AXA Headquarters Case Study

MITSUBISHI ELECTRIC
HYDRONICS & IT COOLING SYSTEMS S.p.A.

CLIMAVENETA®

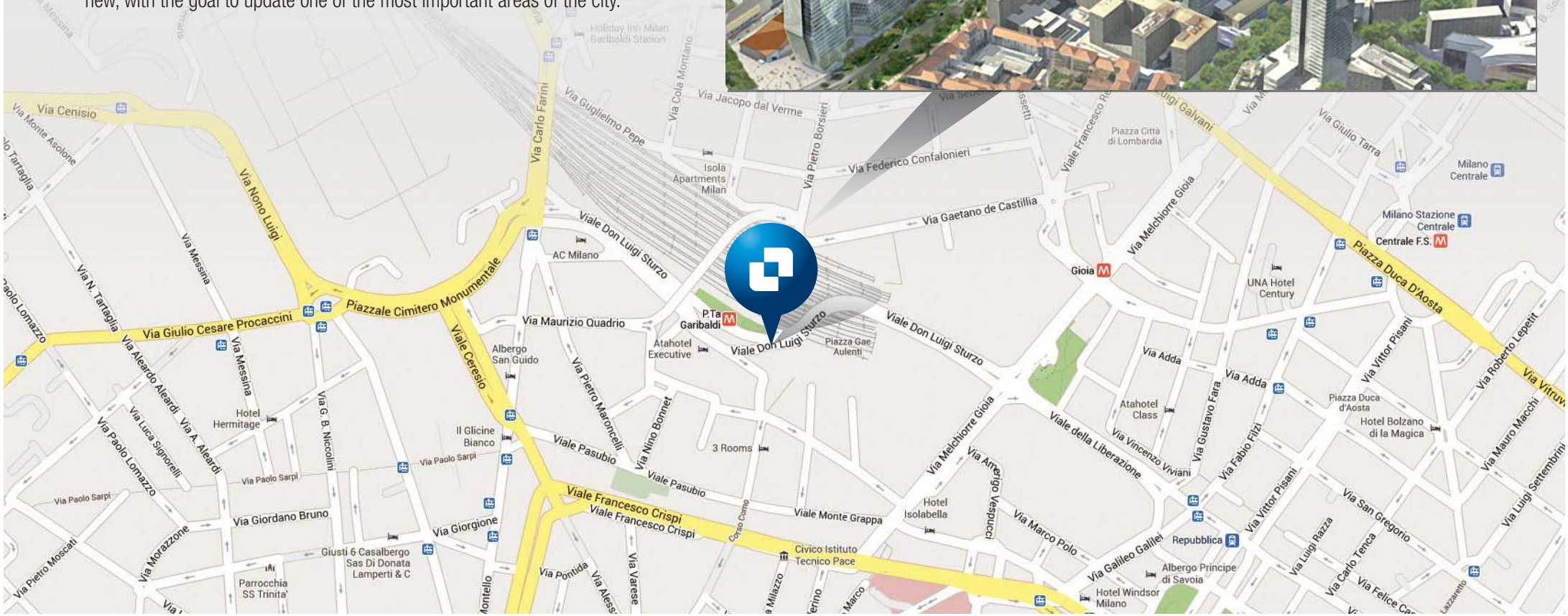
THE CONCEPT
PROMOTING SUSTAINABLE URBAN DEVELOPMENT IN THE HEART OF MILAN

The new 19.000 m^2 development, now under construction in Milan, is a refurbishment of an existing building, close to the new Unicredit tower on Don Sturzo Street.
The new building will be erected in the gentrified district of Porta Nuova and will get LEED SILVER certification.

According to AXA Group, nowadays LEED certification represents an essential feature of real estate value. It is a key factor in attributing added value to real estate in terms of sustainability in the design and construction phase, as well as energy savings during the life span of the building. It is a strategic point also because being a voluntary protocol, LEED certification represents the explicit will to promote sustainable real estate with a strong focus on respect for the environment.
Thanks to the adoption of efficient architectural and plant systems it is therefore possible to achieve reductions in running costs as well as in the impact on the territory and infrastructure.

THE URBAN CONTEXT
A PLACE TRANSFORMED

The building is located in a central and strategic area of Milan, near the Garibaldi Station, the new center of the city of fashion, at the crossroad between Don Luigi Sturzo street and Melchiorre Gioia street. The existing buildings in this area are characterized by a medium level of urban quality, with particular attention and respect to typological elements of the business hub of Garibaldi - Gioia area. This place is currently affected by an important urban transformation, generated by a major reinterpretation of the urban landscape, the result of a synthesis between the old and the new, with the goal to update one of the most important areas of the city.



THE ARCHITECTURAL PROJECT

AN EFFICIENT REORGANIZATION OF THE SPACE IN HARMONY WITH THE URBAN ENVIRONMENT

The architectural and artistic direction was followed by Studio Goring & Straja Architects, based in Milan.

In order to redevelop the property and improve the impact on the environment it was decided to reshape the contour lines with a new glass facade, enhanced by an ideal glass circular tower in the corner. The body of the building is developed on 9 floors above ground and 4 levels of basement and extends over approximately 13.000 m^2.

An efficient reorganization of the space and the addition of a new level, led the entire block to a more homogeneous and recognizable volumetric nature. The building design allows the windows to grow from the ground up to the roof.

Besides increasing the permeability and the brightness of the rooms, this choice improves the relationship between exterior and interior by creating continuity of material and strengthening the identity of the building.
Steel, aluminum, stone, and glass, are some of the materials used. It is a compositional choice aimed at finding a balance between the maximum geometric simplicity of the building and the maximum complexity of the surroundings.

"The operation has generated a major design challenge aimed primarily at achieving three objectives: maximizing the potential of the existing building by focusing resources on the most crucial aspects; making the building more homogeneous with the surroundings; expressing focus on environmental issues and energy savings (LEED Silver)."

Arch. Giacomo Sicuro
Studio Goring & Straja Architects

ENERGY EFFICIENCY AND ECO-SUSTAINABILITY

LEED SILVER GOAL AS AN EXTRA BOOST TO THE RESEARCH OF THE HIGHEST ENERGY EFFICIENCY

The project is featured by the solutions adopted in the design and the quality of life inside the building, but it has also high standards in energy performance. He is currently in pre-certification in the LEED silver.

The final design activities and the project and construction management, in addition to safety coordination both in the planning and execution have been followed by **General Planning Srl of Milan.**

"The plant design in this building followed energy saving philosophies on all fronts. Of course LEED silver goal gave an extra boost to the research of the highest energy efficiency of the building."

Eng. Alberto Villa
General Planning S.r.l

WHY CLIMAVENETA
FOCUS ON HVAC SYSTEM

"Heating by multipurpose units resets local CO_2 emissions and allows energy savings of about 40% compared to a traditional system based on a chiller and boiler"

Ing. Alberto Villa
General Planning S.r.l

As regards the air conditioning plant, which, together with lighting and mechanical ventilation systems, is always one of the more significant cost items from the point of view of energy units, efficient and innovative units have been selected, produced and tested under extreme conditions by Climaveneta.
Heating and cooling are provided by two multipurpose units **ERACS2-Q/XL-CA-E/S 2622** by Climaveneta.
In the Summer, only during peak-time, cooling energy is produced thanks to the integration of a supplementary heat pump **RECS/SL/S 1562** by Climaveneta.
The heat pump operation in the Winter is merely a back-up for one of the two multipurpose units.
Inertial tanks both on cold and hot circuits are installed further down from the multipurpose units.
The secondary circuits supplying the AHU coils and ceiling fan are powered by variable flow pumps.
The heating circuit during the Winter also powers the thermal fixtures in the washrooms.

The hot water circuit collector is provided with a detachment to service the domestic hot water pre-heating, whose production is guaranteed by a Climaveneta high-temperature heat pump **AW-HT/LN-CA-E** and two storage tanks accumulating 1,000 litres each.
The first water tank is heated by the circuit powered by the multipurpose units at just under 40°C. The pre-heated water then passes through the second boiler fed by the heat pump at 65-60°C.
An antilegionella program also allows for the powering of the preheated boiler with 65°C water.

Secondary circuits are designed to work at the following temperatures: hot secondary circuit (serving AHU, environment and preheating of sanitary hot water) at 40-45°C; secondary cold circuit serving fan coils at 10-15°C and a secondary cold circuit serving AHU at 7-12°C. The comfort of the environment is made possible by 4 pipe fan coils for horizontal installation, with variable flow coil. The efficiency of the multipurpose units is even higher thanks to a control system especially designed for this installation. The units have been successfully tested at the Climaveneta labs, under the most extreme conditions.

The choice of variable flow and high efficiency pumps and the installation of enthalpy heat recovery units with thermal output of about 70% contributed to reducing CO_2 emissions into the atmosphere.
Technical choices have been made to maximize economical efficiency also in terms of water savings.
To that effect rainwater is collected to supply a dual network serving both sanitation and irrigation.
This network, combined with the installation of high efficiency water taps, allows the system to achieve 50% savings in drinking water with respect to traditional solutions.