

# Coping with compromise

The new A/V installation within Singapore's True Way Presbyterian Church is a triumph of hard work and compromise, as **Richard Lawn** discovers

**COMPROMISE IS A WORD THAT** every audio installer and designer is well aware of. Whether they are dealing with an architect, a consultant or a high-brow client, they know that sooner or later during the course of a project that the acoustic treatment, loudspeaker placement or desired position of the control room will be abandoned in favour of the visual aesthetics or an Excel spreadsheet. But there are occasions when compromises are unavoidable owing to the inherent architecture of the building that is being upgraded, as recently became evident at True Way Presbyterian Church in Singapore.

The church adjacent to Queenstown MRT station has journeyed through several phases of development. The old sanctuary was originally built in 1959 while a four storey extension was added in 1989 followed by the new sanctuary extension in 1997. Having served the church's needs for 14 years, a decision was taken to upgrade the A/V system and for this purpose specialist consultant Robert Soo from Cogent Acoustics was approached in order to submit a tender. 'We've known Robert for several years as he has provided our A/V crew with valuable training,' confirms True Way's head of A/V, Lek Siang Hwa. 'Overall, Robert's approach was the best and so we appointed him to design an A/V system that would best fulfil our services.'

Nearly one and a half decades in entertainment technology is the equivalent to eons in some industries and just as the technology has radically changed over the years, so has the style of worship. 'We had unconsciously grown accustomed to the deteriorating sound and grainy video images in recent years,' furthers Mr Siang



Hwa. 'Although we tend to blend contemporary and traditional services, we're a lot more musical today and our worshippers rely on the A/V system a lot more than they used to.' Projection and speaker demonstrations were organised, and the evaluations led to the church's individual requirements being specified.

Measuring approximately 30m by 20m, the 450-capacity sanctuary maintained the same structure with the exception of some acoustic panelling being added to the rear, the stage, the walls and the ceiling area towards the front and stage. 'There was no specific trigger for the upgrade,' admits Mr Siang Hwa. 'We simply realised the speakers, amplifiers, console and projectors were at the end of their useful lives.' Given the technological advances that had taken place during that time, a digital conversion was sought that would also assist the transmission of audio and video signals



**Above: The varying ceiling height of the sanctuary posed a variety of audio and acoustic problems**

**Left: Siang Hwa Lek (True Way Presbyterian Church), Huimin Koh (Sindo Exports), Christopher Chang (WOW! Media Resources) and Robert Soo (Cogent Acoustics) in front of the stained glass window in True Way Presbyterian Church**

to another sanctuary as well as to other floors within the same building.

Upon undertaking this mission, Robert Soo realised that he could implement many of the changes quite easily, but some would involve tweaking and compromise rather than an outright conversion. 'The church sanctuary has a central stained glass window at the stage, which is the focal point,' he explains. 'There's no way you can change that, so as a result, the video projection screens need to be suspended from the left and the right sides.'

The roof of the church is far from uniform, and is central to the compromises that have had to be made in order to sign off the project. The central apex of 10m comes down to 6m in height, where the video screens take up the full width on either side, before the ceiling drops again to 3.3m between the screens and the outer walls. The musicians are positioned below one of the 3m ceiling areas to the left of the stage, upon which the singers are positioned. The speakers could neither be suspended in front of the stained glass window as a central cluster or in front of the projection screens.

Nevertheless, the speakers were selected. 'We attended a demonstration at Hakka Methodist church, where we heard six loudspeaker systems,' continues Mr Siang Hwa. 'When we heard the KV2 Audio system, we were impressed with the clarity and power that it offered.

A subsequent shoot out with another speaker system was carried out in the actual sanctuary in True Way and we decided that the KV2 would be best for us.'



**The KV2 Audio ES1.0 and ESD10 speakers recessed into the ceiling**

An L-R system was approved and to overcome the obstacle of the two LAV 4x3 format projection screens as well as to gain sufficient height for the loudspeaker position, Robert Soo decided that the single ES1.0 and ESD10 speakers would need to be semi-recessed into the ceiling. 'It was a highly unorthodox but necessary move, and it wasn't a fun task for Christopher Chang [A/V installer from WOW! Media Resources] either,' confesses Mr Soo. 'By installing the speakers partially into the ceiling, it inevitably created a reflection off the ceiling just about 2.5m in front of each cluster, causing a hot spot between rows three and six. This was however resolved by the installation of Fuji acoustic panels at



**A host of integrated Extron A/V solutions**



**A Shure condenser microphone on the grand piano**

# INSTALLATION

strategic locations.'

WOW! Media Resources bore the brunt of demolition and reconstruction work, dismantling the old projection screens. The ceiling was then reinforced and re-plastered, before white custom made screens could be fixed to the left and right of the stage. Once the motorised screens had been correctly positioned, the loudspeaker recesses were created for installing the ES1.0 and ESD10 cabinets. 'Retro fitting is always a lot harder than installing into new buildings,' confirms Mr Chang. 'There are always constraints, so we have to work around the building rather than redesign it.'

In addition, WOW! Media Resources also had to install new cable conduits and pull new cables. 'The old cables were tangled in the existing 6-inch UPVC pipes, which was very troublesome. As the church services were ongoing, we couldn't conduct all the work at once. We had to stagger it out in weekly phases over a three month period to ensure there was no disruption to services.'

The L-R ES1.0 FOH and ESD10 down-fill speakers are augmented by two floor standing ES1.8 subwoofers, whilst the rear seats benefit from having a further two ceiling suspended ESD10 speakers. Two KV2 EPAK2500R amplifiers supply the ES1.0 and ES1.8 speakers whilst a pair of QSC RMX2450 amplifiers power the down fills and delays. 'The speakers are not in the ideal position as they should be where the air conditioning units are, but of course these could not be moved,' furthers Mr Soo. 'However the congregation seem to really appreciate the difference and many have commented on the speech and music sounding a lot more clear and even across all the seats.'

The digital signal path has been promoted with the addition of an Allen & Heath iLive-T112 console. A total of eight different church group users apply their settings to the console and Mr Soo has once again offered them



**Customised lighting in white hidden from view by the curved projector screen**

basic training followed by intermediate courses for those who want to further exploit the new system.

'We were a little daunted by the technology here,' confesses Mr Siang Hwa. 'We've only had it in place for three months so we're learning along the way.' Two stage boxes, iDR-32 and iDR-48, are connected to the T112 via Cat-5 cable of up to 120m long using Allen & Heath's ACE digital snake, which is a multi-channel bi-directional audio and control link. The two stage boxes provide all the necessary inputs and outputs, including connectivity with the other worship halls and rooms on the other floors.

The band plays in the services, typically with a drummer, pianist, guitarist, bassist and keyboardist. Firstly, a decision was taken to totally screen off the drums with a Clearsonic drum shield supplied by Drum Resources. Secondly, myMix units have been adopted by the musicians for two very good reasons, as Mr Soo explains: 'Previously, the stage volume was way too high with all the instrument amplifiers and floor monitors. Besides, they took up valuable floor space – it was very congested. With the myMix system, they can monitor and personalise their own mix as well as the other musicians as they want. It's been a big hit.'

Additional myMix units have been added for the flutist, violinist and

harpist, with all the units connected to an IEX-16L 16-channel input expander rack-mounted in the FOH console area, which comes with dual rear panel DB25 connectors for analogue line level signals. For the more dramatic performances that are sometimes



**Eight myMix units have greatly improved the sound quality and the musicianship at the church**



**RTI touchscreen for video screening options**

staged in the church, four channels of Shure ULX-4P wireless fitted with Countryman capsules, have been added offering ear or head-worn and handheld microphone options. Sennheiser ew300 G3 in-ear monitors are also available for use.

For the visuals, two new NEC PA600X projectors receive their signal feeds from a DVD player, PC and two Panasonic high resolution SDI cameras. An Extron Crosspoint Ultra series ultra-wide matrix switcher and VSC500 units combine to offer high resolution computer-video and stereo audio routing and scan conversion for video recording and viewing of computer-video images.

Both projectors take their feeds via Kramer TP-145XGA/audio transmitters, whilst an Extron CVEQ100 video line driver distributes the composite

video to the various levels. An Extron MAV series matrix switcher routes the composite video and balanced/unbalanced stereo audio signals, whilst three CVEQ100 one input, one output line drivers route composite video and stereo audio to the first, second, third and fourth floors plus a 40-inch Samsung LED screen located on the third floor lobby. The source feeds from the computers and laptops are selected via an Aten CS-84a KVM switch, whilst an RTI touchscreen offers front dual, rear single or dual front and rear projection modes.

For perfectionists such as Mr Soo and Mr Chang, an ideal installation will only ever be created in utopia or heaven perhaps rather than here on earth. Their focus remains on what is best for the church. As such, the A/V systems blend around the existing architecture and infrastructure.



**myMix unit set up for 16 channels**



**Shure wireless Sennheiser IEM and myMix racked receivers**

'We're used to it – each church throws a number of challenges at us,' concludes Mr Soo. 'But we work closely with the manufacturers as well as the clients, so we always find a solution to a problem. Sometimes, they just take a little longer to work out, as was the case here with the positioning of the speakers. However, everyone seems to be happy with the results, so our work is done.'



**An Allen & Heath iLive-T112 console now provides the church with digital mixing**

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