

Creating Immersive Audio Environments

*Retail, trade events and museums –
simpler and less expensive, small and sexy*

by Steven J. Thorburn, PE



The South American Rainforest-themed entertainment room of the Immersive Audio Experience featured loudspeakers from Tannoy, power amplifiers from Lab Gruppen and audio processing from dbx.

Immersive audio environments of the caliber found in high-end theater, cinema or theme parks, are now within easy reach for trade events, museum exhibits and retail displays. They are also in increasing demand – rising along with the expectations of the general public, and the quality bar. Having experience designing A/V for all these types of venues, Thorburn Associates, along with Frederick J. Ampel, president of Technology Visions, was invited to design the technology for a demonstration at InfoComm07. The display's goal was to educate attendees about the kinds of 3-D listening experiences that can now be put to work serving diverse commercial ends. Attendees were astounded at the extent of what is now possible due to lower costs, a wide variety of products, ever-more-compact components,

simplicity of operation and versatile setups that can be quickly changed-out.

We set up two multi-channel audio rooms within a 30' x 60' space on the trade show floor. We used innovative high-definition audio technologies from Stealth Acoustics, Mt. Vernon, WA, QSC Audio Products, Inc., Costa Mesa, CA, dbx, Sandy, VT, Lab Gruppen and Tannoy. One room represented a themed entertainment venue and the other a retail space. Both were equipped with flat panel displays – in entertainment you coordinate the sound with your video content – in retail you coordinate it with your digital signage. On the retail side, all the loudspeakers were concealed; on the entertainment side, all were exposed. On both sides, attendees' jaws were dropping. "Fred's [Ampel's] team, using Thorburn

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Associates' design, gave the InfoComm attendees an educational venue that pushed the envelope – and then some," said Jason McGraw, senior vice president of expositions of InfoComm International.

Smaller, Sexier and More Powerful

Maybe it was the sexy equipment. As A/V designers it is our job to keep up on what's fresh and hot so we can recommend the best product for the task. (This is not the kind of information you can pick up from an in-flight magazine.) The good news is that there are some dandies out there nowadays that can satisfy both visual and aural aesthetics. For instance, on the retail side of the display at InfoComm, we used loudspeakers integrated into the wall and ceiling. Stealth Acoustics' loudspeaker line-up is designed to be embedded into the building structure, covered over with paint or wallpaper, and still provide good quality sound. This is a loudspeaker that actually sounds good even when put into

a gypsum board wall.

Maybe it was the sheer (lack of) size that impressed the InfoComm-ers. The smaller an A/V component, the easier it is to design with and work with all around. The tendency of high-tech items to shrink with each successive product generation while simultaneously incorporating more features has even brought some consumers to the point where they expect mechanical devices to go the same way. Bulky, heavy or obtrusive items become less acceptable to us every day – and our definition of what constitutes bulky, heavy and obtrusive changes just as rapidly.

Even with it happening all around us, it can be hard to keep track of the pace at which A/V components are transforming – getting smaller and smaller while their capacity to deliver power and quality is growing, along with advancing wireless capacity that greatly diminishes the need for hard-wiring. They're worth keeping track of and knowing about because they spell design versatility and budget flexibility. Take the Toshiba TDP-S35u video projector. Mul-

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The bar in the Virtual Audio Retailing room in the Immersive Audio Experience where water and information was dispensed. A Stealth Acoustics' A3 loudspeaker is located behind the center poster. Video signals to all of the displays were sent over Belden twisted pair cable using Magenta Research transmitters and receivers.

tiply the bulk of a peanut butter sandwich by two, and you've got the size of this projector. Besides being compact, the projector is virtually disposable: at a price point around \$599 and lamp life of 3,000 hours, the client can toss it when it's time to change out the display.

Or take the average equipment rack, now occupying about one-quarter the space it did 10 years ago. The point: today's A/V equipment is small and sexy, it's capable of delivering more than ever, and the flexibility it offers opens up amazing new possibilities. What we had at the InfoComm booth was a sampling. The quality and variety of experience it is able to deliver – with the help of a little creative engineering – is positively hypnotic, the kind of immersive media environment that grabs people's attention and holds it, the kind that sells products, entertains and educates.

Role of the A/V Designer

There's a solid case to be made for bringing the A/V designer onto the creative team at the same time as the architect, the exhibit designer and the lighting designer. Here's an extreme, but all-too-true, example of a project where that

didn't happen and which met a sad end. The project, which was ultimately canceled, was to be a high-end corporate briefing center. The building had already been designed and our company was brought in to design an A/V system. Unfortunately, it was not possible to design a system in accordance with the owner's vision because of limitations placed on the space by the architecture. It would take money to address the situation, and the design problems incurred delays during which construction costs continued to rise. This was a case where form really needed to follow function.

Having an A/V designer on board ensures that your A/V costs will be more predictable and manageable. Having an A/V designer on board *early* ensures that the A/V and the architecture will be compatible.

In the above example, things never reached the creative engineering stage, which is the A/V designer's true reason for being: to navigate the vast array of products out there and select the combination that will best achieve the desired end result within the budget. Subsequently, the A/V designer can knowledgeably put the job out to bid, evaluate the bids when they come in and oversee the installation and commissioning. Using separate companies for the design and the installation respectively, helps ensure that you're A/V system and the equipment choices are based on what is right for the project – not influenced by any commercial relationship with a manufacturer. The A/V designer essentially is in the role of owner's representative, holding a professional stake in making sure the installer does a good job.

An immersive audio experience works on the emotions to create a feeling, an effect. Properly applied, audio technology is like a soft breeze: felt more than consciously perceived. Sound teams up with the human imagination in powerful ways. Sound makes up more than 50% of a theatrical experience. Yet, ironically, audio is often one of the last things to be addressed in a project. (And what's the first thing you need for the grand opening? The mic!)

In any case, *you* can plan to do it right. At InfoComm, we tried to show what "right" is and the enthusiastic responses

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seem to indicate we succeeded. It was our sixth year of partnering with Fred Ampel of Technology Visions at Info-Comm, and he complimented us by saying, "Thorburn Associates is one of the few design firms that actually understand the process and the desired end result, without endless supervision. The designs they provide are easy to install, well thought out and yet still remain on the cutting edge. Most importantly, their work provides systems that work right out of the box."

Putting It Together

Here's what your audio designer will need to determine: Where will the loudspeakers be placed? What is the mood or emotion you are trying to convey or generate? How many audio channels? Equipment selection will depend on many things: the space, the exhibit, the message, the content and its format, the setting, the audience, whether the project is built from scratch or a retrofit. There are many different ways to achieve a particular result, thanks to the range of equipment available. You can create a tremendously powerful exhibit that is immersive with a single audio channel. It isn't so much using particular products as a way of combining them.

Directional audio – such as that you get from a domed loudspeaker – is right for some situations and not others. In a quiet environment, this type of audio loses its perceived directionality. It is intended for a lively space such as a trade event or a POP display, not a corporate office lobby. It would work at Wal-Mart in the A/V department, but not at Nordstrom in the lingerie department. (Some loudspeakers are to be avoided entirely because they produce unpleasant ultrasonic vibrations that can make people ill!) When building for a trade show floor, we shy away from cutting edge, favoring tried and true options that install quickly and inexpensively. We look to minimize the number of things that cost a lot but are likely to be saved and used again, so a variety that costs up to \$3 per foot is a big one-time expense. We look for interfaces that use standard network cable instead at only 20-cents per foot.

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The New York fashion boutique-themed virtual audio retailing room of the Immersive Audio Experience featured loudspeakers from Stealth Acoustics, power amplifiers from QSC Audio and audio processing from dbx.

Doing theatrical audio for retail, trade events and museums has plenty of parallels with doing it for theaters, cinemas and attractions. In our theater days, we would sit down with the director, read through the script, listen to the director's vision and propose a design to bring it about. The possibilities are endless: How many different ways can the scenic design be done for *Waiting for Godot*? An infinite number. It all depends on what the director wants to bring to the audience. Now, instead of working with the theater director, we are listening to and interpreting what the exhibit designer wants to do, and using our knowledge plus technology to support that vision. It's a different industry, but the core issue is the same: Having an open line of communication so we can get on board with the vision. Now is the time to embrace the possibilities of sound. Talk to an audio designer and find out what sound can do for your client. *eb*

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