited the first installation to be completed, at St Bega's School - a 40kW Fröling log boiler with a large accumulator tank. This scheme was designed by Econergy Ltd, who supplied the boiler for installation by a local plumber.



Econergy Ltd 0870 0545 554 www.econergy.ltd.uk



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Tour stop 2: Overwater Hall is an independent hotel with an enviable reputation for luxurious accommodation and fine dining. These deserved accolades are complemented by the hotel team's commitment to the highest standards of environmental governance.

When the hotel's oil fired boiler had to be replaced in 2006, a Heizomat wood chip boiler was chosen and installed by Mercia Energy Ltd of Rugby. This efficient 100kW boiler supplies all of the hotel's heating and hot water.

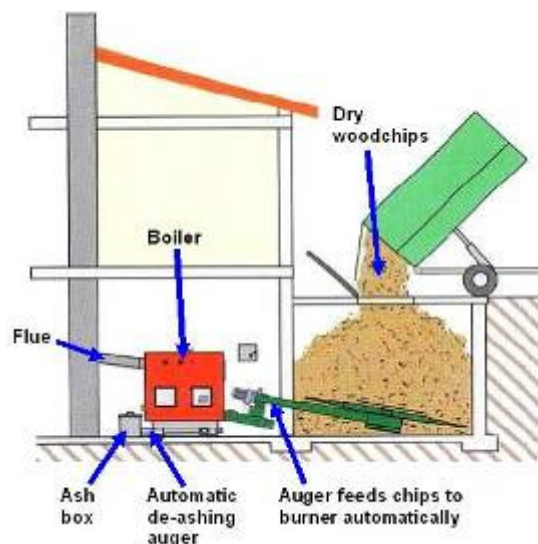
The fuel is wood off cuts from a nearby sawmill. A constant six month supply is kept undercover, prior to batch chipping directly into the boiler's dry fuel store, at around 30% moisture content.

Augers feed chips and de-ash the burner, ensuring that the system is fully automated.

Overwater Hall Hotel, Ireby, CA7 1HH

www.overwaterhall.co.uk

Mercia Energy Ltd www.mercia-energy.co.uk



Tour stop 3: Small office units, Threapland, Wigton.

With shared offices and a common interest in woodlands and forest products, woodfuel heating is the obvious choice for **Clark Mactavish Ltd. and Grampus Heritage & Training.**

Ten years ago they installed a VETO B28 boiler and VETO-MAT 35kWh chip fed stoker unit.

The photo shows the boiler (the brown bit), and the stoker unit & hopper (the yellow bit). They are linked by an auger, controlled by a small computer, and various thermostats. The silver unit on top of the auger tube is the fan that forces air into the burner head.

Staff load-up a hopper with wood chips. This provides enough fuel for a typical day's operation. Ignition is manual, but once alight the burner is regulated automatically. De-ashing is done manually once every day or two.

The system was commissioned by the UK supplier who at the time was Fuelwood Harvesting Ltd. The supplier in the UK now is Peter de la Haye Engineering based in Duns, Berwickshire. They will commission the boiler, but it also requires having a local plumber and local electrician available to plumb from the boiler into the heating system and wire up the pumps, timers etc.



The boiler is fuelled with a mixture of conifer and hardwood slabwood (around 8-10 tonnes in total) from two local mills delivered in bundles to the yard by a forwarder. The boiler is not used much between April and October, so that amount of wood usually lasts a year, although it is slightly



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weather dependent. The company then hires a Heizohack chipper to chip the material into the fuel store. The rough cost to purchase the slabwood, deliver and process it is around £550.

The key issues are ensuring correct moisture content (below 25%) and correct particle size. The Heizohack chipper has a screen to ensure the latter, and air drying is sufficient to reduce the moisture content to 25% or better.

In summing-up progress in wood chip boiler systems, Graeme Mactavish explained that technology has moved on somewhat in ten years, but that the principles are the same for most boilers. Newer systems tend to be even more user friendly, with more sophisticated types of automation and sleeker looks for domestic and office settings.