



LOCATION: MANCHESTER



The project

Northwoods Housing provides retirement housing for those over 60. The apartments offer affordable, independent living with security and extra support if needed. Duncan Edwards Court contains one bed ground floor apartments. Previously, the property’s heating system comprised three 80kW conventional cast-iron gas boilers which supplied space heating to the 11 apartments. Each had their own domestic hot water cylinders also fed from the boilers.

PROPERTY

SINGLE STORY ELDERLY RESIDENTS COMPLEX

PREVIOUS FUEL

THREE CAST-IRON NON-CONDENSING BOILERS

TECHNOLOGIES

- HIGH EFFICIENCY BOILER ✓
- SOLAR THERMAL ✓
- GROUND SOURCE HEAT PUMP ✓
- COMMUNAL THERMAL STORE ✓
- HEAT EMITTERS ✓
- HEATING CONTROLS ✓

Specification

An integrated renewables system consisting of a solar thermal array on the roof and two 22kW geoTHERM ground source heat pumps was installed. In addition, an ecoTEC plus 438 boiler provides a back-up and ensures the system is pasteurised weekly, raising the temperature from 56 to 65 degrees for an hour.

The cylinders were removed and replaced with a communal store of 300 litres, reducing the stored capacity by 700 litres. A simple secondary hot water circulation was also fitted throughout the building and insulated.

To effectively monitor the system and reduce the need for call-outs, sensors were installed in each apartment which measure the room’s temperature and feed back to a central monitoring system. A series of new radiators were also fitted (the first serial feed radiators in the UK) which should provide approximately 10.5% savings in energy costs.

Benefits

Monitoring data from the periodic meter readings shows that when the installation is operating, it is deriving substantial benefit from the heat extracted from the ground boreholes. The ground source heat pumps show a low monitored energy use of 8 to 16 kWh per day and 1 to 3 kWh per day for heating and hot water respectively. The amount of heat generated in the previous year was 300,000kW but due to the energy-efficient alterations made to the system—including removing the individual cylinders and fitting communal store—it is now estimated that the building will require only 240,000kW of heat. The yearly running cost is now estimated at £4,500 per year, instead of £9,900 for the previous year – a saving of over 50%.

“We’re extremely pleased with the installation and its performance so far. The success of the project is even starting to serve as a shining example of the benefits of renewable technologies, as we’re now attracting interest from housing associations and councils across the UK who are considering similar measures.” Bernard Turner – Principle Mechanical Engineer, Northwards Housing