Apprenticeship in MMC & other adventures in industrialised construction education

MMC IRELAND NATIONAL CONFERENCE

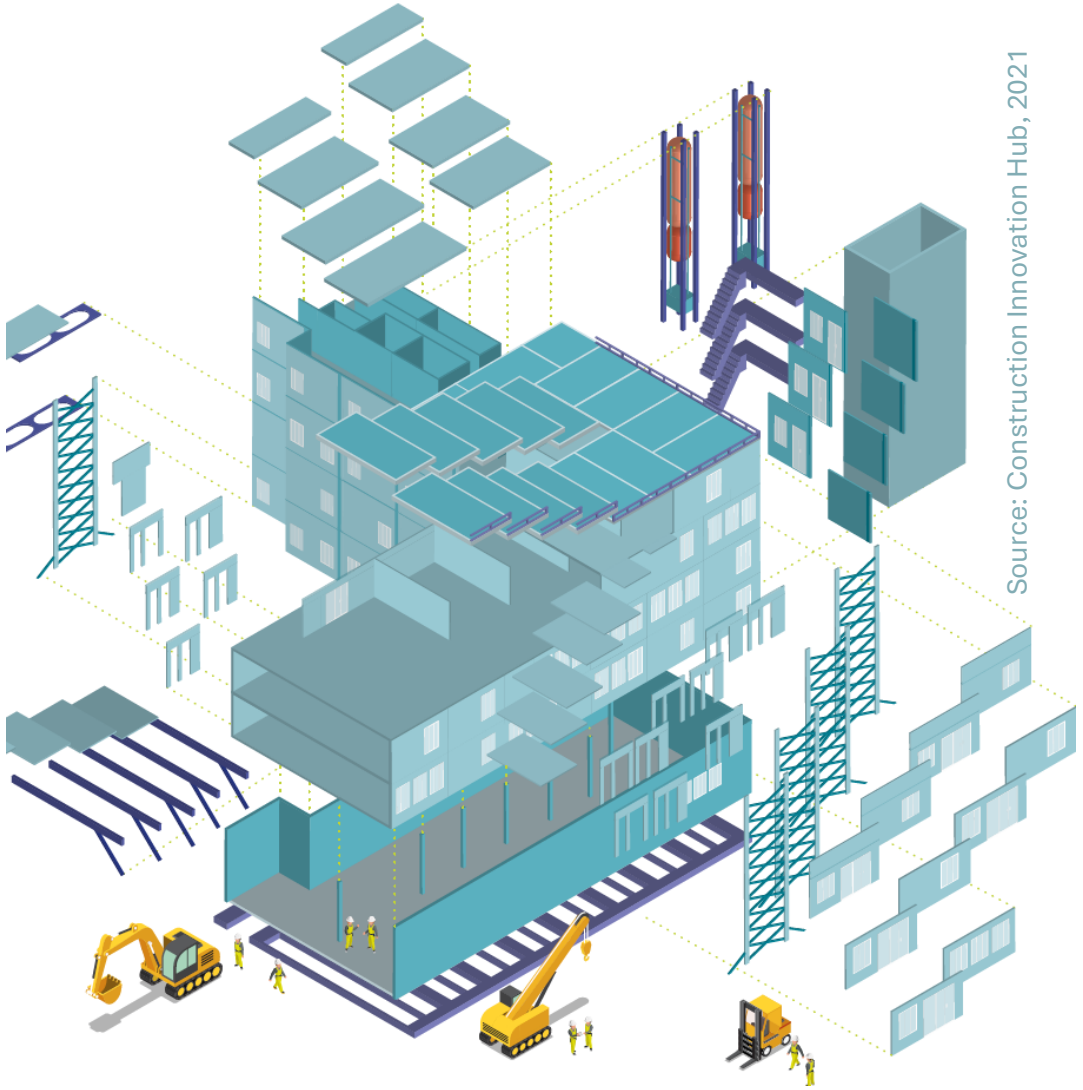
MOUNT LUCAS National Construction Training Centre

Ionad Náisiúnta Oiliúna Foirgníochta

loetb

OLLSCOIL TEICNEOLAÍOCHTA BHAILE ÁTHA CLIATH

TU DUBLIN TECHNOLOGICAL UNIVERSITY DUBLIN

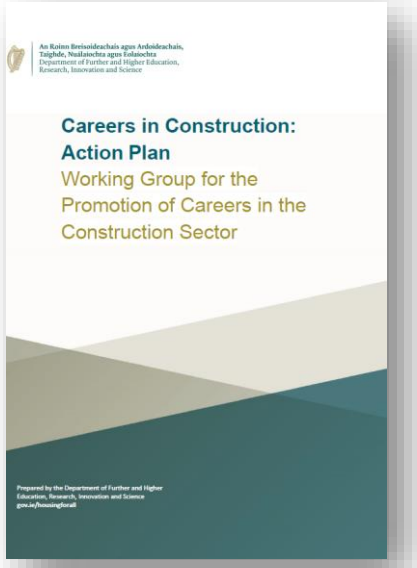


Source: Construction Innovation Hub, 2021

Joseph Little, Head of Construction, TU Dublin

12th March 2025, The Johnstown Estate, Co. Meath

National need, (up)skilling, education & apprenticeship



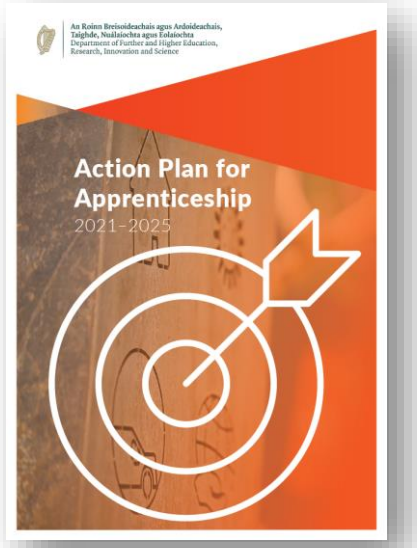
Aug 2023

To deliver the Government's targets in housing & … retrofitting and … engage in … repair and maintenance, it is estimated that **50,831 new entrants** will have to be recruited in managerial, professional, skilled, and semi-skilled occupations over … 2023-2030.

These new entrants may be a combination of workers currently employed in the industry … seeking to upskill, or jobseekers.

Of these, providing a sufficient number of **new entrants in the craft skills (30,000)** poses the most serious challenge.

DFHERIS



Apr 2021

Apprenticeship learning **provides business sectors with a platform to lead in the design and delivery** of new programmes, **in partnership with an education provider**, that accurately reflect their future skills needs.

Mid-West Regional Skills Forum

Greater participation by enterprise, particularly SMEs, in the apprenticeship programme will **strengthen the enterprise skills base at regional level, increasing enterprise resilience** and contribution to economic development.

Enterprise Ireland

Skills for MMC - key recommendations – EGFSN report (2024)

Skills for Modern Methods of Construction

An Assessment of the Current and Future Skills Requirements for the Transition to Modern Methods of Construction

Ernst & Young (EY) for Expert Group of Future Skills Needs (EGFSN)
July 2024

3.1 Promotion of an 'MMC Integrator' role by industry to ensure coordination across the supply chain, including site configuration, to optimise knowledge sharing and efficiently and effectively utilise MMC inputs

3.3 Career pathways from traditional construction to offsite manufacturing need to be promoted to retain and attract labour within the construction sector and boost site knowledge within manufacturing facilities

6.1 Investigate the incorporation of MMC and offsite processes into all construction related curricula at third level education. This should include learnings from across the supply chain, including the need for early planning and design freezes

8.2 A new (and shorter) apprenticeship for offsite manufacturing should be developed to allow for a greater focus on new and existing technologies by integrating computer and data science

8.3 Training providers should acknowledge computer literacy barriers when providing online training courses to encourage greater participation

8.5 Encourage the inclusion of MMC specialist modules in construction course content in further and higher education settings as well as the necessary transversal skills to support the embedding of MMC practices.

Skills for MMC - key recommendations – EGFSN report (2024)

Skills for Modern Methods of Construction

An Assessment of the Current and Future Skills Requirements for the Transition to Modern Methods of Construction

Ernst & Young (EY) for Expert Group of Future Skills Needs (EGFSN)
July 2024

> A dedicated **apprenticeship for MMC** could boost the profile of this area of the industry. A shorter apprenticeship option should be considered to encourage new entrants to maintain domestic careers.
>
> The duration of the apprenticeship would need consideration by training providers and industry to **strike the right balance** between adequate learnings and labour retention.
>
> It is noted that the LOETB and TU Dublin are **building a consortium** of industry leaders, educational institutions, and government agencies to develop a suite of MMC programmes…

Consortium & Consortium Steering Group Members – Oct. to March 2025

Current membership of Consortium Steering Group

Associations

MMC IRELAND

Smart off-site Association

CONSTRUCTION INDUSTRY FEDERATION

NATIONAL APPRENTICESHIP OFFICE GENERATION APPRENTICESHIP

Businesses

General building
Timber frame
Light gauge steel
Modular / volumetric
3D printing
Reinforcing
Consulting
Building Services

CAIRN PLC

King & Moffatt BUILDING SERVICES

NUA A Glenveagh Company

CLERKIN CONSULTING LTD.

VOLUMETRIC BUILDING COMPANIES

Glenveagh Home of the new.

VISIONBUILT BUILDING THE FUTURE. OFFSITE.

BUILDERS SISK CONTRACTORS Established 1859

MIDLAND STEEL

CASTLE GROUP MODULAR

ktf HOUSING

HTL .TECH

Wider engagement - Building the Consortium

Actively seeking more members!!

ITFMA

DESIGNER GROUP

wavin

walls

MEDITE SMARTPLY

AUTODESK

PAUL

Kingspan

Rhatigan

TOPCON

CHADWICKS GROUP

NSAI

Jones Engineering

collen 200 building excellence since 1810

remagin IRELAND

MERCURY

ETHOS

Pre-Application workshop of Consortium Steering Group Members, Grangegorman, 21/02/25

MMC FUNDAMENTALS
MAY INCLUDE MMC CATEGORIES, HOUSING NEED, SUSTAINABILITY, CARBON & LIFECYCLE, CIRCULARITY, DIGITAL, INDUSTRY 4.0, LEAN, DfMA, CONTRACTS, BREGS COMPLIANCE, SAFETY

DIGITAL DESIGN & TECHNOLOGIES
(MAY INCLUDE BIM, CLOUD & BIG DATA, BUILDING DESIGN, BUILDING PERFORMANCE, DfMA, DfMMC)

ESTIMATING/ PROCUREMENT/ PROJECT MANAGEMENT/ COST CONTROL

PROJECT PLANNING/ SCHEDULING

LOGISTICS

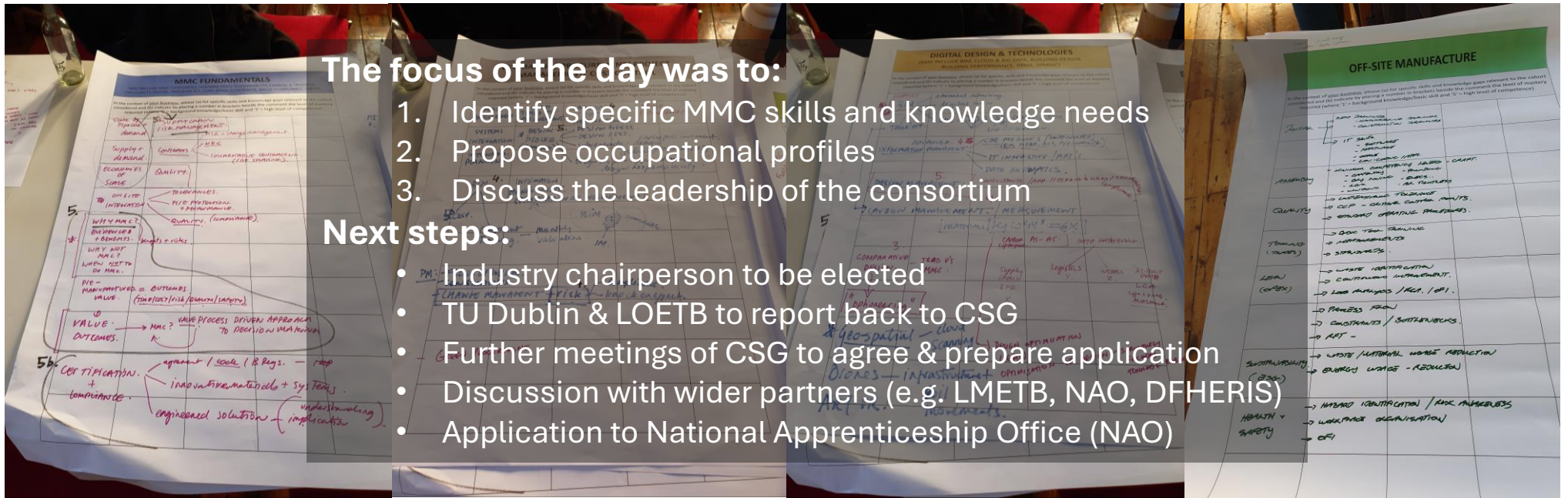
OFF-SITE MANUFACTURE

SYSTEMS SPECIFIC SKILLS
RELATING TO THE CONSTRUCTION MATERIALS & SYSTEMS YOU USE

ONSITE CONSTRUCTION
MAY INCLUDE MANAGEMENT, SURVEYING, QUALITY, RISK AVOIDANCE, PLACEMENT & ASSEMBLY

TRANSVERSAL & INTERPERSONAL SKILLS
May include communication, teamwork, adaptability, critical thinking, problem-solving, creativity, leadership, and emotional intelligence, gender & diversity perspectives

NOT ADDRESSED ELSEWHERE



The focus of the day was to:

1. Identify specific MMC skills and knowledge needs
2. Propose occupational profiles
3. Discuss the leadership of the consortium

Next steps:

- Industry chairperson to be elected
- TU Dublin & LOETB to report back to CSG
- Further meetings of CSG to agree & prepare application
- Discussion with wider partners (e.g. LMETB, NAO, DFHERIS)
- Application to National Apprenticeship Office (NAO)

MMC supply chain - needs – EGFSN report (2024)

Design and Planning	Material Procurement	Offsite Construction (OSC)	Transportation and Storage	Onsite Installation
Digitalisation brought about by the MMC transition will see a great need for associated skills that would be in short demand without upskilling/reskilling. It is also important to note the change from traditional construction where a 'design freeze' is now necessary	Any errors in material procurement can result in large inefficiencies, rendering the benefits from MMC moot. Thus, increased digitalisation and collaboration across the supply chain is necessary, as well as the reworking of traditional supply chains to be supportive of MMC.	The shift to OSC means that traditional labourers will need to be retrained to work in a factory setting alongside complex machinery. New competencies will thus arise that focus on unfamiliar practices and technologies, and this gap must be bridged to transition to MMC.	Building partially or totally offsite requires different solutions to the transportation and storage of larger products to site. Collaboration across the industry is particularly key at this stage as early or late delivery, as well as improper storage result in excessive monetary and time costs to the project	While onsite labour remains somewhat the same for MMC, there are notable skills gaps that may arise concerning the digitalisation of processes as well as dealing with unfamiliar products. Management of onsite activities in particular must be trained/upskilled to minimise errors.

MMC supply chain – educational response – EGFSN report (2024)

To better support MMC adoption, four areas of educational change have been identified:

1. **New apprenticeship proposed: *MMC / Industrialised Construction Technician***

   2-year (NFQ L6 - proposed by Consortium Steering Group (SG)

2. **Conversion / upskilling courses for factory & site workers**

   Such as 1-year (L7) post-trade conversion apprenticeship - proposed by Consortium SG

   Such as traineeships & short courses for GOs (L4 & 5) - proposed by Consortium SG

3. **Integration of MMC content and MMC specialist modules into existing educational content**

   Apprenticeships in manufacturing and construction (L6)

   Degree programmes in architecture, technology, manufacturing & construction (L7 & L8)

4. **Advanced upskilling for building professionals and building design professionals**

   Postgraduate programmes in MMC, collaborative BIM, etc (L9)

MMC supply chain – educational response – EGFSN report (2024)

MMC / Industrialised Construction Technician

It is *initially proposed* these technicians could work for:

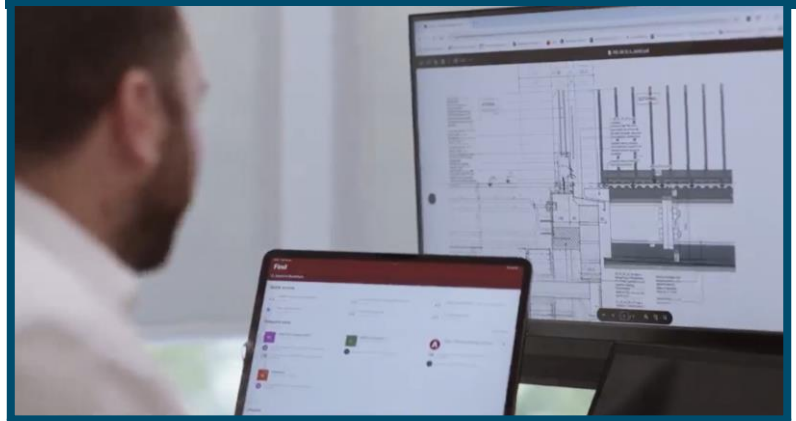
1. MMC manufacturers (in front office, shop floor or reviewing site installation); and
2. General builders (engaging with MMC processes and systems at all stages to varying degrees).

Will have a strong understanding of MMC Fundamentals (incl. categories, industry 4.0, PMV, lean, design freeze, compliance, QA, de-risking, sustainability etc.) with good transversal & problem-solving capabilities

Trained to <u>assist</u> in:

- Design stage (BIM, shop drawings, clash resolution)
- Planning & scheduling of works & materials (supporting costing & project management)
- Communication, data capture & management
- Health & safety
- Quality assurance on the shop floor
- System-specific skills & Knowledge (as electives)
- Logistic, supply chain processes
- Quality assurance for site erection of MMC components

Get in touch



This educational venture is your venture: it must be industry-led and meet industry needs.

If you've queries or feedback, or want to get involved, please contact us:

Joseph Little
Head of Construction
TU Dublin
joseph.little@tudublin.ie

Yvonne Foy
Contract Training Officer, Enterprise Support
Laois and Offaly Education and Training Board (LOETB)
yfoy@loetb.ie

Padraig Boland
FET Manager, Strategic Projects
Laois and Offaly Education and Training Board (LOETB)
pboland@loetb.ie

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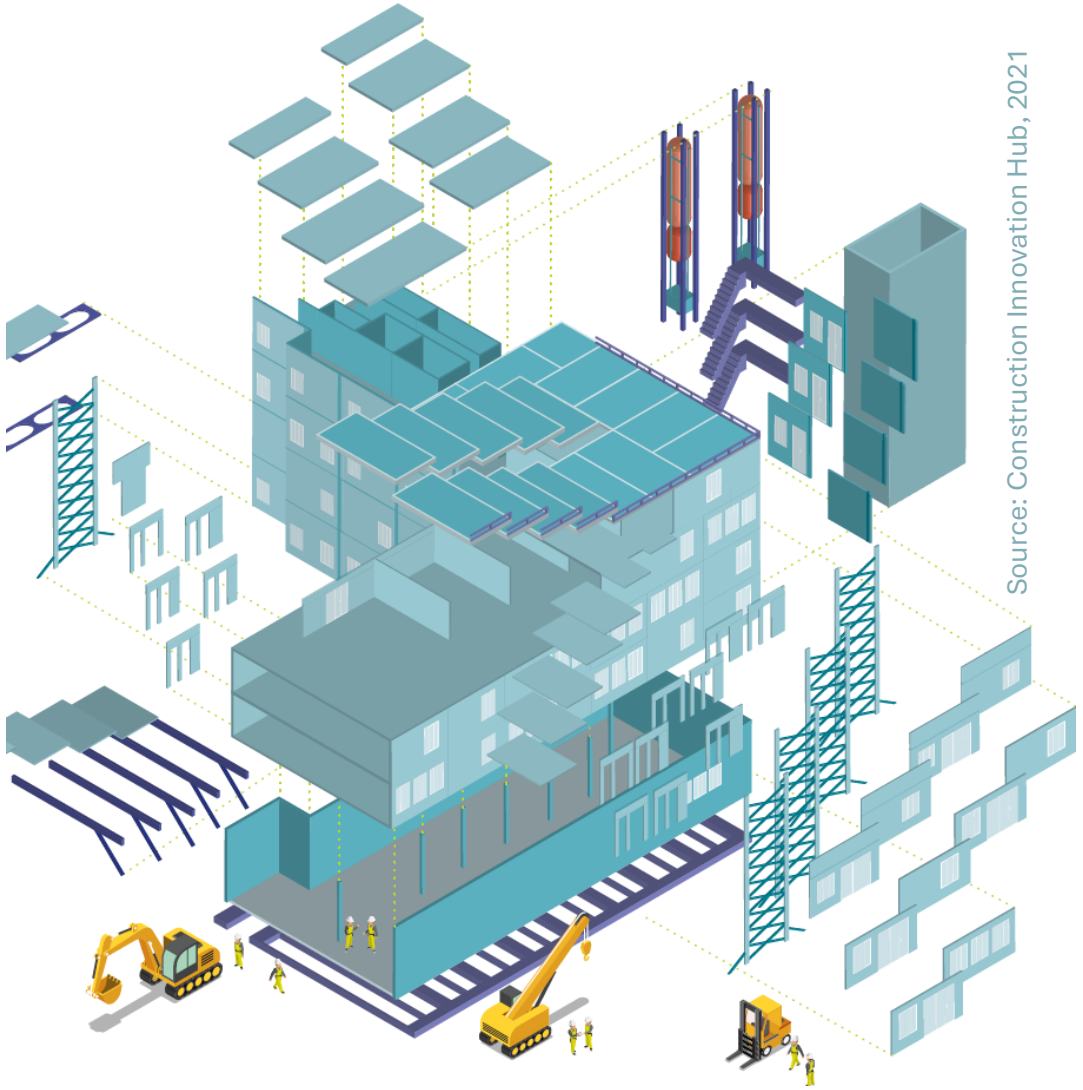

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