

The Art Of Church Acoustics

Acoustic designer provides smoke damaged church the acoustic they needed for a beautiful sounding facility

by Tim Bott



Custom-sound planks were custom designed for the church to add to the décor.

Acoustics is a hidden force that can help or hurt a church service; when the acoustics have been shaped and controlled, the sermon will be clear and understandable, and the music will be more energetic and uplifting. But poor acoustics can create problems for all parts of the service, and they can be difficult to correct. Too much acoustic treatment can drain the life from a service, while too little can make the service sound cluttered and uncomfortable. Instead of sinking money into hiring an expensive acoustic consultant, or purchasing products without knowing how to apply them or if they will work, many places of worship nationwide have found solutions with Art Noxon.

No Cookie-Cutter Solution

Noxon is the president and founder of Acoustic Sciences Corporation (ASC) in Eugene, Ore., which manufactures a wide range of complete acoustic products for a number of applications. As an inventor, acoustic engineer and physicist, Noxon has been designing acoustic products and voicing critical listening spaces for 20 years. His designs have been at the center of countless recording studios, home theaters, commercial/industrial spaces and churches. But what makes Noxon and ASC so unique in the acoustics industry? The answer is in how Noxon approaches his client's acoustic problems. He knows that there is no cookie-cutter solution to any acoustic issue. That idea drives Noxon to offer his clients comprehensive design as part of any product package.

Since his work at an acoustics research laboratory in the 1970s, Noxon knew that his life would be centered on acoustics. After obtaining master's degrees in both acoustics and physics, Noxon became licensed by the State of Oregon as a certified acoustic engineer. He created Acoustic Sciences Corp. in 1984 to manufacture his patented TubeTraps—cylinder shaped acoustic devices that have revolutionized how people control sound in a variety of spaces. Soon, his TubeTraps were adapted into half-cylinders that could be mounted on the walls, and the doors opened up for Noxon to apply his acoustic products to church sanctuaries and fellowship halls.

While ASC's products have been well regarded in the industry, it is not enough for Noxon to merely ship an order to a church or similar customer.

"We know that it doesn't do any good to have a pallet of acoustic material and not know what to do with it," says Noxon. "You have to take the stuff off the pallet and put it in the right places. Depending on where you place the products in the room, the sound of the room changes."

As an added benefit to purchasing an acoustic package and installation plan, Noxon will walk clients through a process of consultation and design, so that the client can purchase the right package for his acoustic needs, and not waste money on installers and costly outside consultants.

One good example is The New Life Center in Springfield, Ore. The church was looking to refurbish the interior of his sanctuary after smoke damage. The church essentially had a blank canvas to work with, and acoustics was the element of the reconstruction that needed the most attention. Pastor Todd Wagner and others at the church had a range of choices for acoustic products and consultation opportunities, but after hearing from the sound engineer and one of their parishioners about Noxon, the New Life Center felt confident in what he could provide.

A Beautiful Process

The church was faced with a number of acoustic problems. It is often difficult for untrained church staff to recognize acoustic problems, and it is common for a church to resort to electronic fixes—new speakers and microphones.

"When you find yourself buying a new sound system to replace a perfectly good sound system, you know that your problem is acoustics," says



Noxon. So Noxon uses engineering, and a lot of interviewing, to discover his client's acoustic problems.

"We felt like Art knew what he was doing, and we approached him with specific problems," says Pastor Wagner. "He wanted to know the church's goals, what we do during services, because there are different styles of worship."

The information Noxon gathered about the New Life Center is the same information he seeks when working on any church, no matter the location.

"We have a pretty good system of getting all the right information, so that a church doesn't have to spend money to fly me out to the site," says Noxon. This helps to keep the church's investment purely in the materials, rather than sink money into travel expenses, blueprints, and consultation fees, and allows Noxon to work with clients across the country.

The information Noxon gathers includes technical data—room dimensions building materials, and the sound equipment used during the services—as well as more unique and personal information. Noxon likes to know the style of worship, and he will speak with members of the choir, ministry and congregation, to make sure that he has a good understanding of all of the church's acoustic issues.

"I don't try to impose a design for them to adapt to," says Noxon. "I instead try to facilitate what they do. I learn what they do during services, and then try to acoustically optimize each part. It's a beautiful process, because each part is able to function as part of the whole."

With services that utilize multimedia presentations, a choir, piano and praise band, the New Life Center had to find a balance between all of the elements. But a balance was hard to achieve in an untreated space. The choir members felt isolated, unable to hear one another and failing to connect with one another. The praise band, complete with acoustic and electric instruments, was wrestling with the monitors and microphones, so they would not overpower the room. Finally, the musicians needed a controlled environment that allowed them to hear themselves and play at comfortable levels, while still filling the sanctuary with a balanced amount of sound. But acoustic problems were affecting the entire space, not just the choir and praise band.

"There was so much reverberation and echo, we needed to smooth out the room," says Pastor Wagner. Noxon discovered that members of the congregation were not hearing sermons and readings as clearly as they could, and when singing hymns, they felt isolated and without energy.

Breathing New Life

So how did Noxon approach the problems with the New Life Center's acoustics? With seemingly conflicting needs for the various parts of the service, the challenge was to not compromise one element for the other. The solution came from breaking down the sanctuary into different spaces, and making sure that each part had its acoustic needs met, and matched well with the other parts.

Noxon's constant communication with various members of the church was helpful in creating solutions that balanced the acoustics. For example, Noxon discovered that the choir members could not hear themselves, and so he brought back the traditional choir loft found in many older churches. To experiment with the idea, he had the members

of choir rehearse in their usual spots, but with no carpet and no padded seats. Then, by setting up cafeteria tables around the choir, he was able to box them into a reverberant and lively space.

“They heard it, and they loved it, because they could hear each other,” says Noxon. “It was more real, more natural, and more of what they should expect.” So Noxon had the church install a knee-high wall to surround the choir, and gave them an active and ambient choir loft that can be heard in the congregation.

The opposite was done to the praise band space, which was also closed in with a short wall. This time, Noxon called for ASC Sound Planks to absorb and diffuse the sound, making the praise band space sound more like a session studio. The sound that flowed over the top of the wall was filtered, clean and crisp, with no more monitor, microphone, or sound system feedback problems. So each side of the stage has a different acoustic theme that addresses the need of each group: an acoustically “live” space for the choir, and an acoustically “dead” space for the praise band.

For the rest of the sanctuary, Noxon incorporated a field of Sound Planks on the back wall, letting the sound from the stage flow through the audience, but preventing it from bouncing back and cluttering up the sound. No acoustic products were placed on the side walls, so the congregation could hear the many side-to-side reflections that their singing, clapping, and speaking would create. The result is a controlled reverberant space that can build up the volume and energy of the congregation as it sings a hymn or applauds, making services more emotional and confident.

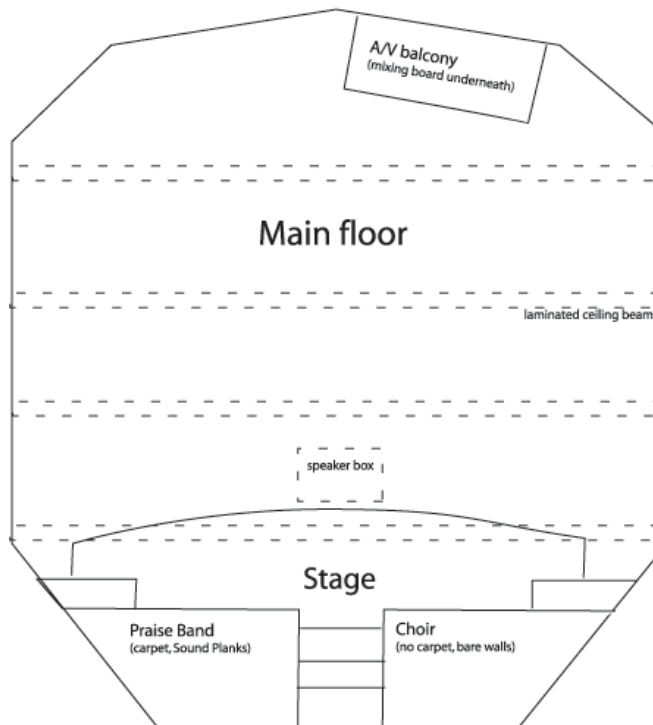
Other solutions Noxon designed into the package included two sets of Sound Planks that were custom designed for the face of two laminated beams.

“The first thing done was the treatment on the beams, and that was a noticeable difference,” says Pastor Wagner. The beams were interfering with the ceiling-mounted speaker box, and the Sound Planks helped remove the noise and clamor that the congregation heard from the sound system.

A Win-Win Situation

With the range of solutions Noxon offered, the New Life Center has come back from its smoke and fire damage far ahead of where it was before. The confidence of the congregation has increased, and the services have become more smooth and energetic. But with acoustics, good design should make problems disappear.

“I want the whole experience of sound during a worship to be transparent,” says Pastor Wagner. “If it’s



Basic floor plan at the New Life Center in Springfield, Ore.

right, you don’t think about it.” Noxon’s design has proven that he can create good acoustics without compromises, as long as his clients trust his system.

“It’s easy for a consultant to come into your church and do a big pony show of tests that look impressive, but church acoustics is personal. What works the best is to focus on what the people of the church need,” says Noxon.

Noxon shows a sense of pride in how he has been able to improve the acoustics at churches like the New Life Center. The New Life Center was a unique project because Noxon was allowed the opportunity to create a brand new acoustic space from top to bottom.

“The New Life Center was great to work with because—outside of the basic shape of the hall—I was given a blank canvas,” says Noxon. “When you start over with a clean state, you can carve something out that’s beautiful and complete, and I was happy to be a part of that.”

To think of acoustics often means to think about ways to compromise, but Noxon knows otherwise. He asks, “How often do you have a win-win situation?” With help from Noxon, church acoustics is one place where compromise is not needed. ❖

Acoustic Sciences Corp. can be found at www.church-acoustics.com, or by calling 800.ASC.8823.