

Georgian terrace: internal wall insulation, draught-proofing, solar thermal, smart hot water cylinder



Overview

Age/Period:	1815, Listed
Type:	3 storey terrace
Years in residence:	3
No. Bedrooms:	4
Wall type:	Ashlar stone
Area:	Larkhall
Status:	Listed, World Heritage Site

Key Features

-  Internal wall insulation
-  Loft insulation
-  Draught-proofing
-  Solar thermal panels
-  Mixergy smart hot water cylinder
-  Energy efficient appliances and lighting

Introduction

Leigh and his family moved into their beautiful traditional Worcester Terrace home in 2019. They been looking for homes for some time and eventually settled on this Georgian terrace as it

needed a lot of work, and it provided them with the opportunity to stamp their mark on the property.

Leigh has a background working for environmental organisations including historically Operation Raleigh and more recently in social housing helping to reduce fuel poverty. He currently works for Qbot which is a specialist robot underfloor insulation installer. Leigh is passionate about the transition to a smarter, greener, more sustainable energy future, and more so now with the recent birth of his daughter.

Their aim was to create a warm sustainable home for their family and as an example to others of how sensitive and appropriate changes can make historic homes more sustainable.

Unfortunately, their plans were slowed by the COVID lockdown, significantly lengthening the planning process for this listed building, and consequently have only recently completed work on their home. Planning was approved in March 2021. They employed Bath based architects Nash Partnership to help them with their extensive planning application.



Features

Solar thermal and Mixergy hot water cylinder

Leigh who has worked in installing solar PV panels in the social housing sector selected solar thermal panels for this home to provide hot water because it was listed and the most obvious unobtrusive location for the panels was in the valley roof where it couldn't be seen. There was not enough space for solar PV to be effective and solar thermal panels are much better at dealing with the heavy shading from the surrounding roofs and chimneys.

Their Mixergy hot water cylinder which is powered for up to 6 months of the year by the solar thermal panels is a new type of smart cylinder which matches its heating of the hot water with your usage patterns and saves up to 40% of the running costs of a traditional cylinder. Their gas boiler heats the cylinder for the remainder of the year.

Draught-proofing

The house has recently been tested for draughts using a new technology called a 'pulse test' which provides a quick way determining exactly how leaky a home is. The answer not unexpectedly was quite leaky! But historic homes are designed and need to be reasonable draughty to avoid becoming too damp and maintain their fabric in good condition.

To reduce the home's draughts the sash windows were repaired and Ventrolla draught-stripping has been installed on the home's sash windows. Brushes are routed into the window frames to eliminate draughts while still allowing the windows to open and close. It provides a long-term draught-proofing solution.

They are also looking at installing multifuel burners in a number of the home's working fireplaces which will provide localised on-demand heating to

the living rooms and further reduce draughts. The remainder of the home is heated using traditional radiators and a modern efficient gas boiler.

Internal Wall Insulation

Internal wall insulation has been installed at the back of the building where the original single leaf walls are quite narrow at 150mm and consequently were poor insulators. 60mm of woodfibre skimmed with lime plaster was installed ensuring that the wall remains breathable reducing the risk of damp, and significantly reducing the heat loss through the walls. This work was carried out before a new kitchen was installed.

The walls at the front of the main house are very thick at between 450mm and 600mm and consequently provide reasonable levels of insulation and so have been left in their original state.

Other insulation

Insulation in the loft has been increased.

Because space under the ground floor is very shallow, underfloor insulation wasn't possible, Envirolay eco-friendly wool underlay has been fitted on top of the floor instead.

Other lifestyle changes

The family now have access to an allotment at the back of their home. They also have an electric car but charging it presents challenges as they have no rear access and the home fronts onto a busy street.

Contacts

Solar thermal:

Mixergy cylinder:

Lime plaster & internal wall insulation::

Ventrolla: