

Calvary Chapel Tustin

Designed and Installed by BESA - Bowls Engineering Sound & Acoustics



Calvary Chapel Tustin is a 600-seat, 1970s-era Nazarene church located in Santa Ana, California. Based on their continued success with other Calvary Chapel affiliates in the area, BESA-Bowls Engineering Sound & Acoustics was selected to design and install a major sound system update capable of delivering high-fidelity reinforced sound seamlessly throughout the acoustically challenged room.

Challenges

- The chapel's varied geometry, highly-reflective angled surfaces, lack of acoustic treatment and large interior volume necessitated the use of loudspeakers with precise directivity
- High output and ultra-smooth fidelity was necessary to support modern worship music volumes and spoken word intelligibility throughout the room

Solution

"My background stems from decades of high-end studio production, recording and mixing," explains BESA's founder/acoustician/system designer Darren Bowls. "I have a pretty good idea of what music should sound like at this point, no matter the size or deficiencies of the room, and we always leverage the most sophisticated technologies to achieve that sound."

"This church sanctuary was acoustically designed in the early 1970s for choir, piano and organ," Bowls continues. "It's full of odd reflective angles, has a high peaked ceiling, and a 100-foot length from stage to balcony back wall. Acoustically the room is the same today as it was when it was built."

Two Fulcrum AH65 full-range coaxial horns with 60°x45° dispersion are rigged as left/right mains above the stage with four DX896 dual 8-inch coaxial loudspeakers deployed as front fills along the stage lip to draw the listeners attention down to the stage. Three floor-stacked Fulcrum Sub218L dual 18-inch subwoofers are centered between stage stairs. The system is powered by Linea Research DSP amplifiers programmed with Fulcrum's TQ™ filters for impact and precise signal response.

"The technology inherent in Fulcrum Acoustic loudspeakers and processing allowed the directional pattern control and throw necessary to lay the sound in the listener's lap despite the room deficiencies," states Bowls.

Project Details

Location

Santa Ana, California

Product Category

House of Worship

Project Type

600-seat sanctuary

Fulcrum Products

- (2) AH65 High Efficiency Full-Range Coaxial Horns, 60° x 45°
- (4) DX896 Dual 8 inch Coaxial Loudspeakers, 90° x 60°
- (3) Sub218L Dual 18 in Direct-Radiating Subwoofers

Supporting Products

Linea Research Networked C-Series DSP Amplifiers



Photos courtesy of Linea Research

"There is something uniquely special about the midrange and detail of Fulcrum loudspeakers," notes Bowls. "The combination of clarity and warmth is extremely musical and very rare."

"BESA has always focused on how a room makes a person feel while listening to music," states Bowls. "If done correctly, the immediacy of the music and spoken word will engage the listener from any point in the room. We achieved that here."

"Calvary Chapel Tustin's new sound system is a tenfold improvement over the original," concludes Bowls. "It will continue to inspire its congregation for many years to come."