



Taking prefabricated construction to new heights

Architecture is one of the most exciting forms of art, and nothing quite compares to the ingenuity of designing and constructing one of the world's most slender residential towers.

Located on the landmark Collins Street in Melbourne, Collins House is currently under construction. When complete, it will deliver an iconic addition to the city's skyline in the form of an elegant building.

Standing 195-metres tall from a base of just 11.5-metres wide, Collins House will be Melbourne's thinnest skyscraper and the world's fourth-thinnest in the residential sector.

CONTEMPORARY DESIGN MEETS HERITAGE-LISTED ARCHITECTURE

Collins House is being constructed atop the heritage-listed Huddart Parker & Co building – the Makers Mark building – and is inspired by its premium location. The building's design fuses modern architecture with the property's original features.

The building widens from 11.5-metres to 16-metres, as it cantilevers over the adjoining building, creating a unified skin over the eastern elevation. On the lower levels, vertically-aligned glass façade panels have been shaped to fit between the two existing buildings that lie on either side of the site. The upper levels of the building extend over the top of these existing builds, with the two side-lying façades featuring a stepped herringbone pattern panel design.

ENGINEERING INNOVATION

The project's pocket-size site presented an opportunity to deliver a technologically-advanced construction solution—one that makes compact inner-city footprints, such as 446 Collins Street, viable for redevelopment.

Precaster

Euro Precast

Client

Golden Age & Asian Pacific Group

Architect

Bates Smart

Builder

Hickory Group

Engineer

4D Workshop

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Designed by Bates Smart and constructed by Hickory, Collins House is being developed using a prefabricated construction method, Hickory Building Systems. Hickory is known as one of Australia's most innovative construction companies, particularly because of this unique building technology that delivers an alternative construction solution for high-rise projects.

30% TIME SAVINGS

Hickory's Design Engineer, Amoolya Nuthalapati, says this method accelerates the construction program, minimises energy waste, and maximises quality and safety.

The project's program has been reduced by 30 per cent and site disruptions have been significantly reduced. A single tower crane is being used to erect major elements that have been manufactured off-site and assembled on-site. "The construction method for the project incorporates our own volumetric structural system, allowing building componentry to be erected more efficiently than conventional formwork would have allowed," Mr Nuthalapati says.

PRECAST CONCRETE REPLACES CONVENTIONAL FORMWORK

Precast concrete plays a key role in Hickory's construction method, and in this project, it provides additional design and structural benefits.

National Precast member, Euro Precast, is supplying approximately 800 precast concrete elements to the project. These consist of columns, façade panels, and internal core panels that all have an off-form finish.

Euro's Managing Director, George Spiropoulos, says the building uses conventional formwork up to level 14, with prefabricated modules – including precast concrete units – being used for the remaining levels. "Precast acts as formwork and forms the external skin of the building's facade. All the modular pieces are being connected together before insitu concrete is poured," Mr Spiropoulos details.

This application is especially suitable for combining architectural and structural functions and is achieved by using loadbearing precast elements for the exterior formwork. As well, the structural integrity of the building is enhanced.

COLLABORATION BETWEEN ALL PARTIES FOR OPTIMAL OUTCOME

Unique projects, like Collins House, only come together with successful collaboration between all parties. Alongside Euro, National Precast Industry Partner, ramsetreid, is heavily involved in the project.

ramsetreid's Engineering Development Manager ANZ – Commercial Construction, Vas Haitas, says their involvement extends beyond the supply of reinforcement and connections including couplers, lifters, and stitch plates. "The core value ramsetreid is providing to the project is in supplying engineered lifting systems backed up by technical support and robust testing," Mr Haitas says.

"ramsetreid engineers have collaborated closely with Hickory engineers to ensure the lifting systems are correctly positioned, both in the precast panels and other prefabricated modular systems."

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