

GOLD COAST

AIRPORT



Architect
Hassell

Developer
Queensland Airports Limited

Builder
Lendlease

Fabricator
Queensland Glass

Capral Products
CW175 System

CAPRAL
ALUMINIUM

CAPRAL INNOVATION SUPPORTS NEW GOLD COAST GATEWAY

Australia's premier holiday destination, the Gold Coast, is set to meet rapidly growing demand with the recent completion of its new three-level airport terminal.

Designed by Hassell and constructed by Lendlease, the new 30,000-square-metre terminal has effectively doubled the Gold Coast airport's footprint.

As well as increasing capacity, Hassell Principal Kevin Lloyd says the design will radically improve the airport experience.

"The three-level building doubles the terminal footprint, providing greater operational flexibility with elements such as gates, aerobridges and baggage claim areas – that 'swing' between international and domestic use depending on demand. This ensures the most efficient use of space and improves the experience for customers and staff," Lloyd says.

Much more than a regional airport, the Coolangatta gateway is Australia's sixth busiest airport, handling domestic and international arrivals and departures.

The original single-terminal facility opened in 1981, had no aerobridge and lacked space and amenities. The new terminal includes six gates and room for 19 aircraft; facilities include four glass aerobridges, seven escalators, nine

lifts, new boarding facilities, baggage handling and border control facilities.

Seamlessly connecting the new with the old, the new facility is the centrepiece of an ongoing \$500 million development of the Gold Coast Airport, with more works underway.

This ambitious expansion is required to address the predicted exponential increase in traffic at the Gold Coast airport. Annual passenger numbers are forecast to more than double from 6.5 million to over 16 million by 2037.

Hassell's new terminal design required huge curtain wall spans – twice as high and 50 per cent wider than a typical curtain wall panel. However, no suitable curtain wall systems were readily available in Australia or internationally.

Capral offered to customise a design to meet the project requirements and allow the architects and builders to source locally rather than go offshore.

Capral Queensland State Manager Brendan Poole says the terminal project managers selected Capral's

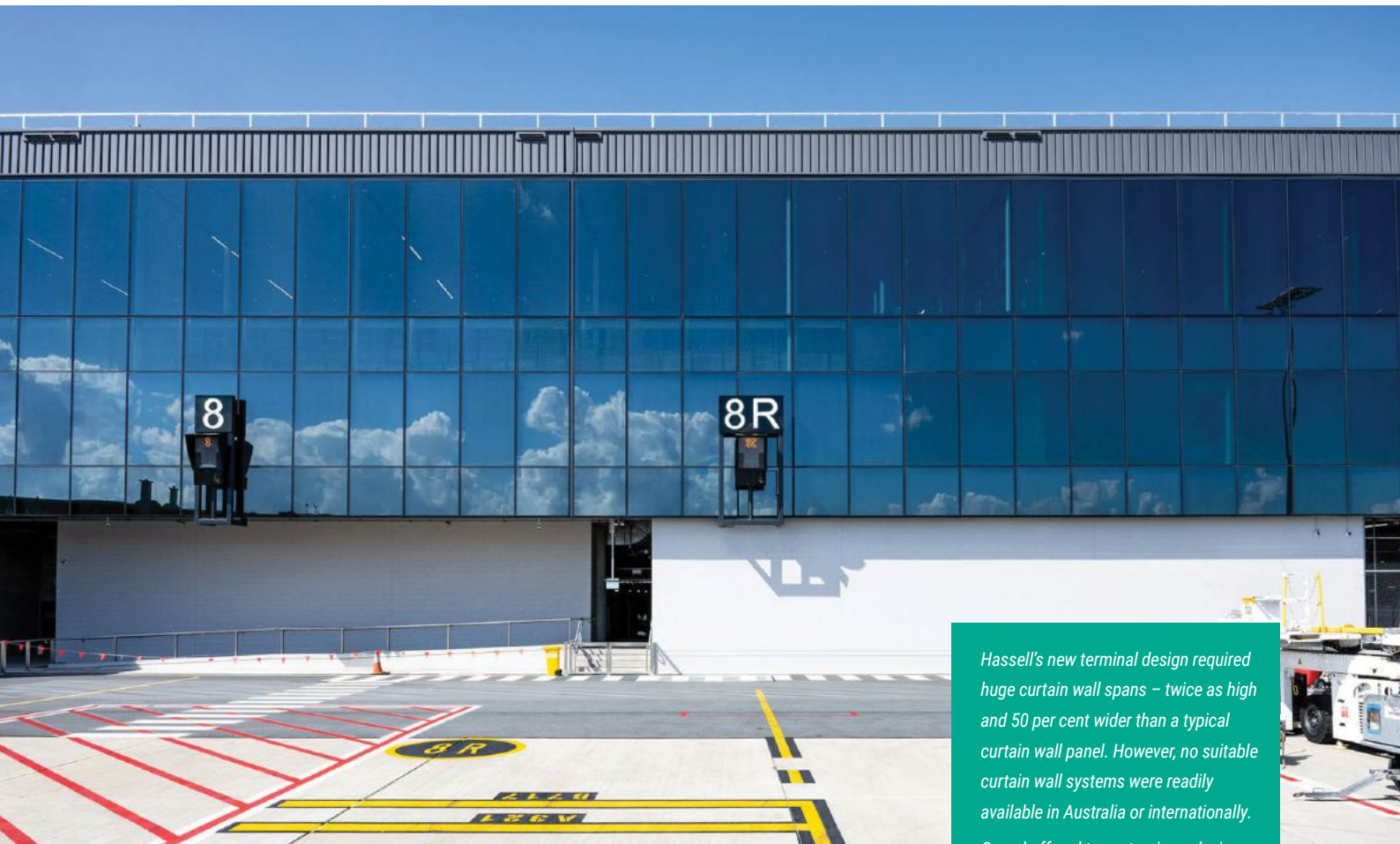
CW175 curtain wall system as a base for customisation due to the terminal design's span and structural requirements.

"There were no off-the-shelf products available in Australia or overseas, so the project managers needed to partner with a reputable systems company to co-develop a fit-for-purpose solution," Poole says.

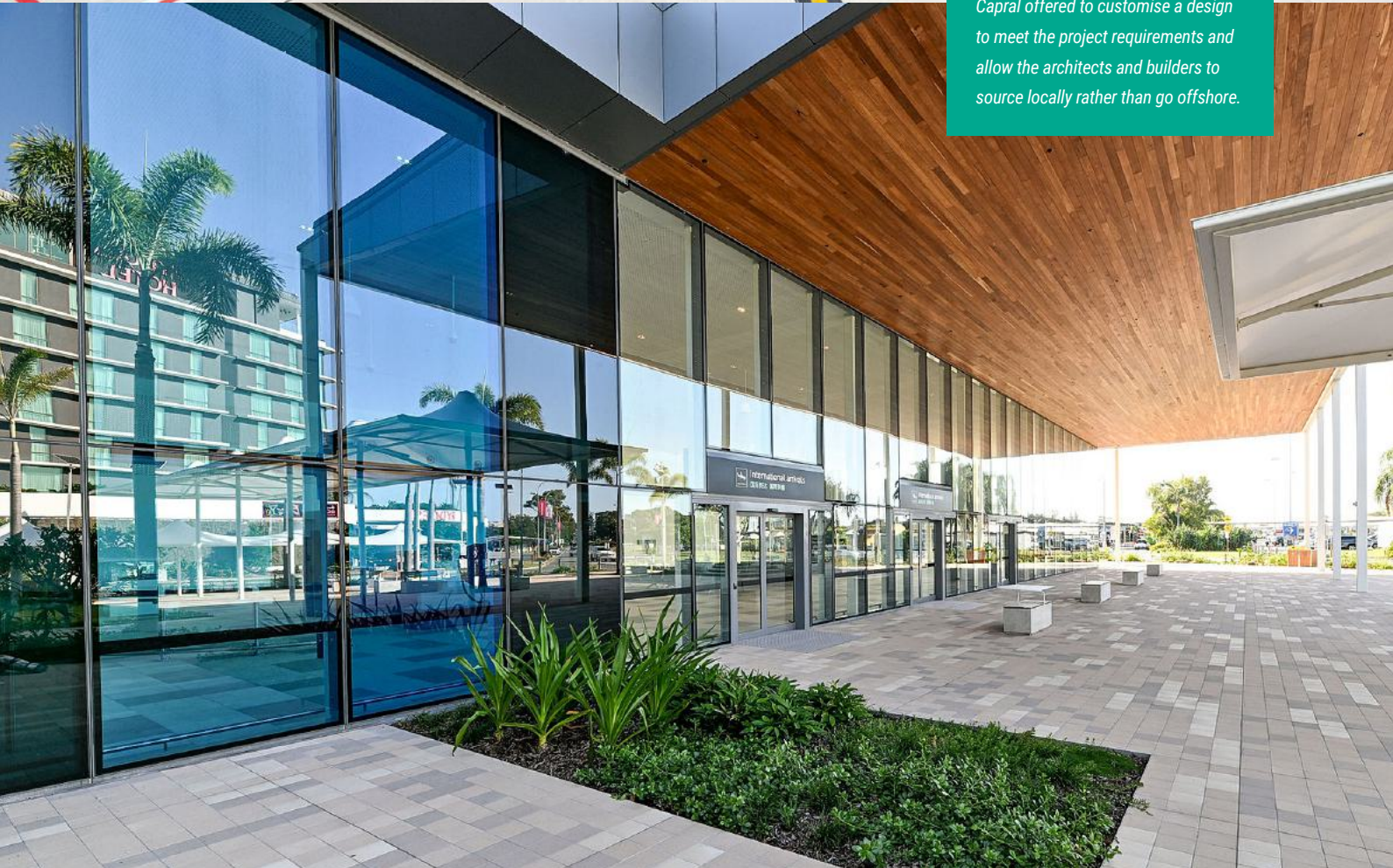
Early engagement with Capral's Technical Services Group meant the terminal's structure and sub-structure were designed to support the façade, which weighed in at 1.1 tonnes.

With project wind loads reaching as high as 5.5kPa ULS (ultimate limit state), the selected CW175 curtain wall system needed numerous changes to meet structural and water egress design requirements.

"The mullions for the system had to be redesigned and strengthened for the wind pressures, given the height and width of the largest panels being approximately 6.6-metres high and 1.8-metres wide," says Poole.



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“This redesign then led to weather seal changes to ensure water pressures were also accounted for.”

Once Capral worked with Queensland Glass to finalise the design, the curtain wall was digitally modelled before approval and new dies being produced. A PMU (performance mock-up) was fabricated to full project size and installed in a test NATA test facility in Melbourne to be run through wind and water pressure tests to project limits and beyond.

After testing demonstrated the system exceeded the project requirements, Capral worked alongside fabricator Queensland Glass to ensure all changes were considered and actioned to ensure the system was on time to meet the project timeline.

“The airport terminal project was outside the box in its technical requirements and needed ongoing support. Working with Capral gave the project managers the customisation, support, and flexibility they needed,” Poole says.



To complete the curtain wall systems, LowE insulated glass units with high thermal and wind loading performance were specified. In particular, the western façade was required to meet very low U-Value and SHGC (solar heat gain coefficient) values. The resulting IGUs were made up of two layers of 13.52mm heat-strengthened laminate with a 16mm argon-filled air gap between each layer.