

RECINTO MODERNISTA SAN PAU

THE BIGGEST AIR CONDITIONING GEOTHERMAL INSTALLATION IN SPAIN

Barcelona - Spain

Museum

Geothermal

2016



The Hospital de la Santa Creu i Sant Pau, was one of the most important hospitals in the city of Barcelona and now is the largest building realized by the architect Lluís Domènech i Montaner „ and one of the best examples of public modernism. In 1997 it was declared UNESCO World Heritage Site.

From 2009 to 2016 the Hospital was requalified and transformed into a cultural pole.

The challenge

The restoration activity was aimed at the maintenance and the recovery of the original architectural structures and at the same time at the energy redevelopment, so that the building could become an energy sustainability model.

The solution

To meet the needs of air conditioning a low enthalpy geothermal system with high efficiency heat pumps was chosen.

The solution consists of independent systems for different buildings.

The geothermal wells with 357 probes of 120 m depth are distributed in the outdoor area around the building.

Each building is served by geothermal heat pumps that use the energy provided by the ground and satisfy heating and cooling needs autonomously and contemporarily.

The technical rooms are located in the basement.

The results

With the geothermal air-conditioning solution, environmental impact and noise of the system were eliminated.

The geothermal solution also allowed to avoid condensing units on the façade, allowing a perfect integration of the air conditioning system in the architecture of the building.

For further information on Clivet systems

www.clivet.com



Recinto Modernista San Pau - Internal view and thermal plant with geothermal heat pumps

The building

- 19 buildings

The dimension

- 44.280 mq

Clivet System

- 17 Geothermal Heat pumps ELFOenergy Ground Medium2 for a total of 3MW of thermal capacity installed

About ELFOenergy Ground Medium²

ELFOenergy Ground Medium² liquid chillers and heat pumps are water-cooled units for indoor installation, ideal for multi-family and commercial buildings. The combination of different size compressors allows to obtain more adjustment steps, to supply only the energy actually required by the system, to reduce consumption and to obtain high seasonal efficiency. All the main components of the system are supplied on board the unit, ensuring maximum reliability and easy installation. The compact design allows to combine several units in small spaces, creating a high power plant. The control allows to coordinate up to 7 units automatically managing the operation with maximum efficiency. The use of specific heat exchangers for applications with ground water or closed loop geothermal energy maximizes energy efficiency.

