

# Opendoor Church



The new PreSonus WorxAudio rig is flown high for clear sightlines.

## New Sanctuary Sounds Off Loud and Clear By R. Maxwell

Founded in October of 1986 by Greg and Deana Kennedy, Opendoor Church is a non-denominational house of worship. Greg and Deana's son Aaron officially became the lead pastor in 2015 and, in recent years, the church has seen tremendous growth and impact throughout the community.

In response to its expanding presence, Opendoor Church recently opened a new sanctuary. To ensure their message and the accompanying music are delivered in optimal fashion, church management contracted the services of AV design/build firm Hi-Tech Electronics, of Greenville, NC.

"The new sanctuary at Opendoor Church is really quite impressive and measures approximately 105 feet wide by 85 feet in length," says Hi-Tech owner David Williams, who designed and implemented the audio system. The ceiling height is 27 feet and the stage faces into the width of the room. The area is not perfectly rectangular, with a slight "fanning" of the area, with the width up front by the stage slightly less than along the rear wall. The room has a capacity of 886, with a stadium-style seating configuration with upholstered theater-style seats.

"The stage itself is roughly 30 feet wide and 20 feet deep," Williams says. "Serving as a backdrop to the stage area are three Da-Lite video screens. The center has a Da-Snap custom projection screen measuring 84 by 252 inches, and the left and right screens are 108 by 192 inches."

### » Acoustical Treatment and Loudspeaker Deployment

With a hard floor and reflective drywall surfaces, the new sanctuary proved to be an acoustical challenge. "To maximize the quality of our audio system, we needed to acoustically treat the room," Williams says. "Services are contemporary in nature, and a praise band and vocal team are an integral part of the worship experience. Due to all the hard surfaces, there were numerous reflections that had to be addressed. Otherwise, speech would have been severely garbled and the music would lack clarity."

Williams reached out to acoustical consultant Dwight Theall to complete an acoustical model of the room. "With Dwight's help, our team designed the panel layout, and Acoustical Solutions (Richmond, VA) provided the panels. American Builders of Greenville, NC (who designed and built the sanctuary) installed the panels, and we couldn't be happier. The acoustical treatment really enhances the clarity and even coverage we were looking for. This provided a great foundation for the audio system."

The next challenge was to address the issue of defining a loudspeaker setup with broad horizontal dispersion to provide suitable coverage throughout the sanctuary. "This church has utilized WorxAudio speakers since 2005 in its old sanctuary," Williams says, "so to outfit the new sanctuary, I reached out to Hugh Sarvis, the managing director of PreSonus' Loudspeaker Division, for advice. Hugh was extremely helpful. I made the loudspeaker selection while Hugh helped us with the acous-

tic modeling of the sanctuary and answered all questions we threw at him. Once the loudspeakers were deployed, Hugh came on-site and assisted with the final tuning of the room."

Based on Sarvis' recommendations, the Hi-Tech team installed three line array clusters in a left/center/right configuration. The left/right hangs are WorxAudio XL1i-P 2-way compact line arrays, painted black to blend in with the dark ceiling area. Each cluster — positioned over the front edges of the stage — consists of seven elements, flown using the WorxAudio TrueAim Grid, with the grid height 25 feet above the main floor.

"We selected the XL1's due to their unusually broad 160-degree horizontal dispersion," Williams says. "These loudspeakers do a terrific job of providing even coverage throughout the room — without needing outfill or delay enclosures. So as not to interfere with the video projection onto the left and right screens behind the stage, we elected to place an additional XL1i-P on the left and right front edges of stage, aligned with the overhead line array clusters. All three hangs are self-powered, which ensures optimized power and streamlined cabling, while eliminating the need for a separate rack of power amps."



Hi-Tech owner David Williams

The center loudspeaker cluster has four PreSonus WorxAudio V5T-P ultra-compact line arrays. These are also painted black and suspended using the matching TrueAim grid.

Low frequency support is handled by four PreSonus WorxAudio TL2185Si-P high-SPL sub-bass enclosures. Each dual-18 sub has 4,000W cone drivers in a tuned enclosure. During the construction of the sanctuary, provisions were made for the subs to be recessed under the stage area, and custom grills were made to cover the subs, which are spaced evenly across the slightly curved width of the stage.

With the speakers in place, Sarvis was called in to tune the system to the room. "We began by measuring the hang and pinning of the loudspeakers and compared this to the settings I originally mapped out using AFMG's Ease Focus 3," he notes. "My portable test system works on a Mac, and I use a program called Room Capture with an RME Babyface USB audio interface connected to an RME OctaMic mic preamp. This system provides eight channels of digitally controlled microphone inputs and enables me to calibrate the room utilizing up to eight microphones simultaneously. This way, I can do one sweep and see eight positions at once. David [Williams] provided a 4-input/8-output Ashly Protea 4.8SP processor to set and store the EQ and delay settings."

### » FOH, Mics and Monitoring

FOH is positioned in the center rear of the sanctuary — slightly elevated to ensure an unobstructed view of the stage area. The church uses an average of 30 channels for a typical service. There is a 38-input Allen & Heath Qu-32 digital mixer, which is expected to be replaced in the near future. "The console was relocated from the original sanctuary as a stop-gap measure. The input / output capacity built into the stage area exceeds the I/O capability of the console considerably, so once they have a better feel for what size console is best suited to their environment, this will be upgraded."

Opendoor Church takes considerable advantage of wireless technology. With a collection of microphones that includes Shure SM58, Beta87 and KSM9 mics, along with DPA d:fine 4088 headsets, they are using Shure QLX-D digital wireless transmitters with QLXD4 digital wireless receivers — all supplemented by Shure UA844+SWB antenna distribution systems. On the monitoring side of the equation are Sennheiser ew 300 IEM G3 in-ear wireless systems. Additionally, several Allen & Heath AH-ME-1 personal monitor mixers are located around the stage area and fed via an Allen & Heath AH-ME-U 10-port monitor hub.

### » An SR System That Enhances the Message

So far, church management, pastor Kennedy, members of the praise team and the congregation have all been complimentary of the new system. "The ability to hear clearly and understand what's being said — no matter where you happen to be seated — is extremely important," Williams says. "Without this, it becomes difficult for those on stage to engage the congregation, and if this doesn't happen, the message is lost. This new system delivers high speech intelligibility and robust music reproduction that, combined with the vivid imagery displayed on the rear walls, makes these contemporary services very upbeat and inspiring — and that's what it's all about."

Executive pastor of communications Michael Chandler agrees. "We worked with David Williams of Hi-Tech Electronics for several years in our old sanctuary, which was also equipped with WorxAudio loudspeakers, and were very pleased with the sound quality. When it came time to look at sound systems for our new sanctuary, we turned to David once again for help. Now that the project is completed, we're pleased with the quality and coverage the new system provides. There's not a bad seat in the room." **FOH**



The raised stage was designed to accommodate the subwoofers