

The University of Melbourne

NEW LAW BUILDING

STRUCTURAL STEEL DELIVERS CONSTRUCTION COST BENEFITS AND ARCHITECTURAL FLEXIBILITY FOR LANDMARK BUILDING



THE FIRE SAFETY ENGINEERING DESIGN INCLUDED A RISK ASSESSMENT TO DEMONSTRATE THAT THE DESIGN OFFERED AN ACCEPTABLE LEVEL OF LIFE SAFETY IN THE EVENT OF A RANGE OF FIRE INCIDENTS.

The twelve-storey Law School building is part of the University of Melbourne's recent development at University Square in South Carlton. The development consists of three academic buildings and an underground carpark with space for 1,100 cars. The Law Building provides 20,000 square metres of academic and educational space for the University's Law Faculty.

The application of fire safety engineering research to the design of this building delivered construction cost benefits as well as allowing architectural flexibility for this, the tallest structure in the University Square complex.

The building was constructed with suspended composite floor slabs supported by steel floor beams, most of which have no fire protection. Columns up to and including first floor level are welded steel sections with pre-cast concrete columns above this level.

Some of the steel columns on the lower level are located outside the line of the facade of the building and are clad with polished granite. Two fire-protected staircases are encased within reinforced concrete shafts.

Two major sets of open stairs connect up to seven levels within the building, representing a major

departure from the Building Code of Australia (BCA) deemed-to-satisfy provisions.

Similarly, the use of bare steel floor beams, reduced level bare steel floor beams, reduced levels of protection for some of the columns, was a departure from the 'deemed-to-satisfy' provisions of the Building Code of Australia (BCA), which require 120 minutes fire resistance.

Fire safety engineering evaluation by Bruce Thomas & Associates, and assisted by the OneSteel sponsored fire research conducted at the Victoria University of Technology, demonstrated that the building met the performance requirements of building regulations without adopting all of the prescriptive rules.

This evaluation demonstrated that most of the steel floor framing of the building could be left unprotected. Steel columns on the lower levels were designed to have sufficient fire resistance to withstand a fully developed fire.

The internal columns were protected to achieve 120 minutes fire resistance and the granite cladding of the lower level external columns was shown to provide sufficient insulation to achieve adequate fire resistance.



Part of the fire safety engineering design included a risk assessment to demonstrate that the design offered an acceptable level of life safety in the event of a range of fire incidents, taking into account the effectiveness of the fire safety systems, which included sprinklers.

The sprinkler system that was incorporated within the building offered a higher level of reliability than required by the provisions of the BCA. Subsidiary valves allow each floor to be isolated independently. A tap is located on each floor to check the presence of water during commissioning and following tenancy upgrades. A sprinkler management protocol is also part of the essential services requirement for the building.

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Meinhardt Group

SERVICE ENGINEERS
Simpson Kotzman

BUILDING CONTRACTOR
Grocon

STEEL FABRICATOR
Alfasi Steel
Constructions

STEEL DETAILER
BDS Steel Details

FIRE ENGINEERING
Bruce Thomas &
Associates