



CASE STUDY: RETROFIT LOW ENERGY DESIGN



OVERVIEW:

The clients purchased a 3 bedroom semi detached property close to Coventry city centre and want to complete a full 'Retro-fit' renovation before they move in to improve energy efficiency, health wellbeing and comfort.

'Retro-fit' is an approach whereby improvement works are made to an existing building to improve its energy efficiency, making it easier to heat, more able to retain that heat for longer through improvements to windows, doors and wall insulation, and to replace fossil fuels with renewable energy sources. Retrofit targets a 60-80% reduction in total energy consumption to support the UK's net zero ambitions.

CHALLENGE:

Being a semi detached property, there was a design challenge to clad over the top of the existing brick exterior walls and render masonry with a new insulation system while retaining the building's architectural character within the street context.

SOLUTION:

The challenge was achieved by retaining a change of material between the ground and first floor. The client chose timber cladding over brick on the ground floor and a more energy efficient type of render over the existing render first floor walls to retain the street's architectural language. Airtightness has been achieved using Passive Purple intelligent airtight liquid vapour control membrane paint

RESULT:

The project is currently under construction and we can't wait to see the results. The clients have been very keen to research and embrace the use of new technologies such as an underwater water tank for rainwater harvesting, an air sourced heat pump with Photo Voltic panels and MVHR (mechanical ventilation heat recovery) system.

PROJECT BENEFITS:

- **Retrofit reduces carbon emissions up to 75% to help combat climate change**
- **Improve energy efficiency and reduce energy costs**
- **Maintain property's existing architectural character**
- **Enhance health, wellbeing and comfort**
- **Renewable energy sources**
- **Green technologies:**
 - Rainwater harvesting
 - Active design strategy
 - airtightness
 - super insulation
 - triple glazed windows
 - MVHR mechanical ventilation heat recovery