

Uponor involvement

Redes de calefacción y refrigeración urbana

1,200 'eco-homes' connected to the Vallecas district heating network by the Madrid City Council's EMVS

Transforming a 1950s neighbourhood into a model of energy efficiency.
The San Francisco Javier (1956) and Nuestra Señora de los Ángeles (1958) municipal housing estates, located in the Vallecas district, have undergone a redevelopment programme aimed at building 1,200 VPPA social housing units across 12 developments connected to a centralised District Heating (DH) system for heating and domestic hot water (DHW), and a pneumatic domestic waste collection system (RNRD).

From the DH, hot water generated at a temperature of 65°C is distributed via six independent circuits using the Uponor Ecoflex system to the various developments.





Project Facts:

Location	Completion
Vallecas, Spain	2021
Building Type	Product systems
Multifamily homes	Local Heat Distribution

Partners

Promotora: Empresa Municipal de la Vivienda y Suelo de Madrid (EMVS) del Ayuntamiento de Madrid

Buildings owned by the EMVS (Municipal Housing and Land Company) connected to the district heating network, which meet at least 50% of their hot water requirements using solar energy or high-efficienc

The Madrid Municipal Housing and Land Company (EMVS) explains that ‘‘a high-quality, sustainable and efficient micro-neighbourhood has been created, with people at its heart. It is a project that can clearly be replicated in other areas and neighbourhoods, where the initial conditions may differ, but where the underlying principles and approach can be easily transferred and adapted’’. As for District Heating, they state that ‘‘the centralised DHW and heating system in Las Colonias offers technical and economic advantages over traditional centralised or individual building systems, enabling more efficient management, primary energy savings, a significant reduction in pollutant emissions and, overall, cost savings for the user’’.

All developments connected to the district heating network have an A energy rating, meeting the EMVS’s objective of optimising the building services and thermal envelope to a standard that exceeds regulatory requirements.



EMVS’s consumption data for 2022 confirms a reduction of over 40% in heating consumption compared to the average for a flat in a continental climate, thanks to the buildings’ insulation and ventilation systems, and the ability to meet heating demand through District Heating. ‘‘All EMVS buildings connected to District Heating cover at least 50% of their annual DHW production using solar energy or high-efficiency aerothermal energy,’’ concludes the EMVS.

District Heating currently supplies seven housing developments, comprising a total of 641 homes.

Modern solutions for district heating and cooling and water distribution

Uponor Ecoflex offers an innovative and energy-efficient range of pre-insulated pipes and fittings. These safe and durable systems are suitable for heating, cooling and water distribution. Whether for individual buildings or entire local distribution networks, the system combines excellent heat loss performance with high flexibility and ease of installation.



This solution can be installed in any type of energy system: biomass power stations, gas-fired boilers, heat pumps, heating substations, solar thermal fields, etc.



An example for more ambitious projects

The regeneration of this neighbourhood, covering just 9.00 hectares, has been carried out at a low cost whilst ensuring optimal standards of quality and comfort; it can serve as a model for more ambitious projects that seek to cover entire districts or neighbourhoods.

The heating plant is to supply heating and domestic hot water to 10 housing developments in the Nuestra Señora de Los Ángeles neighbourhood and a further two in the San Francisco Javier neighbourhood, serving a total of 1,198 homes.

Currently, a total of 7 housing developments (NSA01, NSA06, NSA09, NSA11, SFJ5, NSA12 and NSA13) are being serviced,

comprising a total of 641 homes.

It should be noted that all developments connected to the district heating system have an A rating, thereby meeting the EMVS's objective of optimising building installations and thermal performance beyond regulatory requirements.



District Heating Metering

Energy consumption in 2022 stood at 1,599,652 kWh for heating and domestic hot water. These figures represent a significant saving compared to what would have been consumed in a traditional building, and work is continuing to optimise the systems with a view to further improvements in 2023.



> "Las principales ventajas del sistema es que no existe gas ni combustiones en el interior de las viviendas, los vecinos pueden elegir la temperatura y el horario de su calefacción de manera individual, mientras que Uponor Ecoflex permite que en el trasporte del agua se reduzca al mínimo las perdidas de energía"
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> Emilio Gómez-Ortega, responsable de prescripción y proyectos Uponor Iberia