

# Integrated AV for First Ba

By: Mel Lambert



Photos: Donnie Brawner

When First Baptist Church of Marco Island, located in Southwest Florida, realized that it had dramatically outgrown its 20-year-old building, the decision to upgrade represented a unique opportunity to incorporate current technology. “We wanted to replace that existing building with one that would satisfy the needs of both the older and new generations [of parishioners],” recalls senior pastor Timothy Neptune. With its tropical, Gulf-Coast climate, Marco Island attracts a mixed population of retirees and younger families; it was the desire to satisfy both mature and “hip” tastes that posed the greatest challenge for the designers. “The new worship center needed to offer the ambience of an upscale hotel, but with the technological capabilities that are familiar to a younger audience,” Neptune says. “In other words, the décor should be traditional, with wood fittings and tall ceilings, but should incorporate the latest audio and video innovations.”

“We needed a consultant because, as a senior pastor, I didn’t necessarily understand all of the nuances of current technology,” Neptune says. “I knew what I wanted, but didn’t know how to

achieve it. Having researched the possibilities very thoroughly, we came to the conclusion that Donnie Brawner was the ideal system designer. I needed a professional; somebody who was in the technical production field, knew what we needed and understood the church. I met with Brawner one time, explained my vision, and then asked [Brawner & Associates] to make it happen for us. We turned over to them the design of the whole sanctuary and they exceeded our expectations.” Springfield, Missouri-based Brawner & Associates handles a large cross-section of church and house-of-worship installations. The First Baptist Church of Marco Island’s new 34,000-sq.-ft. building was opened in February of this year.

Brawner & Associates was hired as general theatrical consultant, to handle all elements of electronic media systems, lighting, and audio, plus scenic, rigging, and digital signage. “The new facility features a 500-seat worship center, a children’s space, multi-purpose areas, youth rooms, a coffee shop, a commercial kitchen, and a library,” Donnie Brawner says. “The goal was to create intimacy, and allow for flexibility and future

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expansion. In addition to the main sanctuary, we designed systems for the children's areas, youth rooms, and fellowship spaces.

"The pastor was very clear that he wanted the space to serve as a platform for live services, theatrical productions, concerts, and TV," Brawner continues. "The architect gave us a footprint—a blank room with four walls in which to develop the space. At the core of the new worship center design is a scenic wall that creates a vivid background behind the pulpit, with the wall working in unison with a soft-fabric ceiling. We were looking for a background that would be versatile—something with lots of depth and dimension. It had to be perfect for the live message, but also serve well for video and TV. The wall and stage ceiling combination offer flexible lighting capabilities, and provide the church with the ability to tone each service message, or to theme a message series."

## Harmonizing the design elements

Brawner & Associates designed a custom acoustic island ceiling

that both blended with the stage ceiling and provided enhanced sound control. "We assisted the church with developing all of the technical systems budgets," Brawner says. "The first step was to determine stage layouts, room access, seating elements, and ceiling plans. We spent a lot of time determining how we could get enough space over the stage to fly scenery and lighting in and out, thereby allowing the church a lot of flexibility. In the end, this drove the design of the stage and auditorium ceiling." In addition, the auditorium ceiling hides the PA system, lighting positions, house lights, and sprinkler heads. "We really didn't want the standard drywall ceiling," Brawner says. "We like to approach things from a standpoint of insisting that lighting, audio, video, and acoustics be a seamless integrated unit. We use the scenic elements and interior treatments as the vehicle to make it happen; in the end, the scenic elements help to define the space. Similar to an architect, we accomplish this by creating a master plan, and then work with our strategic partners on getting everything we need designed into that plan as a cohesive unit."

The concept for the acoustic island ceiling, Brawner explains,

“started as a forced-perspective continuation of the stage ceiling; our inspiration was Leonardo da Vinci’s famous painting, ‘The Last Supper.’ Once we agreed that this ‘soft-fabric’ look was the desired direction, we then worked to determine how it would be built to provide both acoustic control and a strong visual element. We also decided that the suspended ceiling would offer a great opportunity for masking the audio system, sprinklers, lighting, and HVAC.” Since the general contractor was apprehensive about finding a firm that could build and rig the ceiling as designed, Brawner decided to treat it as a scenic element. “We commissioned Infinite Dimensions/ID3 out of Atlanta to build it from our designs,” he says. “The ceiling consisted of individual panels built from a metal-frame structure, acoustic tile, and fabric wrap.”

But fabrication of the acoustic ceiling also posed one or two challenges. “Because the room’s visual design incorporates a forced perspective that focuses the audience’s attention onto the stage, cross, and altar,” says Brawner & Associates’ Dave Loftin, who served as project manager, “the ceiling panels form a complex pattern. The ceiling had to be acoustically absorbent and lightweight. Infinite Dimensions/ID3 fabricated a number of tapered trapezoidal panels that comprise steel frames, onto which was laced silver-gray flame-retardant material made by Dazian. We supplied Infinite Dimensions with CAD files that they used to cut out the materials for the panels. We specified 12” gaps between the panels to accommodate the sprinkler system and house lights.”

According to Don Wall, Infinite Dimensions’ co-founder, “We used 2” thick Sound Silencer panels custom-cut to shape and then covered them in Dazian material at our shop—the final weight was not a problem for the suspended ceiling. It took us around three weeks to fabricate the approximately 120 panels that we supplied, in between 35 and 40 unique shapes, using our CNC machines.”

Associated Theatrical Contractors of Springfield, Missouri, provided a color-changing stage ceiling. “The stage ceiling was designed as a way for us to lower the visible [height], allowing for space above for flying units,” Brawner continues, “while also making a seamless tie-in with the upstage set wall. The ceiling was designed to give us some acoustic solutions and, being a soft-fabric transparent material, allowed unlimited lighting flexibility. We chose LED units in an effort to save dimming, wire, and conduit costs on the front end. But they also offer great savings in maintenance, lamps, and power consumption. LED lighting meets green building initiatives, and

allows for unlimited color flexibility without the power requirements and maintenance of standard lighting. The LEDs also helped the onstage HVAC design, because we were dealing with less heat build-up. We rigged the acoustic ceiling in just two days, using laser sight to set the complex angles and chalk lines on the floor.”

“When people visit our church for the first time, they are blown away by the look created by the lighting and how it helps create a mood in the sanctuary [that] really enhances the worship experience,” says Neptune. To tie in the stage elements with the room architecture itself, modesty walls were designed with room-matching trim that allow for a clean stage look. The custom-

designed podium matching the room’s elements was built by Prestige Glass.

The design also called for a stage curtain—something that is not always found in a church. “I have always wanted to be able to create a more intimate feeling for funerals, or even weddings,” Neptune says. “Here, we can transform the space into a totally different feeling by closing a [motor-operated] curtain.” Brawner adds, “We had to make sure that we offered proper lighting for use when the curtain was open or closed. We needed to light [the curtain] so that it was architecturally pleasing and didn’t close up the room; even audio had to be considered.”

The audio and video equipment was supplied and installed by Springfield, Missouri-based SG Integration. “Any time you consider a new audio system design,” says SG’s Brandon Hite, “traditional design concepts need to be considered, such as a line array, clusters, left-center-right configurations, and so on. The choice is then narrowed down to a couple of possible solutions based on function, aesthetics and performance. To verify room coverage and performance with the desired acoustics, we modeled the space in EASE [analysis and measurement program]. It was determined that two full-range cabinets in a stereo configuration would be more than adequate for the space. This information was passed through the design team and incorporated into the ceiling design so that we could conceal it

from view. The room offers a truly stunning sound; the combination of this EV-powered EAW package and the acoustics proved to be a perfect mix.”

The sanctuary’s sound system comprises two Loud Technologies/EAW AX366 and two AX122 enclosures powered by Electro-Voice CP4000S amplifiers. Finished in black, an AX366 and an AX122 cabinet are suspended on either side of the center line, left and right above the first two rows of the auditorium

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seating area. "We are very familiar with the EAW AX366 and AX122 loudspeakers," says Hite. "They need a minimum of tuning to work in most environments, and model well to the EASE program. The resultant sound coverage was very good—the church staff is very pleased with the results. Also, Shure in-ear monitors proved to be a great advantage during band performances."

A Yamaha M7CL48 48-channel digital mixer provides both front-of-house and stage-monitoring duties, and connects to the power amplifiers via a programmable Symetrix SymNet DSP 8 x 8 distribution unit. Onstage monitoring is handled by four EV low-profile floor monitors, a pair of EV Sx250A floor monitors, and a pair of EV FRi-122/64 hanging monitor speakers, all powered by a trio of EV CP1800 amplifiers. This conventional monitor rig is augmented by two Shure PSM 600 wireless and four PSM 600 hardwired in-ear monitors. A bank of eight Aviom A-16 personal monitor mixers and two A-16D eight-port distributors handle cross-assignment of monitor sends to the appropriate cabinets and IEM units. Microphones specified for the sanctuary include two Shure ULXP24D/Beta 58 wireless and one ULXP14D wireless body-pack systems, two Countryman headset mics, eight Shure Beta 58 models, two Audix MB 1290-S choir mics, and two Audix ADX51 cardioid condenser models used as room-ambience mics.

In addition to a full-range sound system for the auditorium, the new building features a distributed system that includes six EV Zx1i-90 weatherized speakers and eight Atlas Sound FA138T327 speakers in FA-95-8 back cans for the lobby/bookstore, powered by an EV PA2250T 70V and two EV PA2450 amplifiers. Four Symetrix ARC-K1 units provide local level control.

### Projection systems

Two main video production areas are available: one at the rear of the sanctuary for live production; and a video suite where material can be edited using Apple's Final Cut Pro NLE and other applications. "The church wanted to broadcast, edit, and stream services over the Internet, and have unlimited video control over live services," Brawner explains. "Due to limited staff, the church was also interested in remote-controllable cameras. The main emphasis was on integrating everything to a central point of control so that [the church] had unlimited flexibility in whatever content was going to screens, tape, and/or being distributed to the digital signage network." Digital signage is handled by an Ethernet-based MAV Plus 88 HD matrix switcher, a Kencast Edgespan video server and four Amino playout units, linked to four Panasonic TH-50PH9UK 50" HD plasma screens; Extron MTP-R 15HD RS CAT6 receivers and transmitters connect to Xantech touch-screen displays.

The high-definition video system includes a single operator-controlled Sony HVR-A1U HD camcorder and a pair of remote-controlled Sony EVI-HD1 cameras. The video-production area houses a trio of TV One C2-4100 video processors, three Xantech CSPLCD39G touch-screen displays for the main projection screens, and a single Panel Authority custom touch-screen panel. Within the editing suite is an Apple Dual-Core/2.66 GHz Mac Pro, with a 23" HD cinema monitor running Final Cut Pro. A Panel Authority custom I/O panel controls source selection to a Sony Anycast Station HD recorder. A Network Electronics SLHD0808-

R-CP HD-SDI 8 x 8 router handles playback assignments. Audio monitoring is provided by a Yamaha MG24/14FX-CA audio mixer and a pair of Yamaha MSP5A-CA powered loudspeakers.

Live and pre-produced HD material can be fed to a trio of rear-projection screens within the main sanctuary auditorium. The two outer 90-by-120" Da-Lite Perm Wall rear-projection screens are fed by a pair of Panasonic PTD-3500U DLP projectors, while the central 108-by-192" Da-Lite Da-Snap screen receives images from a Panasonic PTDW-5000UL DLP device. The center screen is rigged on one of the scenic battens. "We developed a motorized rigging system that enables staging flexibility with multiple battens for stage electrics and scenic pipes," Brawner explains.

### Flexible lighting for multiple applications

Configured by Brawner & Associates' Ron Robertson, the auditorium's lighting system was designed to allow for both video and performance-style capabilities. "There were certain positions built into the design that were crucial for video and others that are there more for theatrical productions," Brawner says. Circuit distribution included 120V and 208V convenience power throughout the space; data is provided through a series of portable nodes.

"The stage trusses that were the structure for the stage ceiling allowed for a nice contemporary look," Brawner says, "but also allowed for versatile up- and downstage positioning for added lighting in the future. The front-of-house lighting positions were designed as motorized drum-and-block systems that allow the battens to be lowered for maintenance and hang changes. The wiring feeding the distribution is flat wire and sent through a pantograph system. House lighting was done with ETC Source Four PARs; they have different lens options and the ability for lens rotation, which provided a lot more control over the house lighting. It allows the church to put light where they want it and keep it off of corners, walls, and so on, thereby allowing the decorative wall sconces on the side walls to be more effective. I am a big fan of clean house light in small spaces."

According to Loftin, the project manager, the biggest hurdle involved the physical hanging of the battens and instruments. "The building utilized a new style of roof trusses that were made up of U-shaped formed sheet metal. Because of structural considerations, we couldn't drill into these trusses; instead, we had to devise an alternative suspension technique. We fabricated a series of bolt-on angles that clamped around the trusses to form an I-beam sandwich, to which we attached the motorized rigging trusses supplied by Texas Scenic. We specified three lighting battens for the audience area—two over the front seating areas and the other in front of the curtain—and two scenery battens on the upstage edge." Texas Scenic supplied five custom motorized drum and block line-set systems, comprising pipe, motor, loft blocks, cable, and pantograph, plus two US Walk Along traveler tracks with companion hardware.

"Texas Scenic's fabrication was outstanding," Loftin recalls. "The battens are made from 1.5" inside-diameter, black-iron water pipe. The motorized systems were part of a five-day rigging installation—it was pretty straightforward." A series of 500lb. winch motors, pulleys and drums—one per batten—handle



raising and lowering of each lighting, curtain or scenery array across the 80' width of the auditorium. A custom motorized control panel was designed for offstage right control of all the battens. Texas Scenic also supplied the main-act curtain, with Encore drape, motor, batten, pulleys and control system.

Lighting fixtures and accessories include 75 ETC Source Fours, 40 ETC Source Four Pars, eight High End Systems Studio Commands and four High End Systems x.Spots, plus 42 Chauvet COLORado 1 units. Control is from a Jands Vista Console with S3 surface and an HP TouchSmart IQ PC/display, along with an ETC Unison system with two remote stations, provides. The dimming system included an ETC Sensor 48 and 24 rack along with an emergency lighting transfer system. Scenic elements from Ozark Custom Fabrications included a 55' x 21' upstage set wall with star strobes and embedded electric, a three-dimensional cross unit with embedded LED lighting, and a screen surround for

center video screen, and the stage ceiling.

A high-definition digital signage network distributes content to 50" plasma displays throughout the facility and is driven by a matrixed HD content server.

"The new building—particularly the worship center—exceeded our expectations," Neptune concludes. "It is just what we had hoped for—a combination of traditional elegance with new-generation technology. The forced-perspective was a major revelation for us. Initially, I was a little nervous that maybe it was going to look strange but, since I trust Donnie Brawner, I took him at his word. When all is said and done, it is a marvelous space that offers outstanding sound and video capabilities, with flexible lighting—just what we were promised. We couldn't be happier." ☺

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