



ENFIELD COUNCIL DELIVERING ENGLAND'S LARGEST DISTRICT GROUND SOURCE SYSTEM

CLIENT

Enfield Council

AWARDS

2019 District Heating Project of the Year (H&V News Awards)



2018 – 24 Housing Awards – Best Green Scheme



Watch the video to take a look at the retrofitting of Kensa Shoebox ground source heat pumps into eight tower blocks in the London Borough of Enfield.

Kensa Contracting delivered England's largest shared ground loop array heat pump system with ENGIE for Enfield Council during 2017/2018, pioneering the installation of the technology in tower block.

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One of the great strengths of Kensa's shared ground loop array system is its flexibility and scalability. This project clearly demonstrates how the concept can be scaled up to large communal systems.

PROJECT OVERVIEW

400 flats over eight tower blocks in the London Borough of Enfield were retrofitted with Kensa Shoebox heat pumps and connected to the largest collection of 'district' arrays of its kind.

The work was completed in under a year and all tenants remained in their flats for the duration of the project. The award-winning heating upgrade has resulted in residents' energy bills reducing by 30-50%.

The Shared Ground Loop Array at Enfield features 16 shared ground loop systems serving the eight tower blocks. Each system typically consists of clusters of seven boreholes serving individual heat pumps installed within the flats of half a tower block.



CASE STUDY:
**TIMELAPSE 1
DISTRICT HEATING
SHOEBOX HEAT
PUMPS & SHARED
GROUND LOOP
ARRAYS**

**ENFIELD
FLATS**

BENEFITS & ACHIEVEMENTS

- Largest shared ground loop GSHP system in England – 400 flats over 8 x 12 storey tower blocks.
- Previous system was electric underfloor heating which was very expensive.
- Tenants heating/hot water bills are reducing from an average £800 per year to an average £350 per year; over 50% savings!
- Combined saving of over £180,000 per year.
- Tenants are now fully in control of their own heating and hot water.
- Tenants can also switch electricity supplier whenever they want.
- Maintenance costs significantly reduced for Enfield Council.

SUSTAINABILITY

- Estimated 773 tonnes of carbon emissions saved per year.
- 20,700 metres of boreholes drilled in 8 months and over 50,000 metres of pipework installed in the ground – providing around two thirds of the heat from the ground for all these flats for at least the next 100 years.
- EPC ratings have improved by an average of 8 points.



CHALLENGES AND SOLUTIONS

The properties at Enfield are classified as general needs accommodation and Kensa Contracting had to work with a range of residents including the elderly, families with young children, those with mental health issues and violent offenders. All of these groups of residents have their own set of challenges. Kensa has learnt that a robust tenant liaison process in partnership with the landlord allows for individual resident needs to be handled well.

The projects are in heavily built-up areas of Greater London. This meant we had to develop rigorous traffic management and delivery plans. This lowered the impact of the works on surrounding areas to a manageable level whilst ensuring emergency services had access to all buildings at all times.

The projects involved a large number of workmen on site, covering all aspects of the job i.e. drilling, trenching, header pipework installation, riser installation and internal installations. It was run to a very tight schedule as there were significant financial penalties to both Engie and Kensa if the project was not completed on time. Kensa appointed sufficient on-site management resource to ensure these deadlines were met.

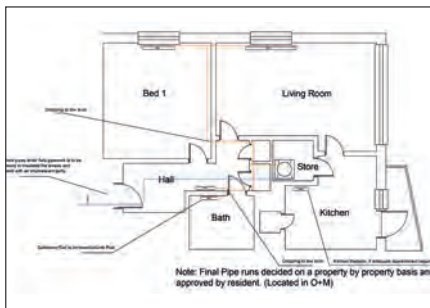
Watch the video to take a look at the initial works for the retrofit installation of Kensa ground source heat pumps at the eight tower blocks at Enfield.





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 Enfield Council for RHI and ECO (where applicable).



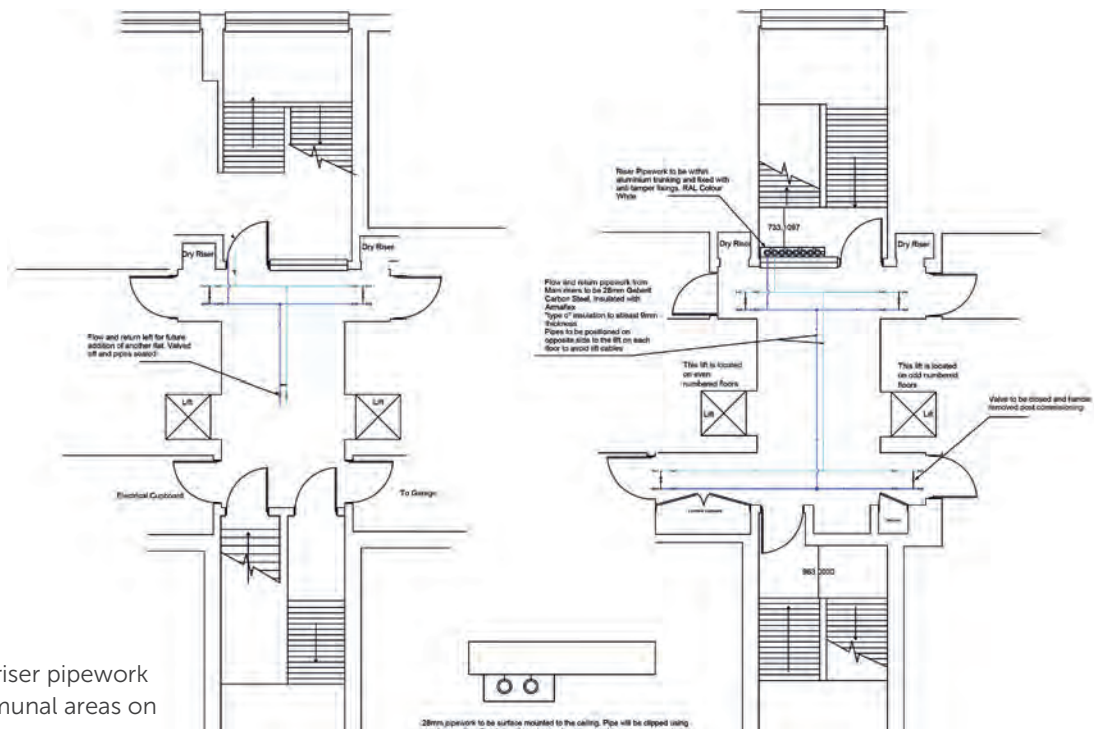
Typical heating system layout in an apartment.



As installed drawing showing the location of the boreholes drilled for four of the tower blocks at the Channel Islands and Kettering Road project.



Kensa Shoebox Ground Source Heat Pump.



Typical lateral riser pipework layout in communal areas on each floor.