

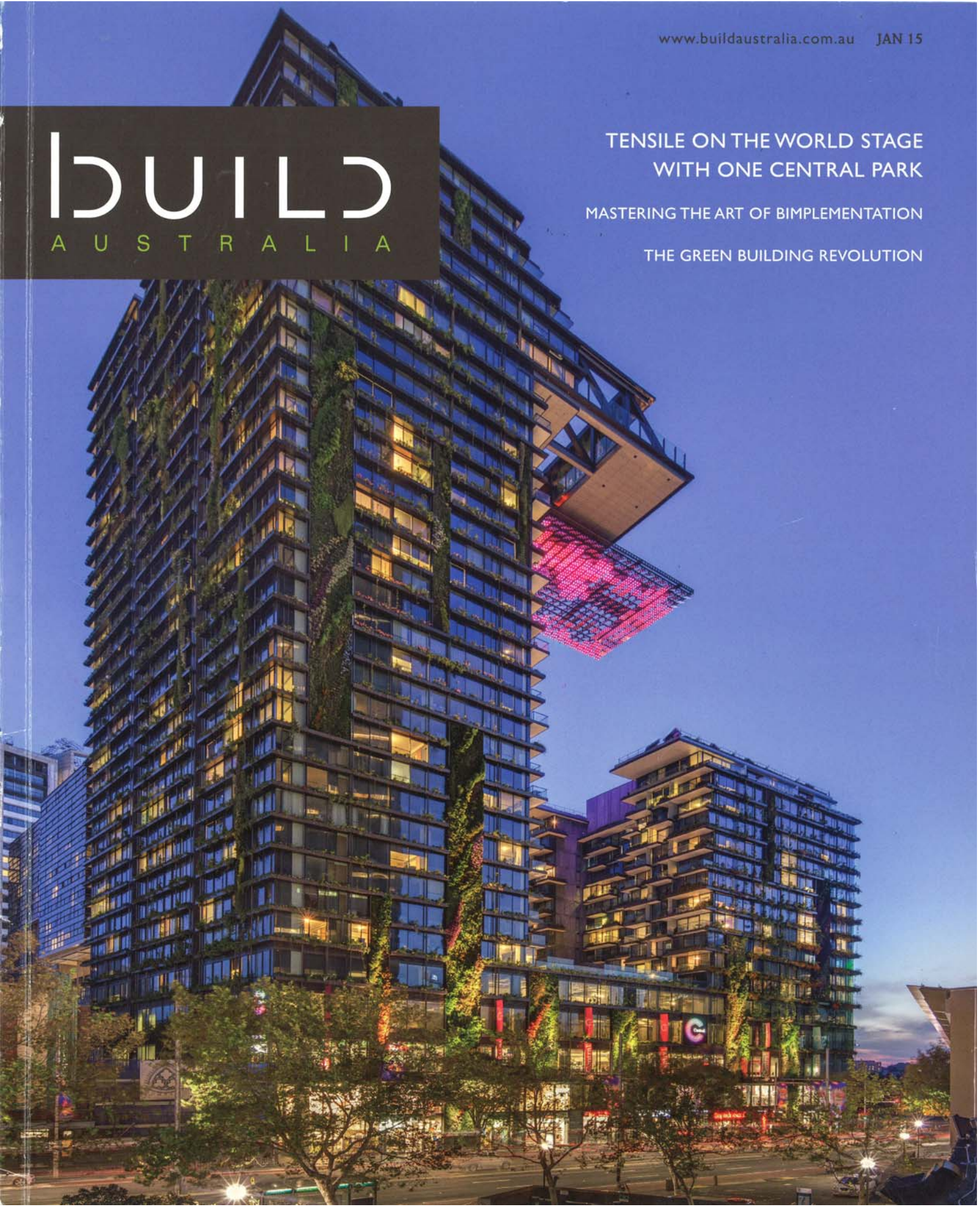
# BUILD

A U S T R A L I A

TENSILE ON THE WORLD STAGE  
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MASTERING THE ART OF BIMPLEMENTATION

THE GREEN BUILDING REVOLUTION





## A HOSPITAL FIT FOR ROYALTY

South Australia's new Royal Adelaide Hospital (RAH) is expected to be Australia's most advanced hospital and the single largest infrastructure project in the state's history.

This world-class facility is being delivered as a Public Private Partnership (PPP) and is now into its fourth year of a five year construction programme. The SA Health Partnership consortium includes Leighton Contractors, Macquarie Capital, Hansen Yuncken and Spotless who will finance, design, build and operate the hospital under a 35-year concession.

The new RAH is located in the west end of Adelaide's central business district, forming part of a new health and biomedical research precinct, replacing the existing RAH. The hospital will incorporate practical and innovative design solutions, while integrating cutting edge health care technology.

The new RAH will have 800 beds, including 100 same-day beds and will have the capacity to admit around 80,000 patients per year.

The \$1.85b RAH will be the largest, most technologically advanced hospital in South Australia and one of the most advanced in Australia.

The new RAH sits tastefully amongst the Adelaide parklands with its carefully designed exterior and colourful glass façade unfolding into its surroundings.

Façade manufacturer Yuanda Australia has been contracted to supply the hospital with its external windows (all 70,000m<sup>2</sup> of them). Yuanda's contract states that noise reduction must be considered when choosing glazing materials.

The team from CSIRO's acoustics lab in Melbourne has been working alongside Yuanda's engineers, measuring the performance of the windows to ensure that the South Australian Government's stringent sound-proofing requirements are met.

CSIRO's acoustic laboratory is one of the few facilities in Australia equipped to perform the low frequency measurements required for this type of assessment.

To undertake the measurements, the team custom-built a brick wall between two cavernous sound chambers to hold sample windows. A standardised sound source generated noise in one chamber, while sound intensity and pressure levels were measured on the other side of the glass.

According to CSIRO project leader Dr Christopher Preston, this allowed the CSIRO team to assess how well the glazing would perform when exposed to the noise of a helicopter.

"To ensure that all areas of the hospital meet the sound insulation requirements, a range of different window configurations had to be evaluated," he says. "This meant the

brick wall had to be knocked down and rebuilt about a dozen times in order to hold different façade elements.”

The results showed that Yuanda’s glazing systems would effectively reduce the impact of helicopter noise on patients.

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By working with companies like Yuanda, Dr Preston says that CSIRO is helping better match building products to the needs of the Australian community.

According to Yuanda engineer Gareth Winstanley, with the testing phase now complete, the glazing is ready for production.

“When it is finished the new Royal Adelaide Hospital will be the quietest hospital in the country,” he says.

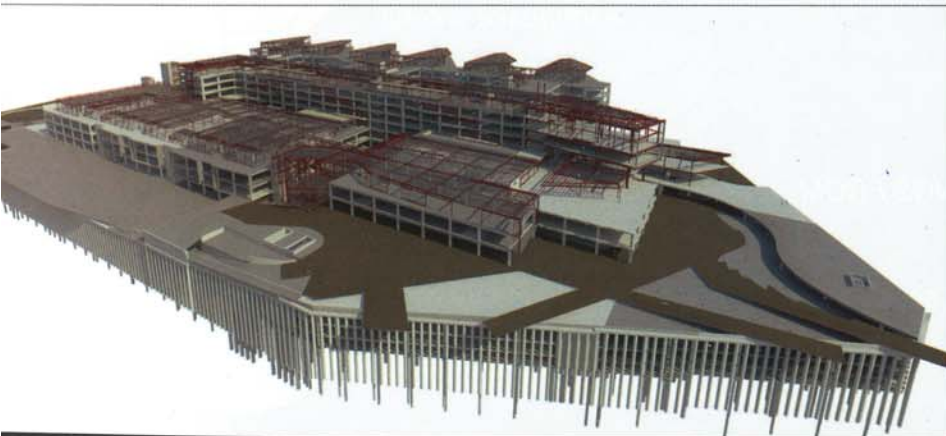
CSIRO’s Infrastructure Technologies group is internationally renowned for its work in façade systems, having assessed some of the world’s most iconic buildings including the Chanel Ginza building in Tokyo and the Lucas building in Singapore. Locally, the acoustics team has conducted testing for the Sydney Harbour Tunnel, as well as Sydney Airport.



**ROYAL ADELAIDE HOSPITAL FACTS**  
 DEVELOPER: SA Health  
 BUILDER: SA Health Partnership Consortium (Leighton Contractors, Macquarie Capital, Hansen Yuncken and Spotless)  
 ARCHITECT: Silver Thomas Hanley and DesignInc (STHDI)  
 PROJECT VALUE: \$1.8 billion

**THE HOSPITAL WILL FEATURE:**

- Green star 4-star rating with optimised design to provide efficient staff, patient and visitor flow.
- 100% single inpatient rooms with opening windows, natural light and access to outdoor areas and green space.
- 40 technical suites (operating theatres).
- A commercial precinct including restaurant, minimart, cafes, crèche, gymnasium, bank, postoffice, hairdresser.
- An underground car park with approximately 2500 bays.
- Technology features including weighing beds, wireless technology and equipment tracking capability, and intelligent information systems such as bedside entertainment and meal ordering for patients.



New Royal Adelaide Hospital BIM Model - Structural

Wallbridge & Gilbert provided civil, structural and traffic engineering design services for the new Royal Adelaide Hospital. We are proud to have made a major contribution together with our joint venture partner KBR in the successful delivery of this landmark project.

Enquiries about our involvement can be directed to:

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