

Roundtable

Talking mass timber: why early engagement is key to allaying insurers' concerns

Robin Jones summarises the discussions and key recommendations from a roundtable examining the insurance risks relating to mass timber construction.

A panel of 19 structural engineers and other representatives of the built environment and insurance industries met at the IStructE on 27 February to discuss the wider adoption of mass timber for building construction and the insurance challenges associated with this. The event explored concerns and perceptions of risk around the use of timber and ways in which the industry can address these.

What are concerns with timber?

The structural engineers present had extensive experience of the design of timber structures – both traditional timber frame and mass timber. However, it was argued that multistorey timber structures, and larger mass timber structures, in particular, should be regarded as a new form of construction. Current codes and regulations were not written with high-rise timber buildings in mind. As with the adoption of any new method or approach, use of mass timber in this way has brought challenges and care is needed to mitigate these during design.

It was suggested that there is greatest potential to use timber in low-rise buildings where it can have the biggest impact in terms of reducing embodied carbon emissions. Traditional timber-frame construction may be more appropriate at this scale. Problems are

more likely to arise with taller buildings, and with timber balconies or flat roofs. There is a need for consensus on appropriate building typologies for timber.

On the insurance side, it was explained that taller mass timber buildings (e.g. those over five storeys) are seen as a bigger risk than equivalent buildings in concrete or steel: they are viewed as more likely to be damaged or destroyed in fire, with insurers concerned by the potential for total loss and the costs or difficulties associated with repair, particularly where the timber structure is enclosed.

There is a lack of data on how mass timber structures perform over the long term and this leads to nervousness in the insurance market, and consequently limited appetite or capacity among both buildings and professional indemnity (PI) insurers. In a 'hard' market, brokers are likely to be more cautious about risk and new construction methods, and wary of the potential for substantial legal costs in the event of a dispute.

The UK has less recent experience of timber construction than the USA or Europe. However, even in the USA, where plenty of data is available, a history of fires in timber buildings can make it difficult to obtain insurance cover.

Key points

- | Early engagement between the design team and insurers is crucial for mass timber projects. Designers need to understand insurers' concerns in order to address them.
- | Insurers need to understand the fire and water risk management strategies for a timber building, as well as the proposed approach to repair and reinstatement in the event of damage.
- | The design team's experience with mass timber is a key factor for insurers when assessing a project – third-party design reviews can be a way for less experienced teams to reassure insurers.
- | Designing with timber is different and the industry needs to upskill and share good practice more widely – agreeing reliable design methods and standard details, and promoting guidance on these could help to achieve this aim.
- | Positive stories of good practice with timber will be needed to overcome the perception of risk and resistance to change within the wider construction industry.



TALLER MASS TIMBER BUILDINGS ARE SEEN AS A BIGGER RISK

How do we address these concerns?

Risk and repair strategies

To address these concerns, the design team will need to be able to articulate to insurers what the fire risk management strategy for the building is, and how water or fire damage can be addressed. A damage reinstatement plan could set out how and to what extent the building can be repaired, as well as the cost implications of repair.

Questions that need to be answered include: what is the strategy for replacement if the timber structure is enclosed? If the timber is left exposed, can the aesthetics be restored? It may be necessary to reconsider the fashion for exposed timber if this leads to greater insurance costs – although this will depend to an extent on the client's preferences and cost-benefit ratio of being able to offer this aesthetic to tenants. It was also proposed that a visual or aesthetic grading system could be agreed for timber repairs to make insurance costs more palatable.

Demonstrating competence and experience

The insurers present explained that brokers will place a lot of emphasis on the competence and experience of the design team, including any specialist timber contractor employed on the project, and this should be communicated clearly. Insurers are also more cautious about design-and-build projects in timber due to concerns about changes being made to the design during construction.

As reputation is important, if a practice is new to designing with mass timber, it may be more difficult to arrange insurance cover for a project. This can potentially be overcome by arranging a third-party design review by a practice with a track record of mass timber design.

It was also suggested that it may be useful to bring in a specialist timber contractor under a preconstruction services agreement as



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their expertise could be helpful in insurance discussions, although clients may be reluctant to pay for this.

Communication is key

It was emphasised that design teams need to engage with insurers as early as possible, in order to address the concerns discussed in the previous sections. Engineers will typically have answers to the questions that insurers will ask, but they need to be in a position to communicate these.

Early engagement of this nature is particularly important in the current 'hard' market: as the decision to offer insurance is a commercial one, insurers may be selective about projects, so it is important to be able to present risks and management strategies clearly.

The cost of insurance will also depend on the client or developer's appetite for risk and the type of building they desire: a high-quality building that could last for several hundred years may be more expensive to build but cheaper to insure, whereas the reverse might be true for a lower-quality building that will be replaced in 20 years. Early engagement with an insurance broker will allow such issues to be explored.

For large, multimillion-pound projects, it was suggested that design team members should begin talking to insurers and present their credentials or experience at least a year before a project starts.

However, it was pointed out that on mid-size projects, engineers are rarely asked to present to insurers. If it would be beneficial for

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this to happen more regularly, or for all mass timber projects to have an insurance review, brokers and designers will have to find a way to facilitate these discussions.

Professional indemnity

While the discussion focused mainly on insurance of completed assets, it was also noted that PI insurers regard it as particularly important to have clearly defined contractual terms and responsibilities for a mass timber project. Integrated project insurance (IPI) could also be considered for larger projects.

Creating a positive narrative

While there were mixed views as to whether timber is a difficult material to design in per se, as a brittle and combustible material it is different from steel or reinforced concrete. There was a consensus that poor precedents, the perception of risk and a resistance to change within the built environment sector mean that positive stories will be needed to change attitudes towards timber.

It was noted that local authorities may be reluctant to consider timber for multiple-unit residential projects – due to concerns over both insurance and warranties. Building control departments can also struggle to understand the principles behind the fire strategy for mass timber buildings, with each building needing a unique strategy.

However, there was also a shared view that it is possible to design well in timber today and to build safe timber buildings – although this expertise is concentrated in a small number of firms and good practice needs to be shared more widely.

There is guidance available from the Structural Timber Association (STA) on fire and moisture management with timber, and the STA has produced some standard details

that engineers could adopt. Third-party peer review of designs could also help to upskill more designers, and experienced engineers need to be able to challenge poor design practice, e.g. use of timber in basements.

It was also proposed that it would be beneficial for the timber sector to be able to share information on historical problems and how these can be addressed – although it was acknowledged that this would be difficult for commercial reasons. Could the Collaborative Reporting for Safer Structures (CROSS) scheme be used as a model for how data can be collected and shared anonymously?

By developing a consensus on reliable design methods and adopting standard details, ensuring closer collaboration between structural and fire engineers, and working to educate all parties in the built environment sector, it should be possible to develop confidence in mass timber.

Learning from abroad

It was also felt that there was potential

to learn from experience with mass timber structures in mainland Europe, where fire testing data, standard details, etc. are available. However, differences in the UK's safety approaches and climate would need to be taken into account. For example, UK building regulations are focused on life safety not the protection of a building in the event of a fire, different approaches are adopted by fire services, and the wetter climate in the UK means there is a need to keep materials dry during construction in winter.

Sustainability drive

It was also highlighted that many insurers are increasingly keen to support environmental, social and governance aims in their underwriting, and reporting on carbon emissions of their portfolios may be required in the future. More progressive firms are already looking to engage with industry over mass timber construction, and are likely to be followed by others in the future. This bodes well for wider adoption of mass timber where it supports a low-carbon agenda.

Useful resources

The following resources from the STA are available at www.structuraltimber.co.uk/libraries/technical-documents/. Where indicated, content is only accessible to STA members.

Mass timber

Standard details

→| *Advice Note 14: Robustness of CLT structures* (member only)

Fire

→| *Insurance industry guide to mass timber in UK construction*

→| *Structural timber buildings fire safety in use guidance. Volume 6 - Mass timber structures; Building Regulation compliance B3(1)*

General

Moisture

→| *Moisture management strategy. Process guidance for structural timber buildings* (member only)

Fire

→| *Advice Note 7 - Part 3: Fire Safety Strategy (FSS) for structural timber buildings* (member only)

→| *Advice Note 7 - Part 2: Structural timber external wall compliance route for fire safety* (member only)