

Glen Lodge Extra Care Flats, York Optimisation Study



Summary	
Network name	Glen Lodge Extra Care Flats 1-32
Network owner / operator	City of York Council
Location	Heworth, York
Number of customers	32 one-bed flats, all residential
Heat source	Gas boilers
Total funding awarded	£10,000.00
Optimisation Study delivered by	Horizon Building Services Consultants
Top three recommendations for improvement	• Install a new heat network, compatible with a heat pump array. • Reduce distribution temperatures to improve the operating efficiency of the central boiler plant and reduce distribution losses. • Improve pipe insulation to further reduce distribution losses.

Overview of the Project

Glen Lodge is an extra care scheme owned and run by City of York Council. Situated in the Heworth ward of York, the scheme provides accommodation and care to older council tenants with support needs. The scheme comprises of an original 1960s building containing 32 self-contained flats and a new wing added in 2017 containing a further 25 self-contained flats. In January 2023, a condition survey identified that the communal heat network serving the original building is in a state of deterioration with serious risks to the building's operation. To address these risks, the existing heat network will be replaced with a new network as part of a wider refurbishment project. The new heat network will be designed to be compatible with a heat pump generation source to futureproof the building.

Details of why the project was needed

The existing network serves 32 flats and communal areas within the original building. Estimated annual gas usage for heating and hot water is over 500,000 kWh. In addition, maintenance and repair of the network poses serious challenges due to the presence of asbestos on the ground floor. Heating and domestic water pipework is run together with little separation, presenting health risks such as Legionella.

The network's pipework is in poor condition and is generally inadequately insulated, and the system seems to suffer from aeration and automatic air valve failures. Flow temperatures are also high, exacerbating heat loss. Previous catastrophic failures have occurred and caused considerable inconvenience to residents as well as significant repair costs for City of York Council. A condition survey in January 2023 deemed the distribution network to be at end of life.

Recommendations proposed by the Optimisation Study

Two key recommendations have been identified:

- Work Package 1: The installation of new distribution infrastructure with high quality, well insulated pipework. This would allow for lower flow temperatures, resulting in improved efficiency levels from the gas generated heating and a significant reduction in carbon emissions.
- Work Package 2: Replacing the heat network as part of the wider refurbishment project would maximise cost effectiveness of the disruptive works needed to upgrade the system distribution. The Optimisation Study has enabled the use of specialist consultancy advice to achieve solutions that deliver maximum value for money. The proposed distribution infrastructure would be futureproofed by being designed to be compatible with a heat pump array when the current gas boilers are due for replacement, thereby decarbonising heating for the 32 flats in the older building.

Projected benefits realised from actioning proposed measures

It is estimated that these interventions could annually save 62,928 kWh in gas consumption at a cost saving of £3,699 (based on £0.0588/kWh) and reduce carbon emissions by 13,215 kgCO₂.

The upgrade improvements would deliver warmer and more affordably heated homes for the vulnerable elderly residents to improve health, comfort and wellbeing. The project would also remove the risk of residents being relocated or otherwise inconvenienced by emergency heating works in the future.

Next steps

A contractor was procured through a competitive tender process in autumn 2023, work will start on site May 2024 and is expected to be completed by March 2025.

Quote from heat network owner

"We're extremely grateful to HNES for the funding they provided which gave us the opportunity to fully realise the benefits of installing a new heat pump compatible heating system."

Richard Dixon, Housing Development Officer, City of York Council