

## BRINZIO (VA)

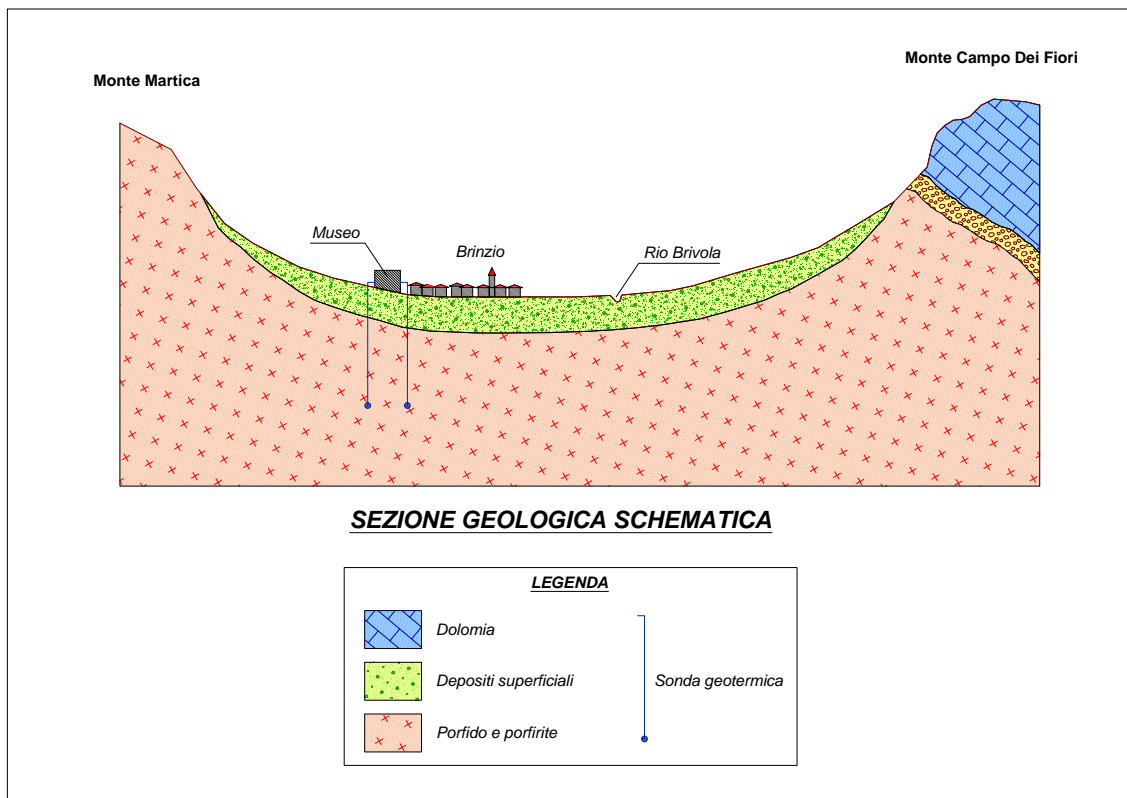
### MUSEO DELLA CIVILTÀ RURALE PREALPINA

#### GEOTHERMAL PLANT

*Geothermal plant with pump of heat and system of vertical probes, mainly realize in rock. Distribution with radiant (first and second floor) floors and radiant on ground floor.*

The realization of the new plant has been effected in the circle of the jobs of restructuring of the stable. One that entertains the Museum. The geothermal probes (five) have been realized in the park next to the museum, in urban circle, adopting best techniques for the limitation of the trouble induced by the activities of perforation. The probes are connected with a pump of heat Myclima placed in the thermal place to the first floor; the pump of heat is combined to an inertial reservoir, whose function is that to decrease the frequency of the cycles of lighting and turning off, that decrease the middle life of the system. The distribution is effected through radiant floors to the first and second floor with radiant on ground floor.

A permanent didactic preparation is realized for illustrating the geothermal system, consistent in: a room devoted with illustrative panels and carrot extracted by a hole of survey, visualization of the position of the probes in the before park the museum, visibility of the geothermal plant.



## MONTHLY AND ANNUAL ENERGETIC PERFORMANCES:

The pump of geothermal heat has a nominal power equal to 33 kW under nominal conditions 0/35 °C. The middle operation on annual base, in the last 2 winters has been equal to around 1500 hs. The thermal energy produced in a winter has been equal to 49500 kWh with a seasonal consumption, in terms of electric energy, of 12375 kWh. The COP I mediate seasonal some pump of heat has been esteemed equal to 4.

The monthly middle consumption is assembled in the months of December, January and February with an energetic application equal to around the 70% of the annual amount.

From the economic point of view 49500 kWh are equivalent to the combustion, with a methane boiler with a real output equal to 0,9, of around 5775 mc / year. The use of the geothermal in this building involves a conspicuous economic saving for the town administration. Applying a price equal to 0,8 € / mc for the methane and 0,12 € / kWh (rate BT4 other uses) for the electric energy in one year is possible to halve the expense for the winter climatisation with a saving of around 2400,00 € /for year.

The found environmental advantages are referable to two levels: technical and demonstrative. Under the technical profile the pump of heat allows to locally avoid issue of smokes, over whether to avoid the construction of the gases reed. Under the demonstrative profile the double purpose is to combine tradition and innovation and to give a signal to the collectivity related to the use of the renewable ones.

## ADMINISTRATIVE PROCEDURE :

Feasibility study realized inside the Town administration.

Public auction (February 2008) with notice published on the observatory for the public works, site of the Region Lombardy; the proclamation was reported to the execution of the jobs of restructuring of the stable one.

Selection supplier: they have participated in the proclamation 19 firms and the procedure of law has been adopted for the adjudication.

The principal problem list met in phase of realization are the followings:

- 1 Difficulty of link among the various operational (planner, D.L., electrician, hydraulic, building society, subcontractor);
- 2 Under scaling of the distribution to the ground floor.