

CASE STUDY: HOUSE OF WORSHIP

The **Kumbanad Mar Thoma Valiya Palli**, an emblem of faith dating back to 1761, has recently undergone a groundbreaking transformation. With its fifth reconstruction now complete, the church not only stands as a testament to its enduring legacy but also as a marvel of modern acoustical engineering. **PALM Expo Magazine** team spoke to **Zacs** and **Phils**, the audio integration experts behind this ambitious project, and uncovered the intricate process of designing a customised sound system tailored to the church's unique acoustics. Stay tuned as we dive deeper into how this historic church has become a beacon of faith fused with technology, ensuring every prayer, hymn, and word resonates beautifully.



The historic Kumbanad Mar Thoma Valiya Palli Church



Harmonising Heritage: Technology Enhances Worship at Kumbanad Mar Thoma Valiya Palli

Recognising the importance of sound clarity for spiritual and communal worship, the church embarked on a journey to enhance its auditory environment while preserving its historical integrity.

The reconstruction, which spanned 14 months, was led by archi-

tect, **Jeff Antony**, who carefully balanced the church's heritage with a modern approach to design and acoustics. This initiative addressed the dual challenge of maintaining architectural sanctity while achieving superior sound quality in a space designed for sermons, liturgical music, and communal worship.



Zacs and Phils incorporated cutting-edge equipment

Engineering Excellence in Worship Acoustics

Large worship spaces are often susceptible to acoustical issues such as excessive reverberation, echoes, and uneven sound distribution. Recognising these challenges, the church committee sought the expertise of Zacs and Phils, one of the most respected names in house-of-worship audio integration. The project required technical precision as well as sensitivity to the spiritual and cultural importance of the space.

To ensure pristine sound clarity and uniform coverage, Zacs and Phils employed a data-driven methodology. Using acoustic simulation software, they created a virtual model of the church, simulating sound behaviour including reflections, delays, and Sound Pressure Level (SPL) variations. This approach informed a highly customised audio system design, tailored to the unique acoustics of the space.

The system incorporated the following elements:

1. Loudspeakers:

- **Turbosound NuQ Series Subwoofers** were installed to provide deep, resonant bass, enhancing the emotional depth of musical performances.
- **Tannoy VLS Loudspeakers** delivered exceptional speech intelligibility and clear sound projection, ensuring every corner of the church was covered.

2. Amplification:

- **Lab.Gruppen Amplifiers** provided powerful and distortion-free sound, guaranteeing reliability even during peak usage.

3. Digital Control and Signal Processing:

- The sound system was controlled using a **Behringer X32 Digital Mixing Console**, known for its intuitive operation and precision, enabling seamless adjustments for varying liturgical needs.
- **Marani Digital Signal Processors (DSPs)** were employed to fine-tune the system, aligning the sound output with the acoustical signature of the space.

4. Microphones:

- **Audio-Technica microphones** were chosen for their superior ability to capture the nuances of both speech and music, ensuring clarity and richness in every sound conveyed.

Key Acoustical Achievements

The newly installed system successfully addressed critical parameters:

- **Reverberation Time (RT60):** Balanced to enhance speech intelligibility without compromising the warmth of musical tones.
- **Coverage Uniformity:** Achieved through precise placement and calibration of loudspeakers.
- **Sound Transmission Class (STC):** Optimised to minimise interference from external noise, preserving the sanctity of the worship environment.

These technical enhancements have ensured that every sermon, hymn, and note resonates clearly with the congregation, creating an immersive and uplifting spiritual experience.

Community and Leadership Reactions

The reconstruction and acoustic upgrades have been warmly received by both the church authorities and the congregation. **Bijo Varghese** (Secretary), **George Joseph** (Convenor and Trustee), and **Rev. Monsi K. Philip** (Vicar) described the project as the realisation of a "long-cherished dream."

Adding to the praise was **Rev. John Mathai**, former **Director of the Department of Sacred Music and Communications (DSMC)**, who lauded the initiative for its groundbreaking contribution to the Mar Thoma Church's global music ministry.

Blending Faith with Innovation

The reconstruction of the Kumbanad Mar Thoma Valiya Palli sets a new standard for modern house-of-worship acoustics, demonstrating how technology can harmonise with tradition. By transforming the church's auditory environment, Zacs and Phils have created a space where faith and innovation coexist to serve the community better.

This project exemplifies the profound impact that acoustical engineering can have on cultural and spiritual spaces, ensuring that sacred traditions continue to thrive in harmony with modern advancements.