

50 Lonsdale Street

Melbourne

5 LEVELS OF BASEMENT CARPARK AND 33 STOREYS ABOVE GROUND.

The new office building at 50 Lonsdale Street is known as The Urban Workshop. It incorporates 5 levels of basement carpark and 33 storeys above ground. A 5-storey atrium connects all levels between Ground Floor and Level 4. There are retail spaces at Ground Floor, Level 1 and Level 2. The remainder of the building is generally office space.

The below-ground part of the building is reinforced concrete construction, while the above-ground part is steel-frame with composite floor slabs and has composite action between the beams and the slab.

All primary and secondary steel beams are unprotected throughout the building, with the exception of beams passing through the atrium. All columns and transfer beams are protected in accordance with DTS, ie 120/-/ FRL in offices and 180/-/ FRL in retail spaces.

The building is sprinkler-protected throughout. Enhancements to the sprinkler system have been included to provide increased reliability in comparison with a DTS-compliant design. These enhancements include floor-by-floor monitored valves, end-of-line testing and specific management procedures.

Use has been made of the results of the large-scale fire tests conducted on a similar structural system, being the 140 William Street tests in Australia and the Cardington tests in the UK. In addition, consideration has been given to the robustness of the structural system in the event of a fully-developed fire at any one storey. The fire safety engineers have worked

with the structural engineers for the project to evaluate the performance of both the connections and the columns when the unprotected beams are at elevated temperatures. This scenario assumes sprinkler failure and is thus a low-probability event.

A risk assessment has been performed and it has been shown that, given the enhancements to be included in the design, the probability of structural failure of the unprotected steel beams in fire will be no greater than that of the beams at ambient temperature.

DEVELOPER

ISPT

ARCHITECT

John Wardle Architects in association with Hassell and NH Architecture

STRUCTURAL ENGINEER

Connell Mott MacDonald

BUILDER

Multiplex Constructions

FIRE ENGINEERING

Norman Disney & Young



50 LONSDALE STREET – FIRE RESISTANCE REQUIREMENTS SUMMARY

BUILDING ELEMENT	ELEMENT REQUIREMENT	
	DTS	Alternative Solution
Office – beams	120/-/	Atrium: 120/-/ Other: unprotected
Office – columns, transfer beams	120/-/	120/-/
Retail – beams	180/-/	Atrium: 120/-/ Other: unprotected
Retail – columns, transfer beams	180/-/	180/-/
Sprinklers	Yes	Yes (with enhancements)

Table 4