

# Gas Absorption Reversible Heat Pump System

## Casa Serena

Rovigo - Italy



Casa Serena is a old people's home placed in a 40-yearsold premises. The main need was to heat and cool 5 of the 6 floors (the last floor was on renovation) complying with the guidelines from the local authority for this type of buildings.

This was an important constraint that lead to different project solutions, always maintaining the requested thermo-hygrometric conditions: 68 °F with 50% of relative humidity in winter and 78,8 °F with 50% of relative humidity in summer. The old system was composed

**ROBUR**<sup>®</sup>  
caring for the environment

by a central gas boiler with cast-iron radiators.

Exploiting Robur system modularity, the design engineer chose 5 units (a unit for each floor), RTAR 240-480 model. The inlet water temperature is 113 °F during winter season and 55.4 °F during summer season. The installation of the Robur system met perfectly the needs of the customer: Casa Serena got a new better comfort and costs savings with Robur GAHP and an adequate distribution system, without changing the premises.



Heating



Cooling

**Efficiency is 1.52, the 50% more than the best condensing boiler.**



Thanks to modularity of the Robur system, the design engineer chose 5 GAHP RTAR240-480 units. The inlet water temperature is 113 °F during winter season and 55.4 °F during summer season. The design planned a wall air conditioning system integrated with a primary air system for air replacement and dehumidification during summer season. The wall embedded (composed by 0.4-inches polypropylene

pipes) is the best system for human body comfort that accepts a difference up to 68 °F between the medium temperature of the wall and the ambient air temperature. The survey sets a 5% limit in the unsatisfied people percentage in that difference value: in winter season with an ambient air temperature of 68 °F it can be possible to have a temperature of 104 °F on the surface of the wall.

In the installation of Casa Serena a total electrical capacity of just 18 kW is required, reducing for

about 110 kW the necessary electrical quantity with a traditional system.

Building type	Home for old people
Energy distribution system	Wall air conditioning system integrated with a primary air system for air replacement and dehumidification during summer season
Unit number and type	20 GAHP-AR Gas Absorption Reversible Heat Pumps
Heating capacity	2,408,000 BTU/h
Cooling capacity	1,154,000 BTU/h