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UPDATING

Creating a theater requires more than quality components...sometimes you have to make your environment work for you.

By Mike Wood

EXCELLENCE

A home theater is more than just a collection of great gear. The environment is just as important, and in some cases more important, than the equipment itself. Room acoustics, for example, will have a tremendous impact on a theater's sound quality. For many people, the look and feel of the room should help set the stage for the show, the equipment must deliver without flaw, and the room itself must support the acoustic and visual experience that the equipment delivers. A great home theater then results from the careful planning and meticulous execution needed to integrate high-performance equipment with an astounding environment so that the system transports the audience beyond the confines of their physical reality.

This realization is what brought the owner of this McLean, Virginia, home to call upon All Around Technology (AAT), the company that had installed the home's multizone stereo system, a surround system in the master bedroom, and the previous home theater in the basement. Keep in mind that the original theater was no slouch. A Runco DTV-980 and Faroudja line quadrupler already offered a great picture, and the Proceed/Triad audio system was more than adequate. But, to achieve the excellence they desired, the owners needed more. So, in March of 1999, the owner met with AAT's Robert Shapiro. The direction was clear: create a great theater on all





To maintain the look of the theater, the equipment racks were placed in a separate, isolated room right outside the theater door.

ABOUT THE INSTALLER

All Around Technology is a designer and installer of home theater, wholehouse audio and video systems and custom lighting systems. Serving primarily the Washington, D.C., area, the company supplies full-service entertainment and home-electronic integration services to the high-end residential market.

The company opened in 1959 as Audio Center, and continues today as Maryland's oldest company dedicated to the residential audio/video entertainment business, 1996 marked the closing of the retail showroom to allow the company to concentrate all resources on system installation. All Around Technology now focuses exclusively on custom-installation services. The company currently employees 18 employees and plans to add seven more during 2001. With 8,000 square feet of space, they now combine design, engineering, and integration capabilities with complete project management and custom-installation capabilities. Home theaters and distributed audio and video installations are further enhanced with custom lighting and control systems. While All Around Technology doesn't have a minimum price job, they completed 25 projects in 2000 with an average price of \$125,000.

levels. The finished plan included a THX home theater capable of the latest surround formats in a nearly perfect acoustic environment. This, combined with a state-of-the-art video system, comfortable seating, a dedicated heating and cooling system and complete automation control would provide the client with an easy-to-use, but extraordinary experience.

To give you an idea of the scope of the project, the original room had nothing more than drywall, carpet, and some seating, which the team completely demolished down to the wall framing. AAT brought in acoustical consultant Keith Yates to handle the acoustical design issues. With his supervision, the room was built back up to more isolated and acoustically amenable dimensions and adorned with an assortment of absorption, reflection, and diffusion panels. These panels help control how the sound coming from the speakers interacts with the room so that the audience is bathed in a more accurate sonic landscape. Based on recent research into how diffusion panels create interference or "lobing" patterns, Yates specified an assortment of dissimilar panels, which further improved spatial and timbral realism.

You wouldn't know any of these panels existed, for the most part, thanks to an attractive and acoustically transparent stretched fabric that covers the walls. That, and exquisite wood molding adds to the room's luxurious appearance. The only indication of the serious performance that lies beneath this understated exterior is the hardwood diffuser located on the back wall. Even the projector is housed in an attractive wood cowling and all of the electronic equipment is isolated in a separate room just outside the main door. Fiberoptic lighting integrates perfectly with the design, fitting in places where more traditional lighting would have detracted from the look.

The sound system that lies beneath the fabric shell, and amongst the acoustic treatments, is first rate. A trio of Triad Platinum speakers lines the front wall. The all-important center speaker is placed behind a fixed, acoustically transparent, microperforated screen from Stewart Filmscreen. Like it's done in your local movie theater, placing the center speaker behind the screen provides the best connection between the visual cues and the audible sound. The matching left and right speakers are strategically placed to either side of the screen—angled roughly 44 degrees inward—toward the "money seat." Yates calculated that this was as wide an angle as the speakers could form before the brain would "unstick" the sounds emanating from the left and right speakers and their corresponding images on the far edges of the screen.

In addition to helping localize sounds with onscreen events, the perforated material allows for the use of acoustic treatment behind the screen, thus avoiding the sonic reflective problems that a big, flat, solid screen surface often causes. Also, since the screen has a 1.78:1 aspect ratio, AAT added a motorized masking system that drops black drape on either side of the image, framing the picture for regular TV, or 1.33:1-sized images so that no unused portion of the screen is visible.



Diffusion panels (at the rear of the room) were installed to diffuse the room's sound. The homeowner's existing Crestron system was relegated to the bedroom to make room for their new Panja system (right bottom).



CONTACT

All Around Technology 4962 Fairmont Ave. Bethesda, MD 20814 (301) 656-5100 Two pairs of Triad surround speakers handle ambient noises, fly-by effects, and other surround sounds. One pair, dipolar in design, resides on the side walls, its null aimed at the listening area. Installing the rear speakers was particularly challenging, though, since mounting them in the face of the diffuser would've been counterproductive. Therefore, the second pair was installed inside a purpose-built cabinet just below the hardwood diffuser. These monopolar designs face upward at a 48-degree angle, firing at the diffuser and the ceiling. Thanks to the cabinet's design and internal acoustic treatment, the audience hears only a wraparound halo of reflected sound. According to everyone involved, this unorthodox speaker-cabinet-diffuser layout creates a compellingly natural surround effect.



potential. But a projector is only as good as the processor that feeds it, and in this case, AAT went with the highly acclaimed Faroudja DVP-5000. Besides having a long and established reputation as an industry leader in video processing technology, Faroudja's DVP-5000 is one of the only consumer processors on the market that can accept nearly any signal—be it from a progressive scan DVD or a high-definition digital television broadcast—and can upconvert it to any high-definition scan rates. A perfect combination.

Since the video system is literally boxed-in, the projector housing has a separate dampered feed from the theater's dedicated heating, ventilation, and air-conditioning (HVAC) system. This keeps both the projector and the audience at respectively comfortable temperatures. Like the equipment racks, the HVAC system is contained in a separate room, which keeps it both mechanically and sonically isolated from the theater room.

No system is complete, though, without a full-fledged automation system. A system as complex as this can be utterly worthless if the user can't make things work. In many cases, a control system can ensure that the user is getting optimum performance from the system, making it easy to get to the correct input, EQ setting, surround mode, etc. The client's previous Crestron control system was moved to the upstairs bedroom to make room for the theater's new Panja system. Through the use of touchscreen panels programmed by AAT, the homeowner can control the entire system at the touch of a button while seated comfortably in the CinemaTech seats.

About a year, some dust, and plenty of install-hours later, the theater was complete. The client was ecstatic. As Robert Shapiro put it, the room was "designed to look nice, but really performs when the lights go out." They succeeded. By carefully designing and integrating every facet of the theater—from electronics and room acoustics to environment and aesthetics—the installation team was able to take an already-great home theater system and turn it into an amazing theater experience.

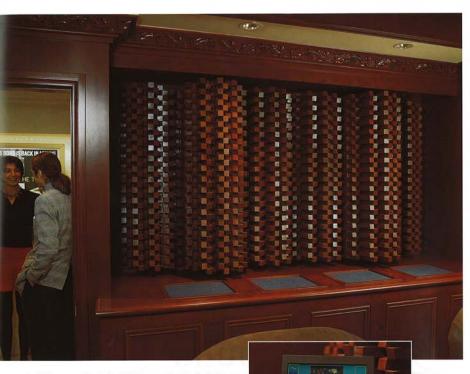
- Sony PSS 90/A mounting bracket
- . Stewart EMSN114W screen
- Faroudja VP5000 video processor
- Phast Landmark Cardframe control system
- AMX 10.4-inch color touchscreen
- X5 800 battery backup
- Furman with Lights surge protector
- Mark Levinson 468 Monoblock front-channel amplifiers (3)
- Proceed HPA2 rear-channel amplifiers (2)
- Equake subwoofer amplifier
- Proceed DVD player
- . Sony SCD-1 Super CD player
- Runco LJRII laserdisc player
- BSS DSP digital equalizer
- . Sony SVL1000 VHS VCR
- Panasonic HDTV video tuner
- Triad Bronze, in-wall subwoofer (2)
- Triad Platinum LCR speakers (3)
- Triad Platinum subwoofer (3)
 Equake/processor subwoofer
- Triad Bronze, in-room subwoofer (2)
- Triad Gold surround speakers (4)

Acoustic Material

- . SDG ART C-WM diffuser (8)
- SDG Cuttingwedge Classic diffuser (2)
- SDG Cuttingwedge 2000 diffuser (24)
- RPG QRD diffuser (2)
- QRD diffuser (6)
- RPG Skyline diffuser (2)
 RPG Onmiffusor diffuser (8)
- RPG Absorber (12)
- Custom mahogany diffuser (16)

• Custom mahogan Lighting Control

- Lutron Graphik Eye with AMX
- Lutron five-button keypad
- LU-GRX3106TWH remote control



As if the system didn't already have enough going for it, the system specifications included eight separate subwoofers of various types. For example, each of the front three main speakers is coupled to a Triad 18-inch Platinum subwoofer. In trying to preserve the appearance of the theater, while not sacrificing performance, these speakers don't fire forward through fabric or through the screen. The speakers are placed in the wood cabinet area just below the screen, with their sound venting into the side cavities that hold the left and right main speakers and then to the theater room. Each of the four surround speaker channels has a dedicated Triad Gold subwoofer tied to it. Finally, there is a custom infrasonic processor that takes the 0.1, or low-frequency effects (LFE) track, downshifts it to the pants-flapping, feel-itbut-can't-hear-it 10 to 20 Hz range, and routes it to a dedicated power amplifier and sub-subwoofer. This system, called the E-Ouake, is a Keith Yates exclusive that adds a notable "physicality" to explosions, thunder, train sounds, and so on while allowing the rest of the system to play without muddy bass or overload distortion.



To drive the front three channels, AAT added three new Mark Levinson monoblock amplifiers.

CONTACT

Gary Widrick WDI, Inc.

4 English Ct. Potomac, MD 20854 (301) 252-6663

Theater Consultant: Keith Yates Keith Yates Design Group P.O. Box 526 7052 Callison Rd. Penryn, CA 95663

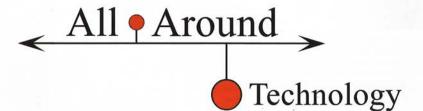
Millwork:

(530) 888-8181

Pete McMahon Renaissance Woodworks 7800 Air Park Rd. #13 Galtersburg, MD 20879 (301) 990-8808

AAT reused some of the client's existing Proceed electronics and added three of the new Mark Levinson monoblock amplifiers to drive the front three channels. The client had AAT add a Sony Super Audio CD player for high-resolution music listening. To maintain the look of the theater, the equipment racks were placed in a separate, isolated room, just outside the theater door. The heart of the system is the Proceed PAV/PDSD combination. This powerful and flexible processor decodes all the various formats and routes them to a set of digital-signal-processing-based equalizers and crossovers. This helps route the sound to the various speakers and subwoofers. In addition, Yates specified several professional-type digital signal processors (DSPs) to enable him to fine-tune the system-room interface to varying degrees. For example, a room's acoustic response changes depending on the number of people in it. In addition, there is no true center seat in this theater. The DSP tuning process produced separate settings for use with a single or multiple audience members, which involved more than just equalization (EO), When only one person is listening, the sound system shapes the speakers' level and timing relationships to shift the apparent center image. Even though the listener is not physically in the middle of the room, this processing gives him or her the distinct impression of being smack in the middle of the soundstage.

Not to be outdone, the video system matches the excellence of the audio system every step of the way. The microperforated screen is made of Stewart's Studiotec 130 material. This provides the most uniform image with no color shift or hot-spotting. Hidden beneath an attractive cabinet housing lies a Sony VPH-G90 projector, which uses 9-inch CRTs to offer one of the most compelling images available. The Sony projector is one of a small handful that can actually display HDTV's true resolution



4962 Fairmont Avenue Bethesda, Maryland 20814 Phone: (301) 656-5100 Fax: (301) 913-5573 Email: info@allaroundtech.com