St. Thomas Halls, Belfast, Northern Ireland

New build apartment facility catering for the short-term city rental market. Domestic hot water provided by an air source sanitary hot water heat pump and space heating provided by electric instantaneous panel heaters. The build met the client's requirements, i.e. complied with Building Regulations and provided a low cost hot water and space heating solution.

Key facts

Building

Location	*Belfast, N'Ireland*
Construction	*2017*
Heat distribution	*in building*
Heated area	85*m² living x 17*
Level of insulation	UK n*ew build 2017*

Heat pump and source

No. of heat pumps	17 units
Installed capacity	*1.5kW x 17*
Operation mode	*monoenergetic*
Heat source	air source
Brand and type	Edel by Dimplex
Refrigerant	R290 / 0.15kg
Sound level	40*dB*

Heating system

Heat demand	4kW
Heating temperature	*20°C*

Domestic hot water

Type of system	individual
Max. Temperature	*60°C*
Circulation system	pressurised cylinder
Legionella measures	daily or weekly
Storage size	200 and 270*litres*
No. of storage tanks	17 units
Storage losses	1.61/1.77kWh/24hr
Temperature control	electronic controls

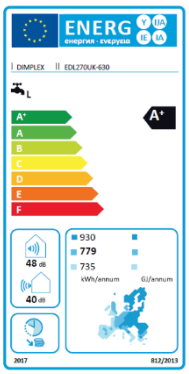
Other information

COP	3.21 /3.24
Electric energy	29050 kWh/yr DHW
DHW consumption	93250 *kWh/yr DHW*
Investments costs	*unknown*

Lessons learned

- User feedback is positive, the solutions provides sufficient hot water and running costs are low.
- Sizing and installation of air ducting was new to the developer for hot water applications.

This new build apartment facility located in Belfast City, Northern Ireland. The building consists of 17 short term apartments aimed at tourism and business people. The developer was conscious of running costs, bill management and Building Regulation requirements. The complete electric solution provided by Glen Dimplex offered affordable running costs and a means of managing space heating and hot water costs within the context of a keypad electricity meter. The Edel hot water heat pump efficiency produced real benefits in UK building modelling and compliance models that resulted in the overall heating scheme producing an overall highly efficient solution.



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Edel hot water heat pump installed in position within the apartment during the construction phase.

Internal air connections within the apartment. Circular ducting 160mm diameter to the Edel unit, air inlet and air outlet connections.

Air connections throughout the building to the external wall. Terminated with standard grills etc.

Description of the technical concept

- *Each new build apartment was fitted with a hot water heat pump to provide sufficient domestic hot water to 17 individual apartments.*
- *The Edel hot water heat pump is available with either a 200l or a 270l hot water storage cylinder.*
- *The heat pump output capacity is 1500W with a 1200W back up immersion heater.*
- *Air ducting connections were installed between the Edel within an airing cupboard and the external walls of the building.*
- *Building regulation compliance was achieved by combining the hot water heat pump with direct electric space heating.*
- *Modern thermal insulation levels resulted in a low space heating load which allowed direct electric space heating panels to comply with Building regulations when using the Edel hot water heat pump for domestic hot water production.*
- *For the property occupants the benefits were a guaranteed supply of hot water and for the building management team, low running costs were welcomed.*

GDC Group Ltd	Edel Air Source Water Heater - Product Fiche	
Reference	EDL200UK-630	EDL270UK-630
Load Profile - Primary	M	L
Energy Rating	A	A
COP	3.21	3.24
Thermostat Setting	55°C	54°C
Sound Level, Indoors [dB]	48	48
Sound Level, Outdoors [dB]	40	40
Average Climatic Conditions		
Average Energy Consumption [kWh]	390	779
Water Heating Efficiency [%]	132	131
Daily Electricity Consumption [kWh]	1.82	3.6