

CONÈ

Conegliano Veneto, Treviso - Italy
 Centro commerciale Shopping centre
 Hypermarket and 59 stores
 WLHP and ZEPHIR systems
 Anno 2010



The Conè shopping centre, promoted and managed by IGD, represents an important investment inside an economically vibrant and dynamic area. It includes an Ipercoop hypermarket and a shopping mall with strongly attractive national and international brands.

Consumers would have been offered interesting cultural initiatives and entertainment program, in a comfortable environment all year round, independently on the outdoor conditions and on the type of shop visited.

The Challenge

According to its real estate vocation, IGD wanted to build and manage on the long run a shopping pole able to attract and retain both profitable operators and customers.

Operators would have had available efficient services and excellent marketing but, above all, high-quality stores, independent and easy to operate.

The energy efficiency of the whole installation was a key factor to reduce the operating costs.

Therefore it represented the main challenge IGD put on the Designer, who was assigned to research and develop the solution with the best pay-back.



Conè – View from the mall and store directory
www.centrocommercialecone.com

About IGD

Immobiliare Grande Distribuzione (IGD) is one of the most important European names in the real estate business. Born from Coop Adriatica and Coop Tirreno asset merger, IGD acquires and manages real estate properties like hypermarkets and malls on a long-term strategy. It was the first Italian company to gain the status of Listed Real Estate Investment company (SIQ). Nowadays it operates in Italy and in Romania under Winmarkt brand. Its Real Estate value is next to 2 billions Euro.

The building

- Two-level prefabricated building

Sizes

- Gross leasable area (GLA) 21.400m²
- 1 hypermarket and 59 stores
- Over 1.500 parking lots

The team

- Promoter IGD, Italy
- System design Climosfera, Italy
- Contractor Toninato Impianti and Idrotermica COOP, Italy

The solution

A reverse cycle heat pump design was chosen for the whole centre. It is based on the Clivet WLHP solution, with thermodynamic recovery systems on the exhaust air. The water loop is made by two PVC variable flow circuits, to serve the shopping mall and the hypermarket. The total water volume is 50.000 litres.

The mall is served by water-to-air rooftop reversible heat pumps, complete of outdoor air management, Freecooling and integrated thermodynamic recovery on the exhaust air.

The fresh air to the stores is centralized and is supplied by two Clivet air-to-air systems with thermodynamic heat recovery. Furthermore every store is equipped with one or more water-to-water ducted heat pumps, under each tenant's responsibility.

Dedicated outdoor air systems with thermodynamic recovery serve also the offices, conditioned by a reversible water-to-water heat pump and 2-pipes hydronic ceiling cassettes, and the toilets.

The hypermarket is conditioned by reversible water-to-air rooftop heat pumps as well. Unlike other units, the rooftop serving the fresh produce section is not equipped with heat recovery: this function is provided by a further thermodynamic recovery system that supplies tempered outdoor air by recovering thermal energy from the exhaust air in the fish processing department.

Other complementary premises, like the pharmacy corner and the perishable warehouse, are served by dedicated ducted water-to-air heat pumps.

Other processing departments are also served by thermodynamic recovery systems, associated to a central water-to-water reversible heat pump that uses the loop as a source and feeds hydronic terminal units. Only the meat processing department includes an evaporator connected to the commercial refrigeration system, to keep the very low temperature required by law.

The commercial refrigeration system is a free source of heat, from 150 to 230 kW, thanks to the condensation heat recovery made by the water loop system. In the cold season, the system recovers energy during the night just circulating the water to raise its temperature when heat pumps are off.

Hot water for sanitary use and to heat the warehouses is provided by a water-to-water heat pump. In the summer season, pre-heat is done by thermal solar panels. The hypermarket offices are conditioned as the ones of the mall.

The system design takes great care of the whole environmental impact. It also includes a well, to provide evaporative coolers with makeup water and for irrigation, and photovoltaic panels with 160 kW of peak power output.

The results

The start-up time of the centre was met. Its operation is considered efficient, versatile and reliable. The correct flushing of the water loop circuits helped to hit this target.

The WLHP system has been confirmed able to both transfer thermal energy inside areas with opposite loads and spread out capital cost among the single *tenants*.

The Clivet dedicated outdoor air system with thermodynamic recovery reduced the water loop system capacity, because their thermal source is the exhaust air. As a direct benefit, both heat injection and rejection equipment and the pumping stations were downsized. This also results in increasing the weight of the heat recovery from commercial refrigeration: boiler operation is minimal, thus the gas consumption is considerably reduced, as already experienced in other projects.

If you need further information on Clivet systems
www.clivet.com



Conè – ZEPHIR dedicated outdoor air system with thermodynamic heat recovery and water-to-water heat pumps in the technical room

About ZEPHIR

The ZEPHIR system includes the whole primary air plant in a single standalone unit. It features the reverse cycle heat pump active thermodynamic heat recovery, high efficiency electronic filters, electronic controlled fans, reheat by hot gas recovery. Its capacity replaces most of the heating and cooling central equipment, without the use of fossil fuels. It adapts the systems to industrial standards as it eliminates most of the work on site. It is ideal when coupled to fancoil units, VRF direct expansion systems, radiant systems and chilled beams, and to increase the efficiency of existing air handlers.

The System

- 8 water-to-air reversible heat pumps CLIVETPack CRH-XHE,
- rooftop type for mid-attendance applications
- 10 Clivet ZEPHIR² and ELFOFresh Large dedicated outdoor air
- systems, with integral active thermodynamic heat recovery
- Over 40 water-to-air ducted CH reversible heat pumps
- 3 water-to-water heat pumps Clivet SPINchiller WSH-SC, WRHN,
- WSHN-EE, 2 pumping stations model GP2 with 500 l. storage
- tank, 48 hydronic terminals Clivet CF and ELFOSPACE BOX2
- The system is completed by four evaporative coolers for total 4,6
- MW, three condensation boilers and a supervision system.