

Within the social housing sector there continues to be a demand for Modern Methods of Construction (MMC). MMC can offer advantages such as improved build time, environmental benefits and reduced on-site labour costs. The extent of these benefits often depends upon the size of development and design employed.



A key question facing social housing providers is the choice between traditional build methods versus MMC. In contrast to MMC, the use of traditional construction offers greater certainty which can make it the lower risk option. Therefore combining traditional construction with MMC continues to fuel innovation and debate.

The aim of this Housing Risk Guide is to briefly highlight key considerations for MMC buildings at the design stage, during construction and for completed buildings.

What is MMC?

MMC is a term used to describe a number of construction methods which differ from 'traditional' construction. Other terms that are commonly used include off-site construction, factory-built, industrialised or system building and pre-fabrication.

Zurich Municipal's definition is:

A construction process that can encompass the use of composite new and traditional materials and components often with extensive factory produced sub-assembly sections. This may be in combination with accelerated on-site assembly methods and often to the exclusion of many of the construction industry traditional trades. The process includes new buildings and retrofitting, repair and extension of existing buildings.

Identified below are examples of more common types of MMC:

1. Super-structure

- Modular Construction
- Pod Construction
- Open panel – Timber frame and Steel frame
- Structural Insulated Panels
- Solid Cross Laminated Timber Panels

2. On-site technologies

- Insulated Concrete Formwork (ICF)
- External Finishing Systems
- Timber Cladding
- External Insulated Finishing Systems (EIFS)
- Brick Slip System
- Green Wall and Roofs

For new build developments using Modern Methods of Construction evaluating the following areas and implementing controls will help ensure a successful build:

- Build quality control e.g. adequacy of inspection regimes during the build
- Selection and competency criteria for contractors
- Standards for construction site fire safety
- Standards for construction site security
- Compliance with published safety guidance e.g. trade associations, Health and Safety Executive (HSE) or insurer recommendations
- Emergency procedures

Design Considerations

Reducing risk at the design phase is an important component in the delivery of a successful build. Ensuring all stakeholders are engaged in reducing risk ultimately adds value by ensuring potential losses can be minimised as well as more subtle benefits through reduced maintenance costs, improved occupier satisfaction and well-being. An example of reducing risk for wall construction is given below but the principle of reducing risk should be applied across all elements of the design.

The wall or facade of the building can have a material impact upon the arson or accidental fire risk. It can also affect the fire spread risk should a fire occur and ultimately the extent of any loss.

Top tips to minimise the risk of fire

- Keep combustible cladding materials to first storey level and above
- Limit the amount of combustible cladding or break up the cladding, both horizontally and vertically, with non-combustible materials
- Place combustible cladding on a non-combustible substrate
- Do not place unsecured waste bin enclosures or storage cupboards inside the external wall or facades of the building or against the building

Construction Fire Risks

There have been a number of high profile fires on construction sites involving MMC. Lightweight timber frames, for example, burn readily and rapidly once fire gets hold.

When dealing with combustible materials during construction, such as lightweight timber frame, it is considered necessary to distinguish between small scale and low rise developments compared to large scale and high rise developments. The latter group requires very careful consideration to ensure that all stakeholders adequately address and understand the fire risks involved.

We recommend you consult with us at an early stage if you are planning large scale developments and high rise buildings using MMC construction.

Completed Structures

Identification of the construction materials used in a completed structure can be a challenge. This particularly holds true for those involved in managing the building e.g. housing or maintenance managers, who were not involved in the original build. This can have a knock on effect when contractors come on site and are faced with a traditional looking building but which, in fact, encompasses a variety of MMC techniques and materials. This has resulted in a number of fires due to hidden combustible insulation being ignited following hot work.

For more information and guidance on hot work please refer to our Managing Contractors Risk Guide Document.

Understanding how the building achieves the required building fire resistance can also be challenging. For example, the installation of new cables through walls could potentially breach compartment walls and, in the event of a fire, allow much more rapid and extensive fire spread into hidden voids.

For these reasons it is important that robust measures are put in place to mitigate these risks such as:

- For new buildings ensure the architect provides a straightforward summary of the building construction and fire safety design features
- For existing housing stock which has MMC construction ensure training and procedures are put in place with relevant staff e.g. local housing managers, maintenance staff, to ensure that the requirements around hot work permits, fire stopping, routine maintenance etc, are fully understood and embedded within your organisation

Find out more

As a key insurer within the social housing sector Zurich Municipal is committed to insuring and supporting our customer's housing portfolios and associated risks. Our risk management team have a wealth of experience in helping customers understand the various methods of construction and identify and manage associated risks.

For further information please contact social.housing@zurichmunicipal.com



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