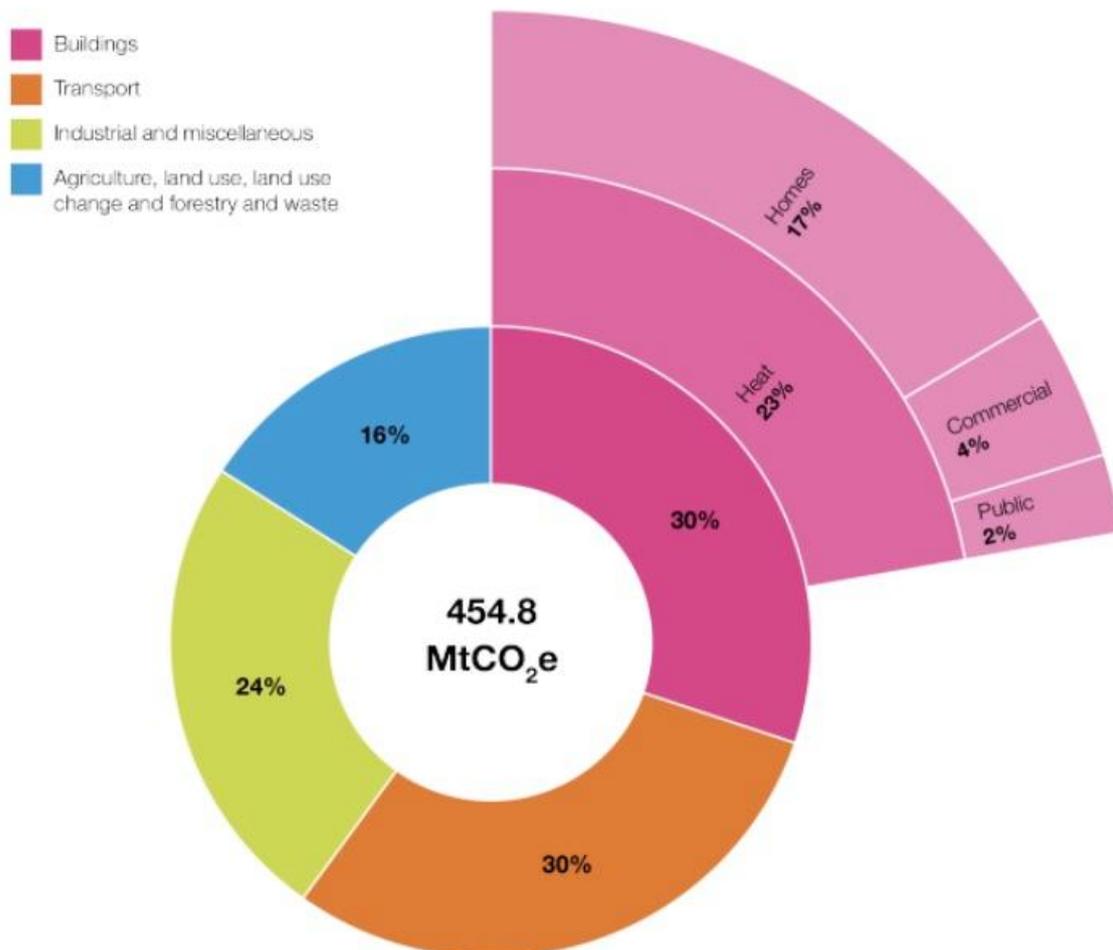


10 The Gardens Deep Thermal Retrofit

With climate change, fuel shortages and price rises becoming an increasing concern, gas and electric has increased 20% in 2021 and is predicted to increase a further 40% in April 2022, our existing and ageing housing stock need to be thermally retrofitted to reduce energy demand. Also, gas boilers will soon be phased out and their replacement heating systems such as heat pumps work on a lower temperature therefore requiring better building fabric insulation and airtightness to hold the heat within the building.



The Brief:

To thermally insulate 10 The Gardens whilst retaining as much of the period features as possible.



It was decided by the owner of this property to insulate and improve airtightness in order to futureproof it for a modern heating system later. This will also improve the comfort for the tenants and reduce their energy bills.

The Build:

Loft

Glass mineral wool 650mm thick was laid between the joist across the whole loft to stop heat escaping into the roof void.

The plywood loft hatch had gasketed stops fitted around the edge of the opening and compression fittings fixed to the door so that it would close and compress onto the gasket to improve airtightness. 72.5mm thick thermal laminated plasterboard PIR was fixed to the rear of the door to insulate it.



Walls

Thermal laminated plasterboard PIR 100mm thick was fixed to the external walls and also the party walls that abutted the external walls to stop thermal bridging in those locations. The boards were fixed using adhesive and nylon screw fixings to stop thermal bridging through the fixings.

Ceilings

100mm thermal laminate plasterboard PIR was fixed to all the bedroom ceilings and the ground floor kitchen ceiling.



Underfloor

The floorboards were lifted on the ground and first floors and 100mm mineral wool batt was compression fitted against the external and party walls between the floor joists. The airbricks were vacuumed of debris to keep the ground floor void ventilated and prevent moisture build up. Solid insulation board 100mm was installed between the ground floor joists under the floorboards with an airtight double taped membrane..



Front door

The existing front and rear bedroom doors were to be retained so all areas of glazing had a sheet of 4mm glass fixed to the rear to create double glazing. The letter box was removed and blocked with a timber infill to stop drafts from there and a mail box installed outside. Brushes and draft excluders were fitted to the door.

Windows

All windows are double glazed throughout and as it is a conservation area the front windows are wooden sash which have been renovated with new brushes and beads.

Airflow

As the airtightness of the building was greatly improved, in order to prevent a build-up of moisture within the building from cooking and showers etc, an extract vent was installed in the bathroom and kitchen.

Heating

A new A rated condensing boiler was fitted to the kitchen cupboard with a boiler plus compliant room stat, most radiators were replaced and all radiators had new TRVs fitted. As the fabric of the building has been greatly improved this has allowed us to set the new boiler to a much lower flow temperature of 45-50 degrees. This allows the boiler to condense properly and work more efficiently using less gas. A new thermostat was also installed adjacent to the kitchen door.

Lighting

All lighting and light bulbs are energy efficient LEDs.

Cooking

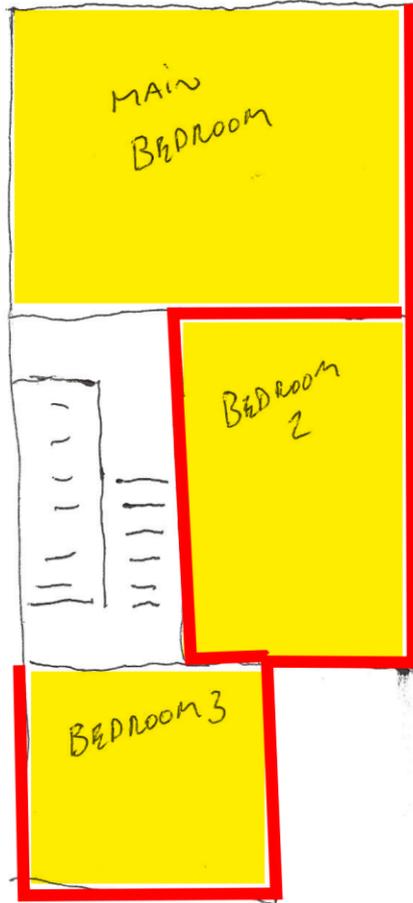
The oven and hob were changed to electric to reduce the use of gas in the property and improve the internal air quality.

10 THE GARDENS

GF



1ST FLR



Underfloor 100mm PIR insulation with airtight membrane and tapes



100mm PIR insulation fixed to ceiling with 650mm of glass mineral wool in loft and 150mm glass mineral wool in ground floor areas.



100mm PIR insulation fixed to walls with airtight tape around windows and doors.