

# Site Audit, Elizabeth House



**68 % reduction in network heat losses**



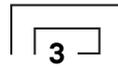
**80% cost saving in pump room energy**



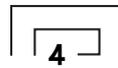
**7.7 p/kWh to 3.8 p/kWh tariff reduction**

## OVERVIEW

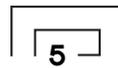
Octavia Housing is a housing association that manages around 5,000 properties in London. Elizabeth House is a 115 dwelling housing development in North West London, with a mix of social housing and private leaseholders. Low Temperature Hot Water is generated by centralised gas boilers and a Combined heat and power, which is supplied to dwellings via a two-pipe heat network. Twin-plate HIUs supply instantaneous hot water and heating via a radiators within the dwellings.



**Estimated billing causing a large debt risk for Octavia**



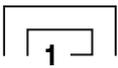
**Elevated heat generation and pumping costs**



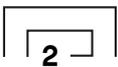
**Potential for standing charge and tariff reduction**

## CHALLENGE

Octavia Housing engaged FairHeat to carry out a site audit of the development due to:



**High levels of resident complaints**



**Overheating of dwelling utility cupboards and communal corridors**

## FAIRHEAT SOLUTION

A site audit and extensive testing and analysis within dwellings and plant room was carried out to determine the root causes of the issues. An options appraisal and trial works were carried out on various interventions to determine their feasibility and cost effectiveness. Several interventions were tabled due to diminishing returns on performance improvement. Design calculations were carried out in order to confirm that installed equipment/ pipework were suitable for the updated network set points and conditions.

The works were split into dwelling works and plant room/network works.

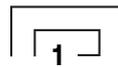
The package of works which was carried out in all apartments:

- Replacement of HIU control valve and actuators to improve control and return temperatures during both hot water draw-off and space heating
- Further insulation installed on the terminal run to the HIU in order to reduce heat loss from this section of pipework and reduce overheating risk
- Redesign of the HIU keep warm strategy for all HIUs across the site, ensuring that excessive opening of valves across the network during zero demand did not occur, elevating return temperatures
- Recommissioning of HIU set points

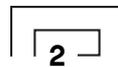
Throughout the dwelling works programme, various issues were discovered for which solutions were realised and enacted without further disruption to the programme or to residents. At a plant room and network level; oversizing, poor control and open network bypasses led to very high plant room energy use and drastically elevated return temperatures; therefore, plant room and network improvement works were undertaken.

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### Implementing a vastly improved plant room control scheme and further control points

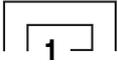


### Changing of plant room flow temperature overnight and in non-heating seasons

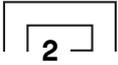


Closing top of riser bypasses and flushing bypasses in dwellings, thus reducing large volumes of high temperature water returning to the network, as instantaneous HIUs provide lower return temperatures than those supply hot water cylinders, which reduces network losses and reduces the risks of overheating.

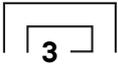
## RESULTS



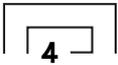
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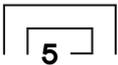
**4 °C reduction in corridor ceiling void temperatures**



**80 % cost saving in pump room energy**



**7.7 p/kWh to 3.8 p/kWh tariff reduction**



**Consultancy Project of the Year Winner at 2016  
ADE Awards**

## CLIENT FEEDBACK

*“Energy and heating can be an invisible cost for social landlords as we take on the role of heat suppliers. This project has helped us to understand how to make our heat networks more efficient, minimise costs for our tenants and support those at risk of fuel poverty. The results at Elizabeth House were impressive, we were delighted with the project and the improvements made. The knowledge gained is incredibly valuable and will be used in the development of new networks and the improvement of existing ones.”*

**Eamon Somers**

*Consultant Development Manager at Octavia Housing*