



Member of the SNC-Lavalin Group

Collaboration and Future Proofing with MMC.





What is MMC?

Why do MMC in Housing?

Why Partner?

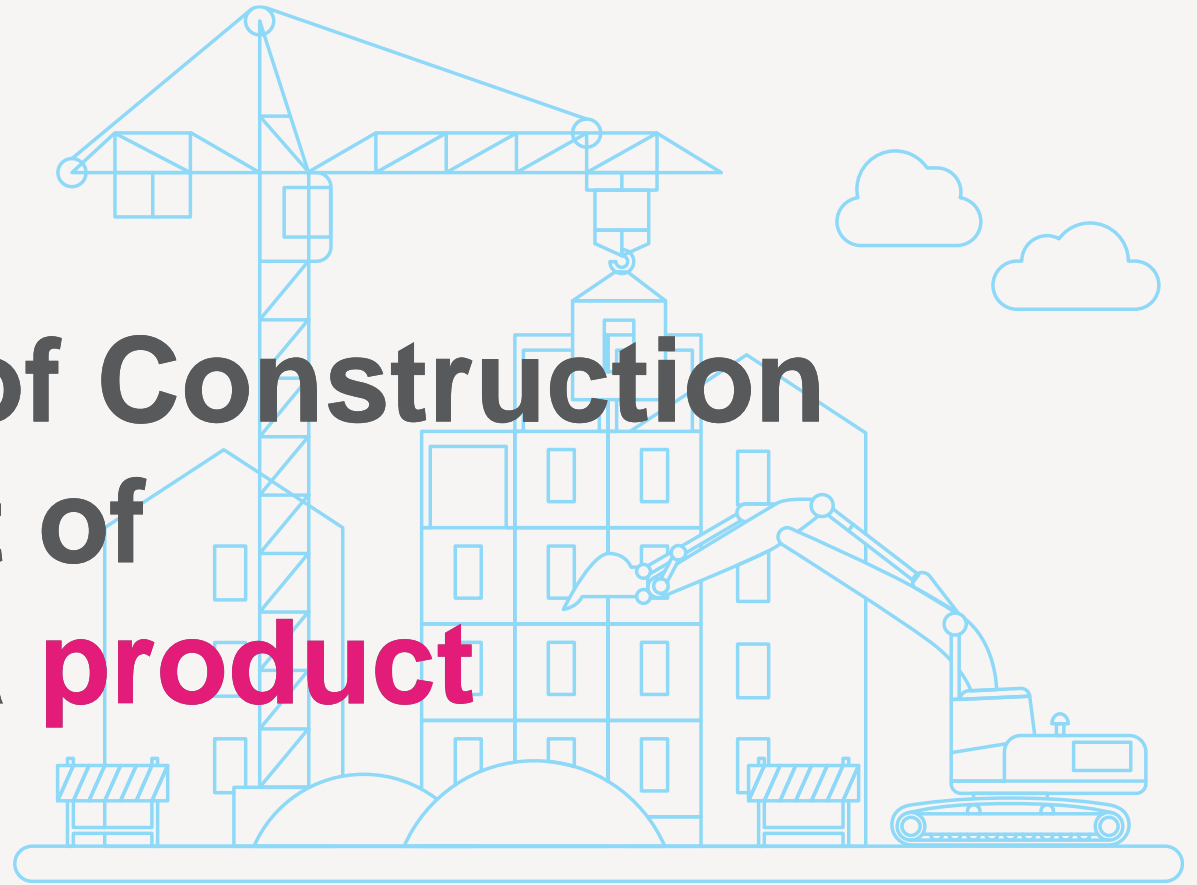
How to Engage MMC

The Future?



So What is MMC Really?

Modern **Methods** of Construction
should be thought of
as a **process** not a **product**



Why do MMC?

Government Mandate

Minimum 20% of Affordable Building Fund designated to MMC.

Capacity

Homes shortfall of 150,000+ per annum.

Other Issues

Labour & Skills



Why do MMC – The Benefits

Speed – up to 50% faster

Safety – 10x safer

Sustainability – waste / performance

Quality – process systems

Reduced Disruption – community impact.

Predictability – revenue / occupation

Social Value & ED&I – levelling up

Digital Transformation - BIM

Productivity – labour and material



Why are Partnerships Essential in MMC?



Why are Partnerships Essential in MMC?

Early Consideration

- › Assessment of Approach
- › Stakeholder Analysis
- › Identification of Best Fit

Open Protocol Design

- › Flexibility
- › Supply Chain Robustness

Long Term Benefits

- › Volume Commitment
- › Aligned Incentives
- › Year on Year Improvements
- › Net Zero Targets



Homes England Study

Context

- › 1500 homes, 8 sites, 6 providers
- › Partners
 - › *HE, UCL, BRE, Atkins, F+G*
- › 15 Key Themes
 - › *Pace, Cost, Labour, Planning, PMV, Safety, Waste, Logistics, Delivery Quality, Sales, Life Cycle, Economic, Social Value, Wellbeing.*

Challenges

- › Lack of Common Data Collection Method
- › Variable data quality
- › Project / site variables
- › External Influences



Design Process / Considerations

Standardisation

- › Layout
- › Focus on high work areas
- › Component approach

Adaptability

- › Disability Provision
- › Future Extensions
- › Tech developments
- › Non structural elements

Restrictions

- › Design to the system not against
- › Trust the specialist



Other Considerations

Procurement

- › Frameworks
- › Contractual Approach
- › Long Term Commitment

Finance

- › Cash Flow Profile
- › Payment Terms
- › Valuations
- › Insurances

Programme

- › Decision Making Process
- › Certainty of Site Works



How do I engage with MMC and DfMA?

RIBA Stages of Work

- › DfMA Overlay - 2021

MMC Assessment Process

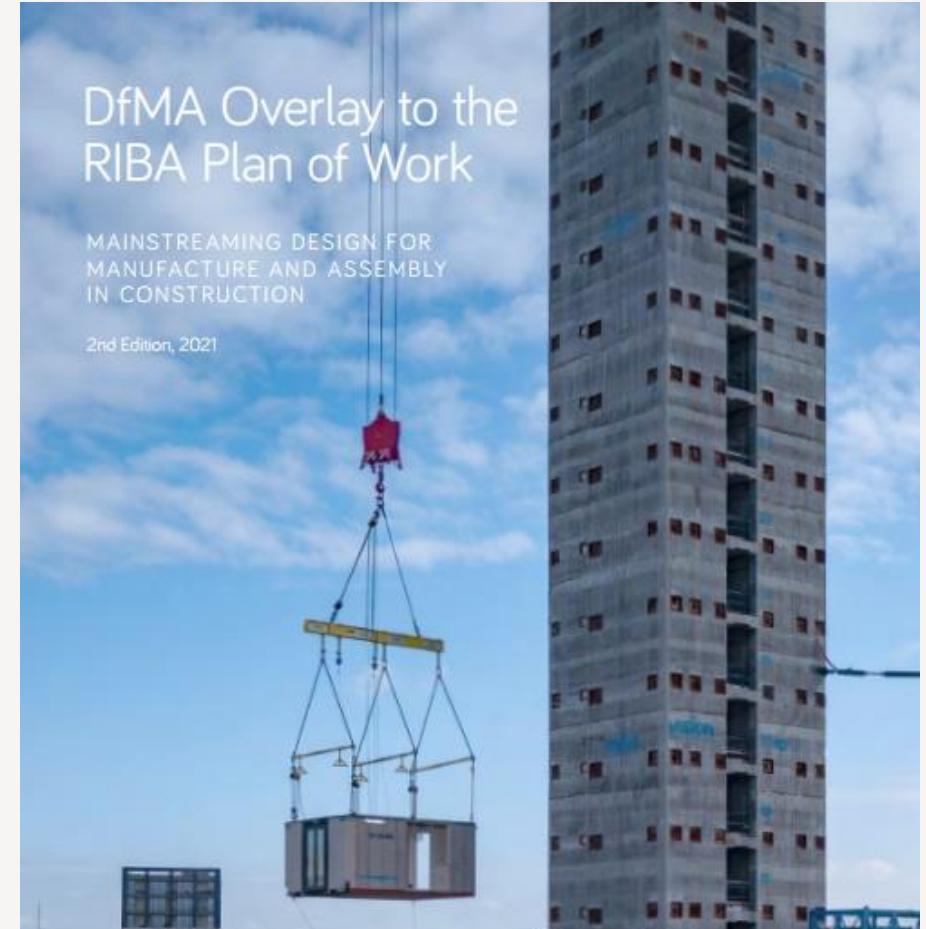
- › As early as possible – Stage 0
- › Continually reviewed – Stages 1-4

Open Protocol

- › Flexibility as project develops
- › Refined through later stages

Specialist MMC Advice

- › Design and delivery knowledge
- › Agnostic approach



Technology in MMC Manufacturing

Shop Floor Data

- › Live Data Terminals
- › QR Code work logging
- › RFID Tagging
- › Embedded Performance monitoring
- › Cloud based Cradle to Grave QA Processes

Production Processes

- › Automatic cutting and assembly
- › Process Breakdown
- › Sub Assemblies
 - › *3rd Party Supply Chains*



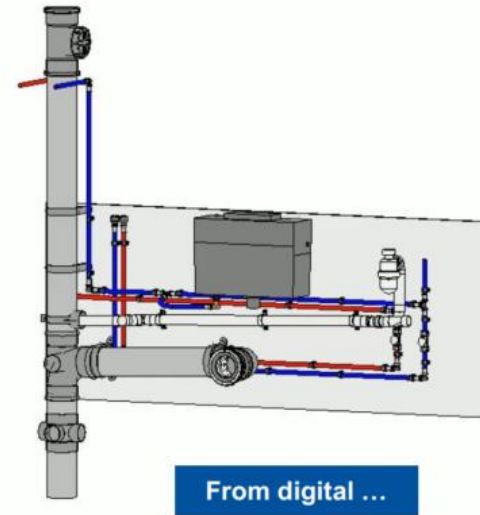
Sub Assemblies



1. The customer provides the Architectural General Arrangement Revit model

2. Any Mechanical and Electrical details are superimposed into the Revit model for review

3. The areas of possible opportunity can be isolated in the Revit model and assessed in detail



4. These opportunities are then reviewed, designed into specific deliverable sub-assemblies as the above, ready to issue for customer approval as a “digital twin”



5. This digital model generates manufacturing details automatically, from a parametric bill of materials, which in turn generates code for DXF files for our CNC machines

Technology – The Future?

Processes – Off and On site

- › Robotics
- › 3D Printed Elements
- › Data capture / workflows

Materials

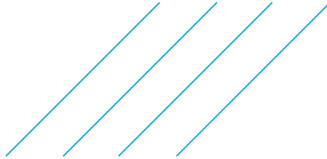
- › Manufacturing Based Materials
 - › *Dry Finishes*
 - › *Dry Jointing*
- › Heating Systems
 - › *All electric*
- › Plug and play connections



Have we been here before?



So why is it different this time?





Thank you for your attention – for more information please
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