



## Case Study Nuttall Farm

Nuttall Farm is located in a tranquil valley on the steep slopes of Marcle Ridge and was renovated in 2022 and needed a revamp of its old oil fired heating system.

Nuttall Farm was an old, neglected property in much need of modernisation with a sympathetic hand. Enter Elliot Weston, a man with a vision, imagination and a young family to nurture, he set about renovating the house and some of the nearby farm buildings.

### **The old system**

The old heating system, as is typical in old rural properties like this, comprised of an oil boiler.

### **The Plan**

Heating and supplying domestic hot water to a farm house, farm office, staff room with showers and workshop as well as hot water for washing pedigree Hereford cattle for showing requires a well thought out and planned district biomass heating system. The first thing to do is establish what the total heat demand is, by working the size and heat loss of each building, the total scale of the system can be calculated.



The design needs to adequately heat the following buildings;

Main Farm House - Heating 342m<sup>3</sup> approx 17kW (1314hr) 22,300kwh / Domestic hot water 3kW (4hr/day x 200) = 1800kwh

Office, Staff room and workshop - Heating 340m<sup>3</sup> 17kW per annum (1314hr) 22,300kwh / Hot water commercial (1 hour per day x 200) 600kwh

**Total kwh/year = 47,000**

With this information a 50kW HDG F series log biomass boiler was specified for the job. This boiler runs on spilt

logs, and the obvious choice as some could be sourced, free of charge, by properly managing the hedge rows and woodland providing free fuel. To add to the free energy party, solar thermal panels were added to the roof nearby farm buildings, with both of these heat sources heating a 3000 litre accumulator in the boiler room. The old oil boiler is to be kept as a backup boiler for when the Biomass boiler needs servicing. Balancing the supply of heat to these remote locations is essential and achieved with the use of automatic valves, which balance the system.

With this holistic view of the heating and hot water production, utilising different heat sources and balanced delivery to remote locations, Nuttall Farm is assured an efficient and reliable supply of heat and hot water in the future.



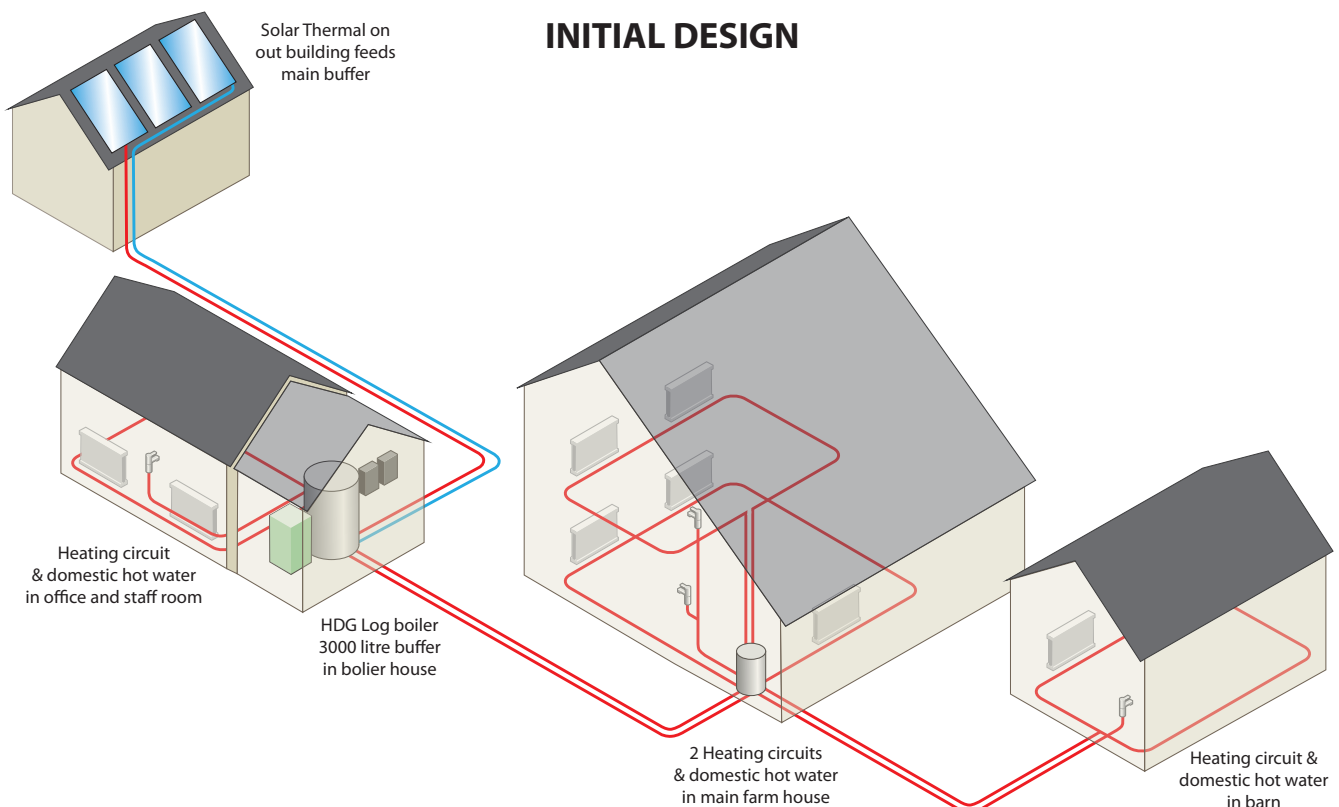
The HDG F Series 50 are down firing gasification split log boilers, it has a 205 litre fuel chamber volume. The logs should be seasoned to 20% moisture content (wet scale).

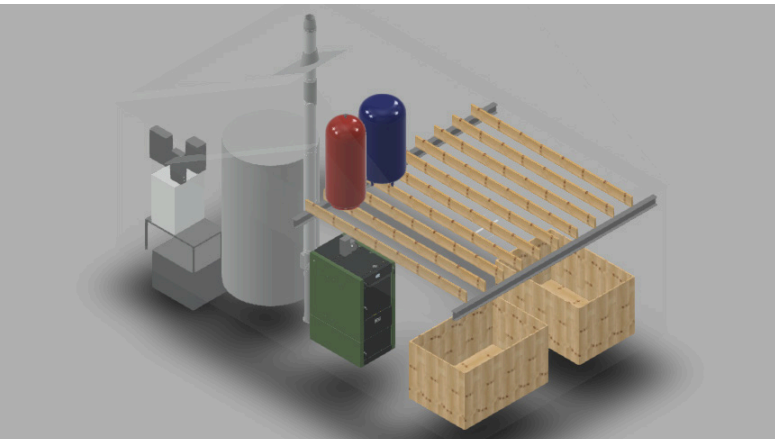
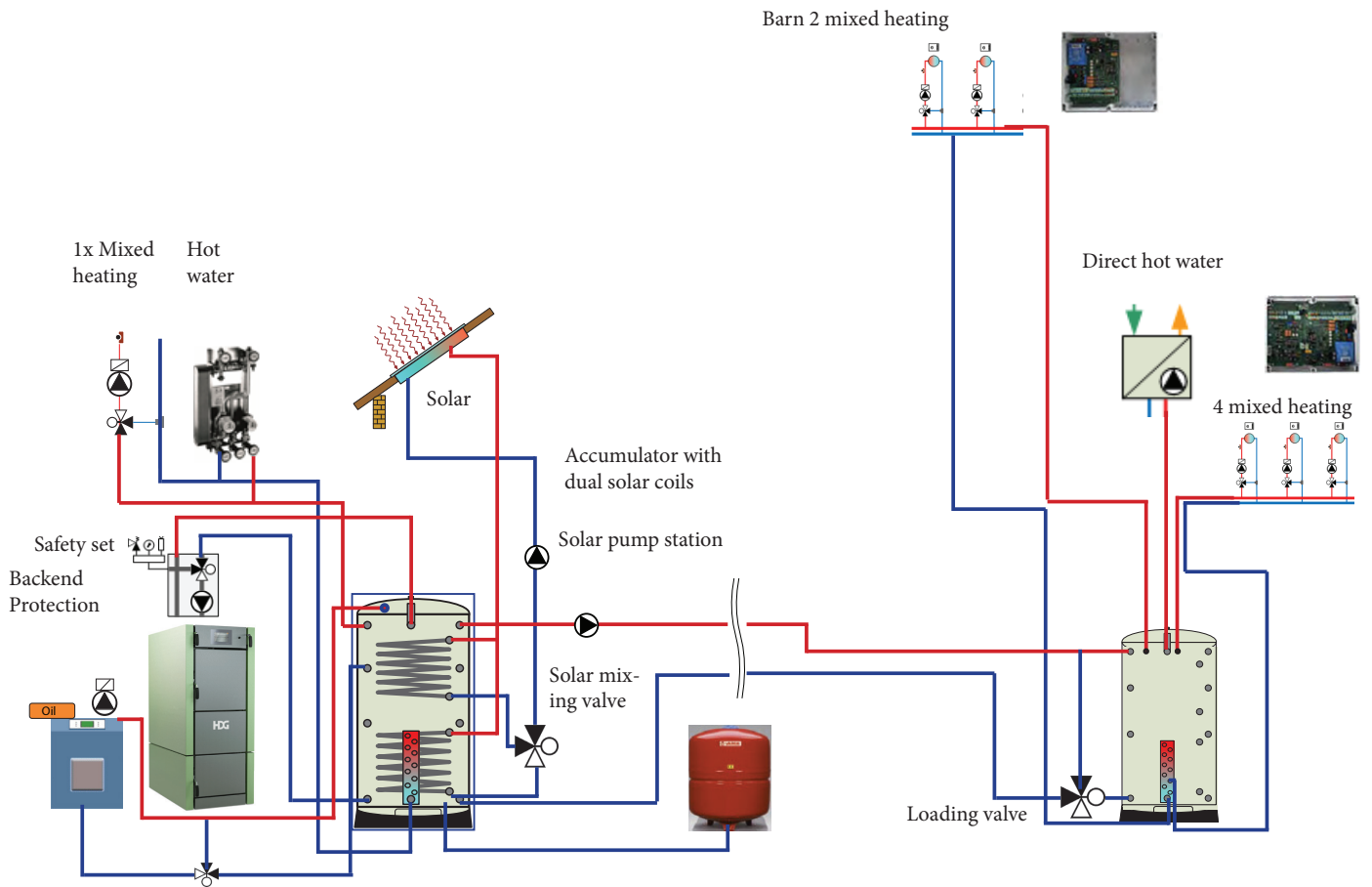
The vertical tube heat exchanger is cleaned by a simple external operating handle, this makes the F Series extremely clean in operation, there is also the option of automatic cleaning. Ash removal is a simple and clean process due to the integrated ash pan.



*Comfortable heating. With wood!*

## INITIAL DESIGN





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