

HEARD BUT NOT SEEN:

Strategies for Integrated Audiovisual Design in Churches

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One of the many challenges in designing or renovating worship space is integrating acoustical treatments and audiovisual (AV) systems in a sensitive way. Visual aesthetics are paramount in church design and the acoustical quality of space can suffer if treated as an unplanned afterthought. This article highlights three key strategies to help facility managers better guide the design process so that both the spoken word and music can be clearly heard-while the associated equipment and acoustical treatments are not seen.

Early collaboration and in-depth conversations are essential. The facility manager should insist that the architect and acoustical/AV consultant be engaged simultaneously. The AV consultant may be engaged as a sub-consultant to the architect or hired directly by the owner, but their early collaboration from the programming stage is invaluable. In the same way you might develop a list of goals, priorities and preliminary budgets for the building, the same is advised for the sound system. Music Directors should be engaged in these early conversations. For example, if the goal is to install a pipe organ at a future point or to host concerts in the church outside of worship, necessary provisions can be integrated into the planning.

Acoustic performance starts with the way the church is structured and shaped. Awareness of the construction techniques that enhance the acoustical performance, and their cost implications, is critical so they can be planned early and protected when inevitable cost cutting decisions arise; these elements cannot typically be added later. The stiffness of the walls is important to create the strong reflections desirable in a rich musical environment. To achieve this, twelve inch stud spacing-in lieu of the typical sixteen, along with double layers of gypsum wall board with staggered joints may be recommended. Attention to reducing sound from mechanical equipment is also paramount. The slab on which large equipment sits should be isolated from the slab of the main space to prevent transfer of vibrations. Air velocity should be controlled to reduce sound from air movement. Elements to diffuse sound and scatter the energy need to be accounted for to prevent echoes that arise when sound bounces off of hard, flat surfaces. Diffusing techniques may include; creating recessed wells in which wooden sections are at different depths, or angling glass in different directions between a narthex or cry room and the nave. Tongue and groove wood ceiling planks may be spaced closely together to reflect sound or spaced approximately three quarters of an inch apart to allow sound to travel between the planks and reach an absorptive material installed above them. Even whether pews are upholstered or un-upholstered should be considered.

The additive elements from acoustical wall materials to speakers should be carefully integrated into the design. The facility manager should know where and how equipment is being placed and what it will look like in order to protect



Diocese of Savannah,
St. Anne Catholic Church
in Richmond Hill, GA

Wood ceiling planks are spaced tightly together above the sanctuary and choir loft to reflect sound. Elsewhere, they separated slightly to allow sound to reach absorptive installed material above. The acoustical material is dark so that it appears as a shadow in the grooves between planks. Speakers are recessed into the curved ceilings. Acoustical wall panels are integrated into the board and batten wall treatments and unnoticeable.

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the visual integrity and sacred character of the worship environment. Speaker technology continues to advance and they can be carefully recessed or mounted in unobtrusive ways. Renderings and details produced by the architect should show the building committee what to expect. Predictive modeling by which the AV consultant uses a three dimensional model of the space created by the architect, along with its sophisticated software, to study how sound will behave given the unique characteristics of a shape is a powerful tool. The results can guide exactly where and what type of acoustical strategies are the most advantageous so they can be carefully planned with sensitivity to both budget and aesthetics. Locations for speaker chambers, as well as mixing panels, microphones and AV racks also need studied for both function and visual impact.

Acoustics and aesthetics go hand-in-hand. Armed with some basic knowledge, the facility manager can ask questions of a design team and elevate his or her awareness of acoustical design issues. While focused on churches, the strategies in this article are also applicable to fellowship halls and other large multi-purpose spaces. As a steward of Diocesan resources and a more educated participant in the design process, the facility manager can help ensure that the acoustical qualities of the space support and enhance the sacred experience.



Diocese of Charlotte, St. Therese Catholic Church in Mooresville, NC

Slender speakers are mounted on columns to either side of the sanctuary. Absorptive materials are integrated on rear walls. Cry room glass is angled to scatter sound and eliminate echoes.



Diocese of Charlotte, St. Mark Catholic in Huntersville, NC

Diffusing wells alongside the choir scatter sound energy to eliminate echoes, as does angled glass between the nave and narthex. Speakers are recessed into the columns.



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