THORBURN ASSOCIATES INC.
Acoustic and Technology Consultants
15 Years of Designing Quality Environments
eNewsletter

February 2008

In this issue:

Happy New Year!

Welcome to the February 2008 eNewsletter. By now you are probably well underway realizing your New Year's resolutions (or you have discarded them…) Depending where you live, spring may already be in evidence, or you could be awaiting another foot of snow.

We are pleased to announce that Kim Miller-Hershon has joined TA in our Castro Valley office as Marketing Coordinator. Welcome Kim! She can be reached at 510-886-7826, x 205.

Welcome also to Judith Rubin and Martin Palicki, who are providing freelance public-relations support, including producing this newsletter.

We plan to be at the following industry events, so if you're in the neighborhood, be sure to stop by and say Hi!

International Builder's Show – February 13-16, Orlando, FL
Digital Signage expo – February 27-28, Las Vegas, NV
AIA South Carolina Conference and Expo – April 23-26, Columbia, SC

As always, it is our goal to make sure that Thorburn Associates is your single point of contact for all your Acoustical and Technology Design services. If you have an idea, question or suggestion, please drop us a note at eNews@TA-Inc.com.

Focus on Technology: Analog-to-Digital: The New Y2K? Part I

February 17, 2009 should be an interesting time in the US. Any TV stations still operating analog (NTSC) transmitters that day must shut them down at midnight. Without a converter box or a television, DVD/VCR, DVD Recorder with a digital (ATSC) tuner all you will get is static.

The transition process started in earnest in 1996 when the FCC allocated additional channels to TV stations so they could bring up their digital transmission equipment and antennas while still operating their analog transmitters/antennas. Between now and February 2009 these stations will be shutting down their old analog systems so the federal government can auction off part of this spectrum for other uses.

While this has some obvious issues for home viewers, the concerns for professional AV systems have been less clear. The most obvious issue relates to TV or cable TV tuners used in AV systems. While we

don't design many professional AV systems with over-the-air antennas, there are some out there, and the tuners in those systems will need to be updated. For most professional AV systems, we may display cable TV or satellite TV using a set-top box. Since the providers of these boxes are not using public airwaves, they are not required to convert all of their programming to digital signaling by the deadline. Of course, many are interested in offering the latest and greatest to their customers, so they too have begun the transition to digital - albeit more slowly than over-the-air broadcasters. Whatever transition method they choose, they will accomplish it by changes to their decoder boxes on their own schedules, so no great concern for professional AV there.

Over the last several years, the FCC has been mandating that consumer equipment with built-in analog TV tuners also include a digital tuner. The mandate first applied to larger TVs and worked its way down through the product line, and as of last year applied to all new equipment with a built-in tuner. (This does not apply to monitors, projectors, and other equipment that traditionally does not have tuners.)

So what is the impact on professional AV systems? If any device in an AV system provides digital signals, then the rest of the system - from source to destination, or tuner to projector - needs to be able to support the digital signal as well. (The alternative is to convert the digital signal back to analog and leave everything in the rest of the signal path alone. You lose the benefits of digital, but then again you don't have to invest in new equipment to make the change.)

Most newer projectors have been able to display digital signals for several years now. While few actually display HDTV (wide aspect ratio) signals using a native, wide aspect ratio chip (meaning their LCD/DLP chips are not 16 x 9 aspect ratio) they all can display the signal by scaling it to fit a 4 x 3 chip. Most audiovisual switchers and other internal AV gear have been able to transmit digital signals for some time. So unless you have a really old professional AV system and you are using over-the-air feeds, you should not have to worry about this area of the conversion unless you want to upgrade and get the benefits of digital signals and/or wide screen aspect ratio that these systems have to offer.

Coming up in Part II: Wireless Systems & Video Conferencing

Focus on Acoustics: ClearSorber Lets the Light In

As acoustical consultants, we incorporate a wide variety of finishes to the walls, floors, and ceiling of a space to meet the design criteria. But what about glazing? Windows, skylights, glass partitions and doors and decorative glazing are all part of the aesthetic and functional design of a space. And in almost all cases, glazing causes tricky acoustical issues. In general, glazing creates two types of acoustical problems: it does not attenuate sound very well, so noise may leak in; and it reflects sound in the speech frequencies very well, causing disruptive echoes. Yet the light and visibility that glazing provides are not something you want to just cover up for the sake of better acoustics - you don't want good sound at the expense of natural light, or vice versa.

-Clearsorber, a transparent micro-perforated product, can be mounted in front of a window pane and provides an effective absorptive surface without blocking either the light or the view. The product comes in a Sheet, Foil, or Panel form, and each form has a variety of thicknesses. The airspace between the Clearsorber product and the window can be modified to provide the optimum level of absorption based on the use of the space.

We recently had the opportunity to specify this product for a worship space: the new Christ Community Church of Milpitas Social Hall in San Francisco's East Bay. The Hall will be used for a variety of instrumental and vocal performances. Its layout includes a 530-square foot, elevated stage that faces a 38-foot span of glazing, split into 3.5-foot by 9-foot frames that are angled to form a convex curve. This presented a special challenge because in addition to the above-mentioned acoustical problems of glazing, the convex curved surface focuses sound into "hot spots" that disrupt an even sound field and are even

worse than echoes. We recommended the Clearsorber Sheet in this project to maintain the natural lighting and exterior views that the glazing provides. The resulting absorption is roughly comparable to that of a medium-density fabric window treatment – while retaining the light!

Every day, it seems new tools are being developed to make it simpler to balance aesthetics with acoustical function, paving the way for more unique designs. And, in the case of the Christ Community Church of Milpitas, we have another successful TA project!

Project Highlight: New London Presbyterian Church Builds Its Future

Just in time for Thanksgiving-Christmas 2007, The New London Presbyterian Church, of New London, PA, opened its brand-new, 50,000-square-foot facility, using a two-story, two-phase design by AE Technologies. The finished first phase - a complete facility with a sanctuary for 700 – will support future growth through adding a second unit that mirrors the first. It is part of New London's 60-acre Christian Life campus. The congregation is one of the country's oldest, dating back to 1726.

We were contracted to design, specify, and oversee installation of the audiovisual system; provide an acoustical analysis and recommendations; and develop criteria for a lighting design scheme – all with a view to the needs of the eventual future expansion. TA was brought onto the project by the church's Mission Director, Mark Ham.

Audio for the sanctuary was designed with maximum flexibility for a variety of services, events and musical instrumentation. Additional rooms have in-ceiling loudspeakers with wall-mounted volume controls tied into the sanctuary audio. The installer was Vistacom, Inc.

Most services in the new building are contemporary in style, with music and vocals. The instrument range includes drums, electronic drums, brass and woodwinds, keyboards, piano, electric- and acoustic guitar, harmonica and electric violin. The sanctuary also hosts conferences, community events, theatrical performances, the annual Christmas pageant and Last Supper and satellite broadcasts.

TA specified a sound reinforcement system using a monaural loudspeaker cluster with side fill arrays and delay loudspeakers to extend coverage above and below the balcony. A selection of wired and wireless microphones, plus monitor loudspeakers, supports musicians and vocalists as well as Pastor Jeff and other speakers.

Video in the sanctuary and other spaces is fed by a 10,000 lumen HD projector. Three plasma displays around the altar provide visual fold-back for the Worship Leaders and Praise Team. In addition to supplying magnified images of what's going on in the sanctuary, video projection displays sermon notes, announcements, and lyrics.

Four remote-controllable video cameras cover the sanctuary and distribute signals to classrooms, offices, etc. via a building-wide master antenna television system (MATV). Any monitor hooked up to the system can tune in. The church also records services to cassette, CD and MP3.

Sound techs at the church are especially pleased with the new 48-channel digital mixing console (48 mics, 4 stereo inputs), the Yamaha M7CL. TA has had a great deal of success recommending this unit for religious facilities. "It is a very capable board and provides an extensive level of control over each channel," says Ham. "The Yamaha has really been embraced."

Creating a supportive acoustical environment was part of the plan early on. "The church leadership recognized the importance of good acoustics to a worship experience and designated funds for that," says Ham. "The pastor wants to be clearly heard."

Part of TA's acoustical analysis of the church utilized a 3-D virtual model of the sanctuary with a Windows-based software program called EASE. "Using the computer model along with other, more traditional acoustical design tools, we were able to redirect sound as needed, optimize decay times, reduce echoes, raise sound levels for the congregation and significantly improve speech intelligibility and clarity" states Steve Thorburn. Treatment included judicious application of gypsum board and wall carpet to some surfaces, adding some fiberglass panels and removing others, and reshaping the balcony and rear walls. The computer model also gave New London's technical team the opportunity to hear and analyze the current room design and the effects of any changes.

TA made suggestions for design and control of both house and theatrical lighting. These criteria were implemented and installed by Clair Brothers.

The new facility has attracted high levels of attendance. "So far, the smallest service in the new sanctuary has been more than 500 people," says Ham. Future expansion will transform the sanctuary from a square hall seating 700 to a rectangular one seating 1,400.

QuietCurtains: A Product with Potential

Draperies and curtains have long been used as a cost-effective, aesthetically pleasing, and adjustable means of acoustic treatment within a room. The thick, heavy fabric provides useful sound absorption and reverberation control, especially at middle and high frequencies.

Quiet Curtain's line of specialty curtains does all of that and more – by using a unique sound control lining sewn into the pleats, the Quiet Curtain offers increased sound isolation properties as well. Draped over a wall or window, these curtains will result in a noticeable reduction in sound levels transferred from the other side of the partition.

There are a number of fabrics and colors to choose from, from traditional velvets to a more modern suede-like microfiber material. They also offer a water repellent, anti-bacterial fabric ideally suited for hospital privacy curtains. You can even send in your own!

The best thing about Quiet Curtains is that they have independent acoustical test data to back up their claims to acoustical privacy. This greatly reduces guesswork and ensures real results.

The effectiveness of the curtains as a sound isolator, just like with its absorptive properties, is limited to middle and high frequencies. Acoustical laboratory tests have shown an average of 4 to 8 decibels of reduction in those upper frequency bands, depending on the material. While these curtains won't drown out the neighbors blaring music, much of speech intelligibility is determined through the perception of consonants, which fall into this target region.

At about $13 per square foot, Quiet Curtains provide the form and function that might just keep your eyes and your ears happy.

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