Treco GreenHeat

Case Study:
Pennsylvania Heights,
Perryfields Housing Development

RENEWABLE HEAT INCENTIVE
ACCREDITED BIOMASS BOILER

Large Housing Development Installs District Heating to Serve 72 Properties with Biomass Heat

"Working with an experienced installer has been a real benefit to the delivery of the project. With Treco also taking on the long term support of the installation, it means that households will continue to receive guaranteed renewable heating in the long term."

Rod Pope, Lomand Homes

The System:

- 3 x Guntamatic Powerchip 100kW biomass boilers.
- Run on wood pellets.
- Supplies heating and hot water to 72 properties in three separate district heating schemes.

The Result:

(Compared to heating oil. Source, Biomass Energy Centre)

- **Biomass Fuel Cost Saving;** 20-40% (wood pellets).
- **CO_2 Reduced;** Up to 96% or 240 tonnes, per annum.
- **Financial Benefit;** Fuel cost saving and RHI income to be reinvested to reduce tenant and owner cost of occupancy.

About Treco

We design, supply, install and maintain a wide range of complete biomass boiler heating systems that will burn logs, wood chips, wood pellets, grain or miscanthus.

A Treco Biomass Boiler Helps;

- Reduce fuel costs by 20-50 %.
- Reduce CO_2 emissions by 96 %.
- Ensure Renewable Heat Incentive (RHI) compliance.

RECC RENEWABLE ENERGY CONSUMER CODE

APPROVED INSTALLER
Certificate Number MCS 1363 Biomass Systems

APPROVED PRODUCT
Certificate Number MCS BH0048 Biomass Systems

HETAS REGISTERED INSTALLER

Call us today on 0845 130 9012 or visit www.treco.co.uk

3 x Boiler Rooms (External)
Includes 26m³ fuel store, auger & rotating agitator for blown pellet delivery through filler tubes or blown chip through access hatch. Capacity for full load from the delivery vehicle with a reserve to ensure continuous heat and the cost-effective bulk buying.

Boiler Room (Internal)
Each identical Boiler Room houses a 100kW Pow-erchip boiler, 2,000 litre thermal store, main system pump for the heat main, wood chip or wood pellet fuel store and an automatic de-ashing system.

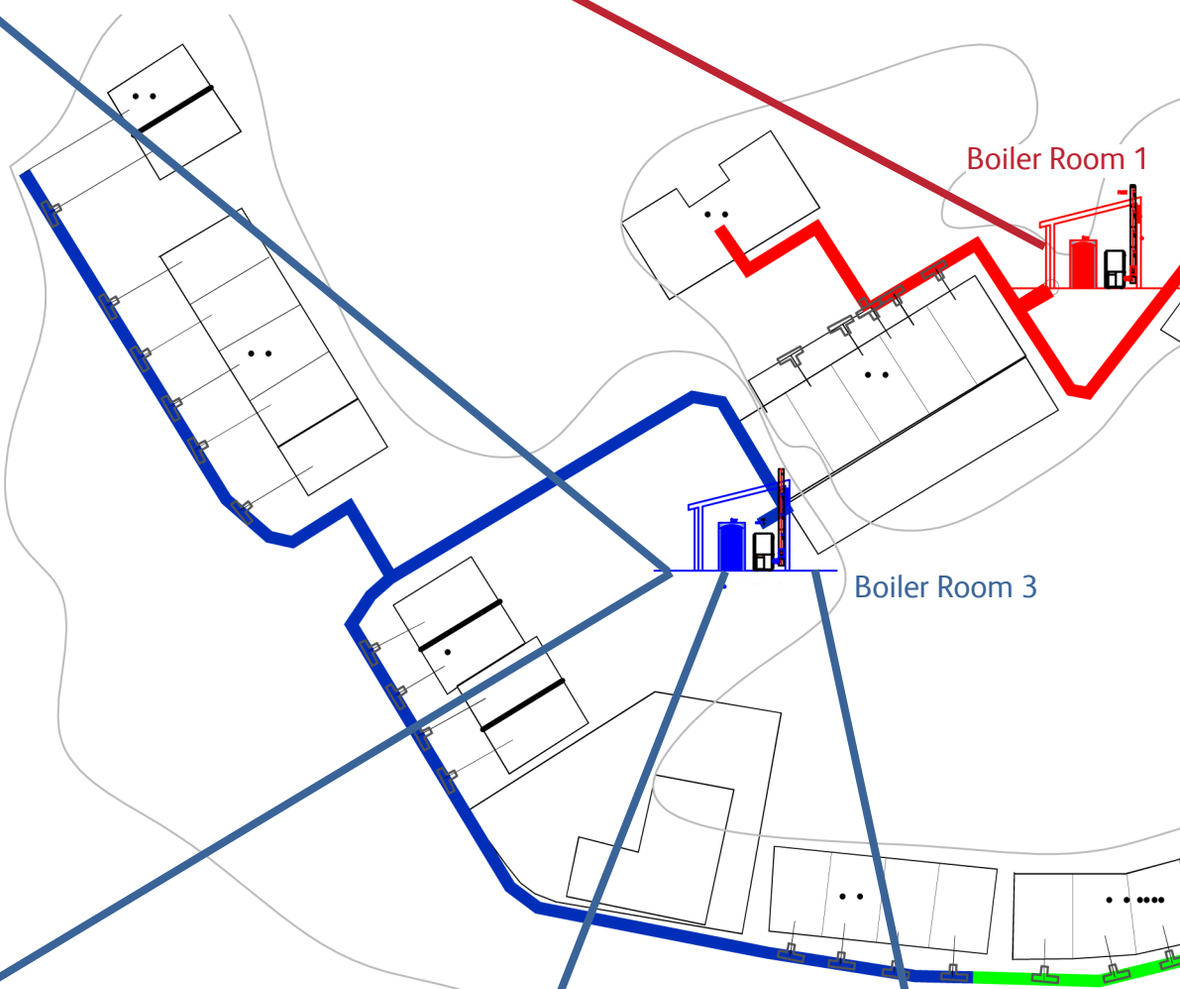
Underground Heat Main
The Heat Main includes a lo and return (cold) water pipe in toughened shell. It is laid bed of sand at a depth of at main has simple fittings to c ard tools, for speed of instal

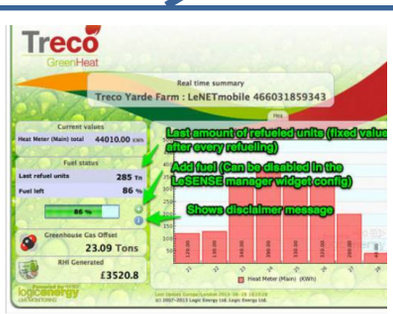
Heat Main 1

Heat Main 2

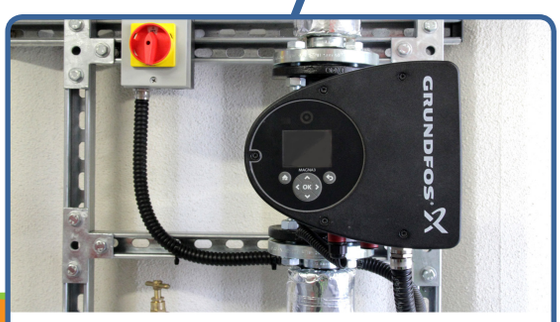
Heat Main 3

Housing Units (72 in Total)





Logic Energy Unit Monitoring
It is planned that Treco will take on the long term service and maintenance of the biomass system once completed. This enables remote monitoring to facilitate faster diagnosis, advice & reduced cost.



Main System Pump
The main system pumps circulate hot water through the heat main to heat to each house. They are sized to cope with both peak and mini-mum demand.

RHI Compliant Heat Meters
The meters in each CIU and b produced for both RHI monito and also for billing of each ho remote access automated billi

ain
s a low heat loss flow (hot)
pipe, insulated and encased
s laid in a service trench on
of at least 600mm. The heat
s to connect requiring stand-
nstallation.

Heat Main T-Piece
These insulated connections join each property's Consumer Interface Unit to the District Heat Main.

Consumer Interface Units
The Consumer Interface Unit (CIU) contains all the controls and pipework in a convenient, easy and quick to install box and replaces a boiler in each property.

T-Piece Provision for 6 Future Buildings

Boiler Room 3

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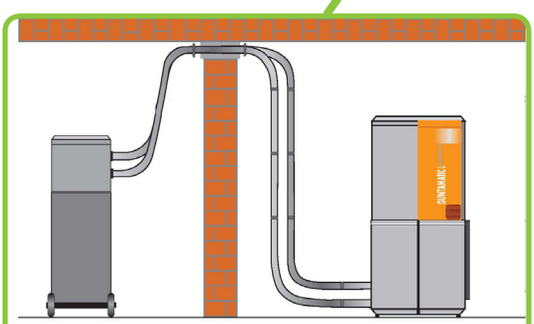
onitoring and payment,
h homeowner through a
d billing system.



Automatic De-Ashing
The Auto de-Ash is triggered by the boiler, which empties ash into a larger collector. This reduces the frequency of de-ashing and saves operating and maintenance costs.

Consumer Interface Units (Components)
A plate heat exchanger transfers heat from heat main to domestic hot water & central heating systems. Includes RHI heat meter; can be read both by householder or remotely for automated billing.

Background

Perryfields is a 72 unit housing development in Portland, Dorset built by Lomand Homes. The development features an integrated mix of private ownership, affordable and social housing.

The Requirement

Lomand Homes wanted the Perryfields development to incorporate highly energy efficient homes with low occupancy costs. The properties were designed to make the most of insulation, low energy lighting, heat recovery and recirculation. Biomass district heating was specified to also give the development energy efficient heating.

Complete Biomass District Heating Package

Treco supplied and installed three 100kW Guntamatic Powerchip biomass boilers, commissioned to burn wood pellets.

Each boiler supplies a network of houses and appartments via a large district heating scheme. The system delivers low operating costs and automatic ash removal. The boilers were each installed with a 2,000 litre buffer tank. Large fuel stores automatically feed wood pellets into the boilers Heat is supplied to each unit via an underground heat main. Consumer Interface Units were fitted into each property, enabling automatic billing and the easy calculation of RHI Payments.

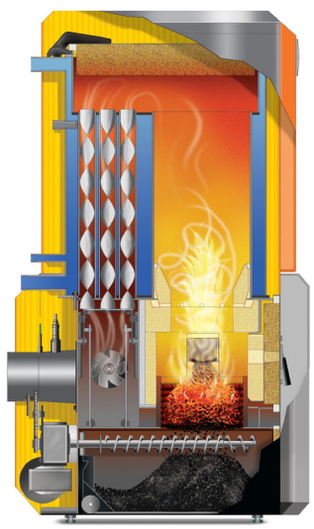
Renewable Heat Incentive

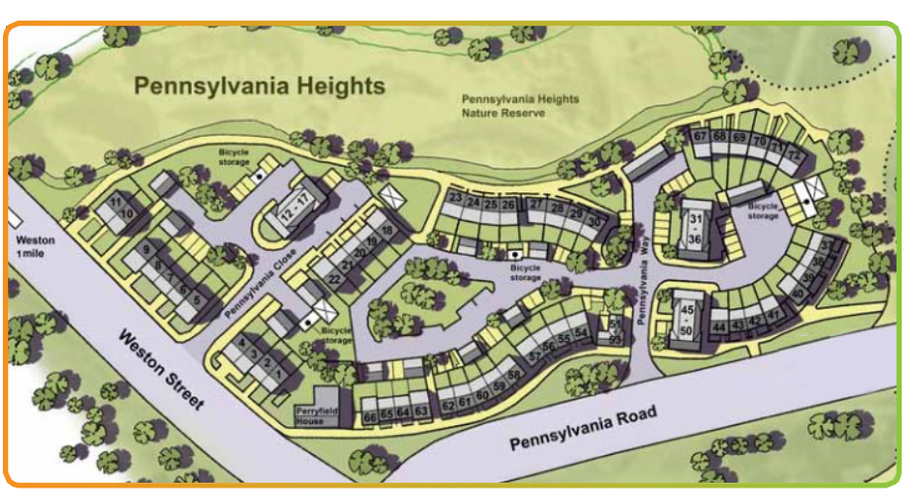
As well as delivering fuel cost savings of 20-40 %, Perryfields is now accredited into the Renewable Heat Incentive (RHI). This will enable them to gain significant payments per unit of heat generated and used by submitting quarterly meter readings to OFGEM. This will enable them to pass on control of the district heating system to a tenant and owner, community-led company, giving long-term low cost of occupancy.

Project Summary

Treco's design, installation, commissioning and maintenance service included;

- Three top-of-the-range 100kW Guntamatic Powerchip biomass boilers with automatic de-ashing.
- Biomass boilers linked and plumbed into existing heating and hot water system.
- 3 x 2,000 litre thermal stores.
- Fully automated wood pellet fuel delivery.
- 2 x 2m agitators and 2 x 3.25m augers per boiler to enable a large enough fuel store to be built in order to minimise the time between fills.
- Supply of underground heat main.
- Consumer Interface Unit and RHI approved heat meters, allow remote monitoring and record heat use in kWh (on which RHI payments are based) complete with certification.
- Assistance with RHI application including schematic drawings.
- Commissioning, programming, end user training, service support & maintenance.





Technical Information

Specifications; (per boiler)

- Heat output from 20 to 100kW.
- Dimensions; 1,875w x 1,845h x 980d (mm).
- Weight; 865kg (not including 75kg feed auger).
- Fuel; wood chips, wood pellets, grain and miscanthus.
- Boiler output; perfect modulation at up to 96% efficiency from 26%-100% of output.
- Moving step grate allows the boiler to cope with a wide variation in fuel quality.
- Boiler temperature; 60-80°C.
- Return flow temperature regulated to protect boiler.
- Water capacity; 256 Litres.
- Operating pressure; Max 3 Bar.
- Flue connection diameter; 180mm.

Key Facts*

Project Included;

- 3 x Guntamatic 100kW Powerchip boiler systems with 3 x 2,000 litre thermal stores and automatic ash removal.
- Distribution pipework with internal connections to heat and exchangers and consumer interface units.

Fuel Consumption;

158 tonnes of wood pellets, per annum. (based on 3 x 100kW boilers, in a similar application).

Fuel Cost Saving;

(Source; Biomass Energy Centre)
Wood pellets; 20-40 % vs heating oil.

CO_2 Saving;

(Source; Biomass Energy Centre)
Up to 96% or 240 tonnes vs heating oil.

RHI Payments;

A project of this size would gain an average of £33,900 every year for 20 years, index linked to inflation.

Total Project Price; £350,000

Payback Period;

3-4 years (combining RHI income & fuel cost saving).

(*Financial information not specific to this project – figures are based on an average of several typical projects of this size. Current information on RHI payments for guidance only, not to be considered a guarantee).

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