

Heating the school
without overheating
the planet

RENEWABLE HEATING FOR THE SCHOOLS OF VALLI DEL PASUBIO (VICENZA PROVINCE)

The project

The plant, realized by the Mountain Community Leogra-Timonchio, was operating since January 2004.

The boiler heats the public high school G. Pascoli and the near primary school with a district heating pipeline of 50 m.

The Municipality

The Municipality of Valli del Pasubio covers a surface of approximately 50 km² and is located in the north-western part of the territory of the Mountain Community of Leogra-Timonchio, at an altitude of 350 m.

The population is of approximately 3.500 inhabitants.

Woodchips supply

The boiler is fed with forest woodchips locally produced coming from the regular cutting and thinning.

The supply is entrusted to the local Forestry Association, involving several forest owners and forest entrepreneurs.

The mini district heating

It's composed by two well isolated pipes under the ground, where the water (heat carrier) losses about less than one centigrade degree per km. Once the water is heating up into the boiler, the heat carrier transfers heat from the district heating network to the end-user buildings. Here the water is cooled in the customer heat exchanger and the return pipe brings back the cooled water to the boiler; the difference of temperature between the water streaming to the forward pipe and the return pipe is accounted for the calculation of heating (kWh) distributes to the costumers. Electrically operated pumps make the water circulate continually in the district heating networks.

The heating plant

The boiler room

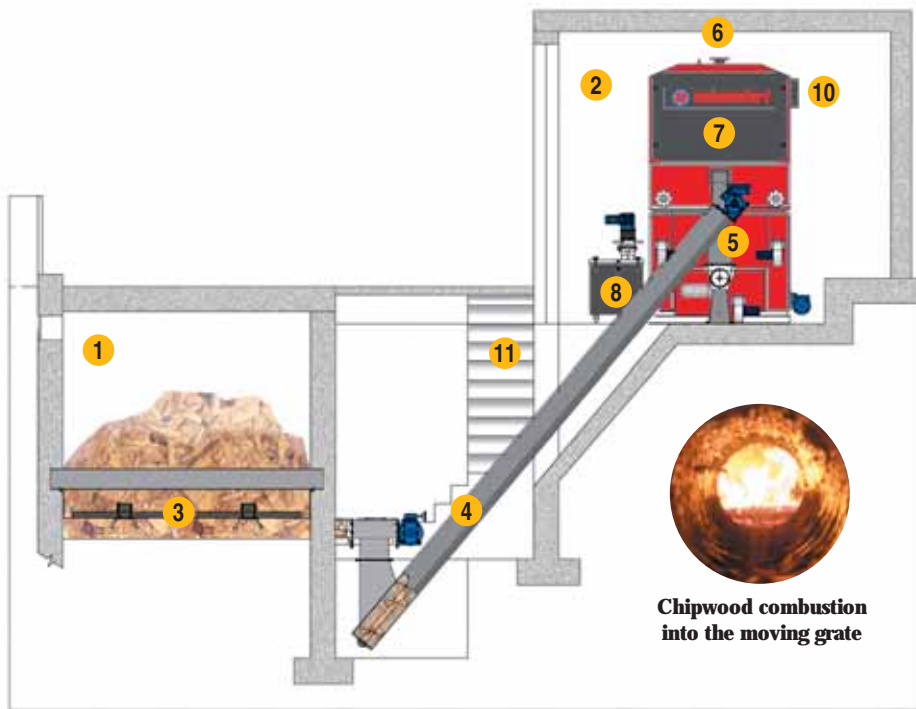
It's located within the school building. The boiler room has been gained from that one pre-existing while the silo of woodchips is completely buried just beside of the boiler room.

The feeder silo

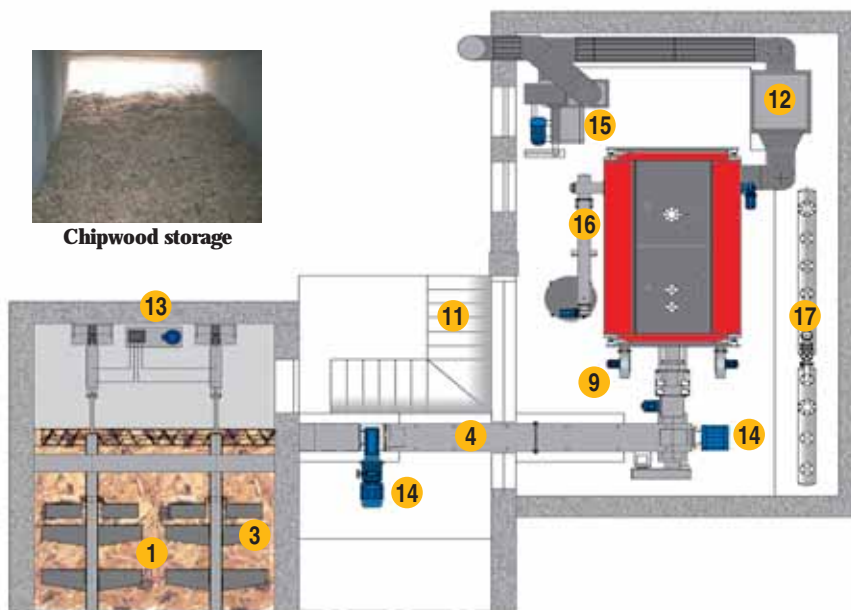
It is a bunker silo with rectangular base with a volume of 100 cubic meters in which the woodchips is unloaded. For the automatic discharge of the silo, sliding bar conveyor is used. By means of a control screw the woodchips go to a drop channel, here a screw conveyor take the woodchips into the furnaces.



The boiler room and chipwood storage



Chipwood storage



1. Bunker silo
2. Boiler room
3. Sliding bar conveyor
4. Screw conveyor
5. Combustion chamber
6. Flange return pipe
7. Heat exchanger
8. Ash container
9. Secondary air fans
10. Temperature control system
11. Silo entrance
12. Multicyclone
13. Engine operating the extractor system
14. Engine operating the feeding system
15. Aspirator
16. Screw for ash extraction
17. Pump system

Technical and economical data

- Power of the boiler: **700 kWt**
 - Type of boiler: **inclined moving grate**
- Annual consumption of woodchips: **200 t (w=35-45%)**
 - Woodchips price: **60-80 €/t**
- Length of the district heating: **50 m**
 - Heating volume: **23.200 m³**
- Electrical power needed: **11 kWe**

INFORMATION

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