



Beaulieu National Motor Museum

1.2mW Woodchip Heating System – March 2015

Scheme	Supply of hot water and heating to the whole museum site
Boiler and plant	ETA 400kW biomass system providing the base load, with the backup and peak load supplied through the combined 800kW oil boiler system. This was all installed into an existing plant room.
Fuel	The boilers will use around 327 tonnes of woodchip per annum, producing around 1.1Mwh of heat. The client is purchasing woodchip from a local supplier until they set up their own supply.
Chip storage	Dunster designed a large, reinforced waterproof subterranean fuel store, 5m×5m capable of holding up to 125m ³ of woodchip. This was built to withstand the extreme weight of the HGV lorries tipping the fuel directly into it.
Grant / Funding	The system was funded by the Beaulieu National Motor Museum, and is accredited under the Non-Domestic Renewable Heat Incentive scheme.
Savings / Investment	Switching from oil to biomass heat is providing significant savings on heating bills. Additionally, the income from RHI payments will pay off the capital expenditure of the system.
CO ₂ saving	Estimated at 385 tonnes per annum.



Project overview

The Beaulieu Motor Museum comprises of the main motor museum, vehicle collection, the Brabazon restaurant, collections archive with learning centre and the main JMB offices. In order to reduce energy costs and adopt green heating, their existing oil heating system was replaced with biomass. The site was heated by a district heating scheme system with two 600kW oil boilers. This was replaced by 400kW of biomass boilers to satisfy the base load. The biomass now provides 90% of the heat demand through winter.

Fuel supply and chip handling

It is anticipated that the client will purchase wood chip from a local supplier until their own forestry operations begin. The fuel requirement will be around 327 tonnes per year. Due to the restricted space available for fuel storage, Dunster designed and constructed a store which allowed optimal storage of 125m³. An access road for delivery vehicles was then built, enabling large HGVs to simply reverse up to the fuel store. The store has a large double leaf power assisted opening lid allowing fuel to be tipped straight in.

System design and installation

Dunster designed and installed a new BMS system, centred on the ETA control system, allowing weather compensation across the whole site and individual control for each building. We also used new energy efficient distribution pumps throughout. This has resulted in a highly efficient system using significantly less heat and fuel. Dunster undertook major repairs to corroded sections of heat main, involving the removal of large sections of uninsulated steel main and then feeding Rehau Rauthermex back into the ducting to reconnect the main lines following the repairs.

Benefits

This project has substantially reduced heating bills for the Beaulieu National Motor Museum and contributed to their low CO₂ emissions. The museum will soon benefit from its own forestry operations.



DUNSTER
BIOMASS HEATING

Dunster Biomass Heating Limited
Unit Z18, Westpark 26, Chelston
Wellington TA21 9AD

01823 669 137
sales@dunster.biz
www.dunster.biz

froling 

ETA 