CASE STUDY:

Load Test

Return Temperatures reduced by 20 °C

Optimised the network pumps.

Maintained flow temperature

OVERVIEW

Origin Housing in partnership with Hill Group converted the Harrow One, located in Harrow, into a 204-unit mixed tenure residential development.

The developments heat is delivered to dwellings via HIUs, served by a twin pipe (flow and return) heat network. The heat source is via gas CHP and peak boilers located in a standalone on-site plantroom.

CHALLENGE

Origin Housing were experienced significant issues with poor system control, stable temperatures and boiler sequencing post-handover. Origin Housing wanted to make sure their residents would have access to affordable and efficient heating and hot water.

FairHeat was engaged to carry out a system load test, with a focus on:

1

Ensuring the plant room controls are setup correctly

2

Reliable heat delivery and stable temperatures to ensure resident comfort

3

Heat generation equipment (boilers & CHP) working efficiently to provide low carbon

FAIRHEAT SOLUTION

FairHeat has developed a process for a system load test that is proving successful at diagnosing issues, e.g. system control, stabilising temperatures and boiler sequencing, and ensuring remedial measures are carried out prior to the system being handed over.

The FairHeat team carried out the following actions:

- Confirmation of system operation at minimum load (HIUs in standby)
- Assessing total flow vs. HIU demand to ensure that all bypasses that are not required as per the design are closed
- Confirmation of dynamic operation from design minimum load to peak load. This test assesses the sequencing of plant and the stable delivery of temperatures under a fluctuating load.
- Verification of low return temperatures throughout all load cases.
- 100% witnessing of all BMS points (with tabulated confirmation of each against the BMS points list)

As a result of the system load test, FairHeat:

1

Identified an open bypass on the network which was impacting return temperature

2

Identified that cold water pumps weren't commissioned properly and therefore couldn't work efficiently meet peak cold water demand

3

Identified an uncontrolled bypass through the dosing pot across the pumps

4

Identified a design issue which was impacting heat delivery to the highest points of the heat network.

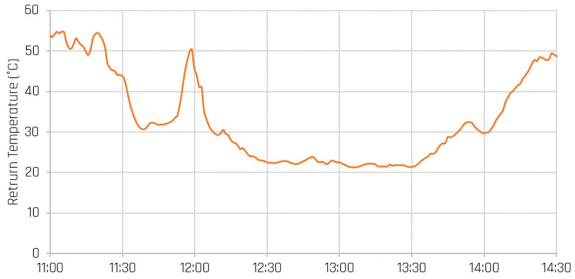
5

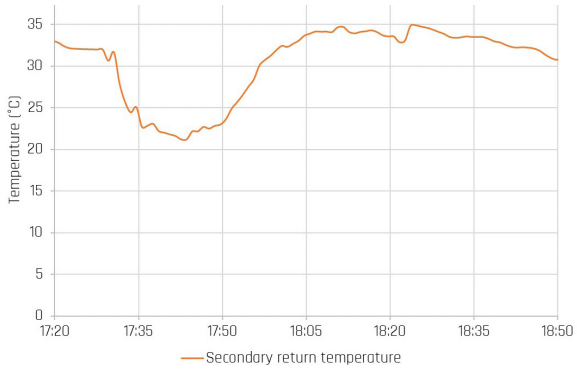
Proved that the network had been so well commissioned that the proposed controls strategy was no longer suitable. FairHeat advised on optimizing controls for a more efficient network.

RESULTS

1

As a result of the bypass being closed FairHeat was able to achieve a 20C reduction. Return temps are currently c30-33C during standby

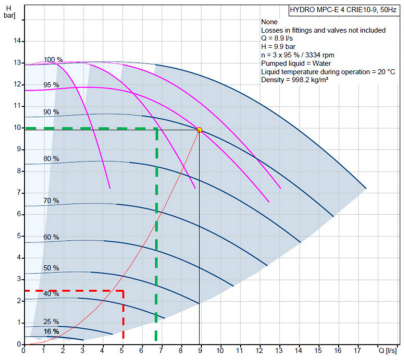




Network bypass before and after

2

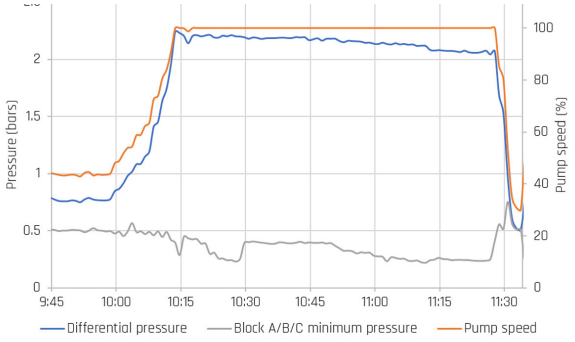
Cold water pumps were recommissioned properly and work efficiently.

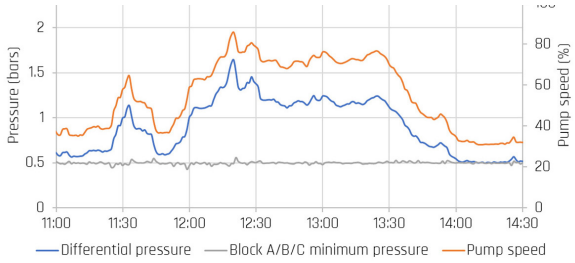


Cold water pump before and after

3

Contractor commissioned dosing pot flow control valve which optimised the network pumps





Pumps before and after

4

As a result of the advice FairHeat gave on optimising controls the plant room is able to maintain the flow temperature with increasing network demand