

Demo project 2: Hiref factory in Padova, Italy

- Location climate: Tribano Padova Latitude 45° 12' 33.43" Longitude 11° 50' 45.21" Altitude 2 m
- Type building: retrofit from standard climate control of a part to the base floor of the building, currently used as technical office and containing n°15 persons and their work desks + computers.
- System replaced: traditional boiler for heating, chiller for cooling
- Purpose: heating and cooling with independent regulation and improved efficiency system.
- Type of new system: the system is obtained with a new Hiref geothermal heat pump working with R410A and supplying more or less 10kW of heating and cooling capacity. This unit can manage an internal water tank (94ltr.) and an hydraulic module with ground source side pump + user side pump. The efficiency of the unit is always high because their heat exchangers are always maintained in counter current between refrigerant and water by 2 four-ways valves that manages the water flow according with the current function (hot-cold).

This kind of units may contain an adjunctive heat exchanger for sanitary water but we think not so useful in this case because the minimal hot water utilization in office ambient.

The terminal units are n°6 new Galletti fan coils at the moment not just selected.

- distribution system: piping directly from heat pump to fan coils with a little tank in the middle, no variable velocity pumps.
- Monitoring concepts can be as follow:
 - water Temp. source side
 - water Temp. user side
 - ambient Temp.
 - heat pump power consumption = COP, EER calculation
 - entire system power consumption = seasonal efficiency factor
- Costs: Drilling 9.000,00; Piping 3.000,00; heat pump (not available at the moment because the project and definition of the unit aren't ready).
- Time schedule: timing in line with project expectations.

Of course some parts of these ideas/configuration can be changing step by step we will go ahead because we are not sure about all the solution mentioned.

Source:

Andrea Quercioli
technical manager & quality assurance
direct (+39) 049 9588559
HiRef SpA Headquarter
viale Spagna, 31/33 - 35020 Tribano, PD - ITALY - phone (+39) 049 9588511 - fax (+39) 049 9588522