



Latitude East
– A Multiplex Project
- A model of pre-planning for success.



AUSTRALIAN STEEL INSTITUTE

□ Steel in Buildings CASE STUDY

Structural Steel Delivered:

- Speed of Construction – earlier occupancy
- Competitive Cost – reduced construction costs preliminaries and overheads
- Reduced congestion in a CBD environment
- Sustainability benefits through the ability to reuse and recycle.

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■ Latitude East

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Following on from the highly acclaimed Ernst and Young Building, Multiplex are completing another high profile Sydney CBD project on the same site.

Latitude East is a 24 storey complex, based on an existing 12 storey platform. This construction features a visually stunning atrium with exposed lift and stair structures. The building is based on a composite structural steel frame with Bondek flooring features that have significantly reduced the weight of the structure and improved its speed of construction.

The complexity of this construction concerned working around the existing tenancy and 24 hour operational car park and logistics of truck movements within a very restricted access CBD site. Truck loadings and movements were coordinated so fabricated assemblies were unloaded in the correct sequence for cranes. This proved a significant benefit over the truck movements which would have been associated with traditional concrete construction.

In this building Lysaghts D&C were the prime subcontractors to Multiplex and a cooperative planning process was used to identify potential problems up front and to overcome them.

This process together with the flexibility of the off site fabrication process delivered minimal disruption to the site, a fast program allowing follow on trades in quick succession and a clean site with a well managed construction process.

To achieve the tight programme and budget constraints and to take advantage of technological developments it was essential for this forward planning and co ordination between the consultants (Architect, Crone Partners and Engineer, Taylor Thompson Whitting) the steel fabricator, mechanical services, concrete and façade contractors to be thorough and all inclusive.

The structure featured 600 diameter circular steel columns, reinforced. The column reinforcing was prefabricated to suit the column lengths and include the splice laps. These were supplied to the steel fabricator who inserted and tack welded them in position. This resulted in the column being erected as complete units.

These columns were linked in an east, west direction with primary 610UB, while the north, south secondary beams (460UB, 310UB) at 2.8m centres were connected with angle cleats to the main beams which took advantage of cost effective beam line fabrication.

Over this frame a composite Bondek floor was placed which include all façade requirements.

The required fire rating was achieved through the concrete filled 600 diameter columns and fire rating to the primary beams only.

Areas of cantilevered floors were constructed by incorporating column stubs, profile cut around the beam to allow a continuous primary beam to pass through; the beam was then fully welded to the stub. Carefully placed prefabricated reinforced cages from the column below gave the columns continuity.

The roof plant room loads were distributed to perimeter columns by suspending the plant room floor from node points to a fabricated truss system, thus minimizing the number of columns to be strengthened in the existing structure.

Acknowledgements:

Builder:

Multiplex

Architects:

Crone Partners

Engineering:

Structural TTW

Façade Connell Mort McDonald

Mechanical Waterman AHV

Prime Contractor:

Lysaghts D&C

Subcontract Fabrication:

Allman Fabrications Steel Lift Shaft

Sebastian Engineering Beamline Structural

Phoenix Engineering Welded Connections

Erection:

Penrith Rigging

Detailing:

Elmasri



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