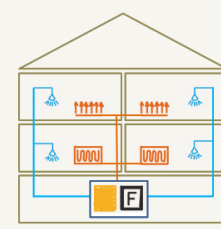


Room with a view, Oostende

In the centre of Ostend, on Belgium's coast, a new building project is being completed. The Waves complex will be made up of four buildings, 'Sea', 'Salt', 'Sand' and 'Sky'. In a special room on top of 'Sea', there is a hybrid air-gas heat source, which will provide heating and sanitary hot water for the 118 flats and commercial spaces below.



F1.5

Key facts

Location	<i>Ostend, Belgium</i>
Construction	<i>ongoing (as of 11.2023)</i>
Heated space	<i>118 flats and commercial spaces</i>
Level of insulation	<i>very good</i>

Heat pump and source

Number of	<i>8 air-to-water hp's</i>
Heat source	<i>air</i>
Model	<i>aroTHERM plus monobloc VWL 125/6A S2</i>
Heating power	<i>8 x 8,5 kW</i>
Type of system	<i>central</i>

Additional heating

Type	<i>5 gas boilers & Oostende town heating network</i>
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Space heating and DHW*

Max. temp. SH**	<i>75 °C</i>
Max. temp. DHW	<i>75 °C</i>
Hot water storage	<i>1,500l + 2,000l</i>

Other information

Coefficient of Performance	<i>5.4</i>
Refrigerant	<i>R290</i>
Costs	<i>~130.000 €</i>

*Domestic Hot Water

** Space Heating



The room atop the 14-story building contains five Vaillant ecoTEC gas condensation boilers, an exhaust duct and two allSTOR plus reservoirs, of 1,500 and 2,000 litres.

The large reservoir is connected to eight air-water aroTHERM plus heat pumps which sit on the roof, outside the building, while the smaller one is connected to the town's heating network. This will allow it to use the waste heat from Ostend's incinerator and industries.

Each resident controls the temperature of his or her flat with a thermostat, while a heat meter records consumption.

During a test visit to several flats, the hot water from the tap immediately reaches the desired temperature. "The system constantly injects a minimum amount of hot water to each floor of the building. This means that when you turn on the tap, you get hot water almost instantly," explains Dennis Vanlandeghem, project manager from installer company Vermote.

In addition, the heat output of the heat source was calculated according to the needs of the fully occupied building. In this way, substantial savings can be made on the total installed power for the production of hot water, and residents are relieved of all worries and enjoy maximum comfort," emphasises Leandro Depaepe, Account Manager for North West Flanders at Vaillant. "In addition, they save space in their often cramped storerooms, because they do not have to install a gas condensing boiler. Finally, not having to install a flue for each flat also saves space for the project.

Room with a view, Oostende



Description of the technical concept

Buffer tanks play an essential role in ensuring that heat pumps and gas boilers work together. The air-to-water heat pumps work at a lower temperature. The return water from the combined loop first passes through the heat pumps' buffer tank. It then flows into the small buffer tank connected to the Vaillant ecoTEC plus wall-mounted gas condensing boilers, where it is heated further if necessary. Vaillant has calculated the size of the buffer tanks to ensure sufficiently long operating times for the heat pumps and boilers.

In addition, Vaillant has a fully modular control system that can be expanded as required. All this ensures that the different energy sources (gas boilers, heat pumps) work together smoothly.



pictures: <https://www.ehpa.org/news-and-resources/publications/heat-pumps-and-high-rise-homes-case-studies-from-across-europe/>