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# DETAIL

## DEAKIN LECTURE THEATRE REFURBISHMENT BALANCES DESIGN, ACOUSTICS AND LIGHTING

WORDS: BRANKO MILETIC PHOTOGRAPHY: PETER BENNETTS ARCHITECT: K20 ARCHITECTURE



THE REFURBISHMENT OF THE DEAKIN UNIVERSITY LECTURE THEATRE WAS UNDERTAKEN TO PROVIDE A COMFORTABLE, INTERACTIVE AND TECHNOLOGICALLY-ADVANCED SPACE FOR BOTH STUDENTS AND LECTURERS.

According to k20 Architecture project director and 2017 Sustainability Awards finalist Anthony Uahwatanasakul, the firm's aim for the Deakin University refurbishment was, quite simply, "to create the most natural and intimate experience".

"We sought to create a unique teaching environment where lecturers can teach without the aid of mics and be up close acoustically with their students enabling this intimate experience and connection," he says.

One of the initiatives employed to achieve this was the integration of LED lighting with other technologies.

As with the lighting, the proper acoustic performance of the theatre was crucial to both the design and performance of the finished structure.

The theatre has also been equipped with the latest in audio-visual technology that can be easily interfaced with its online cloud-based social media delivery platforms, enabling the university to record and post all of its teaching programs online in real time, thereby supporting the school's Open Learning framework.

### BRINGING DEAKIN INTO THE 21ST CENTURY

Named after Australia's second prime minister, Alfred Deakin, the university was established in 1974 with the Deakin University Act 1974, and was the fourth university in Victoria and the first to have a regional campus.

While some architects have argued that large lecture theatres are disappearing and will soon be gone from all Australian university campuses, the reality is that this kind of space continues to have importance for tertiary institutions.

While the original lecture theatre, with a capacity for 100 or so students, was built around the same time as the rest of the university, it has also been the last part of the campus to be modernised.

As the Waurn Ponds University main lecture theatre, the interior was also in need of refurbishment that included a new roof, up-to-date audio-visual technology, as well as improvement to the acoustics and a modernising of the overall aesthetics.

An important part of the redesign, says Uahwatanasakul, was not only to ensure that there was appropriate lighting with correct lux levels to provide the proper environment for presentations, but also that these lighting levels did not interfere with the precise (i.e. vibrationally sensitive) projectors.

This required careful consideration of the surrounding materials and colours to minimise any possible interference from colour reflectant, and the shadowing on the screen visuals.

### THE FINE ART OF LINEAR CONNECTIVITY

Architecture connects people in many ways, and the notion adopted by this project, says Uahwatanasakul, was to create a theatre that enhances the learning and teaching experience.

The overall aims were to connect and engage teaching and learning, and this is expressed via a series of 'lines of connection' that run from the front through to the back of the theatre.

These series of lines are not only deliberate – they define the edges of the theatre, its walls, floor, and also its ceiling.

The overarching theme of connectivity is also expressed with an LED light strip running along the side and back walls of the theatre connecting an artistic interpretation of the campus with stained plywood acoustic boards and Deakin's logo at the rear of the theatre.

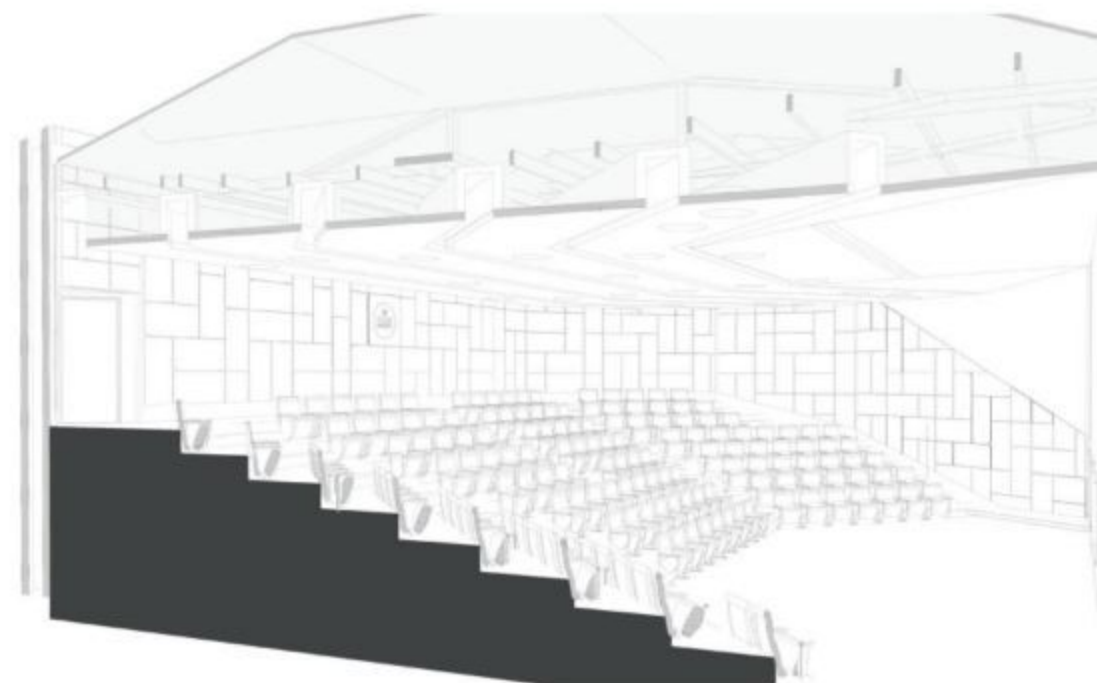
### GREEN CERTIFICATION AND END-OF-LIFE SUSTAINABILITY

Each material incorporated within the project is either GreenTag-certified or selected for its sustainable benefits to the project.

Materials were selected for their durability, end-of-life recyclability, low toxicity, and overall suitability to the final design.

For example, the plasterboard chosen was impact-resistant, moisture-resistant, fire-resistant and GreenTag-certified with recycled content.

One environmental highlight included the Plywood that was used having zero formaldehyde content. Uahwatanasakul says that they were also 'mindful' to use low-VOC paint within the lecture theatre.



Along with that, all the insulation selected by k20 Architecture had end-of-life recyclability and high durability that would reduce ongoing maintenance—both in terms of cleaning and technological operation.

#### KEEPING STUDENTS SAFE AND DRY

Another integral component of the project was the renovation of the existing roof and drainage. It was decided to replace all existing roof sheets and remove old penetrations that were no longer used to ensure that there was no obvious susceptibility to water ingress.

To alleviate any problems, k20 Architecture says it created different lining connections between the existing copper and the proposed roof sheets to “ensure the integrity of the retained copper pipes.”

#### OVERCOMING LEGACY ISSUES

One challenge facing many educational institutions these days is integrating new technology into what essentially are decades-old buildings to provide adequate clearance for wiring but still maintain safe egress.

Further design issues had to do with the age of the building itself. In other words,

k20 Architecture had to overcome working within an existing shell, where large trusses and solid brick walls supported the existing roof within the lecture theatre as well as the exposed mechanical ductwork, a service gantry, and even wiring and conduits that ran beneath the seats.

While the electrics were replaced and concealed for what the architects called ‘aesthetic value’, at the same time, Wi-Fi points were strategically placed around the interior for phone and laptop connection to the university network. Standard seating capacity was retained while universally accessible seating was added for students with disabilities.

It was also important that all products be readily available as the project was constructed over the Christmas period when the university was closed.

“Timing was imperative as the lecture theatre is usually fully booked and in constant use as one of the main lecture theatres on the Deakin Waurin Ponds campus,” says Uahwatanasakul.

Finally, says k20 Architecture, the sustainability focus of the build also extended to parts of the supply chain, whereby they sourced products from manufacturers within the local area. ■

**SUPPLIERS & CONTRACTORS: PLASTERBOARD WITH RECYCLED CONTENT BORAL FIBRE ROCK ARCHITECTUREANDDESIGN.COM.AU/SUPPLIERS/USG-BORAL INSULATION WITH RECYCLED CONTENT ACOUSTIC PANELS ARCHITECTUREANDDESIGN.COM.AU/SUPPLIERS/AUTEX BENCH TOPS AND SHELL CORIAN (ORGANIC COLLECTION-PEARL) ARCHITECTUREANDDESIGN.COM.AU/SUPPLIERS/CASF-AUSTRALIA/CORIAN-IDEAL-FOR-KITCHEN-SURFACES FLOORING GERFLOR (TARALAY PREMIUM COMPACT-8837 SONGO) ARCHITECTUREANDDESIGN.COM.AU/SUPPLIERS/GERFLOR MIRROR AND WHITEBOARD VIRIDIAN (DECORMIRROR CLEAR) ARCHITECTUREANDDESIGN.COM.AU/SUPPLIERS/VIRIDIAN-NEW-WORLD-GLASS PERFORATED METAL METRIX GROUP (RECTANGLE STAGGERED PATTERN, POWDERCOAT BLACK FINISH) METRIXGROUP.COM.AU PAINT DULUX (NATURAL WHITE) ARCHITECTUREANDDESIGN.COM.AU/SUPPLIERS/DULUX PLYWOOD ATKAR ARCHITECTUREANDDESIGN.COM.AU/SUPPLIERS/ATKAR HAND BASINS, TAPWARE, ACCESSIBLE SHOWER, URINAL, TOILET CAROMA ARCHITECTUREANDDESIGN.COM.AU/SUPPLIERS/CAROMA ROOFING COLORBOND ULTRALAST ARCHITECTUREANDDESIGN.COM.AU/SUPPLIERS/SUPERIOR-SCREENS/ COLORBOND-STEEL-AND-ALUMINIUM-SLATTING-LOUVRES-LAT**

**PROJECT DETAILS: STRUCTURAL ENGINEER VERT ENGINEERING VERTENGINEERING.COM MECHANICAL, ELECTRICAL, HYDRAULIC ENGINEERING JBA CONSULTING ENGINEERS JBA.COM.AU BUILDING SURVEYING ASPER ASPER.COM.AU**