



Modern Methods of Construction Policy Position Statement

The National Fire Chiefs Council (NFCC) support the Government's ambition to build homes quickly and sustainably, reducing the environmental impact wherever possible, and recognise the role that Modern Methods of Construction (MMC) can play in achieving this. However, meeting housing supply should not be prioritised at the expense of safety, and we have concerns that there remains a lack of understanding about the performance of MMC which presents significant uncertainty in the built environment.

The UK construction sector is a strategically significant part of the UK economy. The sector has been struggling to meet growing residential demand, with supply and demand imbalances contributing to unaffordability, tenure shortages and homelessness. NFCC understands that the Department for Levelling Up, Housing and Communities (DLUHC) is very supportive of MMC and see MMC as central to the delivery of ambitious housing targets and the Affordable Homes Programme.

Government has also started to introduce housing and construction policies that address or relate to sustainability targets. A focus on sustainable building approaches has shown an increased interest in MMC and in the use of materials such as timber as well as the incorporation of features such as living walls and roofs. There should not be a conflict between sustainability, improved building standards and fire safety.

Whilst we hold concerns and support proper scrutiny of all building and construction that use MMC, we hold particular concern around the following methods, particularly when in use for high-rise buildings, buildings that are housing vulnerable people, and buildings with a 'stay put' or an evacuation with designed delay:

- 3D Modular (Volumetric) construction - Category 1 of the MMC Definitions Framework (3D primary structural systems); and
- the use of engineered mass timber products e.g., Cross-Laminated Timber (CLT); Glue-Laminate Timber (Glulam).

Whilst we welcome the current reform of building safety, significant cultural change in the system must take place to improve competency levels across the sector and ensure that MMC is promoted and used in a manner which provides safe buildings for all.

Recommendations

- Government should provide clarity on the applicability or otherwise of Approved Document B to MMC considering factors such as construction type, use, height, size, and complexity of the building.
- Government should incorporate and address MMC within secondary legislation and supporting documents.

- Government should ensure that structural and fire engineers are included on its MMC taskforce announced in March 2021 and that the remit of the group is widened to focus on safety and promoting better understanding of the performance of MMC.
- Government should ensure that MMC builds are underpinned by research and whole system testing, by developing a large-scale testing protocol. In line with the recommendations of the Independent Review to restrict the use of desktop studies, this should ensure that there is an appropriate pathway for demonstrating compliance.
- Government should ensure that research is independent and supported by large scale test data.
- Government should define the competency requirements for practitioners who work on MMC buildings, including industry and regulators.
- Government should elevate the status of the *Building regulations and fire safety procedural guidance* to an Approved Document and ensure via this process, information is provided to FRSs on construction methodology they need to know to intervene in a fire event effectively and safely.
- Government should introduce a requirement for FRS comments to be responded to by the Building Control Body at building regs consultation stage.

Regulation

NFCC recognise that MMC has a role to play to provide much needed housing and infrastructure, but stress that the safety of MMC needs to be considered. We are concerned that MMC buildings are being designed, approved and built under a regulatory system that has been described and accepted by Government as 'not fit for purpose' even for traditional construction techniques. To ensure the industry is not creating legacy building safety issues, additional safeguards are needed to ensure there is not an influx of potentially unsafe MMC buildings being constructed while necessary regulatory reforms are in progress.

There is a need for appropriate guidance for MMC on how to demonstrate compliance with the functional requirements B1 to B5 of the Building Regulations 2010 (as amended). Currently modular builds and other forms of emerging technology should sit outside Approved Document B (ADB) as this is specifically for common building situations. By nature of their innovation, the underpinning assumptions in ADB guidance, such as minimum periods of fire resistance and standard test methods, are not formulated for universal application to buildings incorporating innovative construction technologies and combustible structures.

MMC is not addressed within the Building Safety Act, however primary legislation is rigid and hard to alter, which will not give the needed flexibility to adapt and change as new technologies emerge. As more information and research of current modern methods emerges any regulation or standards relating to this must be adaptable to ensure consistent and thorough regulation and oversight. We believe that secondary legislation is more appropriate for addressing the current lack of regulation and safeguards for construction using modern methods and modern materials.

In March 2021, government announced they will establish a new MMC Taskforce. The intention is for the taskforce to consist of world-leading experts from across government and industry to fast-track the adoption of MMC. Any fast-tracking of MMC should be supported by an appropriate framework to assure safe design which is informed by research to fill the current knowledge gap on fire performance. The task force should include specialists who can inform this aspect.

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the building.

Recommendation: Government should incorporate and address MMC within secondary legislation and supporting documents.

Recommendation: Government should ensure that structural and fire engineers are included on the taskforce and that the remit of the group is widened to focus on safety and promoting better understanding of the fire performance of MMC.

Testing and Research

NFCC welcomed the recommendation made by Dame Judith Hackitt to significantly restrict the use of assessments in lieu of tests (known as desktop studies) to approve changes to cladding and other systems.

Whilst assessments in lieu of tests are, in some circumstances, a practical and proportionate step to adapt test results to the specific design and construction of a building, we remain concerned about the lack of research and test data available to provide reassurance on the fire performance of buildings constructed using types of MMC. The fire performance of innovative construction techniques and materials is not always fully understood, and we are unclear of the implications this has on structural performance during both heating and cooling phases of a fire. Of particular concern is the structural stability in fire of tall modular and mass timber construction where the consequence of structural failure is significant.

Assurance is needed that fire performance of materials, elements, and systems have been fully considered, tested appropriately, suitably evidenced, and provide the level of safety that residents and firefighters should expect.

We also have concerns that currently system components are tested individually. Testing should consider the effects of fire on the systems as a whole, rather than rely on the performance of individual elements in isolation. The importance of testing products, not only in isolation but as part of a system, was highlighted as part of Dame Judith Hackitt's recommendations.

Steel and reinforced concrete structures provide a resilience as a whole system that is understood through comprehensive large-scale testing. Modular and mass timber construction does not have the same body of knowledge supported by large-scale test data. It is therefore unclear how resilient the structure will be in the case of a serious fire in a high rise modular or mass timber building.

Understanding fire performance, particularly in high-risk buildings, is critical to delivering a safe built environment.

We have repeatedly expressed concerns at the lack of large-scale fire test research and data. Evidence from Phase 2 of the Grenfell Tower Inquiry (GTI) concerning the validity of product test performance, claims and certification and in one case the subsequent retraction of test reports, add weight to these concerns. We have also received reports from our members where projects are being progressed and constructed, despite repeated requests for information to evidence and underpin design and performance assumptions of materials and construction techniques, which have not been answered satisfactorily.

Any situation where design teams specify their own test standards should not be seen as acceptable in any competent building standards process.

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Recommendation: Government should ensure that testing is independent and supported by large scale test data.

Quality Control

There have been several high-profile fires across the country where construction methods and build quality have been questioned. While improvements in build quality have been highlighted as a key benefit of MMC, with greater precision possible through factory conditions, this can be undermined by a lack of skill among teams onsite. Building designs can be reliant on quality of welding, bolting being in place, plasterboard being fitted correctly (and maintained), modules aligning so there are no gaps, and fire stopping and cavity barriers being in place and fitted correctly. However, we know from experience that this assumption of build quality cannot be taken for granted.

Fire and rescue services (FRS) have also reported cases where they believe insufficient information has been provided to demonstrate that new methods are capable of meeting the functional requirements, or that the fire performance is fully understood or demonstrated.

When issues regarding construction material safety are coupled with concerns around competency and build quality in the construction industry, it does not provide us with sufficient confidence that MMC projects are receiving the appropriate level of scrutiny needed for such new and innovative approaches. This is particularly concerning considering the use of MMC in high-rise residential buildings, with increasingly taller schemes coming forward, despite the consequences of failure in such higher-risk buildings being devastating.

We also have concerns around competency and consistency when it comes to building regulations and MMC. Competence, as with any building and construction methodology, and its related fire performance, is critical to delivering a safe building for occupants and firefighters alike. This knowledge and understanding of methods of construction, and related building safety, should encompass competency throughout a premises lifecycle and include, the planning, design, approval, construction, occupation, management, and any potential future alteration.

Recommendation: Government define the competency requirements for practitioners who work on MMC buildings, including industry and regulators.

Operational Response

In operational responses to fires certain assumptions underpin the ability of FRSs to safely and effectively intervene in a fire event, especially in a high-rise building. There is a fundamental expectation that Building Regulations compliance provides a baseline for how a building should behave, an expectation upon which fire service intervention is predicated.

The operational response capability of FRSs underpins much of the design guidance in building regulations. As was witnessed with such tragic consequences at Grenfell Tower and as outlined by the

Inquiry's Expert Witnesses, when a building fails catastrophically the safety of building users and firefighters cannot be assumed.

FRSs are consulted during construction to comment on the likelihood that the common parts of the building will comply with the Regulatory Reform (Fire Safety) Order 2005 and can also provide comments on the Building Regulations and other non-statutory advice. However, FRSs are often not informed of the construction methodology consulted under the Building Regulations. Whilst FRSs are statutory consultees under the Building Regulations, their comments are not required to be fully resolved during this process merely held in appropriate regard.

Information on the location of high risk MMC buildings is another part of the response challenge facing FRSs. Currently there is no database or similar resource that records MMC buildings. We would emphasise that often MMC buildings cannot be identified by sight alone. FRS need such information to inform their operational activities, planning, and risk assessments in the event of a fire but there are currently challenges to developing an understanding of where these buildings are located.

Recommendation: Government should elevate the status of the “Building regulations and fire safety procedural guidance” to an Approved Document and ensure via this process, information is provided to FRSs on construction methodology they need to know to intervene in a fire event effectively and safely.

Recommendation: Government should introduce a requirement for FRS comments to be responded to by the BCB at Building regulations consultation stage