Assessing Quality in Offsite Manufacture

Constructing Excellence Webinar

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Demand for offsite manufacture

"Create an innovation culture … to improve productivity, quality and increase output, including through embedding digital and offsite manufacturing technologies"

- Restart - Reset - Reinvent
- Key indicators remain
  - Housing shortage
  - Growing capability
  - Vertical integration
- Accelerating demand for NHBC Acceptance

The automotive model

"I have been looking eagerly, ever since I took office, for some system of prefabrication which would enable us to build houses in the same way as cars and aeroplanes. So far my search has been in vain, but I do not despair."

- Aneurin Bevan, Minister of State for Health 1945

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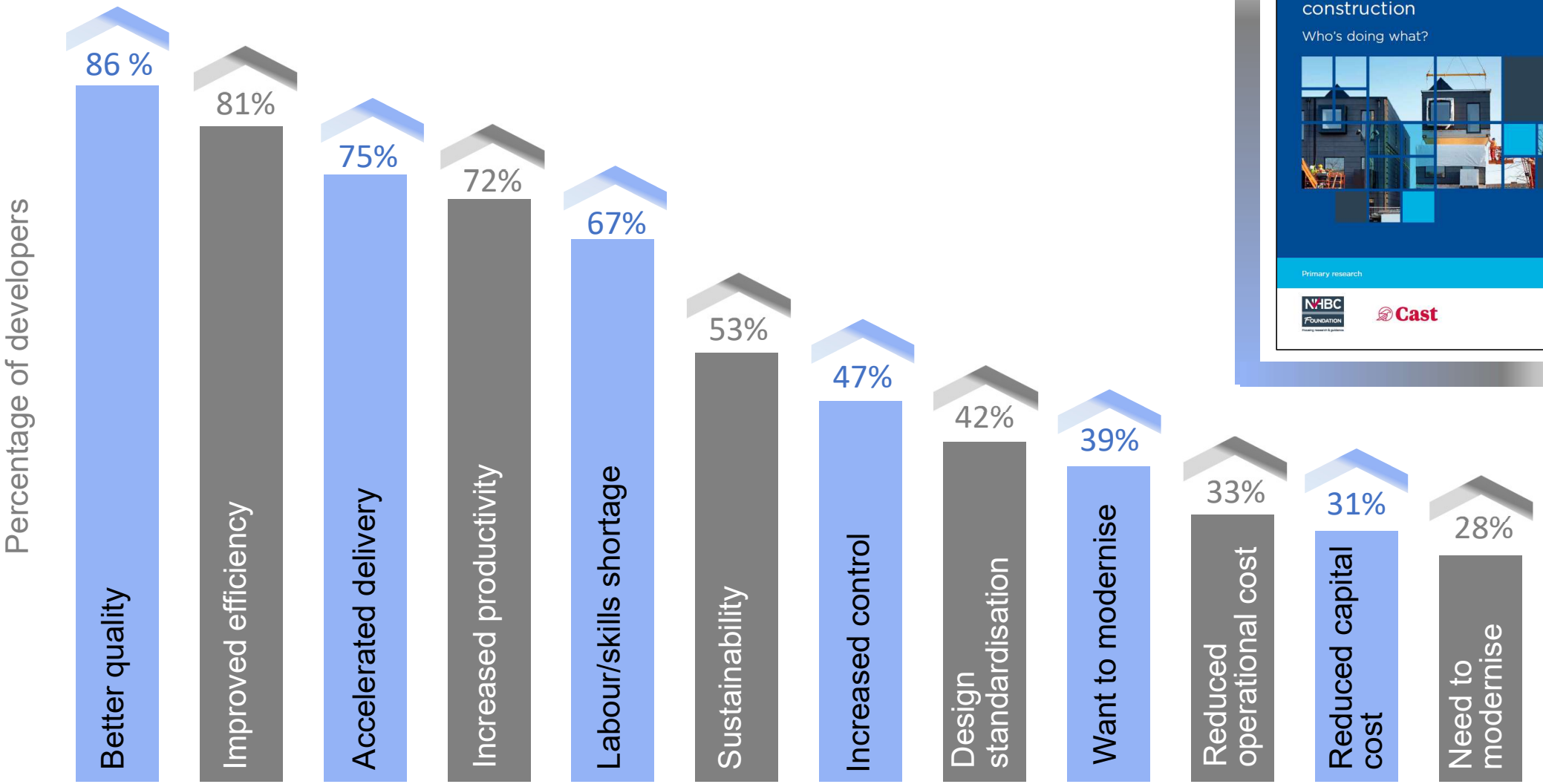
Factors driving the uptake of MMC



Assessment from factory to finished home

Initial review

- Design to meet NHBC technical requirements
- Review of design and production controls
- Enabling fast-track acceptance on site

Post acceptance

- Factory inspections
- Warranty checks on each home

Prefabricated Building Units

Technical document

Issue: 19 August 2020 | Version 1.2

Building confidence in innovative construction

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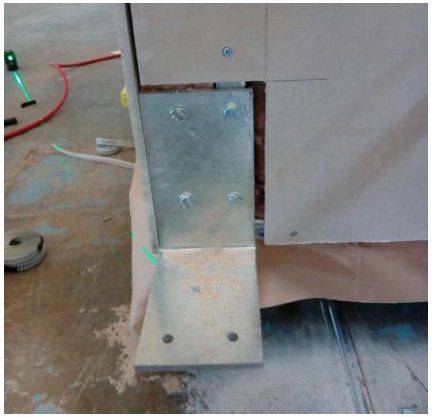
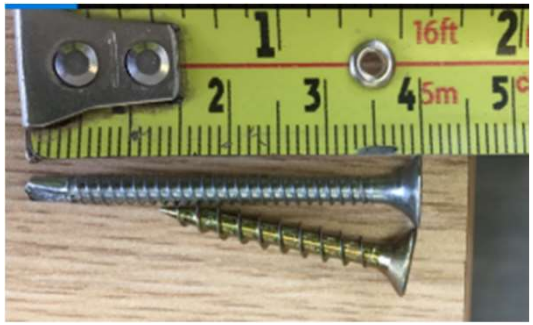
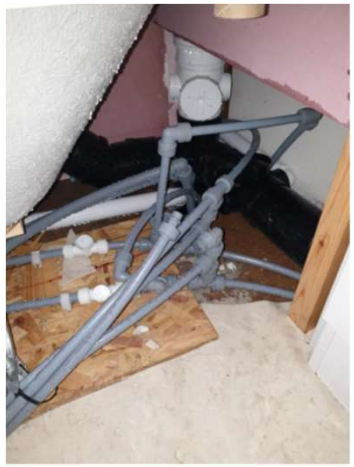
Why do we do this?







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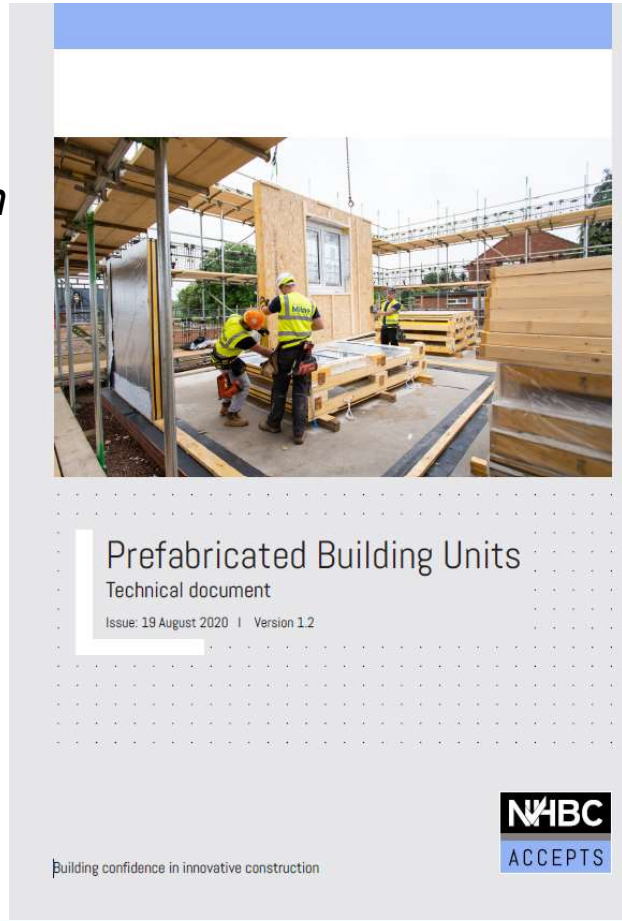
The System Manual

*"The system manual **describes the system**, setting out the **scope and limitations** for its use, the **declared performance** of the system and **evidence to support** the declared performance."*

- Strength and stability
- Behaviour in relation to fire
- Resistance to moisture
- Safety in use
- Resistance to the passage of sound
- Energy Efficiency
- Durability, site installation and identification
- Coordination of services
- Quality of finishes



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Evaluation of Conformity

i. Products covered by a harmonised standard

Defined within the relevant product Standards

ii. Products wholly assessed by an independent technical approvals authority

Review of factory production controls by a technical approvals authority

iii. Products or systems not wholly assessed by a third party

Demonstrated by a control plan and audited Quality Management System

Certified by a UKAS-accredited, independent certification body against ISO 9001:2015

Subject/type of control	Test or control methods	Criteria, if any	Minimum number of samples	Minimum frequency of control
Properties of structural components				
Structural profiles, framework etc	See prEN 1090 -			
Structural connections	Documented in-house method	As defined in national specifications	1	As defined in national specifications
Properties of core/insulation material				
Formulation	-	Supplier's declaration	-	Every delivery
Density (in situ foams only)	Documented in-house method	-	3	1 every shift
Properties of face materials				
Material specification		Supplier's declaration	-	Every delivery

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Post Acceptance Review

CQRs

Contents

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Construction Quality Review

Up to 38 build stages across eight build sections with typically about 20 stages reviewed per visit

Every available build stage scored from 1 to 6

Very Poor	Many significant non-compliances of NHBC Standards and/or Building Regulations - Imminent dangers to H&S apparent and/or almost inevitably resulting in a claim(s) > £100K	1
Poor	Many minor non compliances of NHBC Standards and/or Building Regulations and/or some significant non-compliance - Imminent danger to H&S apparent and/or almost inevitably resulting in a claim(s) > £30K	2
Requires Improvement	Some minor non-compliance(s) with NHBC Standards and/or Building Regulations	3
Good	Meets NHBC Standards & Building Regulations	4
Very Good	In addition to 4 - some extra attention to detail over and above minimum requirements	5
Outstanding	In addition to 4 - much of work seen can't be improved upon	6

Contents page includes the score for each reviewed build stages

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When design follows established principles

When quality measures are in place

When design is frozen

When ongoing and robust review takes place

The benefits of offsite manufacture can be achieved

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Thank you

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