



## GELSTON HOLIDAY COTTAGES Castle Douglas, Dumfries & Galloway

### Why Use Woodfuel?

The woodfuel system was installed to replace the old, often problematic boilers at each property and to make use of resources from the improved silvicultural management of the estate's previously under-managed woodland.

*"With these goals, the solution clearly needed to be a woodfuel district heating system."*

Woodfuel harvesting operations from the estate's own woodlands have allowed significant financial savings to be achieved, whilst also improving the condition and future productivity of the woodlands. Currently, the woodlands are producing a large amount of timber that is only suitable for firewood, but the improved silvicultural regime may increase the quality of future harvests.

The estate has also better insulated itself from the volatility of oil prices and it now has a dependable source of fuel on which it can base fuel cost forecasts.

### Key Benefits of this Woodfuel Installation

- // Utilises estate-owned timber and adds value to woodlands
- // Improves woodland management & silvicultural practices
- // Self-sufficient fuel supply
- // Increases fuel security
- // Provides efficient heating and hot water for 9 units
- // Reduces heating costs

### System Accolades

The woodfuel heating system was retro-fitted into seven old stone buildings and required a complete redesign of the previous heating system including replacement of four oil boilers. The three remaining properties were previously heated by electric storage heaters and required new wet heat distribution networks to be installed. The boiler was installed in the former coach house, which has listed building status, so a sympathetic and patient design process was required, especially for the flue.

The estate's own hardwood logs are being processed, stored and delivered from estate woodland resources less than 1 mile away.

The new woodfuel system, with backup from a 100 kW oil boiler, provides a much more efficient and reliable system than the previous old boilers. After two years of continuous operation the owners are very happy with the development of their own fuel supply chain: the efficiency, both financially and environmentally, continues to improve as prices on world energy markets increase.

### Lessons Learned:

- // If using your own resources, you need to plan your fuel supply one year ahead
- // Get training from your installer so that you clearly understand the controls of your system
- // Adjust the user definable parameters to suit the site conditions

### What is a district heating scheme?

- // A heating pipe network for distributing heat generated from a centrally located boiler
- // Suitable for residential and commercial use
- // Provides space heating and water heating

### Benefits of District Heating

- // Cost efficient; a single boiler, boiler house and fuel store can supply many properties
- // Heat recovery system ensures a high level of energy efficiency
- // Delivered heat to each user is measured in kWh and accurate, individual bills can be produced for each customer's usage



<b>BOILER</b>	
Application	Holiday Cottage and Domestic District Heating Scheme
Max output	70kW
Manufacturer	Froling log boiler
Fuel type	Logs
Fuel specification	500mm split lengths
Moisture content	30%
Installation date	May 2007
Backup system	Oil boiler 100kW
Fuel loading interval	Loaded and fired daily
Woodfuel use	2-3 tonnes per week

<b>BUILDING</b>	
Heated area	840 m2
Heated volume	2000 m3
Building fabric	Stone buildings
Building use	7 units (4 holiday cottages, 2 residential properties and 1 office)

<b>INSTALLATION COSTS</b>	
Boiler System	£42,000
Funding source	Scottish Biomass Support Scheme
Funding support rate	50% of additional costs of woodfuel system

<b>COST SAVING</b>	
Previous fuel type	Oil and electric storage heating
CO2 savings pa	58 tonnes
Woodfuel cost	Estimated cost to estate of employing men to process woodfuel is approximately £4,000
Annual fuel cost saving	£6,000
Payback period	12 years (inc. cost of radiator system)