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Ask the Pro

Selecting Loudspeaker Systems

By Phil Sanchez

When purchasing new loudspeakers, it is important to understand the total cost of ownership of the loudspeakers. Perhaps another way to look at this is to consider the total value the loudspeakers have to the congregation (the owners) and the users (the A/V ministry team) based upon the church's requirements. The total value may include the loudspeaker's performance abilities, aesthetic considerations as it relates to the sanctuary's architecture, maintenance considerations, and their ability to integrate with future upgrades to the audio system.

Selecting professional loudspeakers for your house of worship requires that a number of critical factors be considered in order to make an informed decision. After all, a professional loudspeaker system for your congregation is a capital investment, and, like any other capital expenditure, it should be carefully scrutinized before signing the check. Listeners will immediately point to the loudspeaker system when things do not sound "right." After all, it is the most recognizable part of the audio system.

Why Professional Loudspeakers?

Because of the high demands placed upon them, professional loudspeakers are designed to offer greater performance and flexibility than loudspeakers designed for the consumer market. Professional loudspeakers often provide higher sound output; they can often handle more power than similar-sized consumer loudspeakers; and they are typically designed for semi-specific applications with specific performance characteristics. One of the main performance characteristic differences between professional and consumer loudspeakers is that professional loudspeakers are designed

for more consistent sound throughout the coverage area.

Above all, reliability is often the biggest consideration for choosing professional loudspeakers. After all, the demands placed on them will likely far exceed the demands placed on loudspeakers designed for the consumer market. While many consumer loudspeakers will play loudly and for extended periods, they may not have the robust components or designs to handle the rigors of weekly services.

What Is the Selection Process?

The first step in your loudspeaker system purchase should be shopping for a qualified professional sound contractor and/or sound consultant. In addition to selling, installing and servicing your new loudspeaker system, the greater value that the sound contractor has at this point in your search is that they can help determine (sometimes with the assistance of a consultant) the best possible solution(s) for your congregation.

More often than not, the best way to find a reliable sound contracting professional is usually via word of mouth. Most religious congregations tend to be part of larger organizations (whether liturgical or social), and it is very likely that one of these groups will have had experience in hiring the services of a sound contractor in the past. It is also possible that a church member will have hired a sound contracting professional in the course of their own business endeavors. Also, there are those occasions where a member of the congregation itself may be an audio professional or knowledgeable in the field. A word-of-mouth referral will likely provide the piece of mind and credibility that the contractor you ultimately hire is capable of providing the needed services.

A sound contractor and/or consultant can assess your building and loudspeaker system needs based upon your worship style and system performance goals. Remember that the sound contractor/consultant's job is to ensure that you get the right product, equipment training, and/or acoustical treatments to achieve better sound in your facility. Loudspeakers are a long-term investment, so do not be afraid to ask any and every question you have before, during, and after the purchase and installation process.

What Are the Different Types of Loudspeaker Systems?

Every worship facility and service has its own unique characteristics that are determined in part by the worship style, as well as the physical environment of the worship setting. A sermon-based service will have different needs than a service that features a high-

impact praise band. A service that is set in a large auditorium has different needs than a gathering in the fellowship hall. It is important to understand the different types of loudspeaker systems that could be used in your house of worship.

1. Point-and-Shoot System

The most common type of loudspeakers is often referred to as a point-and-shoot system and has the most recognizable form factor design. As the name suggests, these loudspeakers, when installed, are simply aimed toward the intended audience.

Depending on the desired coverage pattern (the area where the sound needs to be directed), point-and-shoot loudspeakers can be used individually or as part of a larger loudspeaker cluster. They are relatively easy to install, as many point-and-shoot loudspeakers include load-rated rigging or suspension points built into the loudspeaker cabinet. Depending on the components within the system, these loudspeakers can be used for simple speech reinforcement or with a high-impact praise band.

2. Line Arrays

For very large sanctuaries, line arrays have become a popular solution because of their clean appearance, excellent coverage patterns (by simply adding or removing cabinets or changing the box-to-box angling, line arrays can achieve varying degrees of vertical coverage), and their ability to provide consistent sound levels at a distance without volume levels dropping off. Most often recognized by their use in tour sound applications, line arrays are also available in smaller form factor designs for smaller or shallower sized rooms.

Some of the challenges, however, of using line arrays include height limitations, since vertical pattern coverage is dependent on being able to stack multiple cabinets on top of one another. In addition, a good line array can be expensive; thus, from a fiscal standpoint, it may not be practical way to go.

Finally, if you choose a line array be sure that is what you get. Some products look like line arrays but do not necessarily have the loudspeaker drivers in the cabinets arranged to perform as a part of a line array system.

3. Column Loudspeakers

For highly reverberant rooms where speech intelligibility is a challenge, column loudspeakers are a great solution. Like line arrays, they are designed to focus their

energy and minimized sound reflections in the space. They are easily recognizable by their narrow profiles, and their clean, simple form factor design makes them easy to integrate into most any décor.

4. Commercial Sound Loudspeakers

For ancillary areas (vestibule, cry rooms, fellowship hall, outdoor areas etc.), commercial sound loudspeakers are an excellent option. Designed to be discreet in appearance, commercial loudspeakers are available in a variety of sizes and performance configurations and can be flush mounted (installed into a ceiling or wall structure with only the grille exposed) or surface mounted (mounted to a wall or other surface) via a bracket. Many commercial loudspeakers also include transformers in their designs that allow them to be incorporated into 70-volt/100-volt audio distribution systems.

Running 70-volt/100-volt loudspeakers in your ancillary areas has several advantages. First, fewer power amplifiers are required to drive multiple loudspeakers. Second, each loudspeaker's volume level can be adjusted individually using the loudspeaker's tap switch. These loudspeakers are easy to configure into systems that require specific volume or program material control over a certain area. Perhaps most importantly, using 70-volt/100-volt loudspeakers is a very efficient and cost-effective way of installing an audio system over a wide area.

5. Portable Loudspeakers

For temporary events or locations that do not typically require a permanent sound reinforcement solution, portable loudspeakers allow users to quickly set up an interim sound system. Available in a variety of sizes and performance capabilities, portable loudspeakers typically include such features as handles, pole mounts for "flying" the loudspeakers above the crowd. Many portable loudspeakers also include built-in power amplifiers for added ease of use.

In the end, one of the most important ideas to keep in mind when selecting a loudspeaker system is to remember that selecting a loudspeaker system is not the same as designing a sound system. While loudspeakers are the most recognizable pieces of your audio system, they are only a part of the entire sound system.

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