Site Visit Report

Date: 21/12/2016

Case: 5929

Contractor: [redacted]

Site: [redacted]

Contact: [redacted]

Reason for Visit:

Site visit to investigate reported issues of lack of hot water when running shower or multiple taps in apartments.

Findings / Work carried out:

Arrived on site at 08:00hrs met with [redacted]

Apartment 237

Set IHTP hot water temperature control valve to correct setting (see comments section) to give 50°
Heating circuit off.

Kitchen sink only

Primary flow temp = 68 to 71°
Primary return temp = 22 to 20° (after tap running for 1 minute)
Primary flow rate = 0.340 to 0.360m³/h
Energy production = 11.432 to 15.951kW
Differential pressure (measured with Commdronic manometer) = 22.52 to 23.56kpa.
Tap temperature = 50 to 51.9° tap run for 5 minutes with no drop in temperature.
Tap flow rate = 7L/m (litres per minute)

Kitchen tap and bathroom basin tap running at same time

Primary flow temp = 67 to 69°
Primary return temp = 19 to 16° (after taps running for 1 minute)
Primary flow rate = 0.521 to 0.538m³/h
Energy production = 29.234 to 31.322kW
Differential pressure = 17.82 to 21.74kpa
Tap temperatures
Kitchen sink = 44.1° Tap flow rate = 6L/m
Bathroom basin = 43.8° Tap flow rate = 9L/m
Taps maintained constant temperature while both running for 5 minutes

Bathroom shower

Primary flow rate = 68 to 71°
Primary return temperature = 19 to 16° (after shower running for 1 minute)
Primary flow rate = 0.456 to 0.521m³/h
Energy production = 17.32 to 28.98kW
Differential pressure = 16.98 to 21.23kpa
Shower temperature = 36 to 39° (flow rate = 12L/m)
Shower managed to maintain 37° while running for 5 minutes (mixer set to max on shower)

Apartment 338

Set IHTP hot water temperature control valve to correct setting (see comments section) to give 50°
Heating circuit on.

Kitchen sink only

Primary flow temp = 68 to 70°
Primary return temp = 20 to 19° (after tap running for 1 minute)
Primary flow rate = 0.324 to 0.402m³/h
Energy production = 15.235 to 20.13kW
Differential pressure (measured with Commdronic manometer) = 22.52 to 23.56kpa.
Tap temperature = 47.5 to 49.8° tap run for 5 minutes with no drop in temperature.
Tap flow rate = 9L/m (litres per minute)

Findings / Works Carried Out Continued:

Apartment 338 Continued

Kitchen tap and bathroom basin tap running at same time

Primary flow temp = 67 to 69°
Primary return temp = 19 to 16° (after taps running for 1 minute)
Primary flow rate = 0.320 to 0.617m³/h
Energy production = 24.234 to 31.322kW
Differential pressure = 21.45 to 26.74kpa
Tap temperatures
Kitchen sink = 46.4° Tap flow rate = 8L/m
Bathroom basin = 45.7° Tap flow rate = 9L/m
Taps maintained constant temperature while both running for 5 minutes.

Bathroom shower

Primary flow rate = 68 to 71°
Primary return temperature = 19 to 15° (after shower running for 1 minute)
Primary flow rate = 0.341 to 609m³/h
Energy production = 16.56 to 31.18kW
Differential pressure = 18.76 to 23.49kpa
Shower temperature = 36 to 44° (flow rate = 10L/m)
Shower managed to maintain 44° while running for 5 minutes (mixer set to max on shower)

Apartment 337

Set IHTP hot water temperature control valve to correct setting (see comments section) to give 50°
Heating circuit on.

Kitchen sink only

Primary flow temp = 68 to 70°
Primary return temp = 20 to 19° (after tap running for 1 minute)
Primary flow rate = 0.461 to 0.475m³/h
Energy production = 19.235 to 26.188kW
Differential pressure (measured with Commdronic manometer) = 11.54 to 18.34kpa.
Tap temperature = 48.2 to 49.8° tap run for 5 minutes with no drop in temperature.
Tap flow rate = 10L/m (litres per minute)

Kitchen tap and bathroom basin tap running at same time

Primary flow temp = 67 to 69°
Primary return temp = 19 to 15° (after taps running for 1 minute)
Primary flow rate = 0.533 to 0.549m³/h
Energy production = 26.234 to 32.214kW
Differential pressure = 11.42 to 15.2kpa
Tap temperatures
Kitchen sink = 37° Tap flow rate = 9L/m
Bathroom basin = 37.7° Tap flow rate = 9L/m
Taps maintained constant temperature while both running for 5 minutes but as can be seen from the above readings when both taps running temperature dropped by approximately 10°

Bathroom shower

Primary flow rate = 68 to 70°
Primary return temperature = 19 to 15° (after shower running for 1 minute)
Primary flow rate = 0.467 to 0.564m³/h
Energy production = 20.32 to 32.98kW
Differential pressure = 12.76 to 16.78kpa
Shower temperature = 36 to 39° (flow rate = 12L/m)
Shower managed to maintain 38° while running for 5 minutes (mixer set to max on shower)

End of tests please see comments section.

Continued on next page:

Comments

It would appear from comments made by apartment occupiers that the issues of hot water production have improved since a new primary system pump has been installed.
This pump would appear to be a fixed speed pump. This pump has replaced one of the original variable speed pumps.
The other primary pump is still the original variable speed pump, it is not apparent if both of these pumps are running at the same time, however looking at the primary flow rate figures obtained the flow rates do appear to be ramping up and down depending on hot water demand.

The IHTP hot water temperature control valve in the apartments visited have been set to maximum therefore trying to keep the hot water HEX plate primed to 64°.
This contrary to the training carried out to Danny (R & H Building services) when setting up the energy metering system.

It is recommended that ALL interface units are checked to ensure that the IHTP hot water temperature control valve is correctly set.
Have demonstrated to [redacted] how these should be set.

1. Turn IHTP temperature controller fully anticlockwise (minimum setting)
2. Look to see position of indicator nipple on side of plastic adjuster.
3. Turn plastic adjuster 2 complete turns (approximate 50° setting)
4. Run hot tap in kitchen sink for 1 minute prior to taking temperature
5. Check hot water temperature
6. Adjust IHTP clockwise to increase temperature or anticlockwise to decrease temperature.
7. When adjusting temperature please wait for up to 1 minute prior to retaking temperature at the tap.

The flow rates from the taps and showers should also be checked against the original design criteria to ensure that there is not excessive flow.

It would also appear that there are DRV's (double regulation valves) installed in the risers these should not have been installed on a variable volume system. These should be set to fully open (or completely removed)

The flushing bypasses above the interface units on the 3 apartments visited were in the closed position (correct setting) but it is recommended that all are checked to ensure they are closed. The primary system should also be checked to make sure that the are no other bypasses open.
There would appear to be a primary system pressure transducer installed on at the top of the riser however [redacted] stated that this has been disconnected.

The differential pressure readings obtained in the 3 apartments are very low SAV-SYSTEMS would normally recommend that there is 50kPA differential pressure available across the primary flow and returns to each interface unit.

This setting is normally checked at the index interface unit (furthest from plantroom) a hot tap should be run preferably the bath or shower and the available differential pressure recorded (50kpa recommended, 35kpa as an absolute minimum). Leave tap running in this apartment.

Go to a random sample of apartments on other floors (5 or 6 apartments per floor) run hot tap (bath / shower) in those apartments, leave running. Return to the index interface unit and record the differential pressure, if the available differential pressure has dropped then the pumps need to be adjusted to achieve the desired 50kpa.

There is no fault with the interface units installed on site, the primary system is currently not able to supply the desired differential pressure which is causing the lack of hot water production.
It would appear that the issues are worse at peak times 6 to 8:30 in mornings and 6 to 9 in the evenings

Site Visit Report Completed by:
Name: Keith Waller
Position: Site Support


Fire Exit