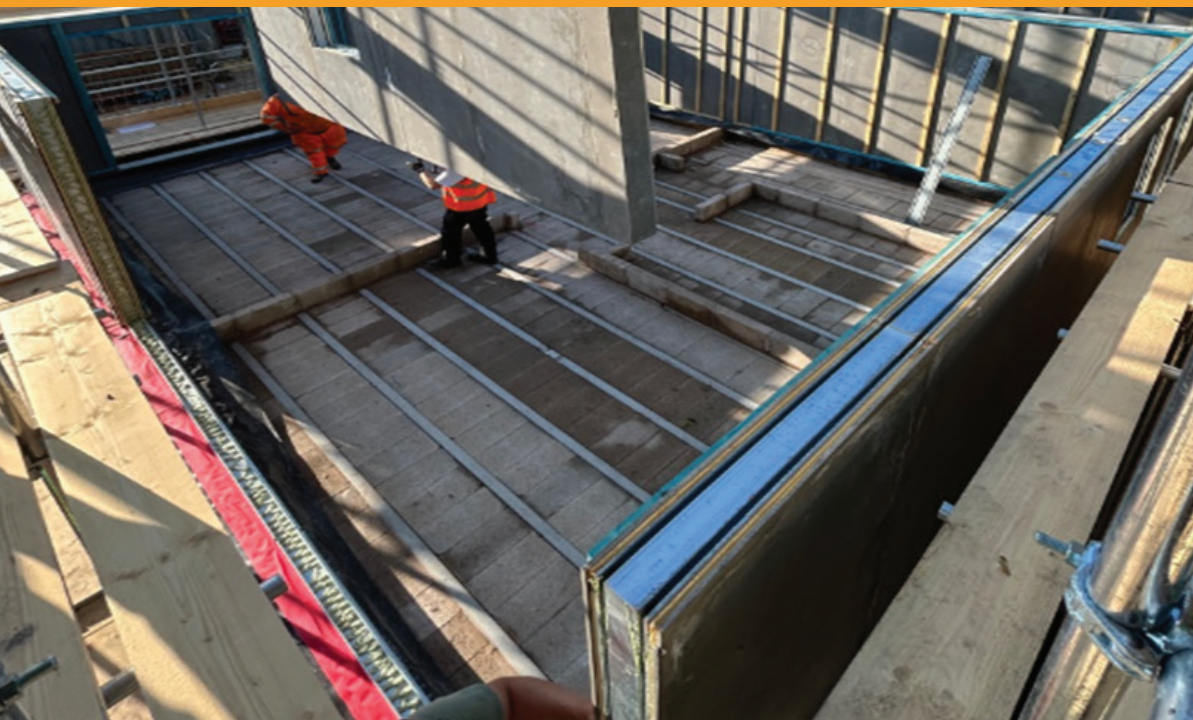


Alder Grove, Lancaster

Four zero-carbon homes built using SIP construction that was delivered 20% more efficiently than traditional construction

CASE STUDY



Alder Grove, Lancaster

Etopia UK

Client and key party information

CLIENT

Lancaster City Council

MAIN CONTRACTOR

Baldwin Building Services

MMC SUPPLIER

Etopia UK (Panelised SIP solution)

ARCHITECT

Mason Gillibrand Architects

PROJECT TYPE

Social rental housing within a sheltered scheme

PROJECT START

Soft start August 2023

EXPECTED COMPLETION

March 2025

Project description

The Alder Grove development in Lancaster is a forward-thinking project delivering four EPC 'A' rated one-bedroom flats, a manager's office, and a community room within the council's sheltered housing scheme. Commissioned by Lancaster City Council, the project replaces a structurally unsafe house with modern, energy-efficient homes designed to support sustainable, low-cost living. This scheme incorporates sustainable design elements, such as solar panels, electric vehicle charging points, and high-performing storage heaters, ensuring compliance with the 2025 Future Homes Standard. Scheduled for completion in March 2025, the project showcases the use of modern methods of construction (MMC) to deliver high-quality, affordable housing aligned with the council's climate and social objectives.



Current site images

Client drivers

- **Energy efficiency and sustainability** – Ensuring homes exceed Future Homes Standards and reduce running costs for residents.
- **Fast and predictable delivery** – The panelised SIP system from Etopia allowed rapid assembly with no deviations from the programme.
- **Minimised disruption** – The development is within an occupied sheltered housing scheme, so reducing on-site activity was a priority.
- **Resilience to site constraints** – Flood risk, restricted access, and ground conditions required an adaptable construction method.

Why was MMC used?



**FASTER BUILD
TIMES**

The Etopia panels were installed in days, significantly reducing the need for on-site construction.



**PANELISED
SIPS ENSURED
PRECISION**

Off-site manufacturing reduced waste, embodied carbon, and water use by 20%.



**PREDICTABLE
TRADE
SEQUENCING**

The uniform nature of panels enabled a structured, disruption-free workflow, avoiding delays.



Methodology

The use of MMC allowed the project to achieve significant efficiencies in both time, cost, and environmental impact.

FACTORY MANUFACTURING

Structural Insulated Panels (SIPs) were manufactured in a controlled factory environment in Ellesmere Port, ensuring precision, minimising defects, and reducing on-site waste by 20%.

ON-SITE ASSEMBLY

Once delivered, the SIPs were craned into place within days, significantly reducing the structural build timeline and minimising disruption to the surrounding sheltered housing community.

SEAMLESS TRADE COORDINATION

The predictability of the SIP panel system enabled a structured, efficient workflow, allowing trades to work to plan without delays or unexpected changes.

ENERGY EFFICIENCY AND SUSTAINABILITY

The homes incorporate solar PV, efficient storage heaters, and Future Homes Standard insulation, ensuring EPC 'A' energy performance and significantly lowering residents' heating costs.

DIGITAL DESIGN AND COLLABORATION

The use of BIM and AutoDesk streamlined design coordination, ensuring integration of MMC elements and existing infrastructure.

The Etopia build section was delivered on time, within budget, and without deviations from the planned programme, demonstrating the efficiency and reliability of MMC in delivering high-quality, sustainable homes.



Challenges

GROUND CONDITIONS

A high water table required a complete redesign of the piling system. The Etopia panels were unaffected, allowing the structure to be delivered without additional delays.

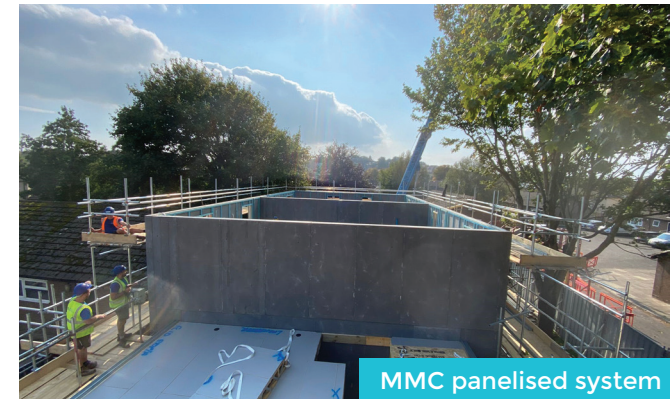
RESTRICTED SITE ACCESS

The project sits within an occupied cul-de-sac, limiting access for materials and trades. MMC reduced on-site vehicle movements and minimised disruption to residents.

INTEGRATION WITH EXISTING INFRASTRUCTURE

Solar panels, EV charging points, and sustainable heating systems had to be incorporated into an older sheltered housing scheme. Early planning ensured seamless compatibility with existing utilities.

Despite these challenges, the Etopia build section ran exactly to programme, often exceeding expected installation times due to the efficiency and ease of working with the SIP panels.



MMC panelised system

OUTCOMES ACHIEVED

EPC 'A' ENERGY PERFORMANCE

Homes are designed to be highly energy-efficient, reducing residents' heating costs.



REDUCED ON-SITE DISRUPTION

Traditional construction would have exacerbated site challenges, while MMC reduced vehicle movements and site impact.



STRONG SUSTAINABILITY PERFORMANCE

20% lower embodied carbon and water usage compared to traditional methods.



RESILIENT TO SITE CHALLENGES

Flood risk, restricted space, and piling challenges were effectively managed without affecting programme delivery.



HIGH CLIENT SATISFACTION

Lancaster City Council has achieved its sustainability and housing goals, setting a precedent for future developments.



Key milestones and metrics

August 2023

Soft start, site preparation and demolition of the existing structure.

December 2023

Piling redesign completed due to ground conditions.

February 2024

Off-site manufacturing of SIPs began, incorporating advanced energy systems.

April 2024

Just-in-time delivery and rapid on-site assembly of the SIP panels.

July 2024

Roofing, cladding, and external works to be completed.

September 2024

Internal fit-out, installation of solar panels, and final heating systems.

March 2025

Final quality inspections, handover, and project completion.

The project highlights the potential for innovative construction methods to deliver energy-efficient, affordable homes while addressing both environmental and community needs.

