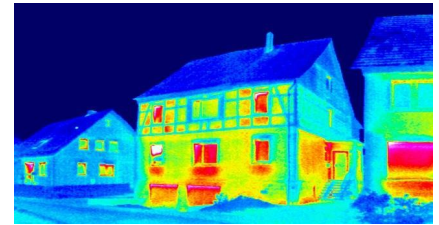


EXPLORING THE OPPORTUNITIES

LOCAL CASE STUDY 3: LOW IMPACT RETROFIT,

18TH CENTURY STONE cottage



PROPERTY	3 bed semi detached stone cottage circa 18th century and new extension
OCCUPIERS/USE	Retired couple
OBJECTIVE	To reduce carbon emissions and energy demand both during construction and in future use
INSTALLATIONS	Super-insulated, timber frame extension Concrete-free foundations and ground floor to extension Replacement triple glazed windows to original cottage Replacement insulated doors to original cottage Hot water supply via 4KW electric shower and 2 x 3KW electric water heaters (1 for basin in bathroom and 1 for sink in kitchen)
ONGOING WORKS	Retrofit insulation (internal wall, floor and loft insulation) and airtightness to original cottage Fit Mechanical Ventilation with Heat Recovery system (MVHR)

The extension.....

The cottage is being retrofitted to achieve Association for Environment Conscious Building (AECB) Retrofit Standard. This standard aims to reduce overall CO2 emissions by 70% compared to UK average emissions for this type of building. The delivered heat and cooling must not exceed 50kWh/m²/ year. Our cottage is 96m², so the annual kWh used should not exceed 4,800. We are actually on target to use a lot less than this.

Draughts are a major source of heat loss, so we are making the cottage very airtight by using airtight membranes for the extension and lime plaster for the original cottage. We are aiming for airtightness of 2 air changes per hour at a pressure of 50 Pascals. This is tested by depressurising the building with a blower door to find any unwanted draughts.

It is important to ventilate a building properly as the airtightness increases. This is what an MVHR does. MVHR provides fresh filtered air into a building whilst retaining most of the energy that has already been used in heating the building

As heating requirements will be so low there will be no primary heating (e.g. central heating) installed. If required, we will use a portable electric heater for additional heating. We also have installed a new efficient 4kW wood burning stove for occasional use. We have installed direct electric heating for domestic hot water to avoid the expense, resource use and embodied energy of a primary heating system.