



## TIMBER STRUCTURES AND FIRE

Timber construction is undergoing a renaissance world wide. Multi-storey timber buildings with heavy timber products are being erected around the globe, sparked by the sustainability benefits of timber construction.

There are many benefits to using timber for the main structural elements of a building as opposed to concrete or steel. Timber is extremely lightweight in comparison; hence cost savings can be made in terms of foundation size, crane and transportation requirements, and building erection time. A high level of prefabrication also allows for significantly reduced construction times and onsite labour requirements, while ensuring a high level of quality and consistency in the building elements. Additionally, these features make timber an excellent material for use on sites which have poor ground conditions or access restrictions.

Massive timber structures exhibit excellent fire performance. This is because of their ability to maintain their load bearing capacity during a fire due to the char layer which protects the unheated load bearing timber. Performance based fire engineering can be used to reduce or eliminate the need for passive fire protection to timber elements on new or existing structures. This provides cost savings to the project and allows the timber structure to be exposed, which provides unparalleled building aesthetics, hence it is commonly specified for showcase buildings as a major point of difference.

Holmes Fire has specialist structural fire engineers capable of analysing the behaviour of timber structures in fire conditions. Utilising a number of analysis methods,

including advanced numerical analysis, cost savings can be achieved whilst providing a safe and robust design suited for its intended purpose. All of our engineers have post-graduate qualifications in either structural engineering or fire engineering, and we have more than 10 years experience in structural fire engineering on projects. Our engineers have specific expertise and understanding on the fire performance of timber elements, and also their fire performance within a whole building structural system.

Our engineers are also aware of the fire performance of the latest structural timber systems such as Cross-Laminated-Timber (CLT) and long-span timber floor systems. With this expertise, we can deliver value through a collaborative and defensible process involving the client, architects, contractors, Fire Service and Approval Authorities.

Recent project examples:

Waitomo Caves Visitor Centre, New Zealand.

Sydney Film School, Australia.

Balmain Rowers Club, Australia.

