



HBF Technical Conference

MMC and Construction Quality Reviews



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The Exam Question

Housing targets are rising year on year and the pressure is on the industry to deliver more homes while meeting higher expectations on quality.

This pressure, allied with a skills shortage, means the use of modern methods of construction (MMC) and offsite systems could be increasingly important for your business.

So how does the use of MMC impact on our journey to deliver a Quality product and what are the benefits and risks?



MMC primarily involves the manufacture of homes in factories, with potential benefits such as faster construction, fewer housing defects, and reductions in energy use and waste. This note describes the variety of MMC used by UK house builders and assesses the main costs and benefits. It then discusses issues including industry capacity and

MMC can also include innovative sites as use of concrete moulds. A range of MMC, the most common being wood although many houses built in the UK have a brick outer layer and so look like traditional brick houses.

Many of the benefits of using MMC for new housing are unproven or contentious. The issues of

Background

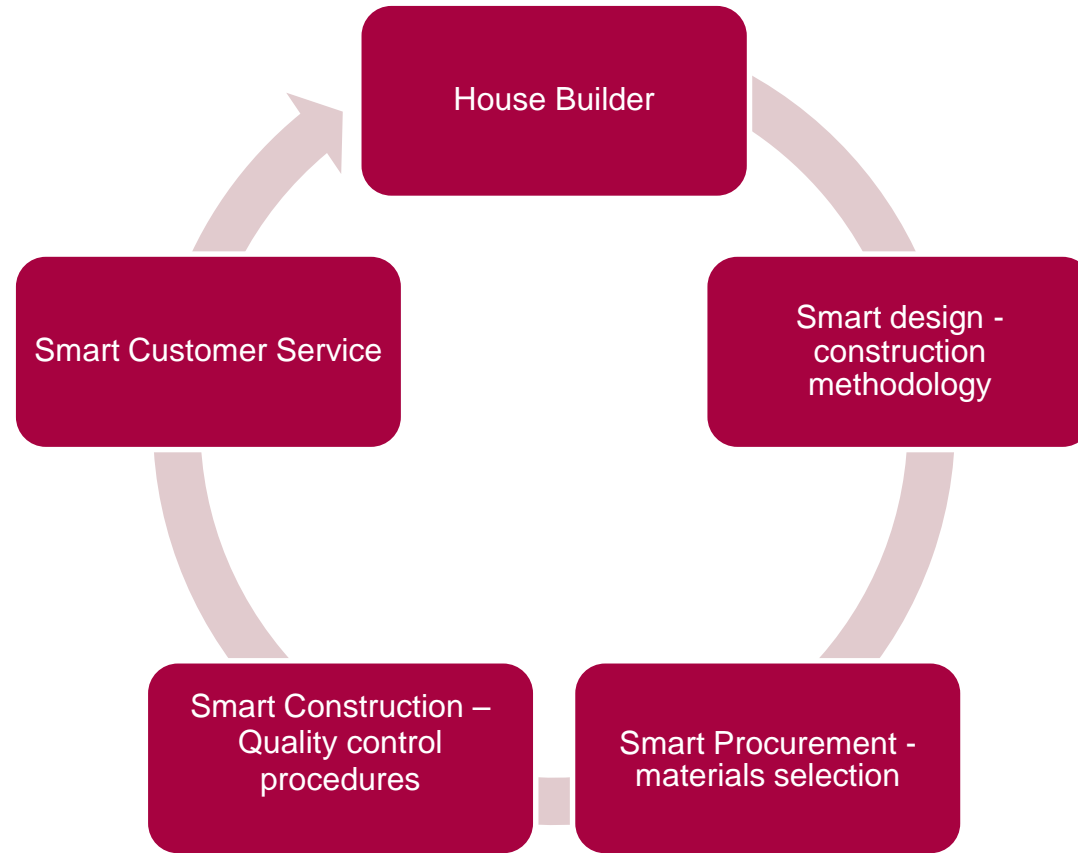
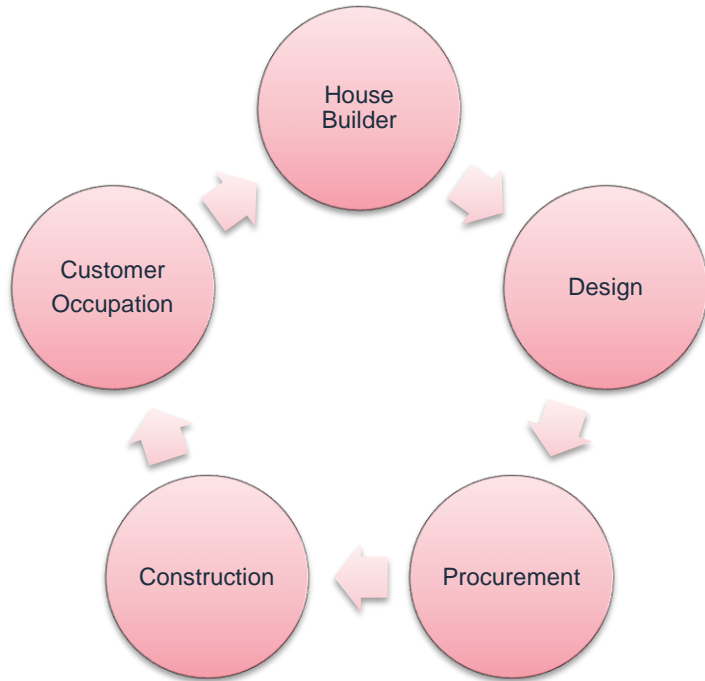
History of MMC – pre

Prefabricated housing was used in several periods of high demand, notably during the slum clearance of the 1950s and 1960s, when about 1 million prefabricated houses were built in the 20th century, many of which were temporary. However, the use of building materials and the negative public attitude towards prefabrication have meant that MMC has not been widely used. Nevertheless it has continued to be used in the UK for

What are MMC (Modern Methods of Construction) ?

Government is encouraging modern methods of construction (MMC), which it says can achieve “*a step change in the construction industry to produce the quantity and quality of housing we need*”.² Specifically, from 2004 a quarter of new publicly funded social housing must use MMC

Think SMART MMC



MMC SMART Construction Quality assured



Is NHBC ready to recognise MMC and quality improvement ?



Construction Quality Reviews (CQRs)

1 In advance



2 Site Discussion



3 Site review



6 CQR Workshop /
Follow-up



5 Distribution & follow-up



4 Site Manager
meeting



1. FOUNDATIONS

- 1.1 Ground preparation
- 1.2 Excavations, piling and formwork
- 1.3 Reinforcement and concrete placement

2. SUBSTRUCTURE & DRAINAGE

- 2.1 Walls and columns
- 2.2 Waterproofing and ventilation
- 2.3 Sub-floor services
- 2.4 Ground floor
- 2.5 Drainage
- 2.6 Gas precautions

3. SUPERSTRUCTURE

- 3.1 Structural frame and/or loadbearing walls
- 3.2 External envelope
- 3.3 Cavities and insulation
- 3.4 DPCs and trays

Score Logic

Focus on to establish cause

1	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
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YES

2	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
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YES

3	Requires Improvement	Some minor non-compliance(s) with NHBC Standards and/or Building Regulations
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No

4	Good	Meets NHBC Standards and Building Regulations
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START
HERE!

YES

5	Very Good	In addition to 4 - some extra attention to detail over and above minimum requirements
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YES

6	Outstanding	In addition to 5 - much of work seen can't be improved upon
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NO

NO

NO

NO

NO

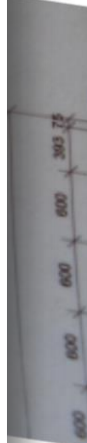
Focus on to establish cause

Graylingwell Park
Connolly Way Chichester

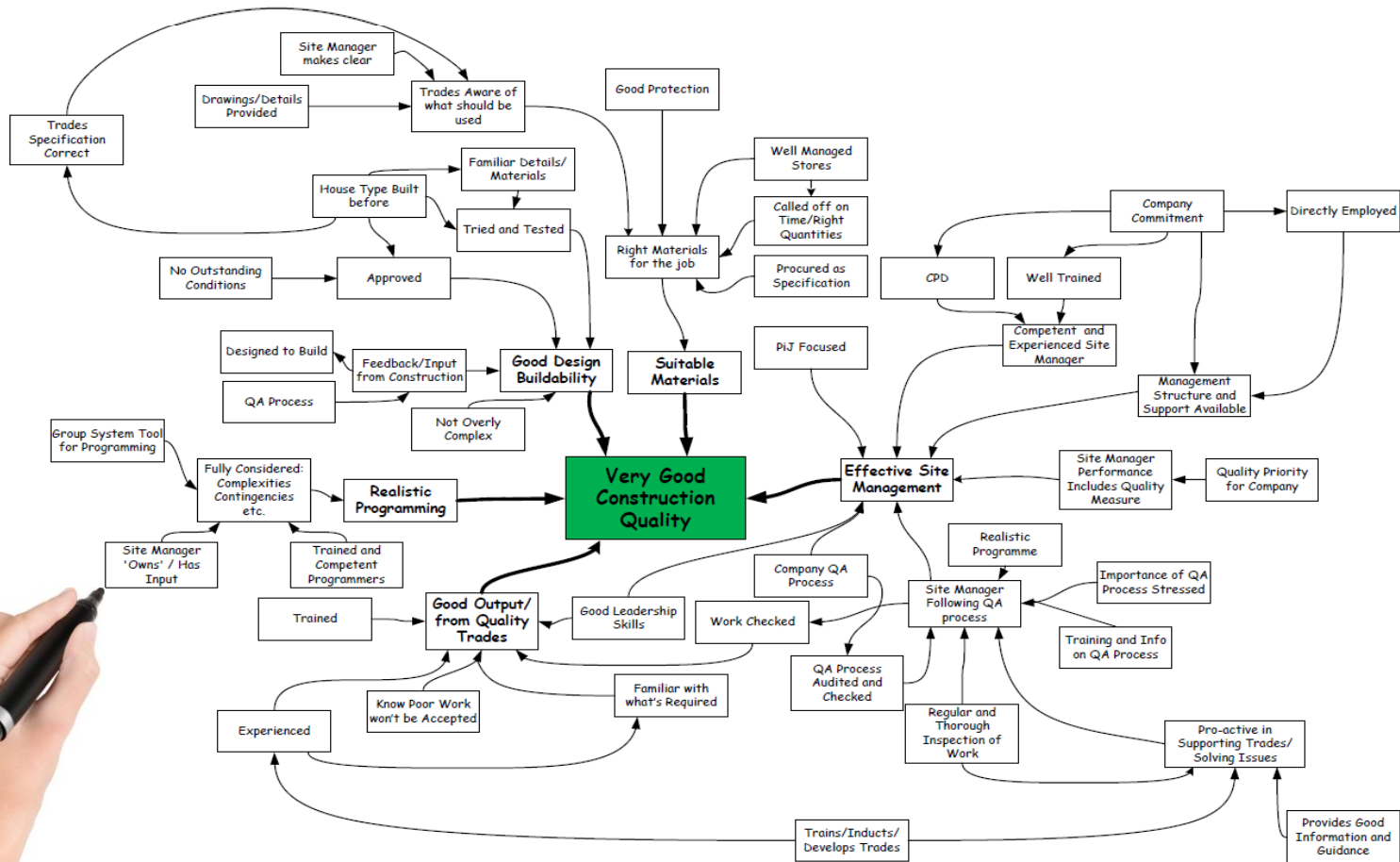
Builder: Linden Homes Guildford
Site Manager: Rob Holmes
Inspected: 09/01/2016
SNIIN Ref: 0006040116

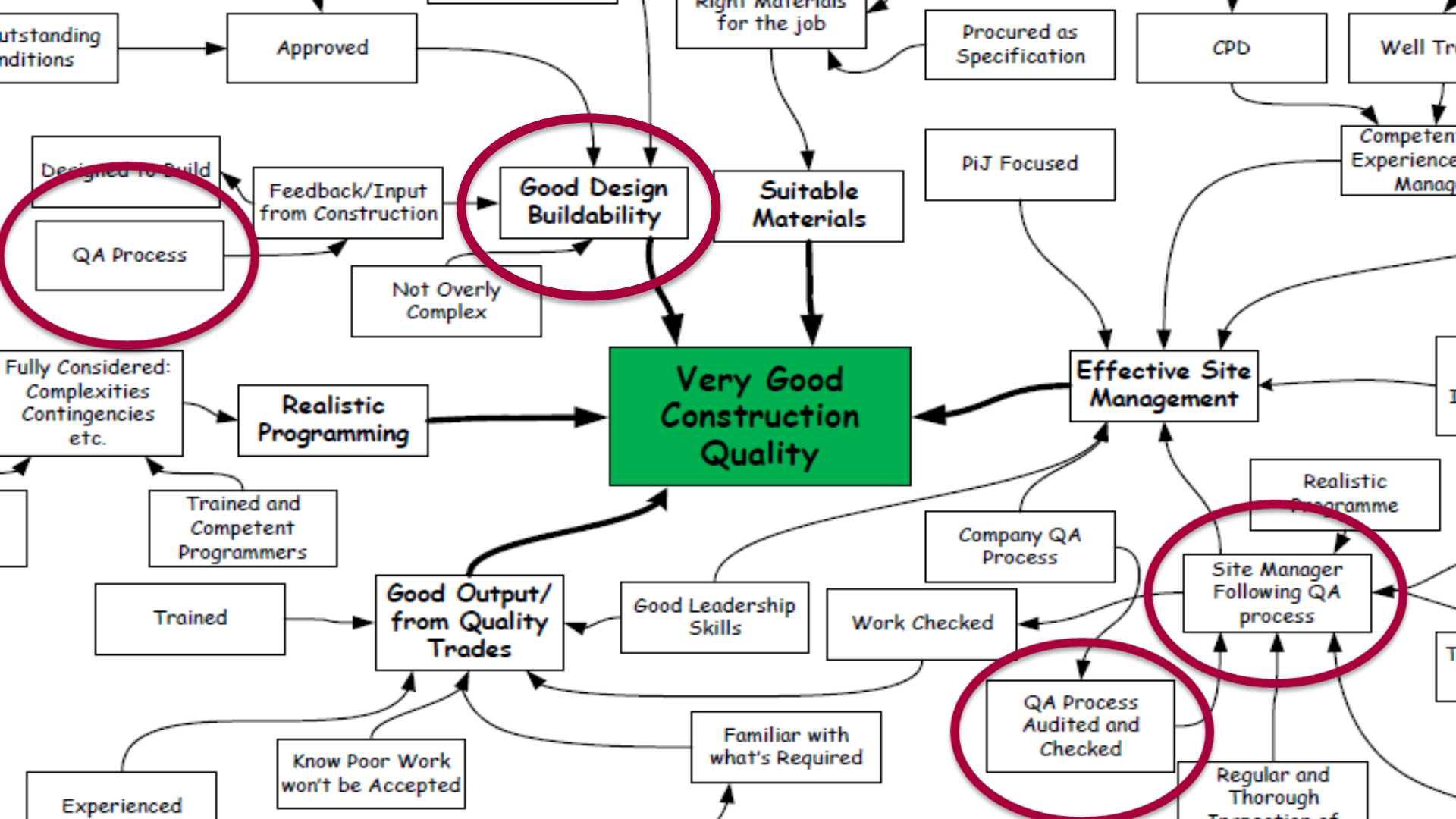
Assessor: _____
Job title: John Smith
Inspection Manager

Construction Quality Review

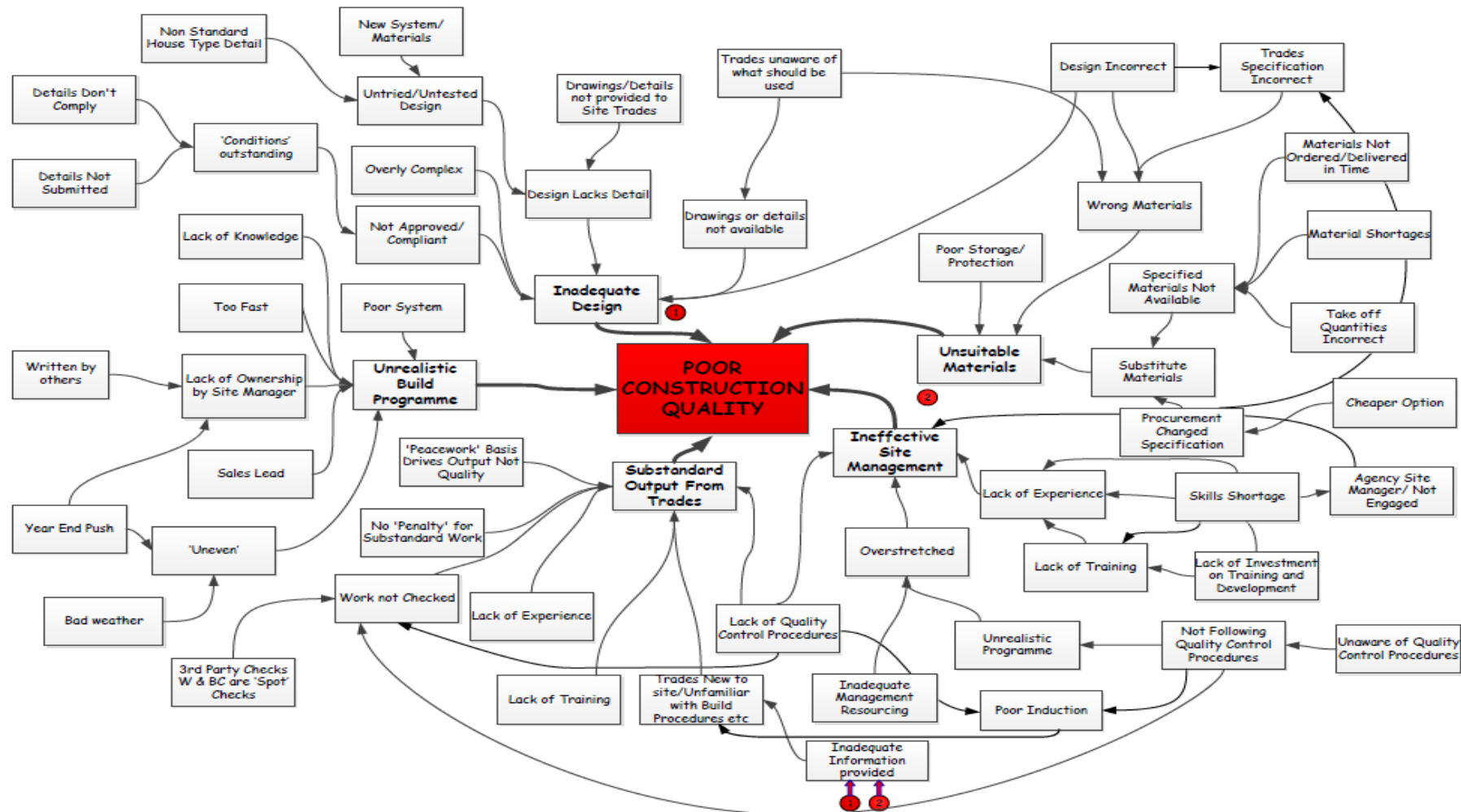


Raising Standards. Protecting Homeowners

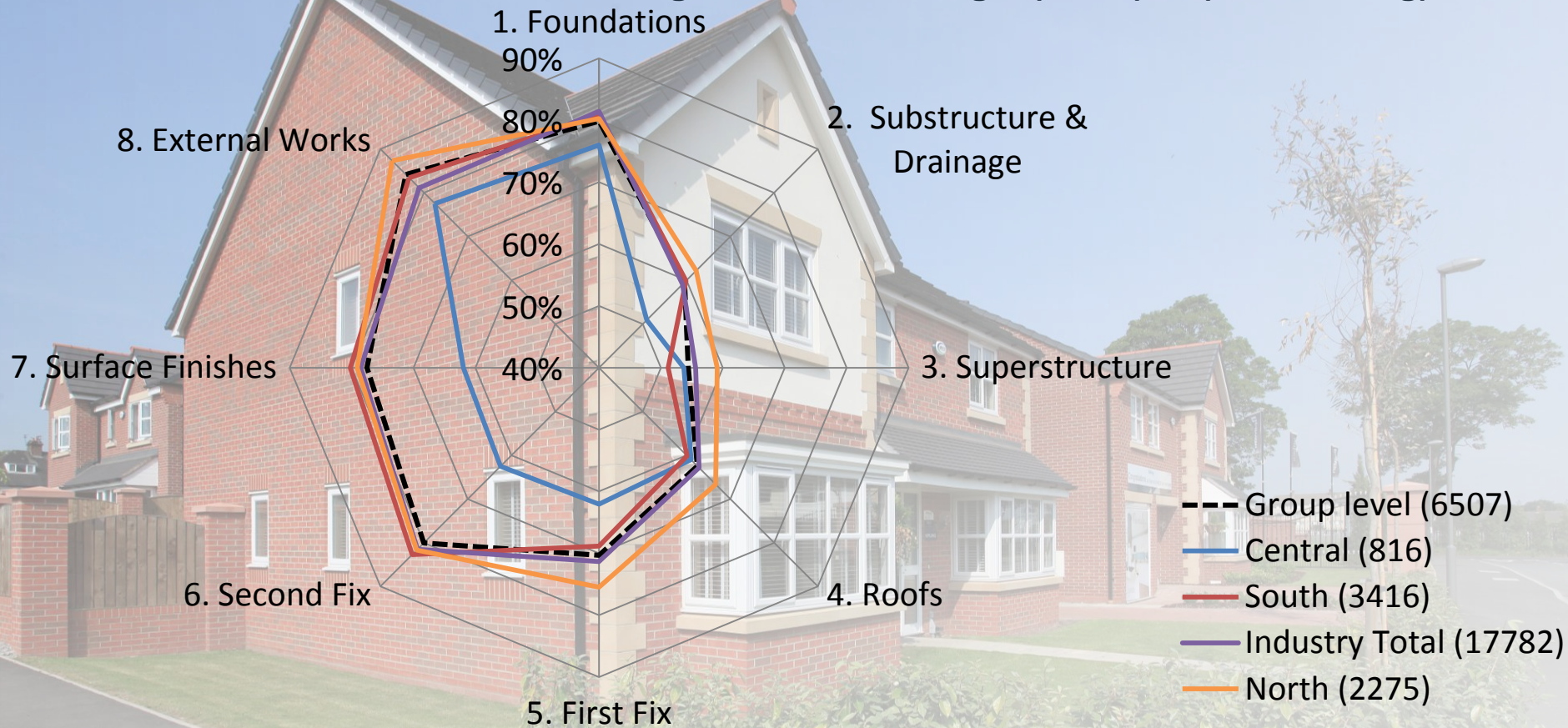




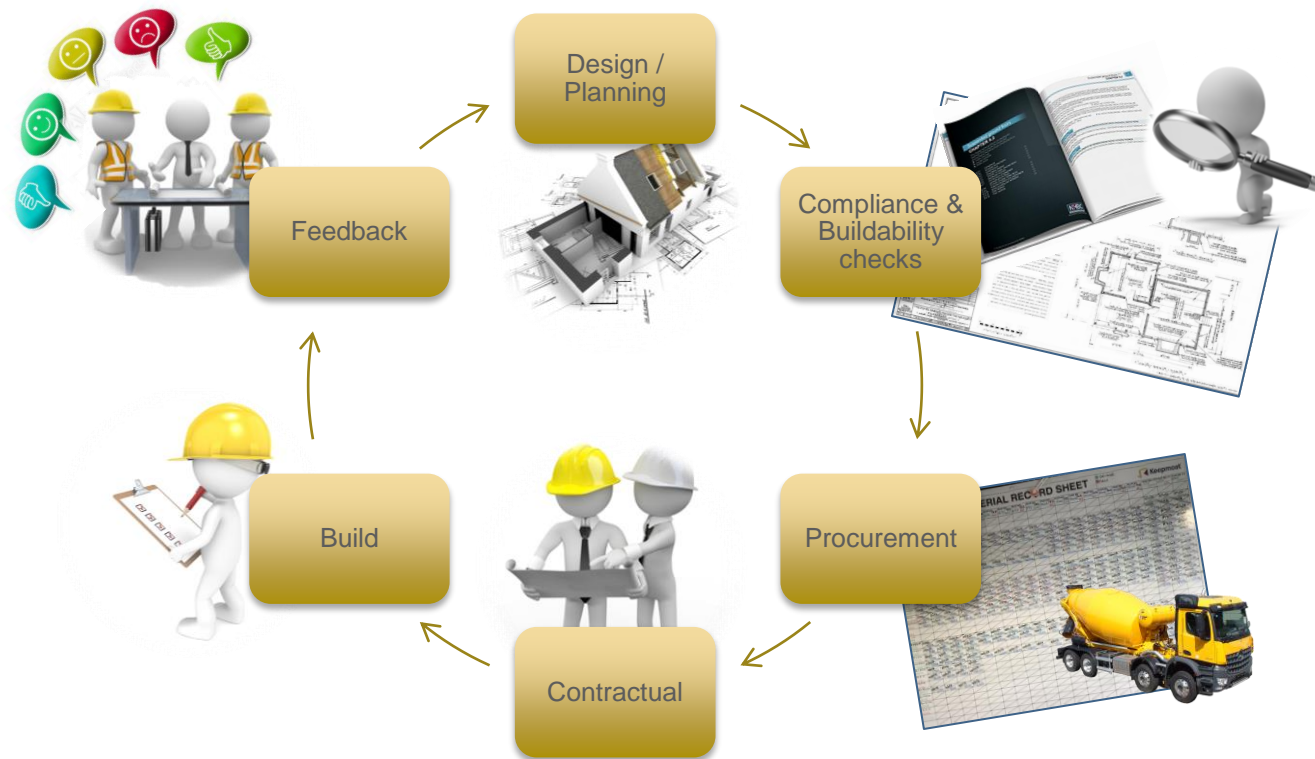
POOR CONSTRUCTION QUALITY CAUSATION MAP



Build Section Level - Percentage of Sites Scoring 4 (Good)- 6 (Outstanding)



Opportunities for improvement



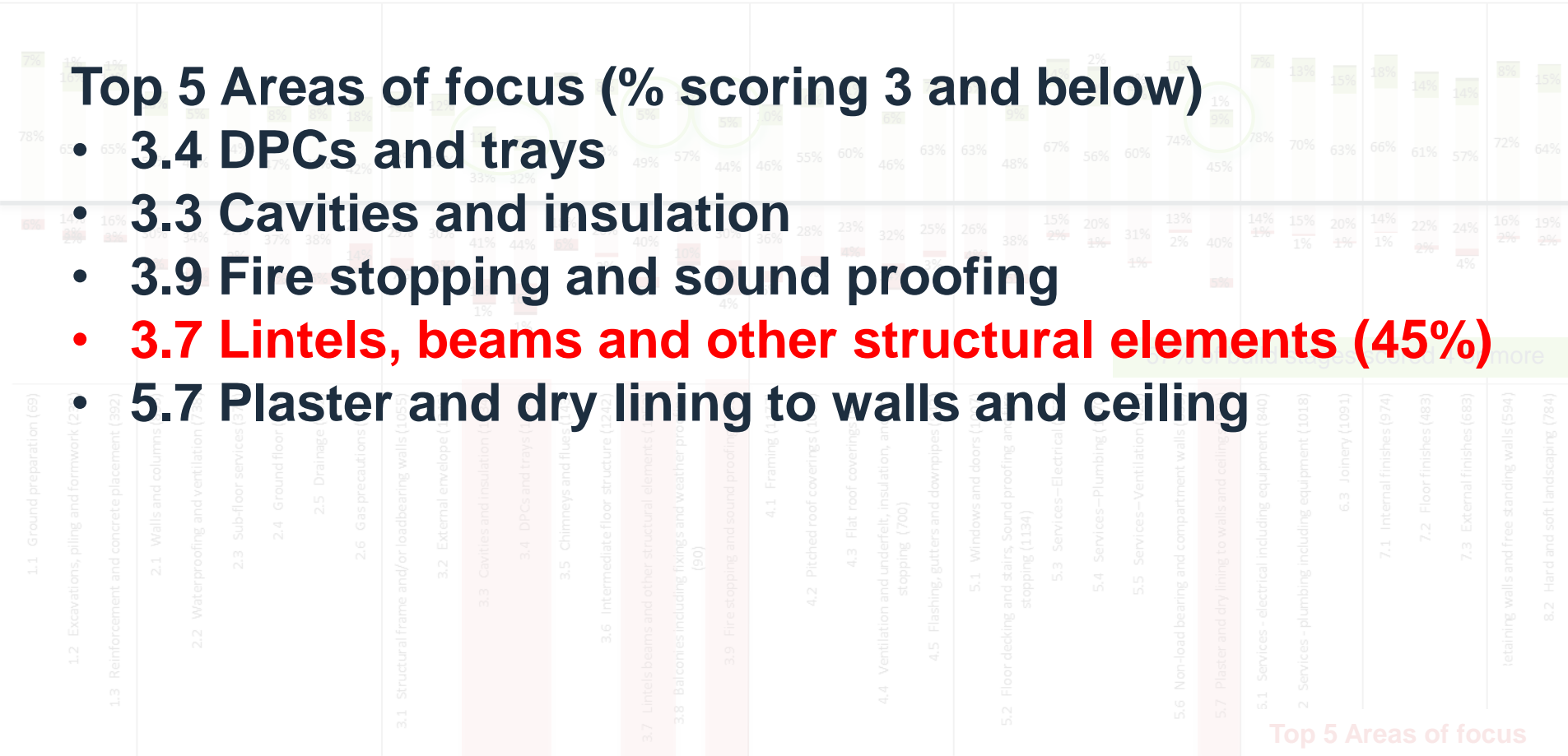
INITIAL FINDINGS

Frequency of site scores (%) at build stage level

■ % of sites scoring 1 ■ % of sites scoring 2 ■ % of sites Scoring 3 ■ % of sites scoring 4 ■ % of sites scoring 5 ■ % of sites scoring 6

Top 5 Areas of focus (% scoring 3 and below)

- 3.4 DPCs and trays
- 3.3 Cavities and insulation
- 3.9 Fire stopping and sound proofing
- 3.7 Lintels, beams and other structural elements (45%)
- 5.7 Plaster and dry lining to walls and ceiling



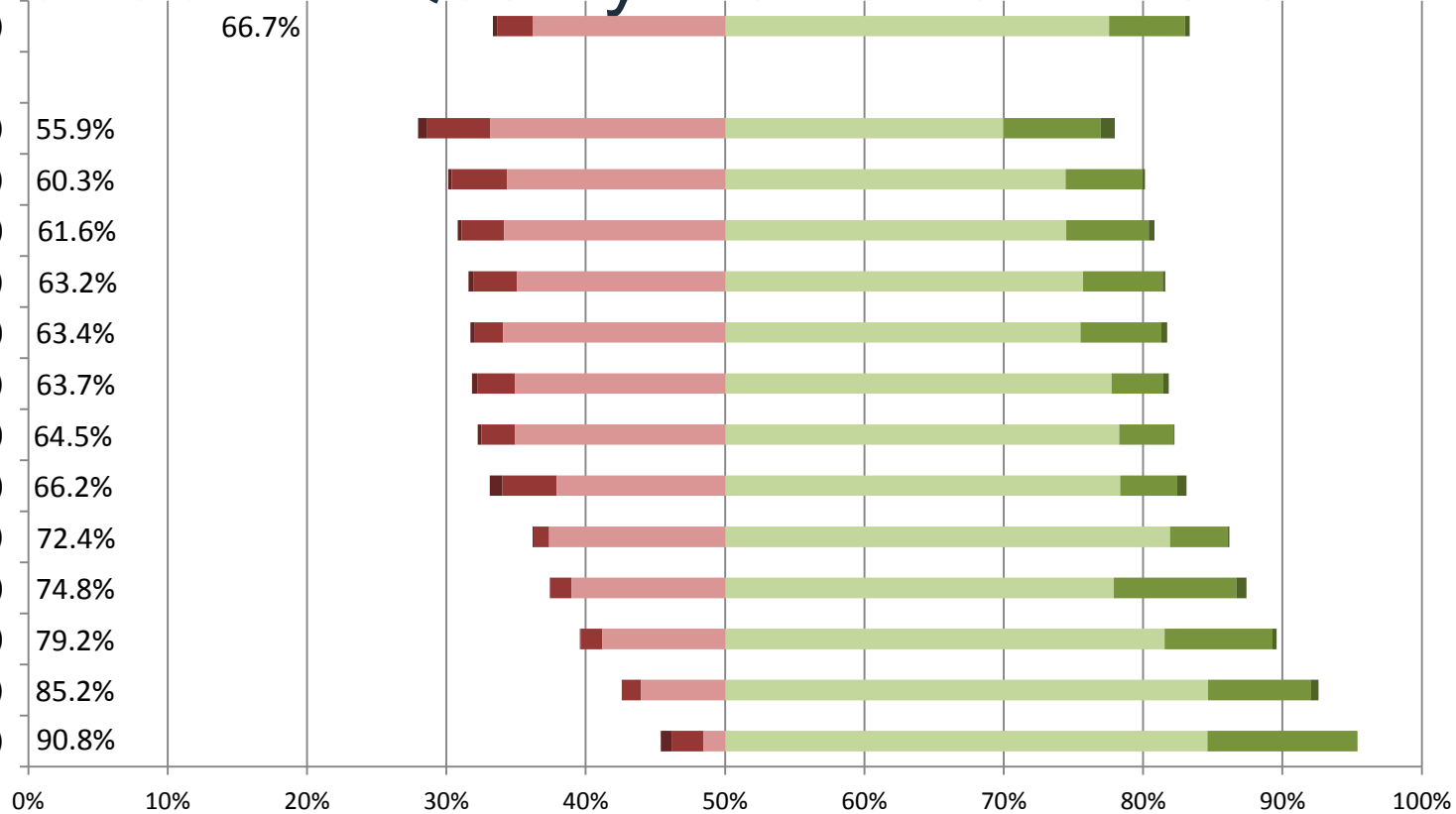
Top 5 Areas of focus

All Construction Quality Reviews to date

INDUSTRY - (37281 build stages)

66.7%

SCOTLAND - (2701)	55.9%
YORKSHIRE AND THE HUMBER - (1931)	60.3%
WALES - (1391)	61.6%
EAST MIDLANDS - (3383)	63.2%
EAST OF ENGLAND - (3266)	63.4%
SOUTH WEST - (5387)	63.7%
SOUTH EAST - (6734)	64.5%
LONDON - (1114)	66.2%
WEST MIDLANDS - (3430)	72.4%
NORTH EAST - (1744)	74.8%
NORTH WEST - (3488)	79.2%
NORTHERN IRELAND - (978)	85.2%
ISLE OF MAN - (65)	90.8%



All build stages

	90-100%	Isle of Man
	80-90%	Northern Ireland
	70-80%	North West, North East, West Midlands
	60-70%	London, South East, South West, East of England, East Midlands, Wales, Yorkshire and Humber
	50-60%	Scotland
	40-50%	
	30-40%	
	20-30%	
	10-20%	
	0-10%	



*Proportion of build stages marked 'good' or better

3.7 – Lintels beams and other structural elements

	90-100%	Isle of Man
	80-90%	North East
	70-80%	Northern Ireland
	60-70%	North West, Scotland
	50-60%	West Midlands, East Midlands, London
	40-50%	South West, Yorkshire and Humber, East of England, South East, Wales
	30-40%	
	20-30%	
	10-20%	
	0-10%	



*Proportion of build stages marked 'good' or better

Finally

- All major House Builders will have the support of CQR's to aid an understanding of MMC and any quality issues
- Detailed areas of focus will be discussed in workshops together with field support from the inspection service
- Continual 'on-site' assessments will be made to assess quality and feedback made to site & senior management
- NHBC will work with you and offer key training to Operatives as your companies introduce MMC





Raising Standards. Protecting Homeowners

Visit: www.nhbc.co.uk/CQR
Call: 0844 633 1000 and ask for 'CQR'
Or Email: cqr@nhbc.co.uk

