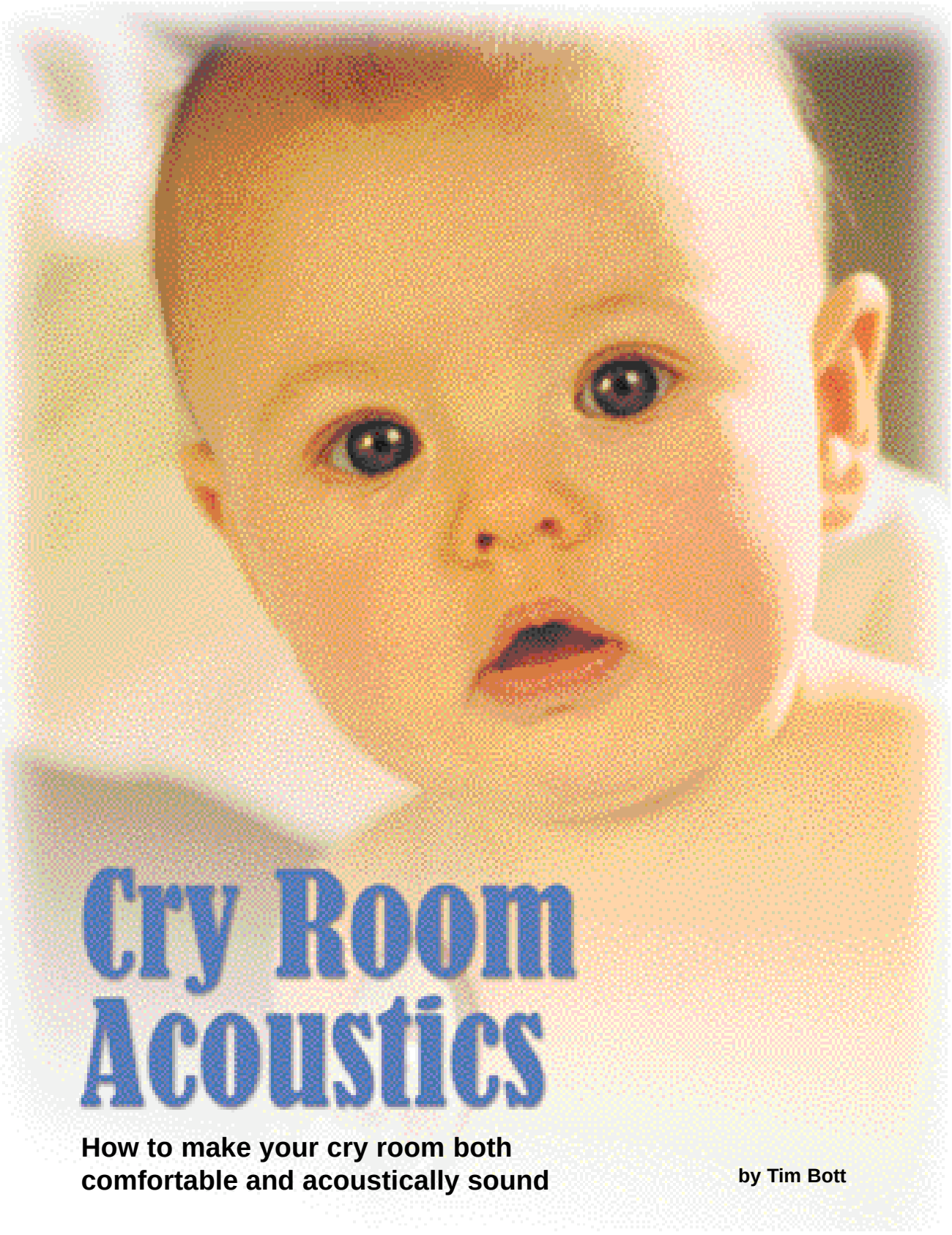


Cry Room Acoustics

How to make your cry room both comfortable and acoustically sound

by Tim Bott

Cry rooms—soundproof and comfortable—are indispensable for many churches. For parents who want to attend a service, but must care for their infants, escaping to a cry room during a short tantrum helps calm down the child and allows the rest of the sanctuary to continue a peaceful service. However, a sealed-off room may not be right for some congregations, as feelings of exile can surface when a parent steps out of the spiritual community of a sanctuary. Art Noxon of Acoustic Sciences Corp., who has consulted on many church cry spaces, has noticed this problem.

"I have seen plenty of churches with cry rooms, and they are seldom used," says Noxon. "There are more options for families than a closed cry chamber."

Noxon has recognized three basic designs that cater to the needs of parents with young children, while promoting a peaceful service for the congregation. All three designs handle the noise of children to some degree, but they differ on how they approach the needs of the parents, the children, and the church community as a whole.

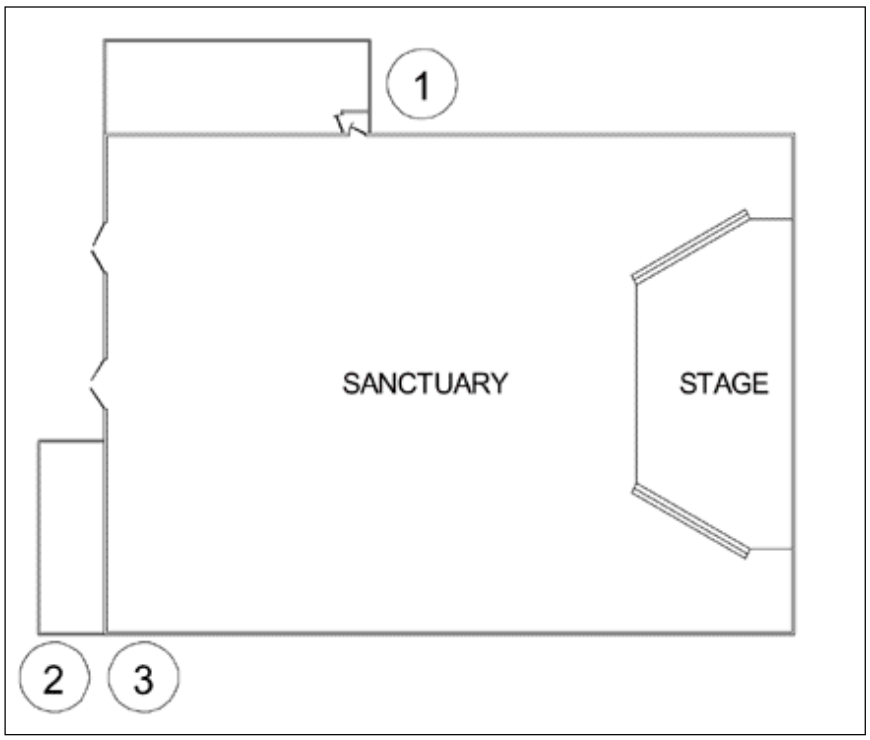
Direct vs. Indirect Sound

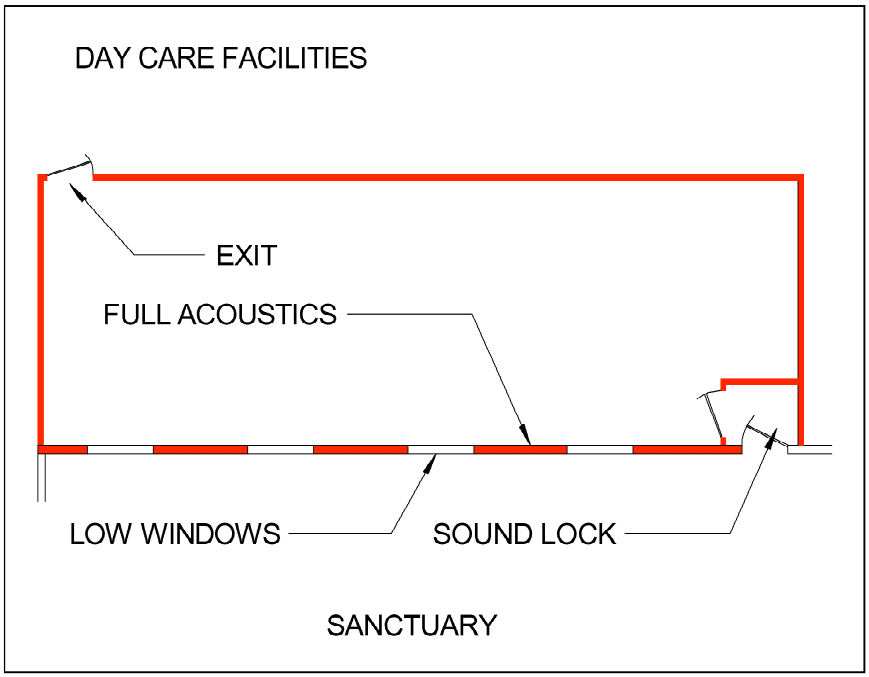
The acoustic goal of these three designs is to block as much direct sound as possible and muffle as much indirect sound as possible. Direct sound is the sound that goes in a straight line from the sound source to the listener's ear. Direct sound is a complete signal, full of all the original harmonics and overtones. When an infant cries out in a public space, nearly everyone hears the direct sound, because little stands in between the voice of the infant and the ears of the listener. Indirect sound, on the other hand, is sound that does not follow a straight path to your ear, and is instead reflected on surrounding surfaces. Indirect noise is much more comfortable to listen to than direct noise.

"The acoustics of a cry space is all about moving the noise of the children from the foreground (direct sound) to the background (muted, indirect sound) of everyone's

mind," says Noxon. By blocking direct sound, the ear will locate the sound out of the listener's immediate vicinity. Reducing the strength and clarity of indirect sound will remove the conscious distraction.

All three cry space designs control acoustics and are effective at reducing or eliminating the public distraction caused by the noise of upset children. Building or remodeling a cry space that meets the needs of everyone in the fellowship will ensure that it sees continued use.





The daycare—This option is ideal for parents who wish to leave their children under supervision, but also want their children to have the option of hearing the worship through a sound system. Along the sidewall of a sanctuary, a complete daycare facility can be built, with windows installed at a low enough height for parents to keep an eye on their children while also participating in the service. A daycare facility along the side of the sanctuary allows parents and children to share in the church services from separate sides of the sanctuary wall.

Acoustic materials in this space are typically placed along the walls and ceiling. The space should be about as soundproof as a shared condominium wall, and also present no visual distraction to the sanctuary.

The traditional cry room—The traditional cry room is built for parents to supervise and be with their infants. It is acoustically more intimate, fully carpeted and has abundant sound absorption. It has smaller dimensions, and is typically located at the back of a sanctuary. The desired effect here is for comfort and serenity, creating a warm feeling for infants and toddlers to help ease the stress of both parent and child.

There are some drawbacks to this design. When a child becomes restless or upset during any part of a service, there is a certain level of embarrassment felt by the parents, and this emotion continues as the parents take the child into a traditional cry room. While total isolation may remove the distraction from the sanctuary, feelings of exile and banishment make this design unattractive.

"I have seen numerous cry rooms remain empty while parents either remain seated or try to remove their child completely from the room," says Noxon. "It is astounding to see cry rooms empty while parents stay seated, with children who squirm until they are taken out of the building."

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—Art Noxon, Acoustic Sciences Corp.

The traditional cry room is a technically correct solution; the soundproofing and acoustic characteristics perform extremely well, and is easier and less expensive to adapt and staff compared to a larger daycare facility. But because of the isolation associated with this space of the space, the church may see this style used less often or for shorter durations.

The walk-in cry room—This open cry space redefines the social context for a cry room. The design has all of the same basic components as the closed cry space, except there is no door. The walk-in cry room shares the same air as the rest of the sanctuary. Not unlike many public restrooms, the layout of the entryway requires a few turns to enter the space, which breaks up the direct sound path. The walls of the entry are treated with the same acoustics as the rest of the cry room, and much of the indirect sound becomes attenuated and muffled. A loud infant will still be heard in the sanctuary, but only as a distant, muted presence that is not distracting to most people.

Not only does this design connect the two areas acoustically, but also more importantly, it joins the two areas emotionally.

"A walk-in cry room takes away that discomfort and emotional separation of the traditional cry room," says Noxon. "Probably the best thing the church building committee can do with a deserted cry room is remodel it into an open, walk-in cry room."

The Basics

The basic ingredients of a soundproofing project include four different areas says Noxon. "If you leave one out and it is no longer a soundproofing project.

Here are the four components of a soundproofed room:

Sound lock—To enter a soundproof room, a sound lock is employed, where people pass first through one door into the sound lock, and then through a second door into the cry room. All soundproof spaces have some form of sound isolation that does not change when someone enters or exits the room.

Soundproof walls/windows/ceilings—All wall surfaces should employ some method of soundproofing. Generally, the inside wall, ceiling, windows and door surfaces are not rigidly connected to the outside wall. In a soundproofed room, noise hitting the inside surface materials is not conducted to the exterior surface materials.

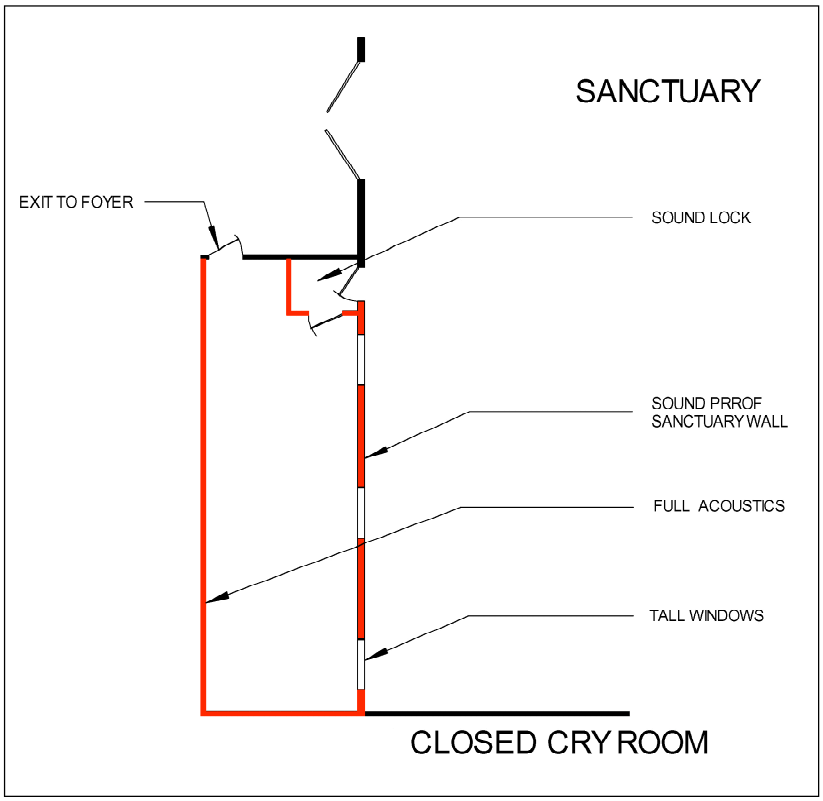
Rooms work best when the interior acoustics are voiced specifically to the type of use the room will see.

—Art Noxon, Acoustic Sciences Corp.

Interior acoustics—Once the sound is contained in a room, it builds up due to reverberation. The interior walls and ceiling surfaces need sound absorbent products to minimize the buildup of reverberations. Without interior acoustics, the soundproofing benefits are lost.

Sound baffles—Sound travels freely through air ducts, electrical outlets, and suspended ceilings, so baffles and other mechanisms should be used to keep sound from exiting the room.

There are other common elements that need to be considered. All of the windows should be laminated safety windows, and the more rectangular the window dimensions, the better—tall and narrow or short and wide. Double-paned thermal windows have very poor acoustic properties, so they should be avoided for acoustic spaces. Tinted, one-way, or privacy windows are recommended for all three designs, to minimize visual distractions, and ensure privacy for nursing mothers, etc. For the sound lock doors, sweep seals should be used on all four edges of the doors to keep a good sound seal that is also easy to open with a child in hand, and all child care rooms should have an alternate exit to the foyer or outside.



The soundproofing materials for the walls and ceiling should be capable of blocking the vibrations caused from the cries of children. A wall system that both isolates and dampens is typically the most effective.

"Isolation and dampening is like a car suspension with springs and shock absorbers," says Noxon. "Both are needed for a comfortable ride." Noxon adds that Acoustic Sciences Corp. does provide soundproofing and acoustic packages for cry spaces. The Iso-Wall Soundproofing System includes resilient channels for isolation, and patented viscoelastic materials to dampen room noise.

"Rooms work best when the interior acoustics are voiced specifically to the type of use the room will see," says Noxon. Consultation may be needed to determine the best placement of acoustic materials. Noxon has voiced all parts of a church, and has an understanding of how a cry room needs to be acoustically voiced.

"Acoustic absorption, like our ASC Sound Planks, are placed differently in cry rooms, optimized for the frequency range of children." Although the placement of the acoustic products may be the most involved part your soundproofing, installation of these products is as easy as hanging a picture frame.

It is important for the building committees and concerned congregation members to understand the subtle but critical differences between these three styles of childcare spaces. The congregation will be pleased to see and hear a solution built that best reflects the personality, style, and social values of the church. The right type of cry room or daycare space will ensure that every member of the church, from infant to elderly, is supported and better able to connect to the service. V

Tim Bott is the press relations director at Acoustic Sciences Corp., and has just recently stepped into the acoustics industry, after being involved in music for more than 15 years. He can be reached at 800.ASC.8823, tim.b@acousticsciences.com or through www.churchacoustics.com.