



**Structural Steel delivered:**

- Speed of Construction
- Environmental sustainability
- Efficient approach to design
- Minimised risk
- Less numbers on site



AUSTRALIAN STEEL INSTITUTE



[www.beyond2.com.au](http://www.beyond2.com.au)

ASI Head Office

Level 13, 99 Mount Street, North Sydney, NSW 2060

Telephone 02 9929 6666 Facsimile 02 9955 5406

# ■ Number 2, Market Street Sydney - A 'Green' Steel Building

Number two Market Street in Sydney showcases innovative design in steel to accommodate the constraints of CBD construction.

This innovative 'green' building was designed in steel by the successful engineering tenderer Arup and built by Lipman, an Australian property development and construction company.

Steel was chosen as it is lighter than concrete and minimises strengthening works required on the existing structure. A second competitive advantage was that Arup felt that it could manage the process to capitalise on the well known speed of construction of the steel frame.

Number 2 Market Street is an eight storey building over three levels of existing car park. The building was designed to take one level of retail and seven levels of commercial office space. It has two eccentric concrete cores which brace its steel frame.

Environmental sustainability played a key role in the design concept of the project. Being a steel framed building, it is easier to recycle at the end of its life. With features such as a chilled beam air conditioning system, the design is expected to achieve a five star Australian Building Greenhouse Rating (ABGR).

Architecturally, the building features a steel framed atrium with a glass ceiling and a facade between the new building and its neighbour. Within the atrium, steel bridges with glass balustrades link the two buildings. The lift also comprising exposed steelwork creates a light and open atmosphere.

Structurally, Lysaghts W- deck® was employed by Arup to facilitate longer un-propped spans of 3.6 metre. This is not possible with traditional dove tail profiled decks. The un-propped construction allowed the existing carpark below to continue full operation with no interruptions from propping. Fit out of the new lower levels therefore proceeded while the building continued upwards.

Concrete band beams were considered, but these did not allow un-propped formwork and would have involved mixed trades, limiting the speed of construction. In addition, Lipman builders Safety Officer, Peter Elliot, commented that there was less risk for them to manage because work was only proceeding on a limited number of fronts, there were low numbers on site and there was fast construction, .

The multidisciplinary design approach where the designer Arup managed the design of services, fire engineering, geotechnical, facade and sustainability design, resulted in seamless transitions and interface areas.

Number two Market Street is set to be an A-grade office space and a green building, located on a prominent site. Steel composite framing with long span composite beams and composite trapezoidal decking enabled the design criteria to be met, and in many cases, exceeded.

## Project Team

**Client:** Maquarie Bank and Allianz

**Project Management:** TSA

**Architect:** Crone Partners

**Engineering:** Arup (structural, services, façade, fire, geotechnical, STG (Sustainable Technology Group))

**Builder:**

Early Works - Barbro Constructions

Main Package - Lipman

Steel fabricators for main package -

for main building - Steeltech

for Fitness First - Hunter Drafting



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