Dublin, Ireland

Hot water heat pumps in an intelligent system

When so much can be done via a phone app, why not apartment services too? This was a developer's thinking when planning a 382 apartment complex in Dublin.

Key facts

Building

Location	*Dublin, Ireland*
Construction	*2020*
Apartments heated	*382*

Heat pump and source

Installed power	*700W (hp) + 1200W immersion*
Operation mode	*Heat pumps, electrical and mechanical modes*
Heat source	*air*
Model	*Edel hot water heat pump*

Heating system

Water temperature	*60 °C*

Other information

Refrigerant	*R290*
Previous heat source	*Gas boilers*
Coefficient of Performance	*3.36 approx.*
App control	*-Visibility of energy use* *-Visibility of water being heated* *-Water temp control* *-Activation of home or holiday mode*

Developer Twinlite wanted to offer tenants an app for all their needs, from signing tenancy agreements, to booking classes at the onsite gym and arranging parcel delivery. They wanted apartment services and utilities to have the same level of connectivity and easy, convenient access as the rest of the building. The other goal was highly efficient, renewable and affordable energy.

To meet these twin aims, Glen Dimplex proposed the Edel hot water heat pump. This would be incorporated into a system featuring direct electric panel heaters, smart electric thermal storage heaters and mechanical ventilation with heat recovery (MVHR).

This solution is ideal for large residential developments as it avoids the overheating often associated with traditional centralised heating systems.

The 200 litre Edel pump, which has an efficiency of over 300%, uses external air delivered through a ducted system to an air source heat pump integrated into a single unit alongside a hot water cylinder.

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

Dublin Ireland, Technical details

Description of the technical concept

The heat pump recovers heat from the external air, which is used to raise the temperature of the water in the cylinder to the standard 60°C.

For space heating, Dimplex XLE Smart Storage Heaters and Q-Rads were chosen. The XLE stores heat using cheaper off-peak electricity and uses a smart function to extract the heat when it is required using an inbuilt fan. Q-Rad direct electric panel heaters supplement this function during the day if the demand requires it. To maximise the comfort levels and provide fresh, ambient air in the apartments, the developers wanted mechanical ventilation with heat recovery (MVHR). A Dimplex Control app allows tenants to manage their heat management system in their apartment and control their energy use.

This solution is not only efficient to run, but affordable in terms of upfront costs and easy to install as it can be fitted by electrical and plumbing contractors rather than requiring specialist installers.

The connectivity across the system also means faults can be diagnosed and localised remotely. Maintenance is minimal and no annual checks are required for this solution. Additionally, it is aesthetically appealing; the MVHR and Edel heat pump can be installed in a service cupboard and there are no visible pipes or pipe entries.