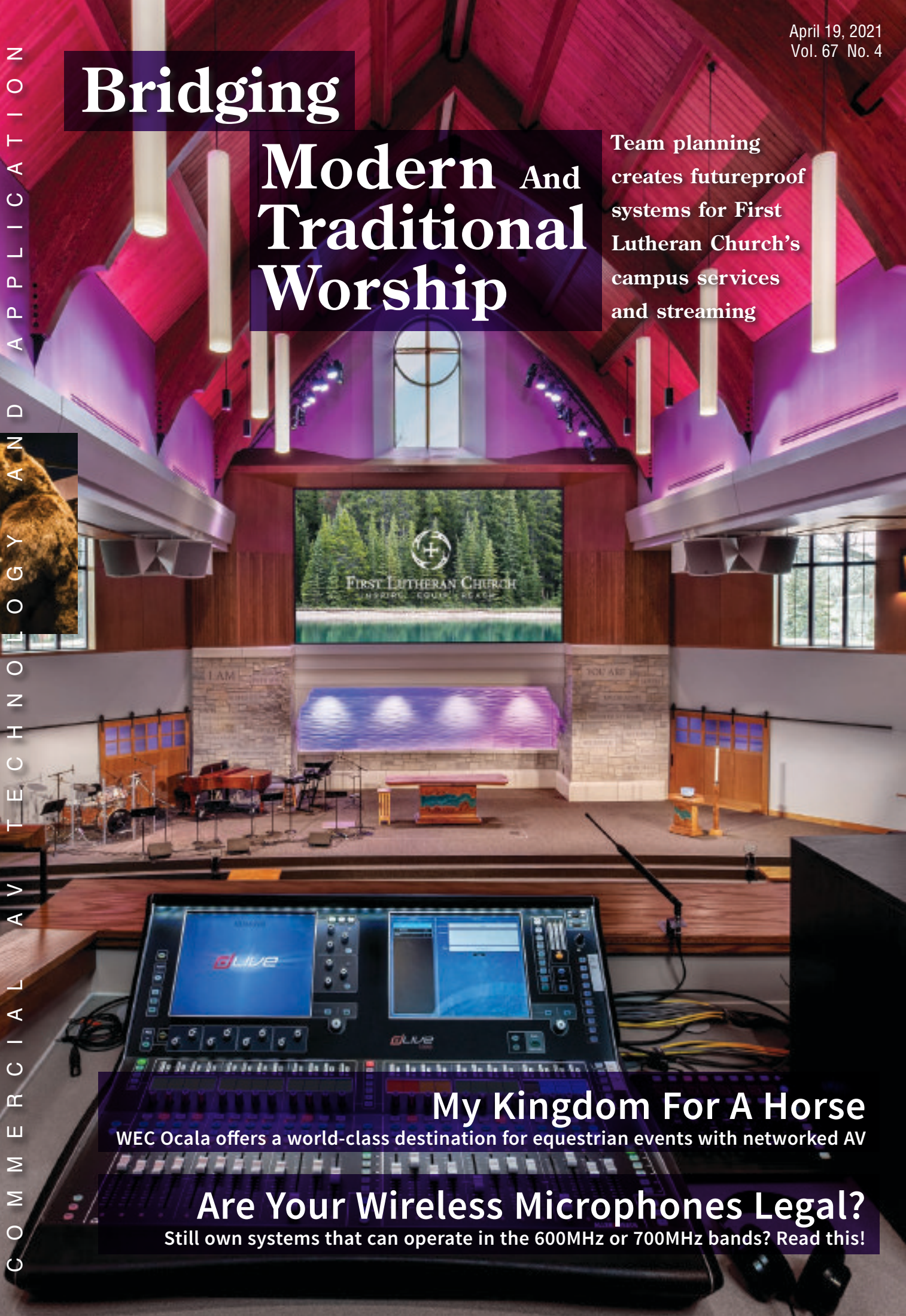


Bridging

Modern And Traditional Worship

Team planning
creates futureproof
systems for First
Lutheran Church's
campus services
and streaming

SOUND & COMMUNICATIONS
TECHNOLOGY AND APPLICATION
COMMERCIAL AV



My Kingdom For A Horse

WEC Ocala offers a world-class destination for equestrian events with networked AV

Are Your Wireless Microphones Legal?

Still own systems that can operate in the 600MHz or 700MHz bands? Read this!

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The Celebration Center is an architectural marvel, perfectly capturing a contemporary worship atmosphere. Sound and video are delicately balanced to maintain sightlines.

Photo courtesy Jill Ockhardt Blaufuss (www.ockhardtphoto.com)



BRIDGING

Modern



Team planning creates futureproof systems for First Lutheran Church's campus services and streaming.

By Jim Stokes

"Ein feste Burg ist unser Gott" proclaims perhaps the Lutherans' most well-known hymn, as composed by Martin Luther in the mid-1600s during times of change (to put it mildly).

Founded in September 1917, First Lutheran Church in Fargo ND remains a mighty fortress—both an enduring island of community support and a spiritual training center. In 2017, a successful fundraising drive empowered Senior Pastor Corey Bjertness and his fellow pastors to undertake a substantial facility renovation and expansion, including structural and audiovisual changes at First Lutheran Church and its new Celebration Center. A Fargo-based architecture firm, wild | crg, was engaged to design, develop and oversee the ambitious project, which encompassed renovation and new construction.

The existing First Lutheran Church is 50'x125' (WxL), and the new Celebration Center is 98'x88' (WxD). The Celebration Center is a double-height performance hall with 706 seats; there are 534 on the ground-floor level and 172 in the balcony, with a sloping, acoustically treated ceiling. The new Celebration Center and its stage were designed to provide an outstanding setting for prayer, sermons, religious services, choir performances and other musical elements. First Lutheran held a groundbreaking

And Traditional Worship

ceremony in June 2018, and the project was completed in time to celebrate Christmas ceremonies at the end of 2019.

Highland NY-based architectural/acoustical design firm Walters-Storyk Design Group (WSDG), although tasked with consulting on acoustic elements throughout the campus, was primarily focused on the Celebration Center. Project leaders engaged WSDG to develop a comprehensive acoustic-development and sound-isolation program for the new space. The firm was also called upon to consult on comprehensive acoustic elements throughout the sprawling, 96,000-square-foot addition.

Thanks are extended to Howard Sherman, of Howard Sherman PR (New York NY), for his outstanding efforts in providing photographs and coordinating interviews. There were many talents required to make this a successful project, and there were many interviews required for a successful article.

Expansion Program

Two-thirds of the original First Lutheran Church campus had been earmarked for substantial remodeling and upgrades as part of the expansion program. Ground-up construction was planned for the sanctuary, chapel, gathering/education building, offices, choir, nursery/gym and the Celebration Center/performance center. This article will focus the vast majority of its attention on the Celebration Center, but it'll also touch on AV elements elsewhere on campus. Significant AV features include house speaker clusters, distributed audio, sound mixing, digital projection, video cameras, and switching and streaming campus-wide (as well as over broadcast TV).

Tricorne Audio, Inc., was the AV integrator. For perspective on the sound elements, we interviewed Dallas Anderson, Lead Audio Designer, who manages the Bismarck ND office. To learn about video systems, we interviewed Phil Nelson of the design and sales team at the Fargo office.

"It was a partnership between Phil and me," Anderson explained. "We each took our respective areas, but [we] had good communication. The Parish Administrator, Daniel Damico, was integral in properly relaying the needs of the church to us and making sure that what we were providing was addressing the needs of the church." Speaking to the project timeline, he added, "Time was short. We were brought into the project after the shell was already up and the building was enclosed. It was fast and quick. But we got it done!"

Although the Celebration Center turned out to be an unqualified success, it did have some challenges along the way. According to Anderson, "One of the most notable challenges was the issue of the church

The AV gear integrated in the Celebration Center is top of the line, but the design team made sure that there were shortcuts—an "easy button," in a sense—for operators who are less technically adept.



wanting to use line arrays. [However,] the physical building and projection layout were not accommodating.” Nevertheless, the church and the design team worked on the assumption that stereo line arrays would be the best choice based on their popular use for concerts and in performing-arts centers. “They are the hot item of the past decade,” Anderson affirmed.

Celebration Center Audio

Anderson noted that Tricorne Audio worked with WSDG onsite to get an acoustical report and summary to help the integrator build its EASE model. “In constructing the EASE model, it became apparent that not only would line arrays be sonically inferior in the space—and we looked at three options—but they would also impede the projection system. Our focus then shifted to the best point-source options, which, after installation, left us with literally four inches of physical clearance before it would have shadowed the side screens.”

When in-person worship services resume, the Celebration Center will be able to accommodate First Lutheran’s healthy and growing congregation.

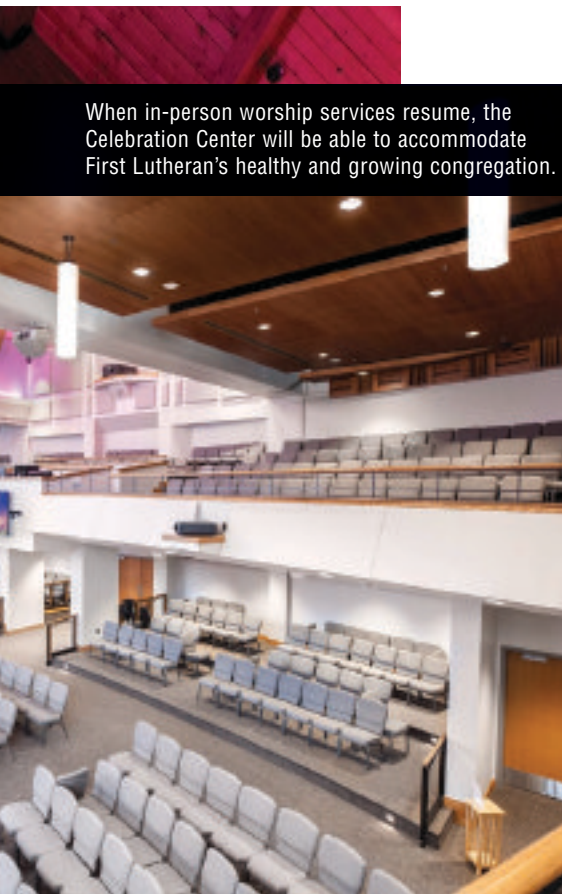


Photo courtesy Jill Ockhardt Blaufuss (www.ockhardtphoto.com)



Photo courtesy Jill Ockhardt Blaufuss (www.ockhardtphoto.com)

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Thus, Fulcrum Acoustic was chosen for the main house speakers. “We were looking for compact speakers that still provided good pattern control,” Anderson explained. “This is a fairly new series for them, and it allowed us to fit in there.” Tricorne immediately felt comfortable with the Fulcrum Acoustic product because the company has been using the vendor’s gear for several years. “We were introduced to them at a high school project in Williston ND,” Anderson continued. “We were quite impressed and started looking for applications where we could use them...where modeling [dictated that they would be] a good choice. They’re just a great product line, and they’re made in the USA.”

Diving into specifics, Tricorne specified a pair of left/right clusters using FH1566s. “That makes about 120°x60° coverage on each side,” Anderson said. The system also incorporates left/right CX1226 balcony delay fills.

With respect to subwoofers, two pairs of right/left CS121 subs are flown behind the main clusters. “Fulcrum makes this cardioid subwoofer, so we don’t have to do arrays or special electronics to get the cardioid focus and keep the low end off of the platform,” Anderson enthused. A pair of Sub215L subwoofers was added on the floor to enhance impact and feel for more contemporary events. The main house speakers are powered by four Lab.gruppen amplifiers.

Turning to the topic of rigging, Anderson related that, once the design was accepted, “We moved forward and put steel structure up around the main I-beams, which allowed us to come in afterwards and attach the speakers.”

Other areas are served by QSC speakers. The venerable company provided four under-balcony fills and 10 for back-of-house areas. Meanwhile, according to Anderson, “Extron amplifiers reside in the audio booth by the Allen & Heath mixing board. The amplifiers were chosen because they are fanless, [thus eliminating] distracting noise during events.” Furthermore, the back-of-house area, green room and hallways have Lowell volume attenuators. Meanwhile, congregation members who are hard of hearing are served with an assistive-listening system from Williams AV.

Digital signal processing (DSP) is via

For now, First Lutheran congregants can enjoy both traditional and contemporary worship services each week by tapping into the church’s broadcast/streamed content. Feedback thus far has been overwhelmingly positive.

Symetrix Prism 12x12 with Dante. “We were brought into the project after the building was already enclosed and interior work was going on. So, there weren’t a lot of conduit options,” Anderson said. “We knew we wanted to work off a Dante network to get audio from the platform to the booth, and from the booth to the production area. With the Symetrix being native on the Dante side, it just seemed to be a good choice.” There’s a Prism in the main amplifier rack, one in the booth and one in the video-production rack. “So,” Anderson added, “we can bring audio on and off as needed, in any location, and shuttle it around the system.”

Four QSC portable powered monitors are used on the platform, so musicians can do their own mix by connecting to the Allen & Heath ME-1 and ME-500 personal mixers. For convenience, there’s also an Audix DP7 drum-mic kit. What’s more, a bevy of Clear-Com intercom equipment ensures communication backstage from the remote spotlight operators.

That brings us to the audio-mixer booth, located on the center front edge of the balcony, taking up some of the space that would have been balcony seating. The 20’x14’ (WxD) booth was designed by architecture firm wild | crg. “It’s really nice,” Anderson observed. “It’s a good viewpoint where you can see and hear everything that’s happening very well.” The operator has easy access to the Allen & Heath mixer, a Denon media player and a Denon audio recorder. Sony headphones are used for monitoring.

The flexible Allen & Heath DM0 mix engine is the heart of the audio control system. Lowell AV equipment racks and Furman AC distribution are located behind the altar area in the back of house. Specifically, the DM0’s C3500 surface is a compact mixer that resides in the audio booth. It has dual 12-inch touchscreen monitors. The I/Os can be greatly expanded to 128x128 via its Dante card. However, in practical use, the Allen & Heath stage boxes can easily accommodate an orchestra or band event with 48 wired connections on the platform. One Cat5 cable per stage box sends audio back to the DM0.

On the other hand, a simplified “easy button-style” IP8 remote controller is present for users who are less techy. The IP8 could be used for a small prayer service, simple wedding or funeral. “The IP8 allows them to make volume adjustments without having to turn on the C3500 surface,” Anderson explained. “It’s simple for a novice to use, while still maintaining all the processing of the mix rack.”

A Shure wireless system rounds out the main hall’s complement of audio elements. The system consists of four WCE6T earset pastor mics and four SM86 handhelds for special events, such as vocalist performances. There’s also an allotment package of wired mics that the church purchased separately.

Video Viewing Aspects

As alluded to earlier, a major challenge was providing a clear viewing path during services from the projectors to the three Da-Lite screens at the front. “The challenge was to provide solutions that worked harmoniously



Photo courtesy Jill Ockhardt Blaufuss (www.ockhardtphoto.com)



Photo courtesy Jill Ockhardt Blaufuss (www.ockhardphoto.com)

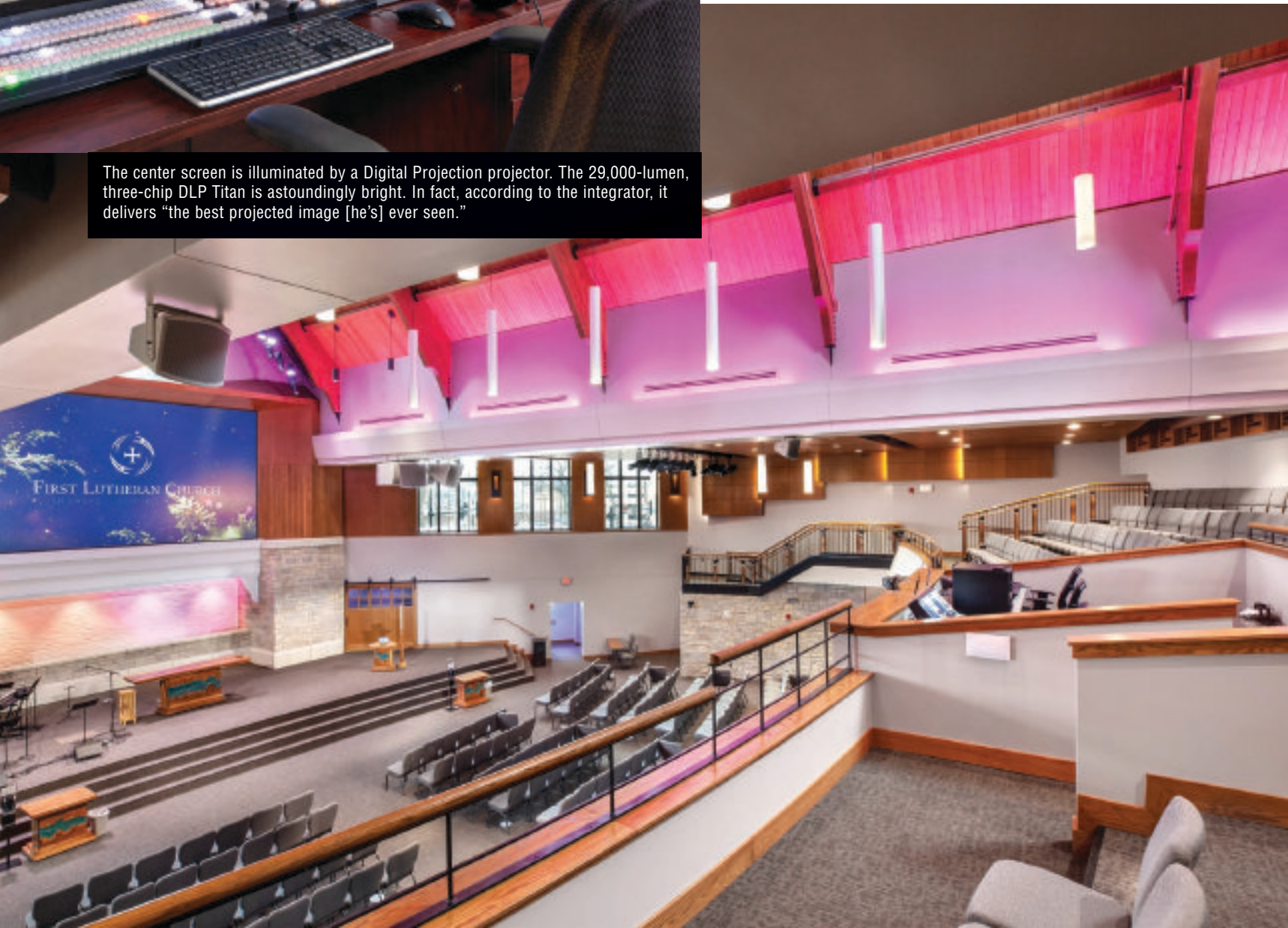
The center screen is illuminated by a Digital Projection projector. The 29,000-lumen, three-chip DLP Titan is astoundingly bright. In fact, according to the integrator, it delivers "the best projected image [he's] ever seen."

in being able to project underneath the [flown] speakers," Tricorne's Phil Nelson, the spokesperson for video, said. The general contractor installed all the projection screens for this project.

The stationary center screen is the largest one at 276"x156" (WxH). Complementing it, on the left and the right sides, are two 192"x108" (WxH) motorized electric screens. The screens are illuminated by Digital Projection projectors. Those include a 29,000-lumen, three-chip DLP Titan for the center screen and a pair of single-chip, 10,000-lumen E-Visions for left and right. Color calibration was done on all three screens. "The Titan has the best projected image I've ever seen," Nelson enthused. "It's an *incredibly* bright unit."

"I want to credit architect Mike Wild, who built the projector platforms to house these projectors in the balcony and on the back wall," Tricorne's Anderson added. "There are absolutely no vibration problems. They didn't just put up a wooden shelf and call it 'good.' They integrated it into the steel structure and made sure everything was solid."

Ensuring flexibility, an Extron TLP Pro touchpanel enables church personnel—it could be a pastor, speaker



or musician—to choose whatever content they wish to view on the confidence monitor (a 4K LG 86-inch display) mounted at the base of the balcony.

Distributed Video & Video Production

Video distribution across campus is over cable TV modulation. “We chose this method for a couple of reasons,” Nelson revealed. “One was that cable-TV infrastructure was already in place. Second, they could quite easily scale in the future.”

There are three modulators: one for the Celebration Center; one for a camera in the traditional sanctuary; and one connected to a Vivitek digital-signage player. Across the campus, viewers have the ability to switch among the three feeds. Thus, they can watch in a Sunday school classroom, in the narthex commons area between the Celebration Center and the sanctuary, etc. Displays are generally LG.

“An overall project challenge was to design and build a system that [would equip] the church for the future,” Nelson explained. That’s one of the reasons that the team went with the NewTek TriCaster video-production system. “It’s flexible,” Nelson observed. “It gives them more than they need, so they can really expand their production.”

There’s a separate, NewTek-based production suite in another part of the building. A TC1LP control panel is used to select feeds from four NDI-PTZ1 pan-tilt-zoom cameras. There’s also a Lumens VS-KB30 camera controller and three dedicated monitors. “We provided the controller so the production operator doesn’t have to be operating both the camera control and the overall switcher from the same device,” Nelson explained. “The Lumens is a joystick that moves the camera around, does the focus and does the presets.”

In addition, there are four NewTek cameras in the traditional sanctuary, which also use a Lumens camera controller. They’re on the same TriCaster server as the new worship center, using the same TC1LP control panel. To be more specific, there are three NDI sanctuary cameras, and the fourth is a roving camera. “They can plug it into the balcony if they want to shoot toward the front,” Nelson remarked, “or they can plug it into an altar port at the front and shoot toward the rear of the room for a wedding processional or some other event perspective.” Furthermore, the roving camera can be brought into the Celebration Center if an additional camera is required. The sanctuary otherwise continues to use its existing AV for its services.

CrossTalk Café & Distributed Audio System

The CrossTalk Café is a well-named 40'x75' (WxL) education and multipurpose room located outside the Celebration Center. It functions as a gathering area

Ensuring flexibility, an Extron TLP Pro touchpanel enables church personnel—it could be a pastor, speaker or musician—to choose whatever content they wish to view on the confidence monitor mounted at the base of the balcony.



Technology is placed unobtrusively. This illustrates the strong, collaborative partnership between the architect, the integrator and the acoustical consultants. Everyone was on the same page to ensure an excellent project outcome.



for the church's middle-school program. It could accommodate a Bible study group or a meeting, for which the Celebration Center would be too large.

According to Nelson, the client wanted a space that would be large enough to comfortably seat viewers for a movie night. Thus, the room has an Optoma WUXGA-resolution projector on a Chief bracket. It illuminates a Da-Lite 123-inch-diagonal, 16:10 FullVision wraparound screen, which is at the front. "The projector and screen combination looks great," Nelson said. "It has both a local input and a Celebration Center camera feed to accommodate in-room or overflow use." It's tied in with the main system via an Extron DTP CrossPoint switcher. For audio, there is a Symetrix DSP that's connected via Dante back to the main system. Left/right wide-dispersion Tannoy column speakers on each side of the café's projection screen are driven by a Lab.gruppen amplifier.

Regarding audio distributed elsewhere, there's another Symetrix DSP by the mixing
(main story continued on page 46)



Photo courtesy Jill Ockhardt Blaufuss (www.ockhardtphoto.com)



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Audio

- 1 Allen & Heath DX164-W 16 XLR input/4 XLR output wallmount DX expander
- 1 Allen & Heath DM0 dLive S Class MixRack
- 1 Allen & Heath dLive S5000 medium-sized control surface for the dLive MixRack
- 2 Allen & Heath DX168 16 XLR input/8 XLR output 96kHz portable DX expanders
- 1 Allen & Heath Dante 128x128 Dante audio networking card
- 1 Allen & Heath M-DL-DXLINK dLive audio networking card
- 1 Allen & Heath MPS16 dLive S Class power supply
- 1 Allen & Heath IP8 dLive/Avantis/AHM-64 remote controller
- 1 Allen & Heath ME-1 40-source personal mixer
- 6 Allen & Heath ME-500 16-channel personal mixers
- 1 Allen & Heath ME-U 10-port PoE monitor hub for parallel connection
- 1 Attero Tech by QSC unDX4I Dante network audio wallplate 4x2 mic/line I/O
- 1 Audix DP7 professional drum-mic pack
- 1 Denon DN-500CB CD/media player w/Bluetooth/USB/aux inputs and RS232c
- 1 Denon DN-700R network SD/USB audio recorder
- 1 D-Link DGS-1210 Dante switch
- 1 Extron RSU 129 universal rackshelf kit for 9.5"-deep products
- 2 Extron XPA 2001-70V mono 70V amps (200W)
- 4 Fulcrum Acoustic CS121 21" subcardioid subs
- 2 Fulcrum Acoustic CX1226 compact 12" passive installation coaxial speakers
- 4 Fulcrum Acoustic FH1566 4" full-range coaxial horns
- 2 Fulcrum Acoustic Sub215L dual 15" direct-radiating subs
- 1 Furman CN-1800S 15A SmartSequencing power conditioner
- 1 Furman CN-2400S 20A SmartSequencing power conditioner
- 1 Furman CN-15MP Contractor Series 15A MiniPort
- 4 Furman CN-20MP 20A remote duplex, EVS, SmartSequencing, 10' cords
- 1 Furman F1000-UPS 1000VA, 2RU uninterruptible power supply
- 1 Furman PL-8C 15A Classic Series power conditioner w/lights
- 4 Lab.gruppen C 48:4 4,800W, 4-channel amps w/NomadLink network monitoring and dedicated control for install applications
- 3 Lowell 100LVC-DW 100W attenuators
- 1 Lowell LER-4027 enclosed rack (40RU x 27"D)
- 1 Lowell LFD-40FV fully vented front door (40RU, locking, black)
- 1 Lowell LLR-1018-B laminated rack (10RU x 18"D)
- 1 Lowell LLR-1218-B laminated rack (12RU x 18"D)
- 1 Lowell LMB-27 mobile rack base w/3" swivel casters (27" deep, black)
- 1 Lowell RRD-40 pair of rack rails (40RU)
- 2 Lowell UDE-214 utility drawers (2RU, 14.5" deep, black)
- 2 Lowell UDE-314 utility drawers (3RU, 14.5" deep, black)
- 10 QSC AC-C6T 2-way, ceiling-mount speakers
- 4 QSC AC-S6TW 6" pairs of surface-mount speakers (white)
- 4 QSC K8.2 powered, 8", 2-way speakers
- 8 RapcoHorizon DURACAT-25NBNB Duracat 25' EtherCON cables
- 4 Shure ULXD1 digital bodypack transmitters
- 4 Shure ULXD2/SM86 ULXD2 digital handheld transmitters w/SM86 capsules
- 2 Shure ULXD4Q quad-channel digital wireless receivers
- 4 Shure WCE6T omni condenser earset mics w/TA4F connectors (tan)
- 1 Sony MDR-7506 headphones
- 1 Symetrix Prism 12x12 digital signal processor

- 1,750 West Penn 25227B 2-conductor 12AWG unshielded speaker cables
- 2,000 West Penn 25291BGY1000 22/2 stranded bare copper conductors (shielded w/overall jackets)
- 500 West Penn 25293BGY1000 18/2 stranded bare copper conductors (shielded w/overall jackets)
- 3,000 West Penn 254246F 4-pair 23AWG F/UTP Cat6 CMP cables
- 1 Williams AV FM 457-12 personal PA FM assistive-listening system (12 receivers)

Cross Talk – Distributed Audio System

- 5 Clear-Com CC-40 single-ear intercom headsets
- 1 Clear-Com HS-6 telephone-style handset
- 1 Clear-Com PK7-CC power supply
- 6 Clear-Com RS-701 single-channel beltpacks w/XLR-3 connectors
- 1 Denon DN-350UI internet radio and media player w/Bluetooth technology
- 1 Furman PL-8C 15A Classic Series power conditioner w/lights
- 1 Lab.gruppen C 16:4 400W, 4-channel power amp
- 2 Lowell 100LVC-DW 100W attenuators
- 53 QSC AC-C4T 4.5", full-range ceiling speakers
- 2 Shure UA825 coaxial cables
- 1 Shure ULXD1 digital bodypack transmitter
- 1 Shure ULXD2/SM86 ULXD2 digital handheld transmitter w/SM86 capsule
- 1 Shure ULXD4D dual-channel digital wireless receiver
- 1 Shure WCE6T omni condenser earset mic w/TA4F connector (tan)
- 1 Symetrix Prism 12x12 digital signal processor
- 1 Symetrix T-5 touchscreen controller
- 2 Tannoy VLS 15 passive column-array speakers
- 2,000 West Penn 25293BGY1000 18/2 stranded bare copper conductors (shielded w/overall jackets)
- 300 West Penn 254245YEL plenum Cat5e cables (1,000' reels in boxes, yellow)

Projection

- 1 Digital Projection 105-612 zoom lens
- 2 Digital Projection 112-503 HB zoom lenses
- 2 Digital Projection E-Vision Laser 10K 1-chip laser-phosphor projectors
- 1 Digital Projection Titan Laser 29000 WU projector
- 1 Extron DA2 HD 4K PLUS 4K/60 HDMI distribution amp
- 1 Extron DTP CrossPoint 108 4K 10x8 seamless 4K scaling presentation matrix switcher
- 1 Extron DTP HD DA8 4K 330 long-distance 4- and 8-output DTP distribution amp
- 9 Extron DTP HDMI 4K 230 Rx DTP receivers for HDMI
- 7 Extron DTP HDMI 4K 230 Tx DTP transmitters for HDMI
- 5 Extron DTP HDMI 4K 330 Rx long-distance DTP receivers for HDMI
- 3 Extron DTP T UWP 4K 332 D 2-input DTP transmitters for HDMI and VGA w/audio embedding (decorator-style wallplates)
- 1 Extron IPCP Pro 555 IP Link Pro control processor
- 1 Extron RSU 129 universal rackshelf kit for 9.5"-deep products
- 1 Extron TLP Pro 1025T 10" tabletop TouchLink Pro touchpanel
- 2 Extron TLP Pro 725T 7" tabletop TouchLink Pro touchpanels
- 2,000 Extron XTP DTP 24P/1000 shielded twisted-pair cables for XTP systems and DTP systems
- 3 Extron XTP PI 100 power injectors for XTP and Pro Series control systems
- 1 TRENDnet TPE-S44 8-port 10/100Mb/s PoE switch

500 West Penn 25357BGY1000 1,000' 22AWG 4-conductor stranded plenum audio cables

Confidence Monitor

- 1 Chief XTM1U x-large Fusion micro-adjustable tilt wall mount
- 1 LG 86UU340C 86"-class ultra-HD commercial TV w/essential smart function

Distributed Video

- 1 Chief FCA830 Fusion center-channel speaker (large displays)
- 2 Chief LTM1U large Fusion micro-adjustable tilt wall mounts
- 1 Klipsch RSB-3 sound bar
- 2 LG 55UU340C ultra-HD commercial TVs w/essential smart function
- 1 Vivitek NovoDS digital-signage solution
- 500 West Penn 25841 Plencon RG6 18-gauge CATV plenum coaxial cables (1,000')
- 3 ZeeVee ZvPro810i-NA HD video encoders/QAM modulators

TriCaster/Cams

- 1 Aruba Networks 2930F Series access switch
- 3 Decimator MD-HX HDMI/SDI cross converters w/scaling and frame-rate conversion
- 1 Gefen EXT-USB2.0-LR USB 2.0 extender
- 1 Lumens VS-KB30 IP camera controller w/joystick
- 1 Marshall Electronics CV342-CS 2MP HD-SDI compact progressive camera
- 1 Marshall Electronics VS-M419-6MP day and night auto-iris varifocal lens
- 4 NewTek NDI PTZ1 cameras
- 1 NewTek TC1SBDL TriCaster TC1 SELECT bundle w/large control panel

Miscellaneous Video

- 2 Furman CN-1800S 15A SmartSequencing power conditioners
- 12 Liberty AV M2-HDSEM-M-03F low-profile HDMI patch cables
- 12 Liberty AV M2-HDSEM-M-08F low-profile HDMI cables
- 2 Lowell ACS-1512 power strips
- 1 Lowell LER-4427-LRD enclosed rack (44RU x 27"D)
- 1 Lowell LMB-27 mobile rack base w/3" swivel casters (27" deep, black)
- 1 Lowell RRD-44 pair of rack rails (44RUs)
- 1 Lowell SP-1 blank rack panel (1RU, 16AWG, textured black)
- 8 Lowell SP-2 blank rack panels (2RUs, 16AWG, textured black)
- 3 Lowell SP-3 blank rack panels (3RUs, 16AWG, textured black)
- 1 Lowell SVP-1 vented rack panel (1RU, 18AWG, perforated steel, black)
- 3 Lowell US-114 utility rackshelves (1RU, 14" deep, black)
- 2 Middle Atlantic UPS-2200R rackmount uninterruptible power supplies (1,650W)

CrossTalk

- 1 Chief CMA395 angled ceiling plate
- 1 Chief CMS012 12" fixed-extension column

- 1 Chief RPAU RPA universal and custom ceiling projector mounts
- 1 Da-Lite FC9H65x104 FullVision 123"-diagonal fixed-frame screen
- 1 Optoma ZU500T-B WUXGA conference-room projector

Sanctuary Cameras

- 1 Aruba Networks 2930F Series access switch
- 1 Decimator MD-HX HDMI/SDI cross converter w/scaling and frame-rate conversion
- 1 DTP HDMI 4K 330 Rx long-distance DTP receiver for HDMI
- 1 Extron DTP HDMI 4K 330 Tx long-distance DTP transmitter for HDMI
- 1 Lumens VS-KB30 IP camera controller w/joystick
- 4 NewTek NDI PTZ1 cameras

List is edited from info supplied by WSDG and Tricorne Audio, Inc.



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Digital-Conference-48-Extend **Retail: \$3499**



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Outdoor Venue Space

Architecture firm wild | crg designed and built an outdoor venue space situated on the south side of the Celebration Center. “We had such beautiful mornings and weekends here that we were trying to find a way to worship in the parking lot,” Mike Wild, Principal of wild | crg, said. “We were just about to get lighting or sound connected to the inside house panel so the worship bands could plug in and everything [could] run from newly installed interior equipment. But we haven’t had the ability to use that yet.”

The Celebration Center at First Lutheran Church was created to accommodate an array of events, including performances of all kinds. Both the house sound system and the integrated video elements are fully up to the task.

Architects + Acousticians = A Sound Collaboration

Historically, concerns about the acoustical properties of building designs have not been high on the list of many architectural firms. Aesthetics; lighting; heating, ventilation and air conditioning (HVAC); handicapped access; local and national zoning laws; safety regulations; building security; and other critical issues have been the traditional (and legitimate) design priorities.

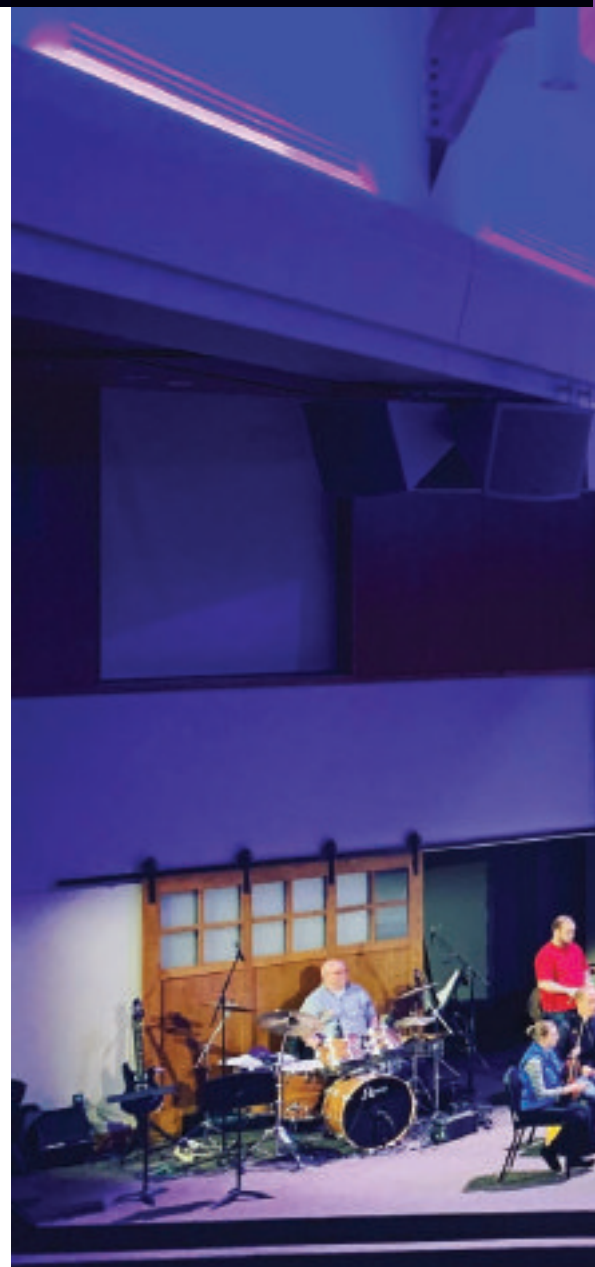
So, yes, in the past, considerations about sound reverberation and sound leakage from both interior and exterior sources have not been primary issues for architectural design. However, in recent years, forward-thinking architects have increasingly come to recognize the value of engaging professional acousticians at the design stage of their projects. Growing awareness of the importance of acoustical design reflects the frequent reoccurrence of a vexing issue: the need to correct acoustical problems after projects have been completed. Resolving these post-construction design flaws can be an expensive, time-consuming and intrusive process that (in extreme cases) can require the demolition of built areas such as the lobby or cafeteria. In less-invasive cases, it can be ameliorated by the installation of corrective wallmounted and/or ceiling-mounted acoustic treatments.

Although there are no “sound-proofing paints” that magically eliminate intrusive noise, there are many attractive and affordable new products specifically developed to improve the acoustic quality of a given space—these include perforated wood and stretch-fabric-wrapped and even clear perforated acrylic sheets.

For the First Lutheran Church project, we were fortunate to have collaborated with architect Mike Wild, Principal of wild | crg. Some years ago, Walters-Storyk Design Group (WSDG) had designed a recording studio for Art Phillips, Owner of Video Arts Studios in Fargo and an active parishioner of First Lutheran. Phillips recommended our firm to Wild at the outset of the project. Wild proved to be an excellent collaborator, and we were very pleased with the positive feedback we received from the church clergy.

WSDG has been advocating design-stage acoustic collaboration with architects for many years. We are pleased to see awareness of this issue trending with increasing frequency. Like car seatbelts and the mandated installation of fire-alarm and carbon-monoxide-alarm systems, acoustic control is evolving into a universally accepted element of architectural design. Design-stage acoustic consultation saves time and money. Moreover, it dramatically improves speech intelligibility. It also can save an enormous amount of breath, eliminating the need to ask (or respond to) the universal question: “What did you say?”

—Joshua Morris, Partner/COO, WSDG



(main story continued from page 43)

board and one in the main amplifier rack. A Symetrix T-5 touchscreen controller is used for the gathering area. With respect to speakers, there are 53 QSC four-inch, ceiling-mounted units installed in the narthex, restrooms, fireside area, lobby and main entrance. Two breakout zones by the fireside and outside the main sanctuary have Lowell volume attenuators. A Denon media player supplies background music (BGM) 24/7.

Summarizing the integrator’s perspective, Anderson stated, “The acoustics



of the space are phenomenal. The end result is just a great balance of contemporary and traditional. It behaves well. The sound system sounds great. It's just really, really nicely done." He continued, "Setting the technical aspects aside, I think this church did a very nice job of integrating a modern worship space that carries the feel of a traditional church. There are a lot of new churches that feel more like a theatrical-production set than a church. And there are many traditional churches that don't lend themselves well to contemporary worship. Those elements

work very well together here. It's very versatile."

Architect's POV

Wild, the architect, interfaced with WSDG, which he described as "absolute experts in their field," in designing the Celebration Center. "We did a pretty good job upfront, from the design standpoint, without knowing the scenario," he explained. Wild continued, "I designed the container for this space. I tried to break it apart from some of the older portions of the building with a modern twist, using a glass stair

shaft as a separator. This gives a little transparency between the two that doesn't make it a hard-and-fast separation between the sanctuary and the new Celebration Center."

Ultimately, wild | crg opted for a balcony in the new space. "That was a big twist," Wild said. "It required deeper holes because we're in the old glacial fill, so you've got to go down a little bit to get proper bearing. And we're digging next to a building next door—the sanctuary. WSDG came in and put vibration sensors and lasers with the sanctuary to ensure it wouldn't get cracked, damaged or broken."

According to Wild, the decision to build was many years in the making. “We’ve been master planning this particular facility from way back in the late ’90s,” he revealed. “Churches are always an interesting design archetype because they usually go on for a long time. It starts with an idea; then, there are lots of meetings, drawings and a fundraising phase.” Wild quipped, “It’s like the story that a camel is just a horse designed by a committee.”

Wild attested to having sat through years and years of meetings and master-planning sessions for this specific church project. But the project was an important one, not least because of how personal it was. Members of Wild’s extended family, including his brother, who created the architecture firm, have been members of First Lutheran.

“We’ve done a few of the projects associated with this church,” Wild remarked. One previous project was an initial space intended for fellowship. “They ran with that for the better part of two decades,” Wild continued. “As traditional worship started waning, they saw the need for a contemporary worship space.” What’s more, with an infusion of younger families, including parents bringing along their children, more education space was needed.

“Then, the wheels started spinning and we started looking into different designs,” Wild explained. “Ultimately, education was the real key component because we had to be mindful of the old guard.... We forged ahead through lots and lots of meetings, and [we consulted with] committees and subcommittees. I think, at one point, there were 20 committees with meetings I had to attend.”

A major design concern was how to isolate the existing church from the new structure. “From an AV standpoint, the sanctuary is old-world construction,” Wild noted. “It’s absolutely gorgeous—three-foot-thick brick walls, buttresses, a super-tall steeple, old-world stained glass. So, how do you attach a giant new building without taking anything away from the existing sanctuary?” Of course, though, given the stellar reviews that the project has earned, wild | crg made it happen.

When the COVID-19 pandemic is over, First Lutheran will hold in-person services that suit both tradition-minded worshippers and those who prefer a more contemporary flavor. There are also education spaces for kids, as well as an adjacent fellowship hall.

All in all, there’s a lot to see—but also a lot to hear. An organ in the sanctuary is nationally rated. “You can hear it from Fargo to Broadway,” Wild joked.

WSDG’s Contributions

There must, indeed, be a connection between Fargo (home of First Lutheran) and New York (home of WSDG). According to Joshua Morris, Partner/COO

A look at the Celebration Center shortly after opening and shortly before COVID-19 changed the world and forced the indefinite suspension of all in-person services on the First Lutheran campus.



at WSDG (and Project Manager), there’s a story behind how the firm got this commission. Years ago, WSDG’s Founding Partner, John Storyk, did a studio project in Fargo for Art Phillips, a member of the First Lutheran congregation. “He was still friendly with John,” Morris explained, “and Art was technically oriented enough to recommend us.”

We’ve already covered how the team overcame challenges related to house speakers and unobstructed viewing of the screens, so we’ll move on to the acoustic-treatment aspects. RPG custom acoustic treatments were strategically positioned throughout the performance hall and ceiling. The treatments include large, acoustically perforated ceiling clouds positioned adjacent to the high-bay gabled area. A 276"x156" (WxH) worship viewing screen situated over and behind the altar also serves as an acoustical membrane resonator. Custom Helmholtz resonators were positioned in several precisely configured wall locations.

“The front ceiling panels are dado with insulation behind them,” Andy Swerdlow, WSDG Partner/Acoustic Engineer, said. “Those are mixed in with non-perforated reflective treatments with the intention of balancing reverberant and early reflected sound in the room.”

“We had to coordinate with the ductwork,” Morris explained, “and coordinate with the aesthetic design of the room coming from the architect. We just made sure we had the coverage, the location and the angles we wanted. That’s all part of the design process.”

“They wanted to maintain a little bit more liveliness in the room,” Morris continued, “so we tried to keep most of the areas around the stage reflective in order to provide a de-cluttered representation of what’s going on onstage to the audience area. We needed some lower mid-range [and] some lower-frequency adsorption. For music, you want longer reverb time. For speech, you want shorter reverb time. The room really has to do both well.”

“The Helmholtz resonators are providing low-frequency clarity in addition to increased intelligibility,” Swerdlow noted. “To add to what Josh said, we wound up with a mix between what you’d expect from a concert hall, with the reflected sound enhancing spaciousness and envelopment, and [what you’d expect from] a rock venue, with a tighter [and] more controlled sound.”

Acoustical absorption panels and quadratic residue diffusers (QRDs) were strategically located along the rear walls of the worship space. Custom-built wood diffraction fins were set along the side-walls. “The tear-wall treatments are designed to reduce overall reverberation and the level of reflected sound returning to the stage,” Swerdlow explained.

Consideration was given to how to mitigate sound transmission between the sanctuary and the Celebration Center during times when worship services are held simultaneously. (Project leaders, in particular, were concerned about the mighty sound of the organ in the sanctuary.) Accordingly, the worship space’s walls were constructed with a 16-inch concrete masonry unit (CMU) core. Sound-isolation clips help support two layers of 5/8-inch drywall to provide sound attenuation.

All facility doors were constructed with acoustical hardware designed to inhibit sound from intruding into, or spilling out from, the Celebration Center. They also sought to eliminate sound outflow from two other large worship spaces on the First Lutheran campus.

Recording & Broadcasting

At the time of this writing, in-person worship services at First Lutheran were still suspended due to the novel coronavirus (COVID-19) pandemic. However, the church is recording, broadcasting and streaming to parishioners via TV. Both traditional and contemporary services are offered. Reports are that this has been received very warmly.

Describing the experience of designing and constructing the recently completed Celebration Center, First Lutheran Church’s Administrator, Daniel Damico, remarked, “We were committed to working with congregation members and staff with background experience in many of

the key areas required for an undertaking of this complexity. Kent Wild and Mike Wild, Partners and Principal Architects of wild | crg, were an obvious choice for our architect. Tricorne Audio’s Dallas Anderson and Phil Nelson were exceptionally knowledgeable, and they created [all-encompassing] solutions with great care.”

Damico continued by saying that WSDG was the only “outside” firm that the church engaged, but its level of confidence was high due to the congregant recommendation. “We had complete confidence in the

expertise of *all* these firms,” he stressed. “They collaborated in an extremely professional manner and provided clear answers to all our questions. They developed effective solutions to what we wanted to accomplish with the new space, and they pretty much kept within the time frame and budgetary realities we agreed upon.”

“This was a truly inspirational undertaking,” Damico concluded, “and the response of our congregation to the new Celebration Center more than justifies the decisions that we made.”



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