References

Becrux Geothermal Residential Development in the exclusive Retiro district



Uponor involvement

- Climatización Invisible para suelo radiante (frío/calor) Uponor Klett Autofijación | 55 sondas Geo Vertis PEX

Becrux Residential Complex: geothermal energy in the exclusive Retiro district

Uponor's innovation and sustainability project featuring underfloor heating and cooling.

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Grupo IBOSA is the property developer behind this new project in one of Madrid's most exclusive and low-carbon areas. The building follows the renowned modern, striking and elegant architectural style seen in the developer's recent projects. The architectural firm commissioned to design the project was Morph Estudio, in collaboration with IBOSA's in-house architectural team.

Uponor has contributed its 'Invisible Climate Control' underfloor heating and cooling solution, as well as its collection probes for the geothermal system

Project Facts:

Location	Floor space	Completion
Madrid, Spain	7.500 m2	2023
Building Type	**Product systems**	**Number of floors**
Multi storey building	Radiant Heating & Cooling, Ground Energy	85
Project Type		
New building		

Partners

Gestor: Grupo IBOSA

Arquitectura: Morph Estudio

Ingienería: Geoter

Innovative and unique nearly zero-energy homes with distinctive architecture



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Residencial Becrux offers 85 spacious homes with 1 to 4 bedrooms, featuring carefully designed layouts to maximise comfort and make the most of the space in properties ranging from 52 to 245 square metres in floor area.

An organic architectural project, unique in design with gentle, flowing forms, and homes at the cutting edge of innovation, featuring smart home technology in their lighting and security systems.

Furthermore, as this is a cooperative housing project, Grupo IBOSA has made available to members a programme for customising individual improvements, allowing for a high degree of personalisation and making each home unique.

Minimal carbon footprint for a designated low-emission zone
Energy savings, environmental responsibility and comfort are the three commitments made by Grupo IBOSA to the new owners, achieved primarily through its innovative climate control system comprising geothermal energy and underfloor heating and cooling.

This geothermal system, designed by Geoter (a company specialising in geothermal climate control) with Uponor collection probes (Geo Vertis PEX Probe), is based on 55 boreholes 125 metres deep and 300 kW geothermal heat pumps that provide all the thermal energy the building needs with maximum efficiency and minimum consumption.

Héctor Cano, deputy director of Geoter, states that “both during the design phase, with the preparation of plans and

calculations for the underfloor heating system, and during the construction of the building, with the support, technical review and adaptation of the project to the site's requirements, as well as upon completion of the works, commissioning and communication with end customers, our experience with Uponor has been excellent''.

This geothermal system is expected to generate a 35% reduction in CO2 emissions compared to the alternative of installing an aerothermal system in the building. The geothermal system (SPFGeothermal = 3.85) would be 53% more efficient than an aerothermal system (SPFAerothermal = 2.51), according to the IDAE's average seasonal performance figures.

Compared to a heating system based on gas boilers, a 63% reduction in CO2 emissions can be achieved. Whilst the geothermal heat pump would have a ratio of 0.0927 kg CO2/kWh, natural gas would have a ratio of 0.252 kg CO2/kWh.

The installed production system consists of three geothermal heat pumps, each with a capacity of 100 kW, two 4,000-litre tanks for domestic hot water, a 2,000-litre buffer tank and a centralised control system housed in an electrical cabinet. The distribution of heating and cooling to each of the 85 homes is carried out using the Uponor Klett Self-Fixing (heating/cooling) Invisible Underfloor Heating solution.



“We have received constant support and cooperation from start to finish, and we are confident this will continue during the building’s maintenance and support phase following the handover of the homes, just as we have experienced with other residential buildings we have completed in partnership with Uponor”

Héctor Cano, subdirector Geoter

Address

Uponor UK
The Pavilion, Blackmoor Lane,
Watford, WD18 8GA

Phone 01923 381212
E-Mail
customerservice.uk.bfs@georgfischer.com
W www.uponor.com