



PROPERTY CHARACTERISTICS:

PRE-1900 STONE BUILT, SOLID WALL
MID-TERRACE, SIZE:138m²

PREVIOUS FUEL:

PRE-1979 GAS BOILER

TECHNOLOGIES USED:

INTERNAL WALL INSULATION (IWI) ✓

LOCATION: BURNLEY, LANCASHIRE



The project

The Burnley pre-1900, solid wall property is occupied by a retired couple in their mid-sixties. A pre-1979 gas boiler provided primary space and water heating to the home.

The area in which the dwelling is located was part of an ongoing renewal project involving property face-lifts. Consequently, restrictions were placed on any alterations to the exterior including External Wall Insulation (EWI). Thus, Internal Wall Insulation (IWI) was the only option.

Specification

Kingspan Kooltherm® K18 Insulated Plasterboard was mechanically fixed to 25 x 50 mm pre-treated timber battens faced with 100 mm wide damp proof course (DPC) strips, on the external walls. A 92.5mm thickness was selected based upon the space requirements of the property owners.

Please note there is now a new lower-lambda insulated plasterboard available – Kingspan Kooltherm K118 Insulated Plasterboard.

Benefits

In some spots of the lounge, the wall temperature was up to 3 degrees cooler than the ambient temperature before the installation which could lead to condensation if left untreated. Following the installation of IWI, the U-value of the wall decreased by 89% and air-leakage decreased by 57%, this resulted in the mean average indoor air temperature rising by 0.8 degrees to almost identical to the ambient temperature, making the home warmer and more comfortable. The renovation reduced normalised actual gas consumption by 45%, meaning that the occupants saw reduced energy bills. The dramatic 45% saving in primary space heating consumption was more than twice the predicted saving modelled using SAP.

Monthly gas use data taken during the heating seasons revealed a marked change in heating pattern following the insulation upgrade, with both the intensity and duration of gas consumption for space heating events decreasing, particularly in the daytime. A defined bimodal heating pattern emerged post-installation. The use of the thermostat to maintain desired temperature levels resulted in the constant low level of gas use observed in the post-insulation period.

The renovation also had a positive impact on the energy and environmental performance of the dwelling, the building moved up an Energy Performance Certificate band and the Dwellings Emission Rate decreased by 32%, possibly increasing its attractiveness to potential tenants or buyers to whom such performance factors are key considerations.