

WARNER VILLAGE METROPOLITAN

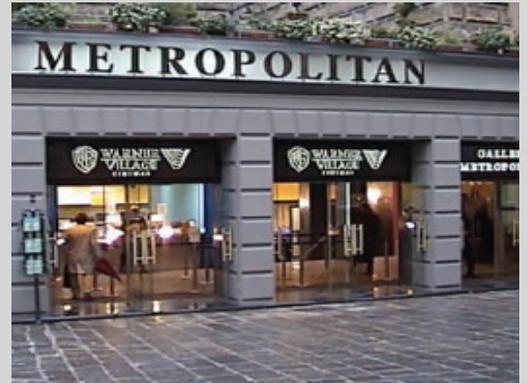
Naples - Italy

Multiplex cinema

7 screens

Multiplex Clima Solution, WSHP Edition

2002



The remarkable, historic Metropolitan cinema was built in 1950 in the centre of Naples in underground cavities and caves excavated from the volcanic rock which, in the past, had been used as homes, warehouses and even as an air-raid shelter. Converted in 2002 into a modern multiplex with adjoining gallery of shops, the cinema was taken over in 2009 by the Italian group Martos.

The Challenge

The design engineers were commissioned by one of the world's leading film studios to create a modern multiplex cinema entirely below ground level, at a depth of over 30 metres, under one of the most densely populated city centres, while fully observing the strict laws and regulations in force.

The structure was also to include a small shopping gallery excavated from the passages leading to the cinemas as well as offices for staff, of course.

The large number of obstacles that had to be overcome appeared insurmountable.

The mechanical areas which could have been excavated would have been confined and difficult to access.

Fire prevention laws imposed a number of strict limitations on the construction of a central heating unit in those conditions, with the additional ban on emission of combustion products to the outside.

It would also have been necessary to contain all systems within an existing volume, using only the outside space strictly necessary for the fresh air inlets and related outlets.

Finally noise carried to the outside, one of the most prestigious areas in the city centre of Naples, had to be kept to a minimum.



Warner Village Metropolitan – Work in progress in the main cave and view of an auditorium.

The Building

- Underground caves excavated from the volcanic rock.

The Dimensions

- 7 screens
- Over 1,600 seats

The Team

- Client: Warner Village Cinemas, Italy.
- Architectural design by Capaldo International, Italy.
- Systems design by Servizi Integrati / CBS, Italy.
- Systems construction by F.Ili D'Arienzo, Italy.

About Warner Village Cinemas

Set up in 1996 as a joint venture between the two giants Warner Bros International Theatres and Village Roadshow Australia, the Warner Village Cinemas chain pioneered the development of modern European multiplex cinemas, offering innovative architecture, cutting-edge technologies, crowd-puller screenings and many additional services. Warner Village Cinemas was taken over in 2003 by the SBC International Cinemas group in the UK and renamed Vue, while in Italy it was incorporated into the Space Cinema chain.

The Solution

After having discovered the existence of an old well able to ensure a consistent flow of water and having obtained the permits for its use, the design engineer had initially considered a centralised system with water to water heat pumps. This solution was promptly rejected, however, on account of the complexity of constructing and regulating systems for fluids and the positioning of the heat pumps.

The climate control system chosen was therefore of the decentralised all-air type, based on reversible water to air heat pump monobloc units which use water as heat source (water source heat pumps).

The water from the well, with a temperature of 15°C and maximum flow rate of 29 l/s, flows through the sand filter units and is sent to two plate heat exchangers, each of which has a power of 650 kW and provides full standby capability for the other one.

The secondary utility circuit uses circulation pumps with variable flow rate and with constant pressure control on the system, to supply the reversible water to air heat pumps serving the various areas.

The auditoriums use rooftop water to air heat pumps, designed especially for places with high occupancy. Installed in mechanical rooms, they run on electricity and do not require fuel. They provide active thermodynamic energy recovery from the exhaust air, with a dedicated compressor which increases efficiency and reduces the amount of water needed, as well as control of the air quality with integrated CO₂ probe and DC fans with electronic flow control and control of summer humidity by free post-heating with recovery of hot gas.

The climate control system for the multiplex also includes other horizontal, vertical and rooftop water to air heat

pumps for the projection rooms, foyer, offices and refreshments area.

The shops in the gallery are also equipped with water to air heat pumps, horizontal or in cabinet units, supplied by the same secondary hydraulic circuit.

The entire system is controlled by the centralised Clivet supervision system which displays information on comfort in the various areas and on the status of the climate control units and system. It also enables each individual unit to be programmed automatically on the basis of the required conditions and the chosen times of operation.

The Results

The choice of a decentralised and highly specialised system was a decisive factor in the success of the project.

Electric heat pumps do not need a heating unit and are therefore not subject to the related fire prevention procedures and periodic inspections required by law. In addition, they do not generate combustion products.

Construction time was considerably reduced thanks to the significant simplification of the hydraulic systems and the use of compact units containing most of the system components, already tested before shipment.

The particular solution adopted also increased energy efficiency and therefore reduced running costs, at the same time lessening the environmental impact thanks to the use of a renewable heat source.

For further details on Clivet systems
www.clivet.com



Warner Village Metropolitan – view of the Clivet unit installed in a machine room and the Clivet CSNX-H unit.

The System

- 8 rooftop Clivet CSNX-H water to air heat pumps with energy recovery for areas with high occupancy, serving the cinemas.
- 4 Clivet CH, CH-V and rooftop CRH water to air heat pumps for the projection rooms, foyer and refreshments area.
- Over 40 Clivet EVH water to air heat pumps, wall-mounted and ductable, or with WH cabinet unit for the shops and offices.
- Clivet centralised supervision system.

About WSHP

The decentralised water source heat pump climate control system is based on heat pumps whose energy source is disposable water available in the environment, for example from a well, water table, river, lake or the sea.