Kensa Contracting
A KENSA GROUP COMPANY

CASE STUDY

ROBERT SMITH COURT
REMOVING RESIDENTS' RELIANCE ON AN INEFFICIENT OIL BOILER SYSTEM

CLIENT
Housing 21

Specialists in retirement living and extra care properties.

PROJECT OVERVIEW

Kensa replaced an inefficient and failing communal oil boiler with individual ground source heat pumps installed within each individual flat in a block at Robert Smith Court's retirement community in Norfolk.

Ground source heat pumps currently provide the lowest carbon heat and further reductions in the planned carbon intensity of electricity generation means further savings are expected.

This has given tenants an efficient, sustainable and reliable heating and hot water, which they have complete control over. As well as having a positive impact on their fuel bills, the system is also saving Housing 21 in maintenance costs due to its low lifetime ownership costs, as well as cutting their carbon footprint.

KEY FACTS

- 26 self-contained flats in the block
- Communal areas, resident lounge, hallways, managers office
- Shoebox heat pumps installed
- New hot water cylinders, radiator system and controls
- Replacing failing communal oil-fired boiler system
- 20 boreholes with a combined borehole depth of over 2,600 metres
- Networked Heat Pumps on Shared Ground Loop Arrays.

Housing 21

"Our aim was to be a leading organisation with our sustainability aspirations. The main focus now is ensuring our carbon footprint is managed efficiently and we are investing in new technology for our homes to avoid using fossil fuels where possible."

Ashley Norwood, Property Services Manager within the Asset Management Team at Housing 21

BENEFITS TO TENANTS

- Tenants are now fully in control of their own heating and hot water.
- They all have their own thermostats and time clocks plus TRVs on the radiators. This means they can adjust temperatures to suit more easily and so they are more comfortable.
- Tenants can also switch electricity supplier whenever they want.

ACHIEVEMENTS

- Maintenance costs are reduced for Housing 21.
- Despite fuel costs rising across the board, running costs have reduced for the residents compared to what they were paying for the oil boiler.
- Carbon emissions significantly reduced - by at least 60% which will only increase year-on-year as the electricity grid continues to decarbonise.
- The potential for maximising revenue as the properties are more marketable to let, due to future-proofing with sustainable technology and running cost savings.
- Low lifetime cost of ownership.
- Removal of all local NOx emissions to improve air quality.
- SAP improvements to existing EPC ratings.

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We’re thrilled that all of our 20,000+ properties across the UK have reached an Energy Performance Certificate (EPC) status of C, thanks to the sustainability measures that we introduced to reduce our carbon footprint. We are delighted to have achieved this major milestone eight years ahead of the Government target.

Ashley Norwood, Property Services Manager within the Asset Management Team at Housing 21

PROGRAM OF WORKS

- **Design:** including heat loss calculations, heat pump sizing, radiator sizing, hot water cylinder sizing, borehole design, hydraulic design for remainder of ground array.
- **Installation:** removal of existing heating system, all ground works including boreholes, excavation of trenches, header pipework installation in trenches, backfilling of trenches, reinstatement of ground, riser installation including all core drilling and fire stopping, heat pump installation, hot water cylinder installation, wet central heating system installation with new controls
- **Commissioning**
- **Handover** to residents and to client
- **One year defects liability period**
- **Tenant Liaison and Project management**
- **Funding application support** to Housing 21 for RHI

GROUNDWORKS

The site benefited from flat, open access with ample space for drilling, which mainly took place within grassed areas, although some trenching over the carpark areas, to connect boreholes was required. The ground was made good in areas where drilling and trenching took place, and the boreholes are visually unobtrusive.

CHALLENGES AND SOLUTIONS

- Project was impacted by the Covid pandemic with work having to stop during the various lockdowns.
- Kensa ensured that Housing 21 still receive the Non-Domestic RHI for this project - applying for an extension due to Covid and now submitting the final application

ABOUT GROUND SOURCE HEAT PUMPS

With rising energy costs becoming a mainstream issue, there is a growing need for social housing providers to ensure replacement heating systems deliver the lowest possible running costs.

Ground source heat pumps, as recognised by the Energy Savings Trust, provide the lowest cost heating and hot water solution. They work by burying pipework underground to collect low grade, renewable energy from the ground. The heat pump itself uses the refrigeration process to upgrade this heat to temperatures more useful for space and water heating.

A Kensa ground source heat pump system is designed specifically to provide 100% of the properties heating and domestic hot water needs. It will not rely on any secondary heating or electric immersion back up.

For most retrofit installations, each kilowatt hour of electricity used to run the heat pump generates around three kilowatt hours of heat which means the cost per kilowatt hour is consistent with a new mains gas boiler.