

Highgate New Town Consultancy Project Brief

Date 17/012022

Background information

Highgate New Town is on Dartmouth Park Hill, Camden N19. The estate was completed around 1979 and consists of 353 residential properties across 10 low rise blocks

The heating of hot water is provided from a gas fired district heating system. The system was fully refurbished in 2015 and completed circa 2017. The work consisted of:

New distribution pipework from the energy centre. Boilers, pumps, controls, buffer vessels, filtration systems etc. The boilers comprised 2 new Hoval Ultragas 1000k and 2 existing Hoval Comas 1200kw.

Within the properties plumbing package units were replaced with Altecnic heat recovery units (HIUs) and new radiators including controls and heat meters were installed. Hot and cold water plumbing services were also renewed.

Problems with the system were encountered by the residents during the installation and after completion. These issues broadly consist of:

Problems encountered:

- Poor or no heating and hot water
- Long wait times for hot water - more prevalent during the summer months when demand for heating was at its lowest.
- Noise from the HIUs actuators
- Reduced flow at the hot and cold water outlets when one or more of the taps are turned on
- No domestic water flow at peak periods

Preliminary investigations highlighted the following issues:

- HIU Strainers continually blocking with detritus. This persisted until September 2021 when a decision was taken to thoroughly flush the system. The data shows this exercise was successful in reducing the incidents of heating and hot water failure due to blocked strainers. However, this is subject to ongoing monitoring by us and our maintenance contractor GEM
- High system pressure recorded at HIUs causing a whistling like sound. There is also some evidence to suggest premature failure of the actuators may have occurred
- The original design is based on a variable flow but appears not to have made any provision for differential pressure control valves. This omission has meant that during periods of low demand (summer months when heating loads are low) the system as struggled to meet the domestic hot water requirements expected.

Improvement works to the heat inter face units:

In order to address the problems with the hot water a package of works to the existing HIUs is currently being carried out and includes:

- Retrofitting fixed 40 kpa differential pressure control valves
- Upgrading of the existing flow turbines
- Switching on the “heat on function”

Additional information:

Problems relating the Hoval Ultragas boilers have meant that 4 heat exchangers have been renewed since 2015 and 1 repaired. Time lines shown below: The manufactures, Hoval boilers have been commissioned to investigate possible cause and report their findings.

2015: 1. Heat exchanger replaced

2020: 1. Heat exchanger repaired

2021: 2. Heat exchangers replaced

Solving the problems for the long term

A holistic approach to resolving these problems is vital if the system is going to provide every home with a fully functioning, reliable hot water and heating service. It is costly, inefficient and – more importantly - damaging to our residents to keep intervening at this level on a responsive basis.

Correcting both deficiencies in design and the full range of operational problems in tandem is central to our approach. The ultimate aim is to get this system operating to a level where only routine maintenance is necessary, and both we and our residents have confidence in this. With this in mind, the outline of the plan for these works is set out below.

Information Source documents provided by the client

- O&M manuals including BMS strategy
- As built drawings
- Maintenance contract
- Maintenance schedules
- Water quality reports
- Method statements relating to the flush completed in September 2021
- Hoval report
- Repairs report for period June-December 2021
- Competency training records

Step 1

Investigate, report and provide recommendations in relation to:

- Building energy management system (BEMS) commissioning set points against actual found on site.
- Comment and recommendations in relation to Hoval ltd failed heat exchanger report
- Current strategy in relation to existing water treatment
- Maintenance regime
- Improvement works to HIUs
- Overview of the system design
- Competency assessment of the engineers engaged to perform the task

Step 2

Build a comprehensive project plan based on the report recommendations.

This plan will included timeframes, works, working party and cross-departmental responsibilities, reporting lines, communications plan (internal and external).

Step 3

Creation of an ongoing monitoring and maintenance programme including a comparison against the current methodology in use and best practice within the industry including KPIs.