Why Are We Here Today?

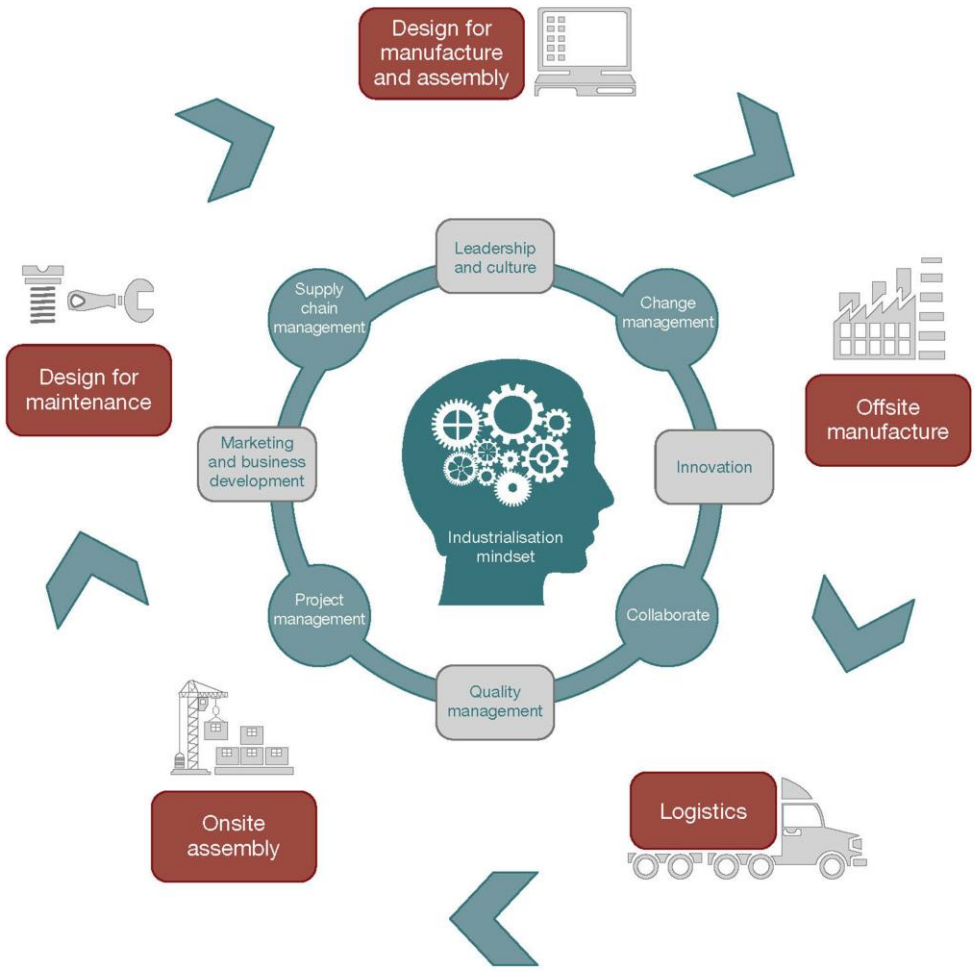
- Formed in 2012
- Pre-Construction Managers, Construction Managers, D&B Contractors, JV Development, Technical Consultants
- BOPAS, ISO, NHBC accredited
- £37m construction turnover
- Constructed projects in pre-cast RC, SFS/LGS – stick/ panelised, timber, SIP, not modular
  - But we have recruited from both modular/volumetric manufacturers and contractors who have erected modular/volumetric

Why Are We Here Today?

- Magna Off-Site Solutions launched in March 2019
- Pre-Construction Manager, Construction Manager, D&B Contractor or Sub-Contractor partner of choice for clients/manufacturers constructing in Off-Site Solutions
- Challenge traditional procurement logic
- **Charge NO OH&P on ANY PRE-MANUFACTURED VALUE**
  - **Why should the main contractor?**
- BUT – we will take traditional contracting risk

RIBA Plan of Work for DFMA

- Concise business case – why MMC? What are the metrics for success – speed, ROCE, quality?
- Early consideration of issues that aren't traditionally considered until RIBA Stage 4-5!
- Early integration of the complete team – limit scopes as appropriate
- How is the team procured?
- Who's in the team and at what stages?
- System certainty v competition?
- Early understanding of constraints and opportunities of systems



Site and Highway Logistics

- Traditionally how do site and highway logistics impact your construction decisions at RIBA Stage 1-2?
- Logistics - critical success factors to consider for MMC
  - Volumteric/modular sizes
  - Restricted height routes – Croydon trams
- Holding patterns for transport
  - Need to be able to deliver during the day to minimise transport costs
- Site logistics strategy – NHBC focus
- Unload and laydown areas – associated costs
- Pre-/post-craneage inspections

Design Considerations – RIBA Stages 1- 2

- MMC does not have to dilute architectural integrity
- Pick the right team and stay true to the business case
- Shape, form and mass – which system is optimal?
- PRISM Housing Design App
  - Assess the potential for building Precision Manufactured Homes (PMH)
- Understand site and construction constraints
- Ensure that all techniques and components work together
  - MMC is the sum of the parts
  - Structures quickly and façades slowly!

Understand The Key Metrics of Trad to Succeed

- To make an informed decision you must be able to make an intelligent comparison
- How can standardisation and MMC improve the quality of the asset?
- Programme and logistics
- Time is money – we all understand that. Do we truly understand how time influences ROCE, GDM, interest costs, prelim costs, etc?
- Compare the key influencers, they can have big impacts
  - Programme duration/staff levels/crane utilisation/risk of non-delivery – off-site storage costs, etc.
  - Can we really make an informed decision without a programme?

Understand The Key Metrics of Trad to Succeed

0	**Facilitating works Sub-total**
1.1	Substructure
1	**Substructure Sub-total**
2.1	Frame
2.2	Upper floors
2.3	Roof
2.4	Stairs and ramps
2.5	External walls
2.6	Windows and external doors
2.7	Internal walls and partitions
2.8	Internal doors
2	**Superstructure Sub-total**
3.1	Wall Finishes
3.2	Floor Finishes
3.3	Ceiling Finishes
3	**Internal finishes Sub-total**
4.1	Fittings, furnishings and equipment
4	**Fittings, furnishings and equipment**
5.1	Sanitary appliances
5.2	Services equipment
5.3	Disposal installations
5.4	Water installations
5.5	Heat source
5.6	Space heating and air conditioning
5.7	Ventilation systems
5.8	Electrical installations
5.9	Fuel installations
5.10	Lift and conveyor installations
5.11	Fire and lightning protection
5.12	Communication, security and control systems
5.13	Specialist installations
5.14	Builder's work in connection with services
5	Services Sub-total
6.1	Prefabricated buildings and building units
6	**Prefabricated buildings and building units Sub-total**

- To make an informed decision you must make an intelligent comparison
- BCIS Elemental Cost Plans – standard format
- Collate data on the out-turn cost of your trad projects in a standard way – reallocate in to BCIS Elemental?
- Traditional is ‘manufacturing’ just not consistently!
- Understand what is included within the off-site solution to omit from your traditional data sets
  - We have seen several errors of double counting leading to unviability!
- Understand the compromise of cost and quality

An Example of Understanding the Metrics

- 224 unit co-living scheme
- No lead-in for modular/volumetric
- Perfect grid for SFS/LGS panellised
  - Only 6 unit types
  - Only 4 bathroom types
- Initial assumptions validated
  - SFS/LGS cost-effective structure
  - Lighter foundations
  - Quicker programme
  - Bathroom/kitchen/wardrobe pods
  - Service risers efficient
- Good SFS/LGS supply chain capability
- Improved ROCE

So why are we building it in RC?

An Example of Understanding the Metrics

So why are we building it in RC?

- Depth and weight of the façade and reveals
  - Poor S/C interaction and demonstration of capability /quality for the lightweight option
  - Very few options – maturing sector with growing capability
- Bathroom pods were on the critical path – certainty of delivery or storage costs to mitigate expensive delays
- Crane utilisation was poor

An Example of Understanding the Metrics

So why are we building it in RC?

Off-site solutions now being used

- Pre-cast RC structures
- Pre-cast façade
- Bathroom pods – off critical path with RC
- Pre-fabricated risers
- Pre-fabricated plant rooms
- Improved crane utilisation

- Nominal programme difference but mitigated reliance on the bathroom pods

AMCM GROUP

MAGNA OFF-SITE SOLUTIONS