



TRANSFORMING
HOW WE BUILD HOMES

Advanced Industrialized Methods for Construction of Homes

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Irish House Builders Conference

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**INDUSTRIAL
STRATEGY**



**UK Research
and Innovation**

Project & Partners



**£6.2M 3 YEAR
PROJECT WITH £4M
IUK FUNDING**



**FOUR KEY
INDUSTRY PARTNERS**



**TWO RESEARCH &
INNOVATION PARTNERS**



Our ambition

To deliver modern methods of construction (MMC), using panelized offsite systems (OSM) that are cost neutral, higher quality, faster, safer, robust and more productive than traditional masonry methods of construction.

DIGITAL WORKING AND STANDARDISATION



OFF SITE MANUFACTURING & INTEGRATED SUPPLIERS



ON SITE LEAN ASSEMBLY & MONITORING



HOMES FOR SALE OR RENT



Tangible benefits



MMC and panelised OSM for same cost as masonry, that is faster, more productive, safer and higher quality

- ✓ Improve build quality
- ✓ Improve HSE
- ✓ More attractive careers
- ✓ Reduce time to build
- ✓ Increase productivity
- ✓ De-risk construction
- ✓ Improve predictability
- ✓ Reduce waste time and materials
- 4 ✓ Increase PMV

KPI	MMC compared with traditional
Cost	Equal or cheaper
Time	Half the time to build
Quality	¼ of the cost of defects
PMV	Increase from 5% to 30%



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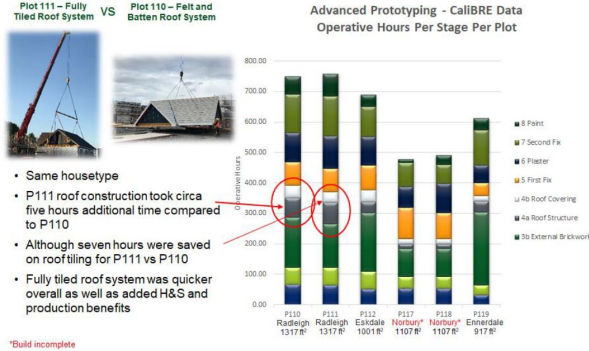


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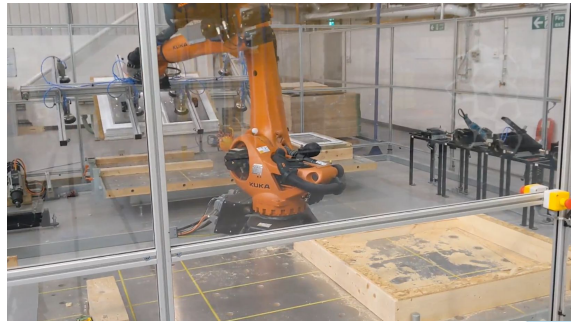
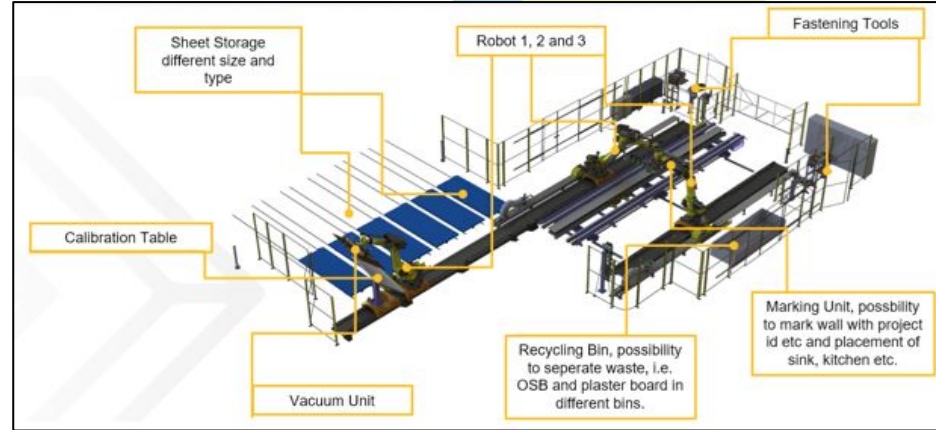
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Monitoring, Prototyping & Scaling up Panelised MMC

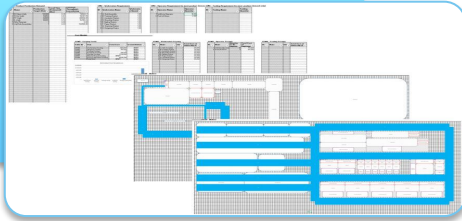


Advanced Manufacturing – Robotics & Automation



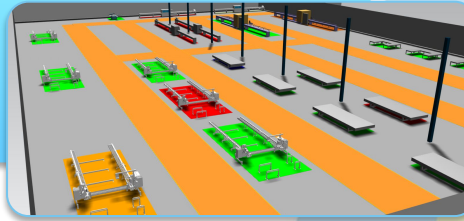
MMC Future Factory Blueprint

Mathematical Modelling



- ❑ A factory specification and associated visual layout of the proposed factory
- ❑ Illustrate the access and usability of modelling techniques for factory planning without specialist software

Discrete Event Simulation (DES)



- ❑ 2D factory **analysis** using a structured data sets & planning to highlight system process & interactions **KPI's**
- ❑ Planned and analysed factory specification to be presented as a **3D final factory design**
- ❑ **Visual 3D** factory to understand and communicate the factory design

Revit 3D Factory Flythrough



- ❑ Illustrated a greater level of detail the factory unit & surrounding service areas
- ❑ Created an **animated fly-through** to bring the design to life

Design Standardization & DFMA

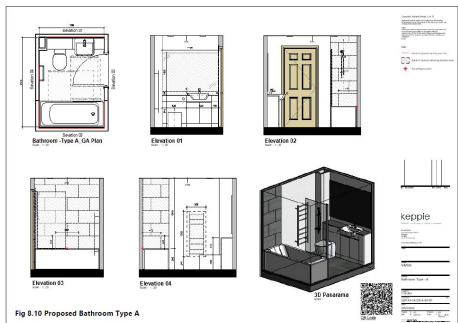
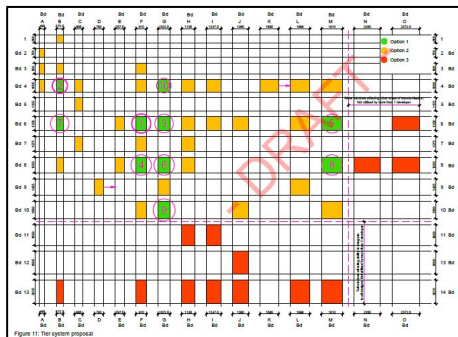


Design Standardization & Product Families



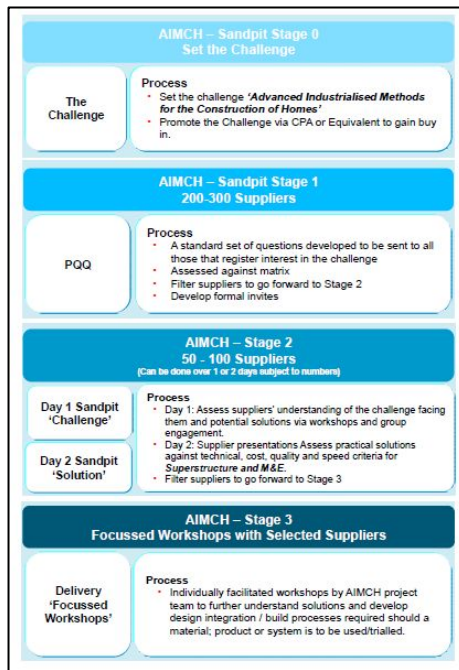
DFMA Guide to Timber Panelized MMC Systems

Future Industrialized Housing Pattern Book



Standardization & Product Families

Standardization opportunities – wet rooms, stairs, windows/doors & service systems
Recommended sub assemblies & components
Dimensional standardization and guidance



Supplier Sandpits

Challenge opportunities
Supplier selections
Collaborative procurement approaches



Future Housing Range

BIM enabled 3D modelled
DFMA friendly
Design Standardization
Product Families - sub assemblies



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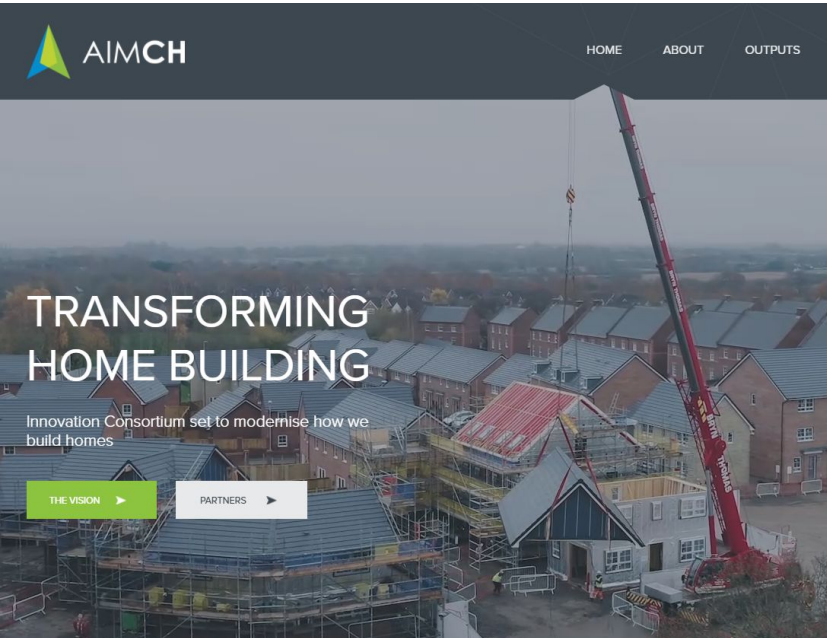
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UK Research and Innovation

Dissemination - Engaging industry





AIMCH


HOME ABOUT OUTPUTS

TRANSFORMING HOME BUILDING

Innovation Consortium set to modernise how we build homes

THE VISION PARTNERS


OUTPUTS



DFMA GUIDE TO TIMBER PANELISED MMC

DFMA (Design for Manufacture and Assembly) is an important consideration to optimise and maximise the use of panelised MMC systems. DFMA is an


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DESIGN STANDARDISATION AND PRODUCT FAMILIES

Standardisation is critical to an effective industrialised housing approach. The automotive industry has shown how standardisation can be


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GUIDE TO CREATING A BIM HOUSING MANUAL


Building Information Modelling (BIM) is a process which can bring benefits to any housing development. It brings new challenges to the way we

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DESIGNING A FUTURE FACTORY

As AIMCH partners, Stewart Milne Group (SMG) and The Manufacturing Technology Centre (MTC) collaborated to test modelling technology used in



ADVANCED MMC PROTOTYPING – MODULAR ROOF INSTALLATION

AIMCH is transforming how we build homes. The projects ambition is to scale up and deliver modern methods of construction



ADVANCED MMC PROTOTYPING

AIMCH is transforming how we build homes. The projects ambition is to scale up and deliver modern methods of construction (MMC), using panelised



**TRANSFORMING
HOW WE BUILD HOMES**

