CASE STUDY

Goulburn Cathedral

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Standing proudly in the centre of Goulburn, Australia's first inland city, is St Peter and Paul's Old Cathedral, the world's only greenstone church. Its unique and striking sea green facade is a product of the rare green porphyry stone quarried just outside the city. Now, a century and half from its commencement, the Old Cathedral has completed a decades-long, $12m restoration which has not only returned the fabric of the building to its original glory but also brought the building into the 21st century with a state-of-the-art Renkus-Heinz sound system and a network-based control, distribution and AV streaming solution.

THE AMBER LIGHT

As the restoration of the magnificent Gothic church moved to the interior works phase, the project sought advice from Amber Technology.

"We were contacted quite early in the process to give recommendations on the system design, specifically around the speakers, as cathedrals are very difficult acoustic spaces and Renkus-Heinz is the market leader in that space," recalled Scott Riley, from Amber's Technical Sales and Support (TSS). "We performed EASE modelling (a computer simulation of how the speakers would perform in the space) to confirm the requirements, while also designing a system to allow for simple use and control of the audio, camera and streaming systems."

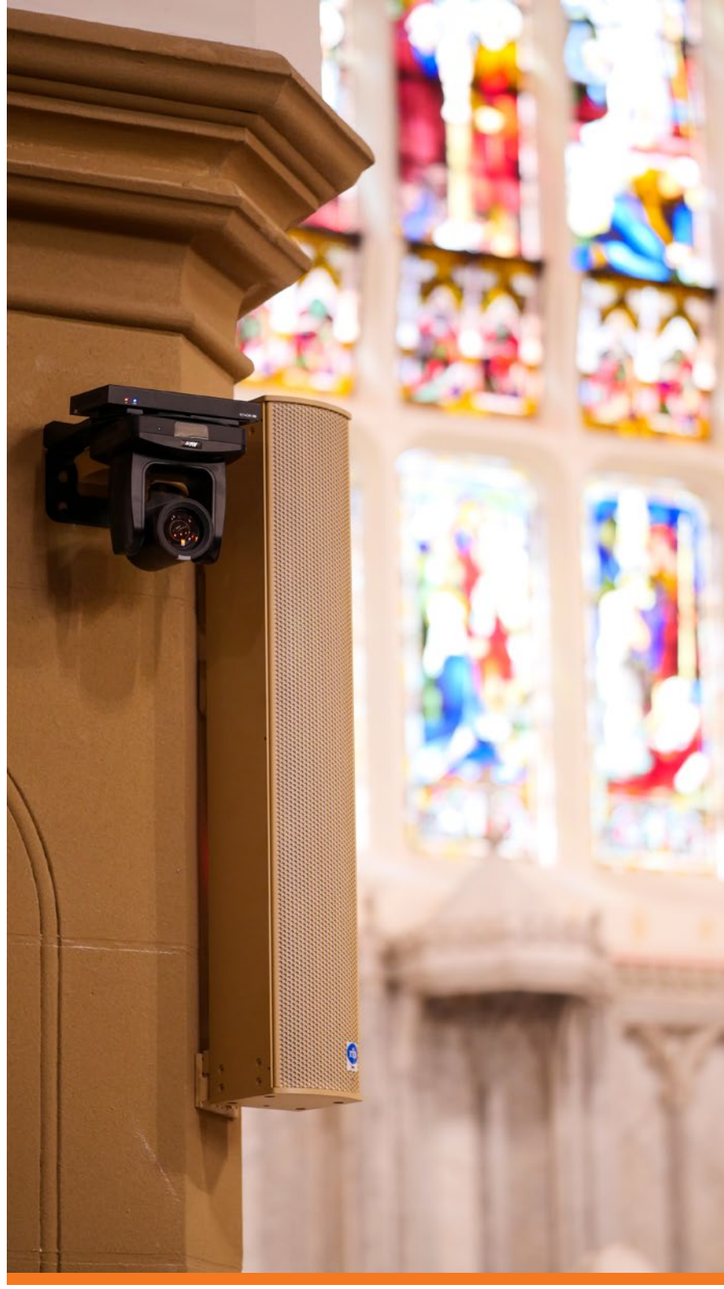
The elegant sound reinforcement design took full advantage of digital technology with audio and video distribution throughout the cavernous interior by Cat 6a cabling. At the heart of the system is a Xilica Solaro FR-1 DSP frame with a 64x64 Dante card. This handles microphone inputs and outputs to recording, and hearing assistance, as well as the Dante streams that feed the main, delay and fill speakers.

The Solaro also acts as the control centre for the entire system by way of a rack mounted touchscreen along with mobile control using an iPad via the Xilica X Touch App.

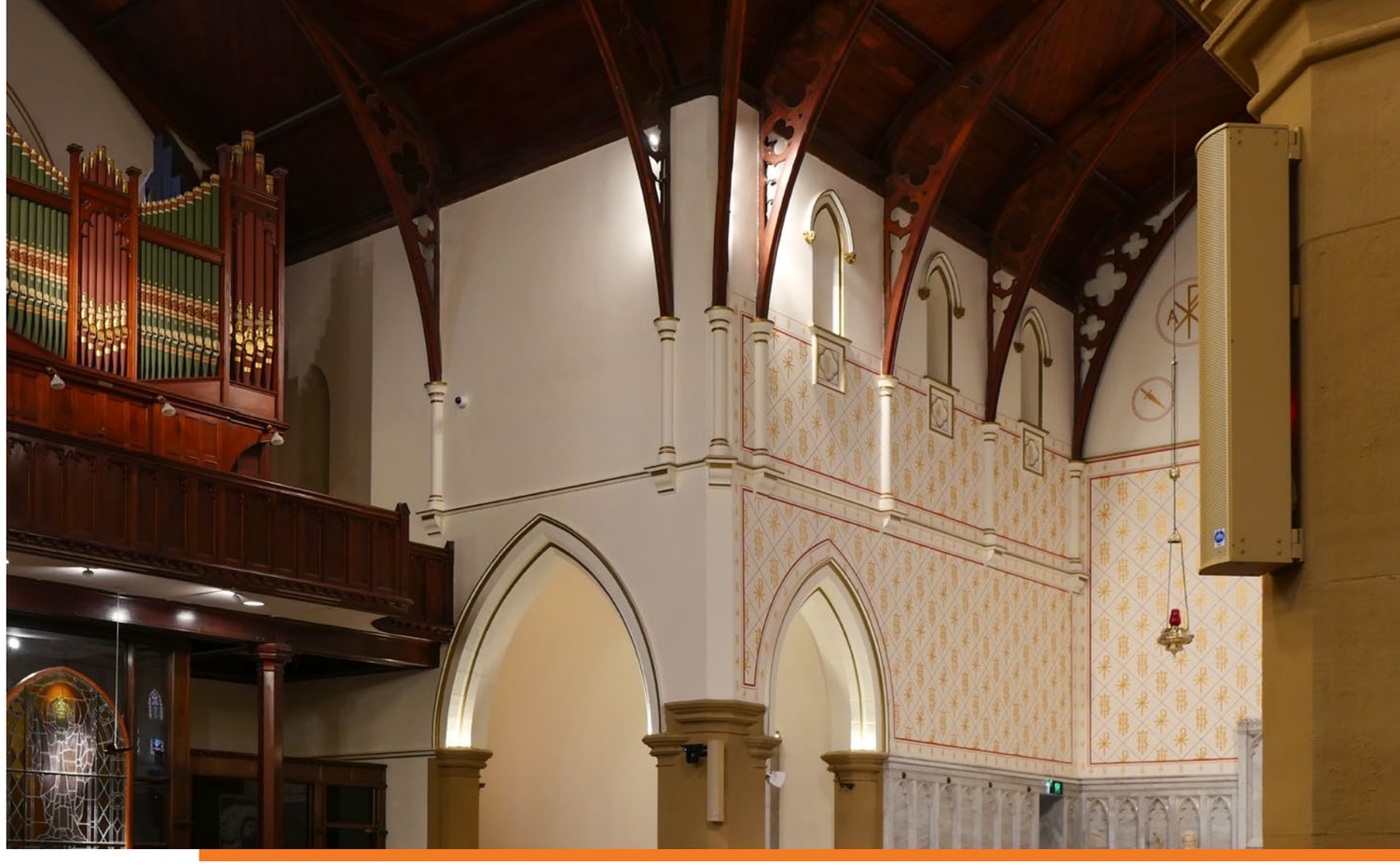
FLYING COLOURS

Following the initial design, the complex task of fitting out the heritage listed building fell to the Canberra office of MNGD (Managed). MNGD Project Manager Lucas Catanese outlined the end-user's high expectations succinctly. "They wanted the right answer – but budget was always at the forefront of their mind," he recalled. "I think they just wanted bang for buck, and that's exactly what Amber was able to give us. The Renkus-Heinz system that was specified, especially for a cathedral, is absolutely perfect."

Lucas's confidence was well founded. "We've used these speakers throughout multiple university projects both in Sydney and Canberra," Lucas continued. "They sound incredible. We knew for



> **"The Renkus-Heinz system sounds incredible. We knew for the cathedral, given the acoustics we were going to have to battle, they were the only answer**



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As with many projects in heritage structures, one other consideration was paramount: both equipment and wiring had to be unobtrusive – and preferably invisible. Here again, the Renkus-Heinz speakers were able to meet the exact architectural requirements, and not only because of their unobtrusive profile.

"They are colour matched," Lucas noted. "We gave Renkus-Heinz the colour the cathedral was to be painted, they spray painted that colour for us out of the factory and then shipped them. That was a big, big tick."

AUDIO & VIDEO

Two Renkus-Heinz Iconyx IC8-RD speakers in a custom matched colour serve as the main speakers, mounted on columns at the left and right of the sanctuary. Four more IC8-RD speakers, again in custom colours to blend unobtrusively with the columns, are configured as delays down the length of the nave.

The slender profile of the speakers allowed other equipment, such as the Williams AV IR+ hearing assistance emitters and the AVer PTZ cameras, to be mounted above or alongside the speaker cabinets, keeping visual clutter to a minimum and simplifying wiring paths.

With control and audio/video distribution now IP-based, providing reliable switching was essential. Again, Amber Technology provided the right tools, as Lucas attested. "The Pakedge switching and wireless access points have proven time and time again to handle Dante and to easily deal with the video and audio requirements that we need for scalable systems," he observed.

The video systems, specified to provide for streaming of services from the church to its widespread congregations, have also provided a flexible closed circuit TV solution within the building. Four AVer auto tracking PTZ cameras cover the principal views of the sanctuary as well as providing shots of the congregation and activities in the nave. Vaddio step mats automate the camera switching, allowing seamless cutting between the pre-set views as the priest or readers step up to the pulpit, ambo or to the high altar itself. Trolley mounted LCD monitors can be wheeled out when required within the church and plugged into strategically placed network outlets. Again, this is cleverly automated with video from the switched cameras being available as soon as a monitor is connected.

WOW FACTOR

With everything in place, Scott Riley from Amber's TSS was onsite to oversee the final tuning of the system. Using the Renkus-Heinz beam steering technology, Scott was able to carefully minimise the amount of sound hitting the roof where the resultant reverb reduces speech intelligibility, and maximise the audio delivered to the congregational seating area.

For Lucas, this process really brought everything together. "There are definitely times when you can really feel the 'wow factor' in this technology. Listening in this huge space, this amazing and beautiful cathedral, you really appreciate what the product can actually do."

The Amber Technology systems installed by MNGD have provided enormous benefit to the congregation of St Peter and Paul's Old Cathedral. Not only is the spoken word and music now presented with sparkling clarity (and with three-way hearing assistance) but the church can now broadcast and record services in high definition through an automated video streaming service. In addition, the digital cabling infrastructure provides for a high degree of future proofing for further additions and improvements.

Catholic Archdiocese of Canberra & Goulburn: cgcatholic.org.au
MNGD: mngd.tech
Amber Technology: ambertech.com.au

GEAR LIST

Renkus-Heinz: **Iconyx IC8-RD-CC** 8 channel triple tweeter master Speakers with Dante networking and custom colour

Xilica: **FR1-SOLARO-D** DSP frame with added 64x64 Dante card

AVer: **AF-PTC310** AI Auto Tracking PTZ Cameras; AVer **AF-SB520** Professional Streaming encoder and recorder

Williams AV: **WI-IRM1D** IR+ 2 Channel WaveCast (Audio over WIFI) Transmitter and IR Modulator with AES67 Dante; **WI-IRE4** IR+ Passive Emitter

DPA Microphones: **4098-DW00-015** Core Supercardioid Ceiling Mic

Pakedge: **MS4424** 44 Port Full Layer 3 Managed Switch; WA2200 Wave 2 access point

WyreStorm: **NHD400ETX** and **NHD400ERX** PoE Encoder/Decoders; **WY-NHD000CTL** NetworkHD 100/110/200/400 Series Controller