

Hughenden Manor (National Trust)

Report of the technical training in England



Summary

This project is well suited to implement and is also very good as a showcase project for future projects. The own use of existing resources and existing infrastructure provide an economically and ecologically useful project implementation. Solely the central wood chips storage should be adapted.

Question for the location?

- **Boiler size / buffer size**

The entire heating can be installed in the existing space. It is recommended to install one boiler (1 x 100 until 150 kW), because in the one hand there is sufficient space available and on the other hand, the cost of a second tank are too high.

Furthermore to install a buffer of about 5.000 litres is recommended. The buffer serves to cover the peak load as well as compensation for the low load (e.g. transition time). The wood chips demand is about 450 loose m³ per year. In Austria, we proceed from the assumption that we can earn about 10 loose m³ wood chips per year per hectare (rough estimate), that would mean that we need 45 hectares of forest to meet the wood chip demand.

Fig. 1: Boiler room



– Fuel Storage

The existing fuel storage is after some adaptation measures very well for the storage of wood chips. *We recommend the following adaptation measures be taken:*

- creating a solid surface (concrete or asphalt)
- establish a 1.5 m high concrete wall (see Figure 4)
- setting up a breathable and sturdy wooden boards onto the concrete wall (e.g. wood round logs)

The storage timber should ideally take place around the fuel storage. The timber can then be directly chopped by a hacker into the storage, so the handling costs can be significantly reduced. It is important to ensure that the storage of timber is at a distance of about 6 m to the fuel storage because the hackers need space for their manipulation areas. For the timber storage and for the hacker a fortified base is to provide (e.g. concrete, paved with crushed stone base, etc.).

The transport from the central wood chips storage to the wood chips bunker is relatively long, so you should put on specific values to an optimized wood chips logistic. The logistics costs are rising sharply otherwise, the wood chips distribution should be done therefore by powerful machines (e.g. tractors and shift wagon 25 until 30 m³).

Fig. 2: Fuel storage



Fig. 3: Example of fuel storage in Austria



Fig. 4: Example of fuel storage in Austria

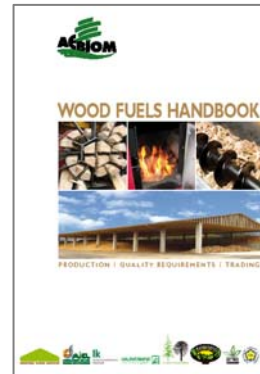


– Fuel Quality

Information about quality requirements and reference standards are available in the WOOD FUELS HANDBOOK (download under: www.biomassstradecentres.eu).

Quality requirements for:

150 kW plant: water content up to 35%, max. size pieces G50 mm (ÖNRÖM, G50=cross-section of the wood chip is $> 5 \text{ cm}^2$), homogeneous fuel is advantageous



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