## THE KEATS SYSTEM

- The ASHPs are the primary source of heating for the property. The 16kW hydrobox provides sufficient heat for the water based UFH and domestic hot water. Anti-Legionella will be satisfied by electrical heating elements to raise the hot water set point to 60C once a week. The gas boiler has been installed as a <u>back-up system only</u>.
- Reverse cycle properties of the ASHPs means they are at least 3:1 times more efficient than gas and electric heating
- Data: Gas boiler is 93% efficient; ASHPs are 332% efficient\*
- ASHPs produce hot water up to 50°C which is sufficient for water based UFH
- ASHP system safeguards the owners against rising costs of fossil fuels and gas prices
- ASHPs offer cleaner energy than gas and enable the heating of the building with renewable energy source. It is illogical to fit a sole gas boiler heating system given Government focus on renewable options and net zero targets and polluting costs of gas
- Given the natural weather in the UK, although there is the option to use the system for cooling, the ASHPs will be used primarily for heating given there are significantly more frequent and longer periods of the year where heating is required than cooling
- Camden Council declared a climate emergency in 2019. Citizens Assembly recommendations included:
  - "Make all new homes carbon zero"
  - *"Make all council properties fossil fuel free"*
  - Endeavour to work towards and fulfil the council's targets as much as possible, even though not required as a listed property

In response to questions re cooling hierarchy – in specifics:

- 1. Using low energy light fittings
- 2. Planting trees extensively in the garden to create shading where possible
- 3. Opening windows for passive ventilation

It is a listed building therefore there are limited modifications we can undertake to the fabric of the building.

## EVIDENTIAL SUPPORT

- From 2030, the government is banning the installation of gas boilers into new properties. We are choosing to comply with this as of today due to the pollution caused by gas
- Comments from HM Govt Heat & Buildings Strategy:
  - To reach Net Zero target in 30 years, and in near term hit fuel poverty targets and emission reduction targets, can achieve this by *"switching high-carbon sources of heat (and cooling) to low-carbon alternatives"*
  - Gas boilers are not preferred form of heating:

- "Aiming to end new and replacement installations of natural gas boilers, including any hydrogen-ready boilers in areas not converting to hydrogen, from 2035"
- Comments from Historic England Energy Efficiency & Historic Buildings report:
  - ASHPs = "the refrigerant can then either heat air to be distributed around the property (air-to-air) or heat water for a conventional low temperature hot water system (air-to-water)"
  - *"External ASHPs can often be placed in locations where they are not visually intrusive, such as along hedge lines"*
  - Installation of UFH "Underfloor heating is usually efficient because it is effectively using the floor as a large low-temperature radiator"
  - Additional internal FCU cabinets in line with guidance "The internal emitter needs to be carefully sited if the internal space has sensitive décor. It can be sited lower where you would expect a conventional radiator to be, and the chassis can be removed and fitted into a decorative wooden or metal enclosure to match the interior"

\* Source: Mitsubishi HoP memo