

The NHBC MMC Hub

Neil Smith

Head of Research & Innovation, NHBC



Content

- What is MMC?
- Growing interest in MMC
- The NHBC MMC Hub
- Key issues
- What do we need to assess?
- How do we assess?

Introduction

- What is MMC?





MMC: A spectrum



Volumetric



Pod



Panelised



Sub-assemblies



Growing interest in MMC

Housing White Paper

- “Modern methods of construction include homes that are built offsite or can be rapidly assembled or use other building techniques that increase productivity”.

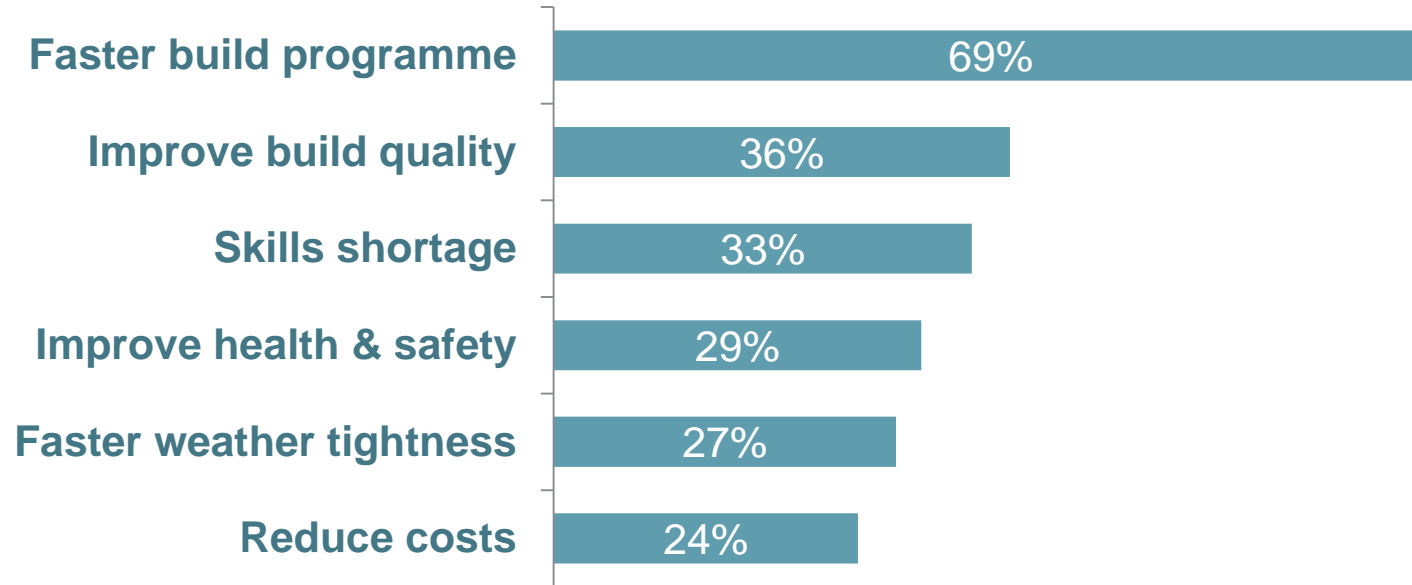


Growing interest in MMC

White Paper says MMC will:

- Boost productivity, innovation, sustainability and skills
- Drive up overall housing supply
- Allow quicker building – ‘up to 30% more quickly than traditional methods’
- Reduce costs – ‘with a potential 25% reduction in costs’
- Improve quality – ‘high quality, reliable.... and can be highly energy efficient’

MMC: views from the industry (NHBC Foundation: NF70)



% who selected each driver as a 'top 3' choice

Welcome to the NHBC MMC Hub

The resource centre for offsite and other non-conventional construction

What is the MMC Hub?

Modern methods of construction (MMC) covers a wide range of construction materials, components, assemblies, and systems normally, but not always, manufactured offsite. NHBC's MMC hub contains:

- ✓ Details of building systems we currently accept
- ✓ Information about MMC research
- ✓ Access to details of NHBC's MMC requirements
- ✓ Examples of what's included in our review process
- ✓ An online application facility
- ✓ Details of how to apply for a review
- ✓ Answers to frequently asked questions



Hybrid building
systems



Panelised building
systems



Site-based building
systems



Volumetric building
systems

Research

View the latest MMC research from NHBC
Foundation and other bodies

[VIEW RESEARCH](#)



Apply for review

Are you a manufacturer? Find out more
about NHBC's MMC review process...

[APPLY FOR A REVIEW](#)

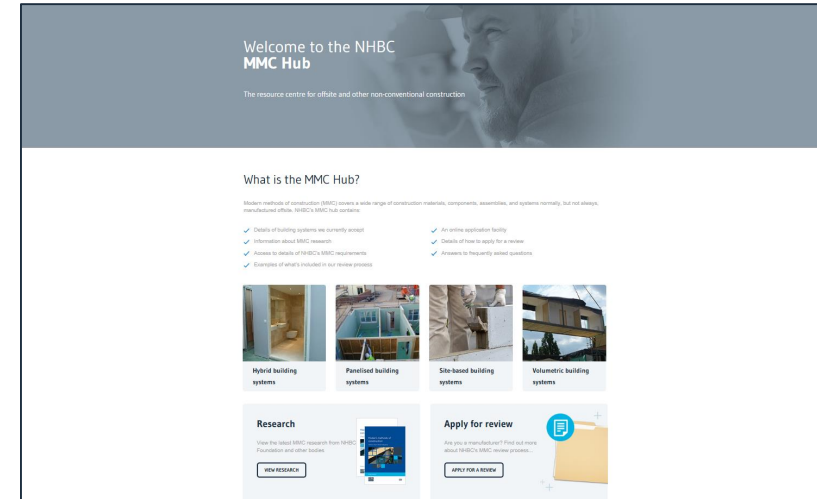


www.NHBC/MMCHub



NHBC MMC Hub content:

- MMC systems accepted by NHBC
- What's involved in our review process?
- How to apply for a review: online application facility
- Frequently asked questions
- Links to MMC research



Key issues for NHBC to consider

All new homes should:

- Meet the reasonable expectations of owners & residents
- Be mortgageable, on normal terms
- Be insurable
- Be durable; long lasting



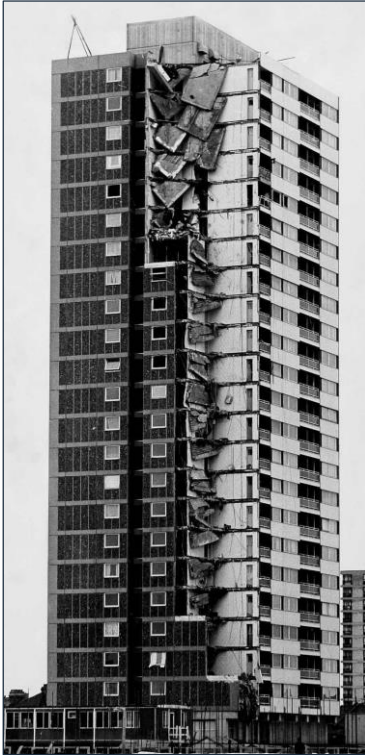
What do we need to assess?

- Structure
- Resistance to moisture
- Thermal performance
- Behaviour in relation to fire
- Acoustic performance
- Interfaces
- Compatibility of materials and interaction between components
- Durability: 60-year design life

Structure

- Designed by suitably-qualified engineer?
- Structural design philosophy
- Design calculations
- Connections between elements
- Connection with other parts of the building, e.g. foundation; claddings
- Differential movement
- ...

Structure



Structure



Resistance to moisture

- Cavities: drained & vented?
- Damp proof courses
- Damp proof membranes
- Vapour control layers
- Breather membranes
- ...



Resistance to moisture – BC ‘Condo Crisis’



Thermal performance

- Thermal insulation values
- Thermal bridging details
- Vapour transmission
- Condensation risk analysis
- ...

Thermal performance



Interfaces

- Fit to the foundation/substructure: tolerances
- Fit and connections between units/panels
- Connections to services
- Interface with cladding: ensuring weather-tightness
- Detailing around openings
- ...

Interfaces



Interfaces



Interfaces



Interfaces



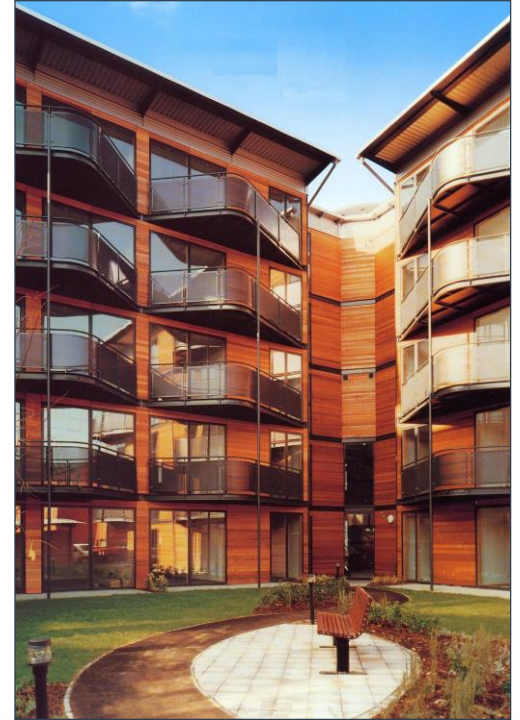
Durability: 60-year design life

- Technical Requirement R3: *Structure... life of at least 60 years*
- Inherently durable materials (e.g. naturally durable timber)
- Protection:
 - Timber treatment
 - Corrosion protection of steel
- Design for planned maintenance, repair and replacement

Durability: 60-year design life



Durability: 60-year design life



How do we assess?

How do we assess?

Desk study:

- Compliance with NHBC Standards
- Compliance with other recognised standards
- Independent assessment (e.g. BBA, BM TRADA)
- Suitability for intended purpose
- 60-year minimum durability
- A complex picture – evidence needed



How do we assess?

Factory visit:

- Is the factory well organised?
- Capability of management/team?
- Their understanding of 'building' issues
- Quality assurance?



How do we assess?

Site trials:

- Does it work?
- Is it practical/buildable?
- Unexpected issues?



Summary

- Renewed, growing interest in MMC
- NHBC supporting industry; MMC Hub
- All new homes must meet reasonable expectations:
 - mortgageable
 - insurable
 - 60-year design life
- Many aspects of performance need to be assessed

Welcome to the NHBC MMC Hub

The resource centre for offsite and other non-conventional construction

What is the MMC Hub?

Modern methods of construction (MMC) covers a wide range of construction materials, components, assemblies, and systems normally, but not always, manufactured offsite. NHBC's MMC hub contains:

- ✓ Details of building systems we currently accept
- ✓ Information about MMC research
- ✓ Access to details of NHBC's MMC requirements
- ✓ Examples of what's included in our review process
- ✓ An online application facility
- ✓ Details of how to apply for a review
- ✓ Answers to frequently asked questions



Hybrid building
systems



Panelised building
systems



Site-based building
systems



Volumetric building
systems

Research

View the latest MMC research from NHBC Foundation and other bodies

[VIEW RESEARCH](#)



Apply for review

Are you a manufacturer? Find out more about NHBC's MMC review process...

[APPLY FOR A REVIEW](#)



www.NHBC/MMCHub