Case Study

Callaughtons Ash, Much Wenlock

LOWFIELD
TIMBER FRAMES

Case Study

Project Name

Callaughtons Ash

Location

Much Wenlock

Project Type

Residential

Specification

Passivhaus

Photo Credit: Richard Kiely

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The Project

Commissioned to reduce energy consumption and eradicate local fuel poverty, Callaughtons Ash is a £2 million housing development for South Shropshire Housing Association. Lowfield Timber Frames designed, manufactured and installed a Larsen Truss timber system for the development to reduce build time and maintenance costs while maximising quality and environmental benefits.

Huddled in Much Wenlock's green landscapes, the 820m2 development comprises one, two and three-bedroom homes, including two shared ownership and ten social rentals. Each is designed to offer affordable, environmentally sustainable accommodation for locals. The building palette of healthy and ecological timber materials forms a sustainable system for long-term efficiency that meets Passivhaus standards.

The Callaughton Ash project proves that the combination of a sustainable approach and local skills/materials does not limit design innovation, even when restricted by budget. This scheme could evolve design standards in social housing to improve quality and wellbeing long-term.

The Details

12

Semi Detached Dwellings

0.13

U-Value Achieved

0.6 ach

Airtightness level achieved @50 pascals

Photo Credit: Richard Kiely

Scope of Services

To meet the South Shropshire Housing Association's need for a sustainable solution to develop low-energy housing stock, Lowfield Timber Frames worked with the Architects to develop a timber system for Callaughtons Ash that minimises energy impact and facilitates maximum airtightness.

Our main objective was to meet the overall aim to develop sustainability and quality while eradicating fuel poverty and improving residents' health and wellbeing in the most cost-effective way.

Callaughtons Ash is an exemplary Passivhaus residential scheme that minimises energy consumption and costs, providing affordable homes in Shropshire. As the most stringent energy standard in the world, Passivhaus certification secures economic, environmental and social sustainability. The Callaughtons Ash scheme was officially certified shortly after the build was completed, guaranteeing ultimate performance and certifying that there are no gaps between predicted and actual results – reassuring residents.

"It was clear from the consultations that there was a strong need for affordable housing for local people. The homes will, for the first time in Much Wenlock, provide affordable homes for people with a local connection."

David Turner, Shropshire Councillor for the Much Wenlock Division

Outcome

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 to below £100 per annum for average housing types, which is in line with the housing association's core value: affordable, low-energy accommodation.

The housing association's commitment to developing quality, affordable housing that is sensitively integrated with Much Wenlock's landscape has been clearly demonstrated in this project. Nestled in tranquil woodland scenery, Callaughtons Ash meets the brief's specification for a green backdrop that melds with the picturesque village. This highly sustainable development undertook a successful approach to improve quality of life in rural areas. The natural beauty of timber is highlighted in this highly tailored development for Much Wenlock's residents.

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Photo Credit: Richard Kiely

Environmental Impact

As a 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.

Lowfield Timber Frames specified precision-engineered timber for the design, manufacture and installation of the Larsen Truss system to allow for maximised insulation. Certified timber products minimise carbon footprint (and associated heating costs) when integrated into sustainable building solutions, achieving robust insulation and airtightness. The timber frame and thermally modified hardwood cladding designed for this project promote the housing association's aim for carbon reduction and a cohesive, circular economy in Shropshire.

Lightweight trusses were tacked onto the sheathing to ease the insulation process. The slim, compressed timber web minimises thermal bridging, facilitating reduced heating costs to expand residents' budgets for living costs and other family expenses. The Larsen Truss system offered an economic route to achieving impressive U-values of 0.117 W/m2K for the walls and 0.061 W/m2K for the roof, while also providing support for the cladding system.

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Client

South Shropshire/ Connexus

Main Contractor

SJ Roberts Construction

Architect

Architype

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