



Case Study

Marstons Hub, Ludlow



Case Study

Project Name

Marstons Hub

Location

Ludlow

Project Type

Residential

Specification

Low Energy





The Project

To meet Connexus' need for a sustainable solution to develop a low energy supported living solution, Lowfield Timber Frames designed a timber system for Marstons Hub that minimises energy impact and facilitates maximum airtightness. The overall aim was to develop sustainability and quality while eradicating fuel poverty and improving residents' health and wellbeing.

This is an excellent example of collaboration between a local authority, developer and specialist contractor. Lowfield Timber Frames translated the architect's designs to create a fully bespoke timber system, applying a fabric first approach that requires minimal energy. The fabric first approach enables comfortable lifestyles for residents while minimising operational costs.

The structure was manufactured by Lowfield Timber Frames using offsite timber frames for the walls, and cassettes for the roof and floors. This system offers high thermal performance and air tightness for maximum energy efficiency.

The guiding principle to this project has been to develop a language that will unify the historic fabric with the newer elements, whilst still retaining their own distinct character.

The Details

11

New build homes

13

Refurbished homes

10,000 sq.ft.

Commercial workspace

1,000 sq.ft.

Community cafe space





Scope of Services

Marstons Hub is a new £1.2 million facility for young people, set within the historic market town of Ludlow, in South Shropshire.

Through careful material selection, the building avoids harmful or toxic pollutants into the atmosphere. The envelope and mechanical services were designed to promote thermal comfort and the whole house ventilation provides sufficient air changes to promote respiratory health. The fenestration is designed to maximise passive solar penetration, without the risk of excessive solar gain.

Lowfield designed a timber system using a 140mm frame with 120mm PIR insulation factory fitted. An additional 50mm PIR was fitted internally to increase the U-value and reduce the thermal bridging, both meeting low energy targets and reducing the needs for costly heating. The project achieved a U-value of 0.14W/m²K for the interior walls and roof.

“The shared flats have become a key part of the Grain Loft journey for many residents, providing the opportunity to develop social skills and for residents to support each other.”

Wendy Bulman, Interim Foyer and Grain Loft Manager



Outcome

The Marstons Hub development required a holistic approach to meet the brief's specification for speed of delivery, safe construction methods and reduced maintenance costs. Lowfield adhered to the ISO9001 quality management system to ensure quality was held throughout this end-to-end process.

Although the project was not required to meet any sustainability codes or certification, there was an aim for betterment of building control regulations, with an emphasis on lowering fuel poverty for tenants, while giving occupants the opportunity to have better management over budgeting. The strategy was to 'super insulate' the envelope and achieve a high level of airtightness, with heat recovery from extract ventilation. The scheme followed Passiv Haus principles, although it was not viable to meet the full standards.

With any supported housing initiative, there are always question marks over long-term viability, due to reliance on revenue funding. The client was realistic about future uncertainties over the funding of the project. On this basis, the scheme was future-proofed so it can easily be reconfigured into other forms of housing, including private-for-sale or rental, with each apartment having its own mains supplies, without complex centralised services. It is hoped however that the success of the project will make it more economically sustainable.

Using timber frame allowed the project to be completed within budget and to a strict deadline. It has allowed for affordable, high quality apartments to be available for young adults to start their independence.



Environmental Impact

As an organic, renewable and carbon neutral material, timber has the lowest CO2 impact of all building materials. While cement is responsible for approximately 50% of the construction industry's CO2 output as a result of its production process and the by-products created during chemical reactions. Timber continuously absorbs CO2, reducing carbon footprint and environmental impact, carbon is then stored in the building for its lifetime. Lowfield Timber Frames is less than 30 miles from Marstons Hub, meaning minimal transport costs and emissions.

Lowfield Timber Frames is less than 30 miles from Marstons Hub, meaning minimal transport costs and emissions. Due to the complex nature of the roof configuration, a combination of partial roof trusses, steel supporting members and engineered I joists were used to form the roof and concealed rainwater gutters. EPC's produced for individual units show that they have an energy efficiency rating of 84% and an Environmental Impact (CO2) rating of 88% on average.



Case Study

Client

Connexus

Main Contractor

SJ Roberts Construction

Architect

K4 Architects



Lowfield Timber Frames,
Marton, Nr Welshpool,
Powys, SY21 8JX

Tel: 01743 891922
Email: enquiries@ltf.uk.com

