

Houses Of WORSHIP

SECOND EDITION

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Foreword



Dear Reader,

Houses of Worship are an especially important focus for Renkus-Heinz. For more than 40 years, our products have been the leading choice for houses of worship, because we understand the importance of delivering clear, intelligible sound to every seat.

We understand that the message is what matters. Regardless of the type of worship, or the size or shape of the space, people have gathered together to share that message, and clarity and intelligibility are key.

We design our systems with the highest standards and the most advanced technologies, to create solutions for the most challenging acoustical environments. Solutions that can be tailored to the unique needs of every worship space, while integrating seamlessly with the architectural design.

As you read through this book, you may see worship environments much like your own, each of which has found a solution based on our products and technologies. We hope you will consider Renkus-Heinz for your own house of worship.

Thank you,

A handwritten signature in black ink that reads "Matt Czyzewski". The signature is written in a cursive, flowing style.

Matt Czyzewski
President
Renkus-Heinz

ICLive X



The ICLive X Series from Renkus-Heinz represents an evolution of Medium Format Digitally Steerable Line Array systems; the culmination of over 15 years of research and development that allows us to provide an integrated system that can truly meet the needs of almost any live sound environment. At the heart of the ICLive X are eight channels of our acclaimed True Digital Class D amplification for distortion free power delivery and extremely low current consumption. Each cabinet consists of two high sensitivity 8 in. low frequency transducers, and six discrete 1 in. compression drivers. The compression drivers are loaded onto Renkus-Heinz' new Acoustic Source Multiplier (ASM) waveguide, which increases the granularity of the high frequency section, resulting in significantly improved steering control and greatly reduced lobing. In addition to the steering benefits of the new ASM waveguide, it also allows consistent high frequency and low frequency arrays for better crossover performance, sound quality, and coverage consistency across the entire frequency spectrum regardless of array size. Rugged, yet nearly invisible array hardware supports up to 12 cabinets per array with high safety factor, and needs no complicated mechanisms to work; simply stack boxes together and insert the pins.

ICLive X has been designed from the ground up to be the single most scalable sound system ever created. The system is just as happy doing 12 box array hangs on a large concert, as it is when deployed as a single "speaker on a stick" for smaller Corporate AV events. Whether used in multi-cabinet arrays or single speakers, the ICLive X maintains full steering control over the vertical dispersion, delivering precise coverage for any venue.

In addition to this inherent scalability, a wide range of accessories help address the logistical concerns of storing, transporting, and deploying ICLive X systems. Transportation dollies hold either 4 or 8 ICLX cabinets designed to

standard "Truck-Pack" dimensions, minimizing truck space needed for large systems, reducing transport cost and fuel expenditures. Looping cables for power, signal, and ethernet simplify cabling for any array size. Padded covers with storage pockets offer protection for individual boxes and allow power and looping cables to be stored with the loudspeakers. Fly Bars, Truss-Clamp plates, and Ground Stack Adapters offer multiple ways to either fly, hang, or stack ICLive X systems depending on the needs of the show. The narrow profile and straight-hang design minimize sight-line intrusions, resulting in better productions and happier lighting directors. All of these benefits work together to reduce time and manpower needed to work with these systems, ensuring low cost of ownership and high return on investment.

ICLive X systems are just as well suited for fixed installation as they are for production applications. Optional, recessed Phoenix Connector style input plates allow ICLive X systems to be wall mounted using dedicated Hinge-Kits. Two companion loudspeakers, the ICLive XL and the ICLive LX, allow integrators to achieve increased low-frequency directivity at lower overall system cost.

ICLive X is programmed via our RHAON II Control and Monitoring software suite. RHAON II offers a whole host of Array Building, Steering tools and DSP features for tuning systems, and robust monitoring for remote viewing of system status to detect faults in real time.

ICLive X has performance capabilities on par with the best competitive mid-sized line arrays; however with its compact form factor, simple hardware, comprehensive accessory packages, and inherent scalability the question of "What sound system do I use for this application?" very quickly becomes "How many ICLive X do I need for this application?"

ICC 12/3

Ultimate Flexibility in a Smaller Array

The Iconyx Compact series brings the ultimate flexibility of the Iconyx to a smaller footprint array. An all-new twelve-channel digital amplifier powers twelve, 3 inch (77 mm) full-range, high sensitivity, treated paper cone drivers. With an amplifier and DSP channel for each driver, all of the flexibility of Iconyx is now available in a package nearly 40% smaller than the classic Iconyx.

While the package is smaller the performance is not. Full RHAON II beam-steering allows for multiple conventional beams or unibeams, a freely



movable acoustic center, multiple beam opening angles and high-pass filtering of individual beams. All with the fidelity and musicality expected of a Renkus-Heinz product.

The IC Compact series brings the performance and directivity of Iconyx to spaces where even the classic Iconyx arrays are too large. The very narrow cabinet will disappear into nearly any venue, while the very high vertical directivity of the IC24/3 and the IC36/3 can penetrate even the most challenging acoustics, making the exceptional performance of beam-steered line arrays to the most architecturally sensitive spaces. The included wall-mount bracket makes mounting easy and is nearly invisible behind the arrays.

The IC Compact series is available in white and black standard; custom color matching is optional. Standard -RN units have analog and AES inputs, -RD units include Dante network audio. The IC24/3 and IC36/3 arrays include slave modules, reducing the cost of taller arrays.

DC12/2

Beam Steering for the Boardroom and Beyond

Renkus-Heinz has taken the expertise learned over more than a decade of creating digitally steered line array technology and scaled it to meet the needs of smaller, more intimate environs.

The first product in our new DC-Directivity Control-Series, the DC12/2 ultra-compact, steerable array brings the clarity, intelligibility, and control of our legendary Iconyx digitally steered line arrays to smaller but equally challenging spaces.

The DC12/2 is a self-powered column line array with 12 full-range, 2 in. drivers powered by twelve channels of our acclaimed SA Series amplification.

Designed for smaller spaces where tight pattern control and focus are essential, the DC12/2 is ideal for boardrooms, museums and galleries, black box theaters, restaurants, fitness clubs, and other critical applications. If the application requires tight control and nearly invisible aesthetics, then the DC12/2 is the perfect choice.

Iconyx Gen5

The standard in digitally steered arrays.

Iconyx Gen5 represents the latest in beam steering technology, integrating the power of advanced beam steering algorithms with the intuitive control of our new RHAON II System Designer software.

Faster with direct TCP/IP control using industry-standard communications protocols, Iconyx Gen5 delivers a more than 200% increase in speed of operations.

Higher Output: New UniBeam technology and algorithms provide an additional 3-6dB of output potential.

Cost Effective: Gen5 Iconyx adds Master and Slave amplifier modules, reducing both cost and complexity, and also introduces a new hybrid column, the IC16-8-RN. This new module uses three fixed triple-tweeter full range devices, coupled with five spaced low and mid frequency 4 in. woofers, to extend the length and LF Beam control frequency while utilizing a single eight channel amplifier module to keep costs down.

Dante™ Connectivity: Gen5 Iconyx-RD versions include Dual Redundant Dante connectivity with audio transport and RHAON II control over the same Dante™ network interface.

P Series

The P-Series from Renkus-Heinz represents the pinnacle of performance for compact point-source loudspeakers. Latest generation Complex Conic horn geometry coupled



with patented CoEntrant Mid/High driver technology delivers uncompromising detail and extreme sound pressure levels. Advanced amplification, processing, and protection through RH's own SA Amplifiers provide the ultimate in performance, consistency, and reliability. Application focused loudspeakers and comprehensive accessory packages have been purposefully designed to address the acoustical and logistical challenges of live sound reinforcement from mains and fills, to stage and control room monitoring.

C Series

A reinvention and evolution of our legendary CF/CFX Series, the C Series is designed to meet the needs of today's Installed AV professionals, with a broad range of systems to provide effective solutions for every sound reinforcement challenge. Designed for permanent installed applications, C Series loudspeakers are a cost-effective, no frills solution for theaters and performing arts spaces, houses of worship, multiuse venues, public spaces, and any project where fast delivery, quality sound and high performance are essential.



C Series loudspeakers incorporate the latest generation of Complex Conic Horns, with the latest drivers to provide clean, natural sound and tight pattern control. And as with all Renkus-Heinz products, C Series loudspeakers are backed by Renkus-Heinz's renowned worldwide customer support.

C Series models are available in amplified (CA Series) and passive (CX Series) models, in black or white finish. The CX42 stairstep loudspeaker, an updated version of the highly acclaimed CFX42, is only available in a passive design.

T Series Loudspeakers

The T Series is designed for a wide range of installed sound applications where customizability is critical, including houses of worship, performing arts centers, transportation hubs, museums, and other public spaces.

The all-new T Series incorporates the next generation of rotatable Complex Conic Horns, with reimagined driver design to provide clean, natural sound and tight pattern control. Unlike conventional loudspeaker designs, Com-

plex Conic horns provide consistent beamwidth over wider frequency range, with natural, transparent sound.

Available in both powered (TA Series) and passive (TX Series) models, T Series loudspeakers are built to order with a variety of horn patterns for optimal coverage control, choice of finish with Renkus-Heinz's acclaimed custom color matching, and weather resistant options..

Powered T Series loudspeakers are driven by new Renkus-Heinz SA Series amplification, a powerful technology designed to unify all Renkus-Heinz loudspeakers across connectivity and control platforms. SA Series amplifiers are equipped with native DSP, including delay, EQ, and nine available presets. Connectivity configurations include Analog input, AES, and Dante, with RHAON II control and monitoring, in copper and optical formats.



All T Series models incorporate the latest generation of Complex Conic Horns, with optimized drivers to provide clean, natural sound and tight pattern control. Unlike conventional loudspeaker designs, Complex Conic horns provide consistent beamwidth over a wider frequency range, with the natural, transparent sound that Renkus-Heinz is known for. And as with all Renkus-Heinz products, T Series loudspeakers are backed by Renkus-Heinz's renowned worldwide customer support.

Renkus-Heinz VARIA

A New Kind of Modular Array

Renkus-Heinz VARIA is a truly configurable modular installation array designed to offer the ultimate in flexibility and versatility. VARIA's highly configurable enclosures and ingenious hardware make it easy to tailor each speaker to every application.

With VARIA's modular approach, cabinets can easily be configured as ground stacked systems, flown as vertical arrays, and even as powerful horizontal loudspeaker arrays. Three different VARIA modules enable you to optimize vertical coverage, while five different configurations give you precise horizontal coverage – choose from 60, 90, or 120 degree patterns, or make use of the unique transitional waveguides, progressing from 60 to 90, or 90 to 120 degrees within a single enclosure.

With a range of vertical and horizontal dispersion angles and Renkus-Heinz's unique transitional waveguides, VARIA's highly configurable enclosures and ingenious hardware make it easy to custom design a system for every application.

VARIA integrates the highest quality components, powerful mid- and low-frequency woofers, lightweight neodymium Compression Drivers, all coupled to the most advanced cabinet and waveguide designs. The result is a system that delivers the sound and performance you've come to expect from Renkus-Heinz.



RHAON II

RHAON II's new and intuitive, device-centric UI delivers streamlined workflow, and over 200% faster operation for faster and more intuitive setup, for even the most challenging projects.



RHAON II System Manager has been completely redesigned from the ground up, using highly structured modular code for greater stability and expandability. The result is a new, more robust RHAON technology – faster, more reliable, with a streamlined, intuitive workflow. RHAON II is easy to program, easy to use, and fully compatible with all current Renkus-Heinz products, including all Iconyx Gen5 systems, IC Live, IC2, VARIAi modular point source arrays, and CF Series loudspeakers.

RHAON II's new, network agnostic interface has been designed to work with tomorrow's networking protocols as well as today's. Currently supporting AVDECC IEEE1722.1, CobraNet, and AVB, RHAON II has been structured to allow easy implementation of new and emerging protocols, including Dante and AES67. Support for multiple NICs, and wireless operation makes RHAON II easy to integrate into existing network infrastructure.

RHAON II is fully integrated with all current Renkus-Heinz products, delivering the power of advanced beam steering algorithms and UniBeam Technology for dramatically more uniform coverage, increased output, and faster setup and deployment.

SA Series Amplifiers

Renkus-Heinz introduces the next generation of amplification. Renkus-Heinz SA Series amplifiers represent a new and powerful technology designed to unite all Renkus-Heinz loudspeakers across unified connectivity and control platforms.

Renkus-Heinz SA Series amplifiers are designed to provide the cleanest possible sound quality and performance, even with the most complex audio signals. Renkus-Heinz SA Series amplifiers enable all Renkus-Heinz loudspeaker models to be freely combined, offering full networking capabilities, RHAON II control and monitoring, and connection via a choice of Analog, AES/EBU, or Dante single or redundant network input.

Renkus-Heinz SA Series amplifiers are available in three models. The SA-625 amplifier outputs 500 W + 125 W; the SA-1250 outputs 1,000 W + 250 W; and the SA2000 delivers a total of 2000 W. With power to spare, SA Series amplifiers deliver more than enough Wattage to easily drive additional loudspeakers, and all models are equipped with output connections to power external drivers.

All SA Series amplifiers are equipped with native DSP, including delay, equalization, multi-channel limiting, and noise reduction, with nine available preset memories. Connectivity configurations include Analog input, as well as RHAON II control and monitoring, with networking connectivity in copper and optical formats.







ICONYX IS A PERFECT FIT FOR GULF COAST CHURCH

Ocean Springs, LA... Nestled midway between New Orleans and Pensacola, Ocean Springs has a well-deserved reputation as one of the Gulf Coast's more laid back beach communities. Voted one of the ten Happiest Seaside Towns by Coastal Living in 2015, its historic and sheltered downtown is home to numerous art galleries and shops. In 2005, Hurricane Katrina thrust Ocean Springs into the public eye, with photos of devastation including the badly damaged Biloxi Bay Bridge making national and international news.

First Presbyterian Church has been a part of the Ocean Springs community since the late 19th century. The church's current sanctuary, dedicated in August of 1995, recently underwent a major remodeling and expansion, including a balcony and additional seating, as well as a new audio and video system centered around a pair of Renkus-Heinz Iconyx IC24-RN digitally steered array loudspeakers.

"It's an acoustically challenging space to begin with—hardwood floors, flat walls, high ceilings, and a balcony with a glass front," observes Magnolia Music's Rain Jaudon, who designed and installed the system with partner Tony Strong. Brought in during the planning phase, the Magnolia Music team were able to preview architectural renderings and design AV systems for the new space, which included a balcony above the existing foyer to host audio, video, and lighting control, and an additional 100 seats under the new balcony.

A pair of Iconyx IC24-RN arrays are mounted on either side of the stage. Part of Renkus-Heinz' ICONYX Gen5 series, the IC24-RN employs 24 4-inch coaxial transducers, each with three high-frequency tweeters. With multiple beams and acoustic beam centers and beam control effective down to 250 Hz, it offers precise sound control.

As Jaudon explains, the sound system needed to cover a wide range of program material. "They do two ser-

vices each Sunday. One is contemporary, with electronic drums, guitars, keyboards, and a praise team. The other is a more traditional service, with digital organ, grand piano, and choir."

Aesthetics also played a dominant role, adding an extra twist to the project. "They've done a lot of custom millwork in the Sanctuary, and we knew that would dictate where we could place the speakers," Jaudon recounts. "We also knew we needed a speaker that could blend in with the room's aesthetics. We ended up mounting them several feet higher than we would have liked."

Despite the challenges, Jaudon reports the Iconyx system delivered as expected. "Even in this tough acoustic environment, mounted ten feet above the platform, the IC24s were able to create nice levels of intelligibility. We were able to use the variable acoustic centers to cover the main floor from the bottom of the array and the balcony from the top of the array." A Midas Pro 1 handles FOH duties, with Biamp Nexia DSP covering system processing.

"We've used Iconyx on a number of projects, so we knew it was the right solution for this one," Jaudon concludes. "Renkus-Heinz has been our go-to speaker company for many years now. They build a solid product and stand behind it."



ICONYX Tames Severe Acoustics at Historic Geneva Chapel

Geneva, Switzerland... Situated in Geneva's Petit-Lancy district, a few blocks south of the Rhone River, the Cimetière de Saint-Georges (St. Georges Cemetery) is the city's largest burial ground. At the cemetery's entrance sits a beautiful stone chapel designed by 19th century architect John Camoletti, a Geneva native who was one of an entire clan of architects.

The chapel provides a real challenge for sound reinforcement systems, even when reproducing only the spoken word, due to both the high reverberation and the restrictions imposed on historic buildings. The city of Geneva reached out to Vaud, Switzerland's, Studio Equipment to install acoustical treatment but Studio Equipment CEO Terry Nelson quickly recognized that the best answer would come from the beam-steering technology of

Renkus-Heinz ICONYX Gen5 loudspeakers.

The chapel, now named for Camoletti, seats 150-200 people for funeral services. It is relatively small -- only 13 meters (42.7 feet) long and half that wide -- but its vaulted ceiling rises to more than 8 meters (26 feet). Services are mostly spoken word, but also make use of recorded music. "The chapel is a listed historic building," describes Nelson, "so acoustic treatment would have been labor-intensive, inefficient, and generally just a waste of time and money. However, we needed to find a solution, and I thought, 'We won't change the acoustics, we'll change the sound system.' Our experience with Renkus-Heinz in previous installations such as the former Grand Hotel in Caux for Initiatives for Change made ICONYX the obvious choice."

Nelson installed one IC8-RN digitally steerable line array loudspeaker system on either side of the arch leading to the space beyond the main chapel area. The IC8-RN's low profile was key to minimizing intrusion on the chapel's aesthetics but putting the system in was tricky nonetheless. "The installation needed to be as discreet as possible," states Nelson. "We had to use existing cable routes, which was difficult, and no cables were allowed to be visible."

The system is working well, which comes as no surprise to Nelson, who believes strongly in the Renkus-Heinz technology. "The only way to get any speech intelligibility into that chapel was to install ICONYX systems," he professes. "Since I learned of it during a special Syn-Aud-Con session at the NSCA show where the system was first introduced some time ago, ICONYX has represented the pinnacle of beam-steering technology, as far as I'm concerned. The latest ICONYX developments have only made a good product even better."

ICONIC SPANISH CHURCH GAINS NEW INTELLIGIBILITY WITH ICONYX

Córdoba, Spain ... As an iconic and ancient church in the Andalusian city of Córdoba, San Nicolás de la Villa boasts a long and storied history that attracts worshippers and tourists alike. One of twelve churches constructed in the city after its conquest in 1236 by King Ferdinand III of Castille, the building has since been almost entirely rebuilt with new styles of architecture, most recently in the 18th Century. What has not changed is the grand house of worship's classic acoustical character, with a majestic reverberation that beautifully enhances the choir and organ but wreaks havoc with the spoken word. That is, until a recent installation of Renkus-Heinz Iconyx transformed intelligibility throughout the building.

The challenge of creating a sound reinforcement system that was capable of serving San Nicolás de la Villa's audio requirements while protecting its historical structure fell to Malaga-based LDA Audio Tech, working alongside a local integrator for the system installation. Despite their history as a long-serving Renkus-Heinz partner and a highly acclaimed AV consultant and systems integrator, the company nevertheless approached the San Nicolás de la Villa project as a departure from the norm. Having earned their reputation across hundreds of high profile projects in airports and other public spaces, the Andalusian church represented the consultant's inaugural excursion into the worship market.

"From our many projects with Renkus-Heinz systems in other environments we were confident that the Iconyx system would be able to deliver the substantial improvements to intelligibility that were required," says Diego Velazquez, LDA Audio Tech Area Manager for Spain and Latin America. "Working in close cooperation with our install partner, the result is a new system that uses just six IC7-II arrays to cover the entire worship space."

The IC7s are positioned in two dual stacks within the altar area, providing coverage for the front side of the audience while two further single units, located in the middle of the sanctuary, deliver consistent coverage throughout the remainder of the church. In addition to their ability to provide highly targeted audio, the IC7s also comply with the church's request for a visually unobtrusive system that does not impede upon the venue's historic and much-loved aesthetic.



"The installation was carried out over the summer and I am delighted to say that both the priest and parishioners have commented upon the improved clarity of the sermons," says Velazquez. "Our installation partner is also very pleased with the results and we expect to be working on further projects in the worship space, which is great news for us as it really means that we are opening up an additional market."



RENKUS-HEINZ DELIVERS HEAVENLY SOUND AT ST. MARY CATHOLIC CHURCH

Woolmarket, MS... The parishioners of St. Mary Catholic Church excitedly gathered in February 2017 to dedicate their brand-new building in the small town of Woolmarket, a dozen miles northwest of Biloxi, Mississippi. Many times the size of St. Mary's previous sanctuary, the new church features a peaked ceiling with an assortment of angles, as well as alcoves, wooden pews, and statuary. It's a beautiful church, fully worthy of all the excitement.

However, with its many reflective surfaces, the new sanctuary is acoustically live. Furthermore, mass at St. Mary can include music ranging from traditional piano, organ, and choir to acoustic guitars

to full contemporary electric band with drums. That makes the sanctuary a challenging acoustic environment—yet the church's new Renkus-Heinz ICONYX sound system delivers crystal clear, intelligible sound to every pew.

"Without Renkus-Heinz ICONYX loudspeakers, we could not have provided such clear audio," offers Rain Jaudon of Magnolia Music's Audio Video Install Service (A.V.I.S.) division, which designed and installed the system. "We chose a pair of ICONYX IC24-RN digitally steerable line arrays for several reasons. For one, point-source speakers would not have been as effective as steerable beam arrays.

In addition, there was no way to mount multiple point-source speakers from the ceiling or flush-mount them in the side walls."

"With a Renkus-Heinz ICONYX IC24-RN digitally steerable line array mounted on each side of the platform, behind the altar, we were able to precisely steer the audio over the microphones and directly on the pews, while minimizing interaction with the ceiling and walls," Jaudon explains. "This provided us with nice levels of gain before feedback, even for the boundary microphone on the altar. We could not have accomplished that without beam steering."



Another major benefit of using ICONYX loudspeakers was that the IC24-RN has a slim, low-profile design, and Renkus-Heinz was able to color-match them to the soft, sky blue tone of St. Mary's altar area. "The architect initially wasn't entirely onboard with using ICONYX," Jaudon admits, "but once the IC24-RNs were paint-matched and installed, everything was great. The arrays visually blend into the upstage wall so you hardly notice them."

To handle the sub-lows, Jaudon and system co-designer Tony Strong chose a Renkus-Heinz PN212-SUB subwoofer, which combines dual

heavy-duty 12-inch woofers and a Renkus-Heinz PN-1 Class A/B PowerNet amplifier with loudspeaker-specific signal processing. The two woofers feature long-throw magnetic structures and dual channel air cooling for high-impact sub-bass performance up to 134 dB peak SPL. The amps have eight bands of parametric EQ, high and low shelving filters, delay, and input level control, as well as monitoring, automatic alert, and protection features.

"The PN212-SUB is flush-mounted inside the choir storage closet, and as with the IC24-RN, you don't notice it," observes Jaudon.

"The IC24-RN and PN212-SUB combination easily handles all of the church's sound requirements, including excellent intelligibility for spoken word; low-end power and richness for drums, bass, organ, and piano; and outstanding overall clarity from top to bottom."

"We were pleased that the church leadership followed our recommendations for a full ICONYX IC24-RN system," Jaudon opines. "That enabled us to deliver everything they wanted, sonically and visually, and they are extremely pleased with the results. The fact is, Renkus-Heinz ICONYX was our only choice."



Small Church Gets **BIG SOUND** with Renkus-Heinz VARIA

Homestead, FL ... Located about 45 minutes south of Miami, Florida, Princeton Church of the Nazarene has survived at least three major hurricanes over the past century. The church's modest 200-seat sanctuary has a long history of struggling with uneven sound quality and poor intelligibility. As the first stage in a renovation for the building's upcoming 100-year anniversary, the sanctuary was recently updated with a new sound system centered on Renkus-Heinz VARIA modular point source line array loudspeakers.

The system was specified by Robert Bernecker of Waxahachi, TX-based SEFI Consulting, and installed by Revelation Sound of Miami, FL. Bernecker saw this modest house of worship as an ideal setting for VARIA's hybrid approach, using just three loudspeakers to provide controlled coverage for the entire sanctuary.

"The old system was just hammering the back wall, creating a lot of slapback, yet it wasn't covering the front seats because it was aimed so high," explains Bernecker. "It had very wide dispersion and zero control. VARIA's modular design enabled me to create a system with the power of a line array, but with the pattern control to cover the room very nicely."

VARIA's modular design includes a range of cabinets with configurable horizontal and vertical dispersion patterns. Renkus-Heinz proprietary progressive waveguides enable transitions between two horizontal dispersion angles within a single cabinet. The result is a custom configurable system, with tighter pattern control using fewer cabinets.

"Originally, I looked at this church two years ago, and envisioned it would take about 12 horns and a few clever tricks to get the pattern control the room needed," Bernecker recalls. "But by the time the church was ready to move forward, Renkus-Heinz had released VARIA, which gave me the tools to do the



same job, with better control, using just three boxes and a good DSP system. The timing was perfect."

The system at Princeton Church of the Nazarene comprises a single array of three VAX101 enclosures, with a different waveguide in each. The bottom speaker sports a 120-degree horizontal guide to enable full coverage of the front rows. The middle box uses a transitional waveguide that goes from 120 degrees to 90, while the top cabinet continues the progression from 90 down to 60 degrees. A legacy subwoofer is flown behind the VARIA system to provide bass extension.

"By putting those three boxes together in that fashion, you get a seamless array with plenty of output," explains Bernecker. "The 10-inch drivers couple together in line array fashion, which is perfect for the lows and low mids. Yet when you get to the highs, each of those horns is serving a distinct

area, more like a point source. So it's really a hybrid approach, and exactly what a smaller room like this needs."

To ensure even coverage, Bernecker used Symetrix DSP to control the output of each speaker. "For the long throws at 60 and 90 degrees, I obviously wanted all three of those drivers firing," he notes. "But to keep from blasting the front rows, I used FIR filters to get my pattern control by shading off each box at different frequencies. In essence, we created a variable length array that was still totally phase coherent. We were never able to do that before, and I was very, very pleased with the evenness."

This was the first installation of Renkus-Heinz VARIA for both SEFI Consulting and Revelation Sound, and the benefits were immediately obvious, with fewer loudspeakers providing full-range audio with excellent intelligibility. "It's the

kind of thing we do routinely in a 1500-seat house of worship, using 12-box arrays coupled with some high-end processing," says Bernecker. "VARIA enabled us to bring those same capabilities to smaller churches, giving them incredible bang for their buck."

Mike Melcher, President of Revelation Sound, agrees. "The Renkus-Heinz VARIA system sounds absolutely incredible," he asserts. "This will be our premiere system for new customer demonstrations."

As for the worship team and congregation, Bernecker reports that their first experience was revelatory. "When they walked in, their jaws dropped," he recounts. "They had dealt with poor coverage for so many years, it was amazing to them – to have every corner of the room covered perfectly, and how the PA cuts off right at the platform's edge. They could not believe how much clearer it sounds."



Iraqi Holy Shrine Auditorium Gets IC Live

Karbala, Iraq ... The Shrine of Hussein Ibn Ali is one of the oldest holy shrines in Iraq, marking the burial site of Husayn Ibn Ali, third Imam of Shia Islam, with hundreds of thousands of faithful making the pilgrimage to visit the shrine each year.

The site also hosts a number of conferences, meetings, and lectures, primarily held in the shrine's Sayed Al-Awssiya'a Auditorium. As part of an extensive expansion of the holy site, the 318-seat Auditorium recently received a substantial audio and video upgrade, including a new sound system centered on Renkus-Heinz Iconyx IC Live steerable array loudspeakers. Baghdad-based Qurtuba Broadcasting and Communications Services (QBCS) provided full audio, video, and control systems for the auditorium, working together with Ardh Al-Quds, the main contractors on the project.

As Abdulrazzak Hummadi, CEO of QBCS explains, the site's protected historical status proved a challenge in designing the audio system. "The

architects placed severe constraints on the locations of the speakers, and the methods of installing them," says Hummadi. "This led us to seek an alternative to traditional loudspeakers."

After reviewing a wide range of alternatives, audio engineer Ricardo Castro suggested the Renkus-Heinz IC Live digitally steered array loudspeaker for the venue. IC Live beam steering is designed to create tightly focused beams of sound that can be accurately steered directly toward the audience, and away from walls, ceilings, and other reflective surfaces, dramatically improving intelligibility.

The slim, low profile IC Live design also made it an ideal choice for minimal visual impact. Nonetheless, says Hummadi, the system was an unknown to the customer, and had to pass the critical listening test. "Due to the fact that this was our first time working with Renkus-Heinz and Iconyx technology, we approached the decision making process very slowly and thoroughly. The support provided by the

company was outstanding, and that helped make the decision that much easier."

The audio system is comprised of left and right arrays of two IC Live ICL-FR arrays each. A pair of PN61-R compact two-way loudspeakers provides front fill.

Hummadi adds that logistical constraints also added to the challenge. "The site is fully occupied with people, 24 hours a day," he explains. "Needless to say, this required both patience and careful planning."

That patience and planning paid off, says Hummadi. "The first test was simply amazing! The Sound Transmission Level testing showed excellent results, with very consistent coverage throughout the entire venue."

Hummadi concludes, "It was truly an amazing opportunity to work with these Renkus-Heinz products. Despite the many constraints we had with it being a holy site, I think we have built an effective and attractive solution."

Clear, Intelligible Renkus-Heinz Sound a Revelation for Florida Congregation



Lake Wales, FL... Founded in 1916, the First United Methodist Church of Lake Wales built its current facility in 1949. While the building has been refreshed since then, it has long suffered from a substandard sound system. That finally changed when Lakeland, Florida, AV systems integrator MABE designed and installed a new Renkus-Heinz sound system.

"The original system was a single speaker in the middle, 24 feet up, and located behind the choir. They also used temporary speakers while they renovated their space," offers MABE Account Manager David Bonilla. "Feedback was a big problem with the old system," adds MABE Lead Engineer Richard Vaughan. "They could hardly turn the speaker up without getting feedback."

The sanctuary seats 300 to 400 in a cathedral-style space, with columns and an arched ceiling that rises to about 25 feet. "The space isn't bad acoustically," asserts Vaughan. "The ceiling was not a problem. The major challenge is a 14-foot-high, flat back wall in front of the balcony. The sound booth is in the balcony, which also has a flat wall in the back."

Most of the sound reinforcement is handled by a pair of Renkus-Heinz IC16-RN digitally steerable line arrays, mounted on columns to the left and right of the stage. "The arrays are lower than I wanted to put them," Vaughan confirms. "The bottoms are four and a half feet off the ground. Because of an ornate piece on the column, we were not able to mount the arrays higher and make

it look right. The only way we could make this work was with Renkus-Heinz steerable column arrays, which let us raise the acoustic center of the beams high enough to shoot over the top of the front row and cover all the way to the back of the room, without blowing out the front row. With the arrays that low, though, we didn't need front fills." "We use Renkus-Heinz loudspeakers quite a bit, and the ability to change the acoustic centers was a must in this project," agrees Bonilla. "Most column arrays can't do that."

"Of course, the church leaders were concerned about how the arrays were going to look," notes Bonilla. "After installation, they couldn't find the speakers! We didn't even need a custom paint job; the white speakers matched the walls really well."

"The new sound system has been up and running for five months, and the congregation loves it," attests Vaughan. "When people walk in the room, they're in awe of how intelligible the system is; now they can understand what the pastor is saying. Everybody loves the results."



Renkus-Heinz Makes a Night and Day Difference at **St. Stephen's Lutheran Church**

Feasterville, PA... Sometime around 1730, John Feaster and his wife Rachel migrated from Holland to what is now Bucks County, Pennsylvania. Today, the Pennsylvania Turnpike runs through the community of about 3,600 people, located roughly halfway between Philadelphia and Trenton, that bears Feaster's name.

A half dozen blocks north of the turnpike, in downtown Feasterville, St. Stephen's Lutheran Church offers two

traditional services each Sunday. Should you attend, you'll hear every word clearly, thanks to the Renkus-Heinz loudspeaker system that AV contractor Steeple Sound installed in 2018. Your aural experience would have been quite different just a couple of years ago.

"This is the third sound system that the church has had," recounts Steeple Sound's Gary Creely, who designed the new Renkus-Heinz-based sound system. "The first



system used the older column-style speakers, mounted on the side walls. A little later, they went to a speaker that was really close to the ceiling, so it was exciting all the surfaces up there. You were getting very little direct sound, except for a small portion of the room, and you were hearing all of the reflections off of that large ceiling area."

"The room is not tremendously reverberant," reports Creely. "However, it is somewhat long, and I wanted to avoid a delay set of speakers halfway back because of the challenges with time arrivals that you get into with a delay set. We chose a pair of Renkus-Heinz ICONYX IC8-RN digitally steerable arrays for the main portion of the room because ICONYX loudspeakers cover a wide area, and they also have good reach. We could cover all the way to the back of the sanctuary using a single IC8 cabinet on each side."

In many church installations, the main loudspeakers are mounted on the front wall. But in Creely's view, that design is not always ideal. "Generally speaking, we try to put the speakers in a plane that is in front of the microphones, rather than behind them," he points out. "Sometimes, if you're careful, with the ICONYX you can shoot beams over the microphones and not have an issue with feedback. But at St. Stephen's, we wanted maximum gain before feedback."

To attain this goal, Steeple Sound mounted the IC8-RNs on the left and right side walls, just in front of the stage area, near the front row of pews. The column arrays are painted white to match that part of the wall, so they're visually unobtrusive. Creely would have preferred mounting them even a bit more forward, but because of the location of the door, that wasn't practical. "It doesn't cause a problem because the speakers' dispersion is so wide they're getting coverage even into that front row," he explains. "That's why we placed them where they are."

The new Renkus-Heinz loudspeaker system is a huge improvement for St. Stephen's Lutheran Church. "All of the speakers are much closer to the people's ears than with the earlier systems," Creely emphasizes, "not to mention that the ICONYX digitally steerable line array is laser-focused on them. It's a night and day difference."





A Little Renkus-Heinz Goes a Long Way at St. Christopher Church

Marysville, Michigan... It is often said that less is more, and one could hardly find a better example of this than the new sound system at Saint Christopher Catholic Church in Marysville, Michigan. Founded in 1936, Saint Christopher has occupied its current building for more than 30 years. As with many traditional churches, Saint Christopher's approximately 600-seat sanctuary is very reverberant, and its old distributed sound system left the congregation struggling to make out what was being said.

Rev. James F. Arwady, pastor of Saint Christopher's Church since July 1, 2015, asked Rob Wisnieski, owner of AV, lighting, and communications systems integrator RMW Productions, to design a solution. Wisnieski recommended replacing the old distributed sound system with a single Renkus-Heinz ICONYX Gen5 IC8-RN digitally steerable line array loudspeaker.

"The altar area was centrally located, and the seating went 285 degrees around it," recounts Wisnieski. "They lost a lot of seats with that layout. They had a new priest [Father James] who was a mechanical engineer, and he decided to redesign the space. We helped out with that project." Rearranging the room improved things but did not alleviate all of the issues.

"It's a very oddly shaped building, and they didn't want a ton of speakers hanging in it," Wisnieski describes. Instead, he installed the Renkus-Heinz ICONYX Gen5 IC8-RN, which Wisnieski thought could cover the whole church if the cabinet were strategically placed.

Wisnieski placed the IC8-RN on the wall behind the pastor, which seemed even more audacious than using a single array for an entire church. "People told me, 'Oh, you can't put the loudspeaker behind the person speaking,' because everyone thought it would cause feedback," he chuckles. But with Renkus-Heinz' precision beam-steering technology, Wisnieski's calculated gamble paid off. Once properly configured, his solution proved highly effective. "We didn't have to do a whole lot," he confirms. "I created two lobes: a very small lobe just for the front area, where the priest is sitting, and a bigger lobe firing over the priest's head to the back of the room. The big lobe is programmed to start hitting the floor 25 feet out, so we don't get feedback."

It was nice to hear the priest tell me, 'I don't have to speak as loud because I can hear myself,' notes Wisnieski. "I used to feel exhausted when I got done with the Mass. Now I can talk in a more relaxed voice, and I'm not straining."

Wisnieski's bold design is a true win-win-win for Saint Christopher Church. A single cabinet, while not quite invisible, is hardly intrusive; the priest hears himself well and can speak normally; and, best of all, intelligibility for the congregation is better than ever before. Wisnieski reports, "People who had not been able to hear what was being said at services for 20 years came up to us the first Sunday we got the system running and said 'This is the first time I've ever been able to hear clearly without turning up my hearing aid.'"

With ICONYX, Pastor's Message is Finally Heard at Church of the Holy Cross

Belmont, CA... Since its construction and dedication in 1964, the Byzantine-style sanctuary of the Greek Orthodox Church of the Holy Cross has graced the city of Belmont, California. The church's cruciform design features a center dome, surrounded by four half-domes, all with hard surfaces, which focus sound in a way that works very well for choir, organ, and chanting.

Spoken-word intelligibility is another matter, however. "Most of the Orthodox liturgy is chanted," notes Church of the Holy Cross parishioner Jim Smith. "There's a lot of music, and that's usually not a problem. But there are a couple of times during the service where Father speaks to the congregation, and nobody could understand what he was saying."

"Every Sunday people were telling me that they couldn't understand what I was saying in the sermon," confirms the Reverend Father Peter Salmas, who has served as pastor since 1988. "We did a lot of different things to try to improve the sound,

and although the volume went up, the intelligibility did not change."

After several different sound systems disappointed, the church called South San Francisco event production and system integration firm Spider Ranch Productions and acoustics and integration firm Layer 8. They specified a new loudspeaker system based on Renkus-Heinz ICONYX Gen5-series IC24-RN digitally steered arrays.

"I could immediately see the Church of the Holy Cross was going to be an acoustically challenging space, with those domes and acoustically hard spaces," observes Layer 8 president Rocky Giannetta. "The space sounds about five times larger than it actually is," details Spider Ranch Productions Senior Engineer Mark Sweet. "Even when one person is speaking to another from five or ten feet away, many times it's problematic." Mulling over the challenges, Sweet remembered a successful demonstration he did with ICONYX several years earlier, in a different church. "In a room that seated about 1,500 people, ICONYX

was amazing," he recalls. "Even at 100 feet, the source sounded like it was only about 10 feet away. I knew if ICONYX would work in that room, it would work effectively in this room."

The Renkus-Heinz IC24-RN loudspeakers chosen for the Church of the Holy Cross employ 24 4-inch coaxial transducers, each with 3 high-frequency tweeters. "The feedback we've gotten from the congregation has been that it's a night-and-day difference," Smith reports.

"I was very impressed with the fact that no matter where you sit in the church, the sound is not only intelligible, but it seems that the volume of the sound and the quality of the sound are the same," praises Father Peter. "It doesn't diminish if you are in the first pew or the last pew. When we started using the Renkus-Heinz system, it was the first time in the nearly 30 years that I've been here that the congregation finally understood what I was saying."





Renkus-Heinz ICONYX Perfect for Historic Lutheran Church of the Ascension

Savannah, GA... Organized in 1741, eight years after the founding of Savannah, the congregation that became the Evangelical Lutheran Church of the Ascension purchased its present site in 1771. The current building was constructed in 1844 but was heavily damaged during the Civil War. Renovations began in 1875, and the building was rededicated in 1879, featuring the beautiful Ascension Window that inspired the church's name. The church was renovated several more times during the 20th century.

The latest renovation, begun in 2017, restored the historic building's beautiful early 20th-century architecture and décor. As part of this major project, the church hired AV systems integrators Stage Front to design and build a new sound system. Stage Front Consultant Adam Durden and Principal Acoustic Consultant Jim Brawley based the new system on Renkus-Heinz IC24-RN digitally steered line arrays.

The Stage Front team started consulting with the church's construction board early in 2017 to ensure that the new sound system would be integrated into the renovation plan. "Aesthetics were a huge part of this project, so we needed loudspeakers that would blend into the architecture and design," Durden explains. "We also wanted a steerable system that would provide clear, clean, intelligible sound and would keep the sound on the congregation and off of the walls and other hard surfaces. Jim Brawley, who is a nationally recognized sound-system designer, is our principal audio consultant, and he steered me to the Renkus-Heinz ICONYX system. He also commissioned the system."

The two Renkus-Heinz IC24-RNs, mounted left and right, not far from where the point source speakers had been, handle virtually everything. "They have a lectern side and a podium side," details Darden, "and when someone speaks on one side, the speaker on that side cuts off to avoid feedback into the microphone. Since they're never going to need thunderous low end, we didn't install subwoofers."

Brawley recommended the Renkus-Heinz system for several reasons. "Renkus-Heinz has the traditional liturgical space figured out," asserts Durden. "In addition to the sound quality and the ability to steer sound where we wanted it, the IC24-RNs are low profile, and Renkus-Heinz was able to custom-paint them to blend with the wall. This restoration was focused on the architecture, decorative paint, windows, and so on. Aesthetics was the top consideration, and it was imperative that the speakers not look like an afterthought. The custom-painted, low-profile ICONYX worked extremely well. If you didn't know the speakers were there, you wouldn't notice them."

The ICONYX speakers connect, using CAT5 cable, to a Q-SYS Core 110f DSP, controlled with a Q-SYS touch panel and software. "My main contact was the chair of the construction board, and when I connected his iPhone so he could sit in the back and control the sound, he thought that was the greatest thing in the world," recounts Durden. "Most important, they're happy with the sound and with the look. The Renkus-Heinz ICONYX system is perfect; it just works. It improved their environment 100 percent."



ON FIRE CHRISTIAN CENTER Rocks with Renkus-Heinz VARI Ai

Louisville, KY... Led by fiery, passionate Pastor Chuck Salvo, On Fire Christian Center is well named. Pastor Salvo's powerful sermons are backed by a hard-driving rock-infused praise band—this is not your traditional service.

The center took over an existing church building in 2001. "The building has been home to three or four different churches over the years," offers David Knight of system integrators Knight Audio. "It has a 30 foot peaked ceiling, and it's narrow and long, not a fan-shape, and seats about 500 to 600."

Until recently the congregation made do with an outdated sound system. "The system was not suited for the room or the volume and type of service they have," states Knight. Halfway to the back of the room, it lost the clarity and intelligibility for voices."

The center brought in Knight Audio to design and install a new system based on Renkus-Heinz VARI Ai modular point-source line arrays. "Because everything is exposed in the ceilings, running power to amplifiers in the array would have been an issue, so we chose the non-powered VAX version of the VARI Ai loudspeakers and matched them with Crown amplifiers," Knight observes.

To deliver the sub-lows for the band's powerful sound, Knight placed a pair of Renkus-Heinz CFX218 subwoofers on the floor at center stage, flanked by a pair of CFX118 subs on the sides of the platform.

The speakers in the old system were so huge—"the size of a VW," laughs Knight—that Pastor Salvo was initially unsure that the compact Renkus-Heinz VARI Ai system could do the job. "I wish I'd had a camera to capture his face when he saw these little VARI Ai boxes," Knight recalls. "You could see he was thinking, 'oh man, what did I do?' But Renkus-Heinz VARI Ai speakers are an excellent compact loudspeaker system that really puts out. They deliver all the sound the church needs. The Renkus-Heinz system looks far better than the old system as well."

Knight used VARI Ai on another install last year, so he was familiar with the series. "We'd heard them before, so we knew how they sound and what they're capable of," he confirms. "We knew they were the right speakers for this job. They're compact, and they're efficient so we didn't have to hang a lot of boxes. Price-wise, they were very competitive, which is always a factor."

With the new Renkus-Heinz VARI Ai system up and running, all concerns about the church's sound have been put to rest. "They're very happy with the VARI Ai system," reports Knight. "It sounds great, spoken word is intelligible everywhere in the space, and when the praise band starts rocking, the VARI Ai system delivers. There's no question that VARI Ai was the right choice."



Historic Säter Church's Renkus-Heinz System a First in Sweden

Säter, Sweden... About 190 km (118 miles) northwest of Stockholm lies Säter, a lovely town of about 4,400 people that boasts one of Sweden's best preserved wooden downtown areas. Here, you'll find narrow streets lined with charming little shops. Nearby—everything is nearby in Säter—is Säter Church, originally built in 1637 and reconstructed in Neoclassical style between 1778 and 1779, although its tower was replaced in 1806–07 due to unstable soil.

As one would expect from a church of this type and vintage, Säter Church's acoustics are challenging, and its old sound system failed to provide even coverage and clear sound. To provide a new system that delivered top quality sound and technology capable of meeting the building's acoustical challenges, the church leaders reached out to respected system designer, installer, and contractor Robert Nilsson of DAT AB. Nilsson's solution: Renkus-Heinz VARIA-series modular point-source line arrays and SA-series modular power amplifiers.

"The church had a reverb time of around five seconds, bad reflections, and bad sound for the choir, even without a PA," recalls Nilsson. "The only thing that sounded fine was the organ." In addition, aes-

thetics and respect for the historic structure were primary considerations. "We could not use acoustic treatment, place loudspeakers in new positions, install conduit, or bring in new furniture for the mixing desk," Nilsson details. "And the budget was tight."

After consulting with Renkus-Heinz, the DAT AB team decided on a Dante networked system based on Renkus-Heinz SA-series amplifier modules, driving three VARIA VAX101-7 and two VAX101-22 modular point-source line arrays. SA Series amplifier modules offer full networking capabilities, RHAON II control and monitoring, and analog, AES/EBU, or Dante input and are available in three models that differ only in power output. The SA amplifiers enabled installation of a Dan-

te-enabled system with lightweight CAT6 cables—a major benefit, given the construction limitations.

Even with state-of-the-art amplification and loudspeakers, Nilsson and his team had their work cut out for them because of the acoustics. "During tuning and commissioning, using AFMG EASERA and SysTune audio measurement and analysis software, we finally got to the point where we could identify the frequencies of the reflections," Nilsson recounts. "The system is smooth to work with and allows for custom presets, so we could test and tune it to respond as needed, depending on the activity of the church."

The Säter Church upgrade project was a landmark of sorts. "This is the first Renkus-Heinz VARIA installation in Sweden using Dante," notes Nilsson. "It worked so well that we're searching for a new project where we can install another Dante-enabled Renkus-Heinz VARIA system."



ICONYX the Clear Solution at Church of St. Charles Borromeo

St. Anthony, MN... With its impressive size; high, arched ceiling; extensive stained glass; and other classic features, the lovely Church of St. Charles Borromeo presents many traditional architectural elements, along with their accompanying acoustics challenges. Located about four miles northeast of downtown Minneapolis, the landmark Catholic church was dedicated in 1959, complementing an existing parish school and convent. St. Charles Borromeo parish, which currently serves 1,500 families, continued to add to the complex throughout the latter half of the 20th century.

More recent renovations further enhanced the church's beauty but the sanctuary's acoustics suffered. "When St. Charles was built, the builders had the presence of mind to use a special plaster that had some acoustical properties to help cut down a little bit on the reflections," explains Randy Keeley, VP of Sales for St. Paul, Minnesota, systems integrator and dealer Metro Sound & Lighting (MSL). "They decided to repaint the entire church and give it a facelift, which took away those acoustical properties, so the space became very ambient. The parish chose MSL to design and install a new sound system, so we came in and did some evaluations and decided that steerable-beam technology was the best solution. We

used two Renkus-Heinz ICONXY Gen 5 IC32-RN digitally steerable line array loudspeakers at the front of the church to serve as the main sound system. We were prepared to use fills but they were not necessary, as the two IC32-RN arrays do an incredible job in this space."

Although two IC32-RN loudspeakers provide clear, intelligible sound throughout the cavernous space, the MSL team also wanted to ensure that choral music performed in the rear loft was properly localized. "In the back of the church, we hung one Renkus-Heinz IC Live Gen5-series ICL-F-RN digitally steered array in front of the choir loft, and that works quite well," avers Keeley. "It helps keep the point of reference; it makes sense to people because the music comes from the same location where it is performed."

"We have used Renkus-Heinz steerable beam technology in other churches that presented similar problems acoustically, so we were very confident in using it once again here," asserts Keeley. "Intelligibility and overall audio quality are excellent throughout the space. Renkus-Heinz ICONYX has been an extremely good product for us. It is quickly becoming our go-to product in applications such as this."



Renkus-Heinz Brings Clarity to First Baptist Church Natchez

Natchez, MS... Organized in 1817, the First Baptist Church is as old as the State of Mississippi. In the two centuries since, the congregation has worshipped in several locations, dedicating its current facility in 1984. The sanctuary features a high, curved, plaster ceiling that measures 43 feet from the front of the stage up to the beginning of the ceiling curve—a beautiful but acoustically challenging design—and is enriched by 13 beautiful, one-inch-thick, stained glass windows. A full-sized balcony includes the front-of-house mixing position, and a broadcast suite lurks behind the choir loft, enabling recording of sermons, services, and special events that are later posted to the Web.

The old late-1980s-vintage sound system employed good-quality loudspeakers but they were flown in a center cluster 40 feet above the floor. “The old system sounded okay but getting clarity was not easy because it was exciting so much of the room,” observes Trooper Hales, cofounder of AV contracting firm MS Audio of Clinton, Mississippi. “Intelligibility was an issue. The further back you went in the space, the better it sounded but the imaging was such that you listened to somebody on the floor, and the sound was coming from 40 feet above.”

MS Audio had a longstanding relationship with the church leaders, and last year, they began discussing the new sound system. Hales recommended Renkus-Heinz IC32-24-RN digitally steerable line arrays, part of the ICONYX Gen5 series. “Aesthetics were a major concern,” he recalls. “None of us wanted a large speaker cluster hanging down in the room. The steel structure would have held it but the ceiling that attaches to the structure is plaster, and I did not want anything to touch that ceiling, pass through it, or vibrate it. And we needed to improve imaging and clarity.”

By mounting IC32-24-RNs to columns, Hales’ MS Audio team achieved the church’s aesthetic goals while averting potential issues with the ceiling. Renkus-Heinz’ steerable beam technology enabled Hales to focus the energy on the congregation, not the walls and cavernous ceiling. “Bringing the arrays down and mounting them to columns brought the imaging a lot lower,” he details. “It made a big difference. IC32-24-RNs are long columns, and I wanted that to get pattern control as low as I could. The IC32-24-RNs get down in the 200 Hz range with real pattern control.”

The new Renkus-Heinz system is already a major success. “I’ve gotten nothing but positive remarks from the church,” Hales confirms. “We’ve heard a couple of comments through the music director that some of the older people in the church are hearing things they haven’t heard in years. It boils down to the Renkus-Heinz system’s superior intelligibility.”



Iconyx Steers Clarity at St Paul's Church in Abu Dhabi

The battle of architecture versus acoustics is an age-old conundrum for churches, mosques, temples, and other houses of worship throughout the world. These large, open spaces with soaring walls and windows, vast reflective surfaces of marble, stone, wood, and concrete are designed primarily for their aesthetics; acoustical considerations, if any, are focused on reverberance that accentuates choir and organ, at the expense of spoken word intelligibility.

St Paul's Church, situated in the Musaffah Industrial Area of Abu Dhabi, is a stunningly beautiful space – a large, open, circular hall with marble floors, curved walls, wooden pews, and more than its share of acoustical challenges. Intelligibility was elusive, and the church had been through no fewer than 15 different sound systems

over the years in search of a solution that would enable the congregants to hear parish priest Father Ani Xavier and his assistant priests.

"It was one of the parishioners that got in touch with us," recalls Laurane Zeta Johnson, manager of business and operations at Crownstar Technology. "They could hear that there was a problem at the church, and they asked if we could give some advice and possibly rectify the issue. We then made contact with the priests."

As Sabu John, managing director of Crownstar Technology, observes, the space has an echo time of several seconds. "I recalled that the State Mosque of Qatar in Al Khuwair, which has a capacity of 30,000, had experienced similar issues, and had installed a Renkus-Heinz ICONYX system. The feedback there had been excellent, so I personally visited the mosque to hear it for myself. Afterwards, I contacted Renkus-Heinz to find out more, as we had never specified their systems before."

The church holds a traditional English service, as well as an Indian service featuring drums and percussion, creating additional

challenges for the highly reflective sanctuary.

Crownstar designed a simple solution with a main PA comprising two Renkus-Heinz Iconyx IC24-16-RN digitally steerable line array loudspeakers, mounted left and right of the proscenium. A pair of CF81-2R two-way active loudspeakers are located in front of each of the two pulpits, serving as front fills. The choir, situated at left in front, is served by a pair of CF121M-2 two-way monitors, with an additional unit for the priests.

A pair of Renkus-Heinz IC16-RN columns cover the upper balcony, with all speakers painted white to match the décor. The Iconyx system's beam steering technology proved an ideal solution for addressing the church's intelligibility issues, with overwhelmingly positive feedback from priests and congregants alike. "It is a beautiful and quality sound system and it reaches all of the people," enthuses Father Ani Xavier. "We are thankful to Crown Star for their wonderful service and a good job."



Renkus-Heinz Wins Converts at St. Mary Magdalen Catholic Church

Apex, NC... St. Mary Magdalene Parish's first mass was held at the Apex Middle School in 1999, and until recently, the school gymnasium remained the congregation's makeshift sanctuary. While grateful to its host, the congregation needed a home of its own. At last, after two years of construction, the lovely new St. Mary Magdalene Catholic Church opened its doors this year, welcoming a capacity crowd of about 1,450 congregants. To worshippers' delight, every word spoken from the pulpit and every note performed by the band and choir could be clearly heard, thanks to a new Renkus-Heinz ICONYX IC2 sound system designed and installed by Cary, North Carolina, design/build AV systems integration firm AVCON Inc.

The sanctuary features 30-foot-high ceilings, granite walls, plenty of stained glass windows, tile floors, and other hard surfaces. Although not as "live" as many classic cathedrals and older churches, it has plenty of reverberation and the potential for sonic mayhem if the sound were not properly managed. The church has transepts as

well, so covering the entire sanctuary required multiple loudspeakers.

Services are a blend of contemporary worship, with electric and electronic instruments, and traditional worship, featuring a variety of acoustic instruments (except



drums) and anywhere from 4 to 35 singers. Delivering clear, intelligible speech as well as acoustic and amplified music in such a space was a major challenge. With a beautiful new building, aesthetics were another major consideration in selecting and placing loudspeakers.

"We need a steerable loudspeaker that could focus energy on the floor and keep it off the walls and ceilings and that could deliver high speech intelligibility, as well as good music playback," begins AVCON design engineer Edward Strickland. "The Renkus-Heinz IC2 provided all of that. We have used ICONYX loudspeakers before but this was our first use of the IC2, and we were very pleased with it. Renkus-Heinz column line arrays on the walls might have worked in the space but we could not find places to mount them. We needed a loudspeaker with a small form factor so it wouldn't be obtrusive hanging from the ceiling. The IC2 is quite compact, and Renkus-Heinz custom painted them to match the décor. Up in the ceiling, they're out of sight and out of mind."

AVCON installed six IC2s in St. Mary Magdalene Church's sanctuary. "We have two in the center that cover the main seating and the nave, from the front all the way back to the hall," recounts Strickland. "Then we have left and right corner arrays that cov-

er the sides and far left and far right speakers to cover the transepts."

"There's always a fine line between trying to maintain a traditional worship space with high reverberation and having clarity of speech," adds AVCON founder, president, and CEO Frank Yarborough. "That creates a conflict, almost a contradiction, in the approach. In a space like this, you have beautiful reverberation and warmth, kind of like singing in the shower. People love that feel of openness and airiness. But clarity is an issue."

Yarborough points out that hearing speech clearly can be challenging to begin with because the Catholic Church enjoys a multicultural range of priests, bishops, and others who often speak different dialects, making it difficult for some parishioners to hear and understand. "Add to that the acoustical challenges of a big, majestic space," he posits. "Renkus-Heinz ICONYX loudspeakers provide excellent clarity, as well as the directivity and control needed to keep the sound on the congregants and off of walls, ceilings, and other hard surfaces. The custom-painted IC2s don't conflict with the beauty of the worship space, and they complement the room with their technology."

So far, the Renkus-Heinz system has been every bit as successful as

the AVCON team expected. "We're really well pleased with the IC2's coverage, performance, and clarity," Strickland praises. "Being able to focus energy on the floors and keep it off the ceilings and walls is extremely important in an environment like this, with the reverberation as high as it is."

The system even exceeded church sound engineer Scott Todd's expectations. "At first, I was not optimistic when AVCON wanted to put a bunch of speakers up in the ceiling, 30 feet up in the air, with granite walls and lots of glass and other hard surfaces," Todd recalls. "But after working with the Renkus-Heinz sound system in the church for weeks, I am very impressed. I've been to concerts where they used steered arrays but I had not experienced steered arrays in a worship space, and this is the first time I've worked with the technology. The way AVCON set the system up, it sounds great, and you get an almost identical sound no matter where you are in the room. The speakers steer the sound where it's supposed to be, which helps us keep the volume and reverberation at the right level. We've been extremely pleased with how everything has come together. I'm a Renkus-Heinz IC2 convert; I love it!"



ICONYX Gen5 Brings Clarity to First Baptist Church of Redlands

Redlands, California... Founded in 1887 by a group of 13 faithful, First Baptist Church of Redlands has served the Inland Empire region of Southern California for more than 125 years. The church's current home, built in 1952, is beautiful Spanish-style building housing a sizeable 480-seat sanctuary. The room's classic architecture creates problematic acoustics, however, and the congregation had struggled for years with poor intelligibility, exacerbated by an outdated center-cluster sound system. Those struggles recently ended with the installation of a new Renkus-Heinz Iconyx Gen5 sound system designed and installed by systems integrator Ireland Sound Systems of nearby Upland, California.

"The biggest requirement was superior intelligibility for spoken word," recalls Patrick Ireland, owner of Ireland Sound Systems. "However, the congregation also has a praise band that plays at services, as well as a choir and an organ. The Iconyx Gen5 system was a clear choice because it handles both speech and music extremely well, and it has plenty of power for the praise band."

The layout of the sanctuary was a major consideration in choosing Iconyx Gen5. "The room is like so

many churches of this era, and covering that kind of space with a conventional system is very challenging – consistent coverage to every seat is difficult to achieve, and getting a system to convey natural sound is problematic," says Ireland. "But with Iconyx beam steering and the added flexibility of the new Gen5 series, we didn't have to compromise."

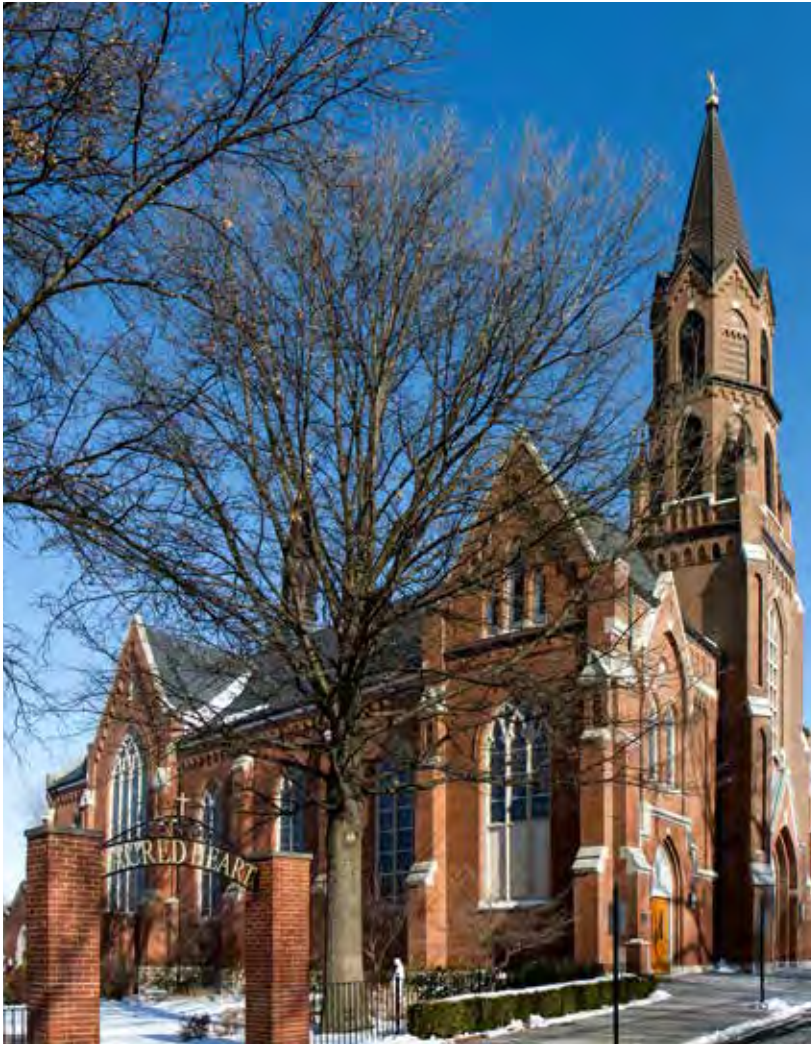
For the main front-of-house system, Ireland chose a pair of Iconyx IC16-RN digitally steerable line arrays, flown about 11 feet above the floor to the left and right of the stage. "One of the biggest reasons I chose the Iconyx Gen5 was the precise coverage," Ireland explains. "The choir stands with the main loudspeakers just to their right and behind them, which I expected to be an issue. There was no way around placing the speakers there, but with the Iconyx beam steering, we had no feedback issues at all, which is amazing." The low profile design of the Iconyx was an aesthetic benefit as well. "We had the enclosures custom-painted to match the decor, which turned out really nice," he reports.

Ireland considered steering a beam from the IC16-RNs to cover the balcony, as well, but ultimately elected to dedicate the front-of-house

system to the main floor seating. To cover the balcony, he installed a pair of Renkus-Heinz CFX61 two-way loudspeakers. With a 150° x 60° coverage pattern, the CFX61's complex conic design provides constant beam width and better pattern control over a wider frequency band than conventional horns. "We had the sound person keep the volume down on the balcony speakers so people could also hear some signal from the mains, and the combination worked very well," notes Ireland.

A pair of CFX81 two-way systems handles monitors. The loudspeakers are flown around 12 feet above the floor and just in back of the transept wall, where the transept joins the main sanctuary. The congregation can't see the monitors, but they're well aimed for the choir. "Flying the monitors high and firing at the front platform could have been a problem," Ireland admits, "but the CFX boxes have a nice tight pattern, and it came together really well."

Everyone involved is impressed and pleased with the new system. "The church's sound guy loves it, and he told us that members of the congregation were complimenting him on how great it sounded, which is very unusual," Ireland concludes. "At last, they can hear everything clearly, and they're really happy. I'm as impressed as they are. These Iconyx Gen5s are amazing!"



Church of the
Sacred Heart
Trades
12 Speakers for
One Iconyx

Florissant, MO... One of the first settlements in what would become the State of Missouri, Florissant was founded in the 18th century by French settlers. Until the late 19th century, French was the village's predominant language – except for a small population of German settlers in the southern part of town. Seeking a church that spoke their language, in 1866 a handful of those German families founded the Church of the Sacred Heart of Jesus.

The church's grand old Gothic style sanctuary has been a landmark on Jefferson Street since 1893. The 600 seat hall was designed in the spirit of the great cathedrals, with soaring walls, stone floors, high arched ceilings, and ornate stained glass windows. It's a lush, rever-

berant setting for choir and organ, but problematic for spoken word intelligibility.

"Although it's not a large room, its acoustical character is very much like that of a cathedral," explains Gary Haselhorst, President of Valley Park, MO-based Cignal Systems. "Their issues are similar to that of a cathedral, on a smaller scale – it's a very reverberant space, and intelligibility suffers." The church's previous sound system, with 12 pillar-mounted cabinets, only added to the cacophony.

Cignal removed the existing speakers and replaced them with a single Iconyx digitally steered line array column from Renkus-Heinz. "We had recently used the Iconyx in the St. Louis Basilica, and when

the Monsignors heard how well it worked in the cathedral, they knew there was hope for theirs as well."

A single IC24-R-II column is mounted on a front pillar, just left of the altar. "We were able to achieve very uniform coverage with just one speaker," says Haselhorst. "We ordered the cabinet painted to match the brickwork, and the Monsignor's sister painted some marbled accents on it. It blends in almost invisibly with the architecture."

Haselhorst reports the system has solved the room's intelligibility problems and more. "They run the praise band through the Iconyx as well, and it sounds great," he says. "We took out twelve speakers and replaced them with one Iconyx. They're very pleased."



QATAR'S COPTIC CHURCH reaches all the way back with Renkus-Heinz Iconyx

Doha, Qatar ... As the only church of its kind in Qatar, St. Peter & St. Paul Coptic Orthodox Church is a unique landmark in the capital city of Doha. It also represented a unique acoustic challenge for Maged Amin, Head of Design – Audiovisual, for leading regional systems integrator Techno Q. With an interior constructed largely of marble, a high ceiling throughout the large church, a mezzanine level and a 15m dome near the building's entrance, St. Peter & St. Paul was beyond the reach of ordinary loudspeaker technology.

First tendered in 2013, the creation of the audio system within St. Peter & St. Paul Coptic Orthodox Church has drawn on the determination and skill of all involved. For Techno Q, and for Amin in particular, the project required great patience, as ideas that were proposed at the very beginning were left waiting until the church was ready to move forwards. Nevertheless, throughout the long development, Amin's opinion remained steadfast – with the church facing acoustic problems that would render a regular system unusable, the best solution was Renkus Heinz.

"During services and events the church becomes very crowded and there is a lot of noise in the back, so it becomes very difficult to cover the entire area evenly," explains Amin. "Also, the interior is marble with high ceilings and the very high dome. It's a very challenging environment. We ran a lot of simulations, working closely with Renkus-Heinz, and we had to convince the clients that we had the right plan. From the church's point of view, they were investing in technology that was new to them."

Following a commissioning phase that saw substantial collabora-

tion between Techno Q and Renkus-Heinz, the strategy has now paid off. The church benefits from two Iconyx IC24-R-II arrays, covering the main ground floor worship area, while a further two IC8-R-II arrays serve the upper balcony area.

"We deployed beam steering in such a way that the coverage avoids the dome and still successfully reaches the rear seating," comments Norbert Bau, Renkus-Heinz Sales Manager for the Middle East. "After we'd finished, a representative of the church came to listen to the results. He walked from the rear of the church to the front, and as he did so he started smiling. Then he asked what kind of magic we had done!"

"Renkus-Heinz gives you the flexibility to adjust performance and coverage," concludes Amin. "I was very happy with the results. It's a very high-end solution."



Renkus-Heinz the Clear Choice for Historic Ris Church

Oslo, Norway... Built in 1932 in the Romanesque Revival style that became popular in the mid-19th century, Ris Church seats 500 and features a high wooden ceiling, stone walls, and a rear balcony. Unlike most such churches, Ris Church is oriented north-south because of the shape of its plot. Services are traditional in this landmark historic building, featuring a large French Romantic-style organ and a choir that performs from the steps in front of the apse.

Recently, Ris Church added a new sound system featuring Renkus-Heinz ICONYX digitally steerable loudspeakers. Designed by Per Amundsen and installed by ABC Teknikk, the new system is primarily used for speech reinforcement. A BSS Soundweb London BLU-series signal processor manages the system.

"The acoustics were challenging at Ris Church because of its volume and hard surfaces," explains Sverre Jøssund of Benum, Renkus-Heinz' Norwegian distributor. "The main sanctuary is about 40 meters [131 feet] deep. We also encountered issues with standing waves in the lower frequencies."

For the main front-of-house speakers, designer Amundsen chose a left-right pair of Renkus-Heinz IC16-RN digitally steered line arrays, part of the ICONYX Gen5 series. The IC16-RN features 16 4-inch coaxial transducers, each with 3 high-frequency tweeters, along with 16 amplifier and DSP channels. Each column can deliver

up to eight steerable beams, which can be individually shaped and aimed using powerful, software-controlled DSP. Beam control is effective down to 400 Hz. At Ris Church, this enables sound to be precisely aimed at the congregation and away from the church's reflective surfaces. The result is clear, intelligible sound throughout the space.

Subwoofers were neither necessary for speech reinforcement nor desirable, given Ris Church's acoustics. However, Amundsen filled in a bit and added just enough low end with a pair of CF151-5R two-way Complex Conic loudspeakers. The self-powered CF151-5R combines a 15-inch heavy-duty woofer and a 2-inch titanium high-frequency driver and offers loudspeaker management and control over Ethernet. Its exclusive 90° by 40° Complex Conic horn design provides constant beam width and directivity, without the problems of conventional rectangular horns. The horn can be rotated 90° within the cabinet for wide or deep listening spaces.

"Renkus-Heinz' ICONYX series is very well known as an acoustic problem-solver in Norwegian churches and city halls," Jøssund relates. "Together with subs or full-range loudspeakers like the CF151-5R, it makes great sound for almost any application. In a church where you need higher sound pressure levels for loud gospel music, we would suggest the IC Live series. But for Ris Church, with its more traditional services, the ICONYX Gen5 was the right choice."



St. James Episcopal Church

Renovates with Renkus-Heinz Iconyx Gen5

Skaneateles, New York... Named after an adjacent lake (the name is an Iroquois term that means "long lake"), the Central New York village of Skaneateles boasts a colorful history. Citizens participated in pre-Civil War reform movements, formed a utopian community in the 1840s, and aided the Underground Railroad. St. James' Episcopal Church has been there through it all. Organized in 1816, the first dedicated St. James' Episcopal Church building went up in 1827, and the present stone church was dedicated in 1874. It's a beautiful building that has been expanded and renovated several times, but for years the congregation suffered with a poor

sound system that could not deliver sound to the back of the nave, among other issues.

That old system is history now, and the church is home to a new Renkus-Heinz Iconyx Gen5 loudspeaker system designed and installed by DCI Sound. "The sanctuary seats approximately 400, and they have three services nearly back-to-back," relates DCI president and manager David May. "The 9 a.m. service is traditional, with a choir and a 1927 Ernest M. Skinner pipe organ. But the 10:30 service has a full contemporary band. So they needed a sound system that could handle every-



thing, from speech intelligibility to contemporary Christian music, and they needed to be able to quickly adjust the system in the 10 minutes between services."

As with most such spaces, it was important to keep sound directed at the congregation and away from walls and other reflective surfaces. "Iconyx arrays, with their steered beams, are perfect for this type of space," May explains. "In addition, Iconyx are very musical and have high output, so they can easily handle the praise band. Iconyx Gen5 is even better because you get a more flexible selection of configurations, with even more precision. That means we can customize Gen5 systems even better for the venue, and we can deliver for less money. And Renkus-Heinz was able to custom-match the paint, so the speakers truly blend into the architecture."

May placed an Iconyx Gen5 IC16-RN digitally steerable line array on house left. Thanks to its multiple steerable beams, this one column covers the left front corner and the entire width of the room from approximately the fourth row all the way to the rear of the sanctuary. To cover the remaining right front corner, May selected a Gen5 IC8-RN digitally steerable array. He added a dummy IC8 column on top of the real IC8-RN to visually match the IC16-RN on the opposite side. Renkus-Heinz' custom paint job enabled the Iconyx columns to blend in with the adjacent woodwork.

In the summer, Skaneateles is a busy tourist town, and the 10:30 service is held outdoors, in a section of the property along the waterfront. "Outside, we use a network cable to an I/O box in a small portable rack where they can plug in local inputs," May recalls. "The rack includes a four channel amp to drive four portable Renkus-Heinz speakers which cover the outdoor services and other events. To provide the flexibility the church needed, we used wireless wherever practical, and the system is configured with a touchscreen controller to choose between the inside and outside systems and also to switch instantly from a service with choir and organ to a contemporary service with a praise band."

May used Renkus-Heinz' new RHAON II software to tune the Iconyx Gen5 speakers. He liked the original RHAON, he says, "but RHAON II renders much faster. It's a big improvement."

After years of suffering with an inadequate sound system, the good people of St. James Episcopal Church have had their patience richly rewarded. They now have a beautifully renovated sanctuary with a sound system that easily handles their traditional and contemporary services and other events, indoors and outdoors, and sounds great everywhere. "They are delighted with the Iconyx Gen5 system, as I knew they would be," May relates. "We've done a number of installs with Gen5 recently, and all have been very well received."



ICONYX Solves Intelligibility Issues at *St. Philip's*

Jackson, MS... While not the equivalent of "man bites dog," a fair-sized church without a sound system is a relative rarity nowadays unless it's an untouchable historic building. But after more than 50 years, St. Philip's Episcopal Church finally joined the ranks of the audio-equipped, thanks to a new Renkus-Heinz system designed and installed by AV systems integrator Sound and Communications.

"We've been working with St. Philip's on and off since the 1960s; they've rented from us for various events many times," notes Sound and Communications Senior System Designer/Acoustical Consultant Jeff Broome. "It's not uncommon in our area for a small rural church with a dozen pews to not have a sound system but it's very unusual for a church this size. The pastor had wanted a sound system for a long time. She told me when the time came, she would call me—and she did. We're the oldest company of our type in the state, and we're the only

engineering firm in the state that does audio, video, and acoustics."

St. Philip's sanctuary is spacious and highly reverberant, seating a couple of hundred worshippers. "It is all sheetrock and concrete and hard wood," Broome reports.

"Since it's a traditional service, the main need was speech intelligibility; people were complaining that they couldn't understand spoken word," recalls Broome. "Where you sat made a big difference in what you could hear.

The Sound and Communications team specified a pair of IC24-RN digitally steerable line arrays, mounted to the left and right of the stage. "Renkus-Heinz ICONYX was the only solution I was aware of that would even stand a chance in that environment," asserts Broome. "The steerable beams enabled us to keep the sound on the congregation and off of the walls and ceiling for the most part." The array's slim, low-profile design made it visually unobtrusive, even without a custom paint job.

"The client is very happy with their Renkus-Heinz ICONYX system," assures Broome. "Now you can hear spoken word clearly and intelligibly anywhere in the sanctuary, with minimal impact on aesthetics. The project turned out very well."

INTELLIGIBILITY MADE PLAIN AT FINLAND'S LAKEUDEN RISTI CHURCH

Seinäjoki, Finland... While many of Europe's most famous houses of worship date back hundreds of years or more, Finland's Lakeuden Risti Church has become a major landmark in just a handful of decades. Located in the town of Seinäjoki, the Lutheran church was designed by renowned Finnish architect Alvar Aalto, and built between 1957 and 1960. Yet despite being listed as a nationally significant heritage site, the church has long struggled with an acoustically challenging environment that left worshippers struggling to appreciate sermons until the recent application of Renkus-Heinz beam steering expertise.

With a name that translates as "Cross of the Plains," Lakeuden Risti Church is one of Finland's most recognizable houses of worship thanks to its 213-foot high, cross-shaped bell tower. Inside the main building, 1,200 worshippers can be accommodated in a 164-foot long sanctuary, with a high balcony and large pipe organ to the rear. But while the interior is visually striking, the room's shape creates a natural echo and poor speech intelligibility. Over the years, attempts had been made to improve the situation, with little success.

"For those worshippers who were seated at the rear of the church, it was hard to understand what was being said," recalls Juha Tupeli, property manager for the

church. "It was high time to resolve the problem." To do so, the church contacted Helsinki-based consultant Akukon. A number of potential systems were auditioned, with comprehensive logging of the resulting speech intelligibility index (STI). At the end of the process, the answer was clear. Audico Systems was asked to install a simple but strikingly effective solution comprising two Iconyx IC24 steerable column arrays, mounted in a left-right configuration at the front of the church.

"These very discreet, unobtrusive column speakers provide precisely the directivity that the church required, and therefore the speech intelligibility it wanted to achieve," comments Audico Systems Sales Manager, Ilkka Hilden. "Lakeuden Risti Church presented us with a very good example of what can be achieved even in a difficult acoustic space. In a protected building, you can't solve acoustic problems by altering the structure – your only option is to find an effective technical solution. I'm very glad that Lakeuden Risti Church found Renkus-Heinz Iconyx."

"Our worshippers can now understand everything that is said during sermons, no matter where they are seated," agrees Tupeli. "A lot of people have come to the church and told us that the results of this installation are beyond their expectations."





Historic Synagogue Modernizes with Renkus-Heinz IC Live

Chicago, Illinois... One of the oldest Conservative Jewish congregations in Chicago, Anshe Emet Synagogue was founded in 1873 and moved to its current building in 1929. Services feature performances by Alberto Mizrahi, the congregation's world-class Hazzan, or cantor (a person who sings liturgical music and leads prayer), as well as by guest cantors. The sanctuary also hosts a wide range of events.

The sanctuary and its 30-year-old sound system, however, were designed for spoken word. The old loudspeakers were 50 feet above the center of the congregation, which left significant parts of the sanctuary without good coverage, and the system could not handle the demands of musical performances. Anshe Emet needed a modern sound system.

Fortunately, Erik Saari, Vice President of Sales and System Design for systems integrator Sound Planning Associates, had long mixed sound for Anshe Emet. He knew the room intimately and was the obvious choice to design and install the new system.

"Having run sound at Anshe Emet for 15 years, this was a labor of love for me," begins Saari. "We decided to design the system around Alberto Mizrahi's voice. His voice is stunning, and I don't have to boost it much, but he sometimes sings with other people, and we want everyone to hear perfectly. The sanctuary also hosts guest cantors, a lot of concerts, and a wide range of interfaith events, so they needed a more full-range, performance-level sound system."

The sanctuary seats 700 to 750 and features a large balcony and theater-style seating. "The sound is pretty dry at most seats," notes Saari, "but we had to account for reflections on the side walls, as well as delivering clear, intelligible sound to the balcony seats. The room has a nice band-shell shape above the stage lip, which helps."

In addition to coverage, intelligibility, and a clean appearance, directionality was a major consideration. "People were used to hearing the sound from 50 feet above. I wanted to bring the sound back to eye level, with all ears and eyes pointing to the front, so they



could hear everything that was happening on the stage and not get distracted by the acoustics. Steerable beam technology can cover a room precisely, without unwanted reflections, so we chose a pair of Renkus-Heinz Iconyx IC Live ICL-FR-DUAL steerable arrays for the front mains."

The ICL-FR-Dual provides five 6.5-inch cone transducers and three 1-inch, high-frequency compression drivers and has a typical throw of 160 feet (50 meters). The loudspeakers' narrow profile and white paint blended with the sanctuary wall to provide the desired clean look.

To deliver sound to the main balcony, Saari installed several Renkus-Heinz CFX41 passive, two-way, coaxial loudspeakers, flown above the front of the balcony and driven by Lab.Gruppen power amplifiers. "I just steer a little bit of sound from the arrays to the balcony to pull your ears to the front," he explains. The compact CFX41 features a four-inch coaxial transducer, a four-inch woofer, and a one-inch, soft-dome tweeter. Additional CFX41s (the system includes 16 in all) serve as front fills and side fills for the stage.

Saari mixes on a Yamaha QL1. The system is networked via Dante, Audinate's audio-over-Ethernet technology, which, Saari says, has worked very well.

Since he is the sound person for Anshe Emet, Saari is one of the beneficiaries of the new sound system. "With the old system, I could never hear clearly from the mix position," he notes. "I just got used to how bad it sounded. With the new ICONYX steerable arrays, I'm sitting within the beam pattern, so I can make better decisions and know what it's going to sound like in the seats."

Mizrahi and other leaders of the congregation are big fans of the system, says Saari. "In fact, we have two simultaneous services, seating another 1,000 people in the social hall/cafeteria, and we're installing a Renkus-Heinz system in that room, too."

CLAREMONT CHURCH PASTORS REACH EVERY PEW WITH RENKUS-HEINZ

Claremont, CA... Organized in 1891 as the Claremont Congregational Church, the Claremont United Church of Christ moved into its current sanctuary in 1956. Services at the Los Angeles Metro Area church feature spoken word, choir, and a beautiful Glatter-Goetz/Rosales pipe organ built 20 years ago. The choir and organ sound fabulous in the large sanctuary, with its 60-foot ceiling and many reflective surfaces, but spoken word intelligibility was an issue.

"We have worked hard to make sure that the acoustics are just right for music but the speakers we were using did not get the spoken word to all parts of the sanctuary," relates Senior Co-Pastor Rev.

Jacob Buchholz, who ministers to the congregation in tandem with his wife, Senior Co-Pastor Rev. Jennifer Strickland. "There were dead spots in the sanctuary where, when we were preaching or anyone spoke from the pulpit or lectern, you couldn't hear them very well. We wanted to address the challenge of how to evenly distribute the sound throughout the whole sanctuary."

Church leaders consulted with the team at Pacific AV, which designed and installed a new system, covering the entire sanctuary with a pair of Renkus-Heinz ICONYX Gen5 IC24-RN digitally steerable arrays. "Using Renkus-Heinz' beam steering technology, we were able to aim the sound down at the congregation, while keeping the sound off the walls, ceiling, and other reflective surfaces," explains Pacific AV Vice President of Sales Jeff Miranda. "Being able to direct the sound and aim it toward the audience is paramount in any reverberant space, and ICONYX does that better than anything. With the ability to steer multiple beams from each column, along with adjustable beam centers, one pair of IC24-RNs was all we needed."

Renkus-Heinz' IC24-RN employs 24 4-inch coaxial transducers, each with three high-frequency tweeters, along with 24 amplifier and DSP channels. Each column can deliver up to 12 steerable beams, which can be individually shaped and aimed using powerful, software-controlled DSP. Beam control is effective down to 250 Hz. This combination of flexible, programmable control and precision beam steering enabled the Pacific AV team to eliminate the dead spots, minimize reflections, and provide clear, intelligible sound throughout the sanctuary.

"The Renkus-Heinz speakers work impeccably," testifies Pastor Jacob. "Everyone in the congregation has noticed the massively improved sound. I've had the opportunity to sit in the sanctuary and listen to the spoken word, and I was amazed at the improved quality of sound. And there are no more dead spots. Before we got the new system, we never knew whether everyone in the congregation would receive our message accurately. Now we have full confidence in what people are hearing. As pastors, that makes our job easier."





Renkus-Heinz ICONYX a Huge Upgrade for Church of the Holy Family

Novi, MI... In September 1974, 200 people gathered for the first Mass of the community that, a mere two months later, became Church of the Holy Family parish. In November 1977, John Cardinal Dearden dedicated Church of the Holy Family's current building. Today, the close-knit parish boasts more than 3,300 households, and the church offers the traditional Mass in English and in Spanish, with choir and cantor, as well as a contemporary Mass with a full praise band.

However functional the original 1970s-era sound system may have been when installed, it was long outdated and could not support a modern electric praise band. System coverage was very spotty; some areas were well covered, while other areas were muddy and lacked the intelligibility for speech.

To resolve the sound issues, as part of a major building renovation, the church hired worship facilities systems integrator Sound Planning Communications, who designed and installed a new sound system based on Renkus-Heinz ICONYX Gen5 digitally steered arrays.

"The sanctuary's capacity is about 1,000," states Sound Planning Communications' Nathan Cole. "The building is a very tall octagon, and the renovation included dramatic architectural changes, so where the interior was originally in the round, now it's more of a 120 to 160 degree configuration. The music area, where the choir and band are located, is off to the side, at house left, which is typical of many of the Catholic churches we work with. The architects did a tremendous job making

the space brighter, opening it up, and making it a lot more modern."

For the design team, Renkus-Heinz ICONYX was an obvious choice. "We wanted a column array that would give us penetration into the space, intelligibility, and reliability," details Cole. "We've worked with Renkus-Heinz and put in many ICONYX systems over the years, and it's typically our go-to when we're looking for a system that needs the control that ICONYX offers."

"We needed to conceal components as much as possible but still provide the coverage and improve upon the fidelity" Cole relates. That's where Renkus-Heinz ICONYX came into play. Thanks to their compact profile and steerable beams, we were able to mount a pair of Renkus-Heinz IC24-RD arrays high to the left and right of the altar area and cover the space evenly with clear, intelligible sound." The arrays were custom-painted to match the décor so they're barely visible.

The Church of the Holy Family's new Renkus-Heinz sound system has proven an excellent match for the renovated sanctuary. "Now you can hear speech clearly and intelligibly throughout the space, with no dead spots," asserts Cole. "The praise band finally has a sound system that properly supports their music. The priest can hear everything, thanks to the Renkus-Heinz CFX-61 fills. Visually, the system is well concealed, maintaining the improved aesthetics of the space. Best of all, the client is happy!"



Temple Judea Goes Wide With Renkus-Heinz ICONYX

Tarzana, CA... Founded in 1952 by a handful of families in the sleepy San Fernando Valley, Temple Judea has grown along with its surrounding community to become one of the area's largest and most vibrant Reform Jewish synagogues. The temple's campus has undergone many changes over its history, including a comprehensive rebuild and renovation, completed in 2011.

The temple's new sanctuary, named for former Rabbi Donald Goor, is a stunningly beautiful work of architecture – wide and spacious with plenty of natural light, and seating that brings the entire congregation close to the service. But as Terry Stewart, President of Simon Productions (Los Angeles) observes, what is visually pleasing may not be sonically friendly.

"It's a very wide room, with two large overflow areas on either side," Stewart recounts. "It's very difficult to achieve the kind of coverage needed with traditional point-source speakers, particularly into those overflow areas. In addition, there's a large cavity in the ceiling, about four feet wide by eight feet tall; it's used primarily as a skylight, but it also created its own acoustical issues." The original sound system employed ceiling speakers to cover the overflow seating, and was less than effective, as was the system covering the main seating area. "Coverage was spotty and inconsistent pretty much everywhere in the sanctuary," Stewart reports.

When Temple Judea came to Stewart for advice on addressing their audio issues, his response was clear. "We decided the ICONYX system from Renkus-Heinz would be the perfect solution for this room," he explains. The

system comprises a single ICONYX IC24-RN digitally steered array on either side of the proscenium. "We chose the Iconyx primarily for its 150 degree horizontal coverage," Stewart explains. "With just these two IC24 columns, we were able to cover the entire sanctuary, even the overflow spaces. We were able to steer the beams right where we wanted the sound to go, and keep it away from the hard surfaces at the back of the room, away from the glass at the left and right of the room."

Stewart reports that not only is the client exceptionally pleased, but so is he. "It was really a pleasure to be able to see the system perform so quickly, and be able to address every one of our needs so easily. The Iconyx system covered every seat in the house."



RENKUS-HEINZ ICONYX BRINGS CLARITY AT **Houston's First Presbyterian**

Houston, TX... First Presbyterian Church was born when now-mighty Houston was a dusty, two-year-old town in the Texas Republic, so it is fair to say the city and the church grew up together. Today's First Presbyterian resides on a sizable campus of a dozen buildings in Houston's Museum District. Unfortunately, the acoustics of the church's main sanctuary turned the spoken word into an unintelligible mess, so First Presbyterian turned to acoustician Wade Worley of Worley Acoustics, who turned to Renkus-Heinz ICONYX digitally steerable arrays.

Worley describes the acoustics of the main sanctuary in classic terms: "Here we have a shoebox room, widely acclaimed as a great organ room. They have a very nice pipe organ, and a lot of Houston-based organists love to come and play in this room because it's got such a long reverberation time, especially in the low frequencies."

Sadly, what is good for the organist is not so good for intelligibility, especially in the back of the room. "They were using pew-back speakers that had fallen into poor maintenance," Worley recounts. Rory James, First Presbyterian's Media Coordinator, saw the problem up close. "Some of the pew-back speakers worked, some didn't," he details. "Some sounded different than others."

"They were just using a pair of point-source speakers up front to cover the entire room," recalls Worley. "With the reverberation, that just wasn't working well at all." "It always felt like we were trying to force this room that was designed for one application to do something completely different," describes James, "and the room was just kicking back against us constantly."

Clearly, intelligibility had to be improved, but not at the cost of destroying the beauty of the building's construction. "In wonderful traditional rooms like this, with

long reverberation times, you really don't want to ruin the acoustics for traditional worship," Worley counsels. "You need a product like the Renkus-Heinz ICONYX that's going to give you a very tight beam of sound down to the listeners and keep the sound off the walls and the ceiling. That's the way that we improve speech intelligibility."

Jay Bole of Hi Fi Doc, AV integrator on the project, appreciated the manufacturer's direct involvement in making everything work. "Renkus-Heinz, as a company, is very good to work with, from the president all the way to the shipping clerk. One of the things that we, as an integrator, are very keen on is support from the manufacturer. Renkus-Heinz ranks right up at the top."

Worley has the last and most important word: "The Renkus-Heinz product has been well accepted, after being seen and heard in the room. The church is very happy with the results."

St Mary's Catholic Church Begins a New Chapter with ICONYX



Joplin, MO ... The old St. Mary's Church, built in 1967, was admittedly due for a remodeling. Then in May of 2011, the city of Joplin was devastated by a catastrophic F-5 tornado, claiming scores of lives and hundreds of structures, including St. Mary's, which was leveled except for its large iron cross. Nearly five years later, St. Mary's new campus has been reborn, with a school, offices, and a 750-seat sanctuary that is nothing short of stunningly beautiful.

The cruciform shaped building boasts polished tile floors, soaring stained glass, and arched wooden ceilings. It's lovely to behold, and creates a rich acoustical environment for the choir and organ. But acoustical consultant David Walter of Diversified Design Group (Lincoln, NE) knew that those same acoustics would wreak

havoc with spoken word intelligibility. "It's a very, very reverberant space," Walter states. "Addressing the issue with acoustical treatment is difficult and expensive, and far from aesthetically pleasing most of the time."

Rick Massey of Total Electronics in Joplin, the installer on the project, agrees. "The acoustic characteristics of a traditional Catholic church like this one – high ceilings, hard reflective surfaces, parallel and perpendicular walls – creates an immensely challenging, reverberant space."

To address the challenge, Walter turned to Renkus-Heinz Iconyx Gen5 digitally steered arrays, prescribing a pair of Iconyx IC32-RN columns on either side of the chancel. "We've used the Iconyx arrays on a num-



ber of challenging projects," he explains. "The ability to shift the acoustic center enables us to focus the sound directly toward the pews, and keep the energy off the back wall. It makes a tremendous difference in spoken word intelligibility."

Walter points out that the IC32-RN columns provide more than adequate coverage. "In truth, a pair of IC24 or even IC16 would have covered the room," he observes, "but using the IC32 columns gave us that pattern control down to the lower frequencies, which is the real challenge in a room this large and reverberant. The Iconyx system is also very musical, which is perfect since they wanted to add some more contemporary services to their traditional Catholic mass."

Total Electronics AV project manager Nate Pugh says the Iconyx columns also worked well with the hall's aesthetics. "Renkus-Heinz matched the paint color of the walls perfectly. If you don't know they're there, the speakers are easy to overlook; they really do blend in with the architecture."

The final word comes from St. Mary's Fr. Justin Monaghan: "These folks did an amazing job. It sounds wonderful, and now people can finally hear us."



RENKUS-HEINZ SOLVES DAUNTING ISSUES AT CHURCH OF OUR SAVIOUR

Jacksonville, IL... A small brick church built in 1851 was the first home of Jacksonville's Catholic Church of Our Saviour, followed by a new building in 1868. The current church, modeled after the Basilica of San Vitale in Ravenna, Italy, opened in 1977. Recently the sanctuary was remodeled, including a new ICONYX sound system designed by Designed Acoustics.

"Since the church was built, they've fought with intelligibility of the spoken word," reveals Designed Acoustics president and senior engineer Kevin Tankersley, who designed the new system. "They've had four or five sound systems but still had poor speech intelligibility."

"The church is shaped in an octagon and made of solid brick," Tankersley explains. "The walls are 40 feet tall, the center peak is about 48 feet tall, and there are only a few windows on the upper edge of the walls. It seats about 900 people. As you can imagine, we had to keep the sound off the brick in this towering octagon. Also, they only have live music; they don't allow taped or recorded music. They have a small choir, a piano, and a pipe organ, and they occasionally have guitarists. So we didn't want to deaden the room."

A big part of the solution was the Renkus-Heinz ICONYX steerable loudspeakers. Tankersley specified a pair of Renkus-Heinz ICONYX Gen5 IC24-RN arrays, mounted eight feet off the floor and placed left and right behind the altar, "which kind of blew everybody's mind," he admits, "but they love the results. We had to steer the beams around the altar microphone and the cantor microphone, while avoiding the brick walls."

Because the parish opted for Renkus-Heinz digitally steered arrays, they finally have the system they've always wanted. Live music sounds great, and speech is clear and intelligible. "We've heard nothing but good things from the parish," reports Tankersley. "The project at Our Saviour has turned out wonderfully, and we're proud of it."



ST. MARY PARISH ACHIEVES CLARITY WITH RENKUS-HEINZ

Gilroy, CA... Now part of the Roman Catholic Diocese of San José in California, St. Mary Parish was founded back in 1865. The current St. Mary of the Assumption is the third church on the site. The sanctuary is lovely but with its cruciform design, it presents acoustical challenges. At least three previous sound systems failed to provide satisfactory coverage and spoken word intelligibility before Robert Croft AV of Milpitas, California, designed and installed a system based on Renkus-Heinz ICONYX digitally steerable line array loudspeakers.

Pastoral associate Rose Barry has been a St. Mary parishioner

since 1989 and joined the church's staff in 2003. Although her main focus is liturgy, she has a technical background, so she also became the go-to person for technology questions and issues. Barry has seen sound systems come and go at the church and understands the room's challenges.

"Our main concern has been the spoken word, of which there is a lot at Mass," Barry notes. "Although there are documents on music in the church, there's not much about the technology of acoustics, so every pastor is left to figure out acoustics in his church. Our first loudspeakers were installed in the light fixtures, making the sound come down on people's heads. The next system used great big speakers at the foot of each nave, which projected toward the people but didn't project very well. No system we tried solved our intelligibility and coverage issues. Then I was introduced to the Renkus-Heinz steerable column speakers and heard examples of what they can do in spaces simi-

lar to ours. I immediately started fundraising."

"I thought the Renkus-Heinz ICONYX would be a great fit for the room, not only acoustically but also because of their small footprint," explains Bob Croft, owner of Robert Croft AV. "We installed two ICONYX Gen5 IC16-RN loudspeakers for the main nave. With Renkus-Heinz' beam steering technology, I could aim them in such a way that we have uniform coverage throughout the whole area. We put one IC8-RN in each of the two smaller naves, which gave us good coverage in each."

"I was happy to be able to install the Renkus-Heinz ICONYX because it changed the whole nature of the sound," declares Croft. "We're very, very happy with the results," Barry assures. "When I stand in the back and listen to a reader or a speaker, I couldn't be more delighted. It's so clear! The Renkus-Heinz has really solved one of our major technological problems, for which I'm very grateful."



ICONYX HAS KIRK IN THE HILLS CONGREGATION BEAMING

Bloomfield Hills, MI... Patterned after Scotland's 12th-century Melrose Abbey, Kirk in the Hills Presbyterian Church sits on 41 beautifully landscaped acres by the shore of Island Lake, about 20 miles north of Detroit. The church held its first services in the current sanctuary, in 1958, although construction wasn't completed until 1965, with further structural improvements since. Kirk in the Hills is a striking Gothic-style building known for its Tower of the Apostles, which houses the world's largest carillon in the number of bells contained.

Recently, the congregation sought to improve the sanctuary's acoustics and replace its outdated, inadequate sound system. Chicago acoustics and AV firm Kirkegaard Associates was hired as the acoustics consultant and system designer, with systems integrators Advanced Lighting & Sound of Troy, Michigan, handling installation. The team based the new design on Renkus-Heinz IC24-RN digitally steerable line arrays. "I was the AV consultant, and we worked together on the project," discloses Kirkegaard Associates principle consultant Jonathan Darling.

The sanctuary has a narrow nave but is essentially free from obstructions, and the only balcony is for the organ, so Darling was able to cover the entire main sanctuary with one pair of Renkus-Heinz IC24-RN arrays.

Much as Darling takes advantage of the ICONYX' tuning features, steerable beams were not the main reason he chose ICONYX for Kirk in the Hills. "The first reason we chose the IC24-RN is that, cosmetically, the church is a very precious space, and the low profile and shape of the ICONYX could be integrated better than other solutions," he observes. "Advanced Sound & Lighting did a very good job mounting the speakers to keep them as hidden as possible. They also custom painted the arrays, including the mountings and cables, using a stone texture, not just a flat paint job."

Another factor was that initially, Darling could not be certain what the final reverb time would be. "With ICONYX," he notes, "I had room to overcome even a significant increase of reverberation time. We could adjust the IC24-RN in DSP as needed."

"ICONYX was a great idea to begin with, and each generation has been a step forward," Darling asserts. "It's nice to work with a product that you like but that every four or five years becomes substantially better. The new Gen5 product sounds much more natural than the previous generation. And it's still affordable. At Kirk in the Hills, the installation was beautiful, and the system is working very well. We're still making fine adjustments but the client is really happy."



VARIA Fills Calvary Chapel with Exquisite Sound

Chattanooga, TN...Leaving a rental space for a place of their own was a big step for Calvary Chapel. Their new campus sits amongst the hustle and bustle of downtown Chattanooga, close to restaurants, hotels, shops and grocery stores, making Calvary Chapel now a visible and accessible part of the community.

In fact, Calvary Chapel's new home is a converted Bi-Lo grocery store, reminiscent of its former self through the concrete floor and open corrugated metal ceiling. Folding this industrial edge into their contemporary approach, Calvary Chapel cleared the columns and raised the roof, opening up the 100 by 100 square foot space and adding a bit of acoustical treatment to the side walls.

The space seats 750-800 people, in typical fan shaped sanctuary seating, with one center aisle and two on either side. The services are always packed, from Saturday night praise band to late Sunday morning service, where they have an extra 150-200 people in overflow areas, connected via fiber.

Their contemporary services, complete with amplified instruments, fit well into this unique, industrious and sleek aesthetic. Making it

sound as good as it looks, with hard surfaced, square dimensions, was a whole other issue; one that couldn't be solved with a one-size-fits-all solution.

"It was pretty rough when they moved in there three or four years ago," says Tracy Miller of Chattanooga-based DB Technologies. Calvary Chapel called Miller in for a consultation about a year ago, needing his help in taming and utilizing this new space. Miller had previously demoed the Renkus-Heinz PN102 line arrays in the space, but quickly realized he needed a different approach. "With the liveliness of this particular room, a traditional line array wasn't the right thing. There was just too much sound bouncing around that place."

What Miller and Calvary Chapel needed was a line array that could be tailored to fit their needs precisely; from rock bands to sermons,

without allowing the square, hard barriers of the Chapel to shape the sound. "I had been wanting to try out the VARIA and this seemed like a good opportunity," Miller says. "We set up a demo, and it was just night and day. With the VARIA array, we were able to taper the coverage and focus the sound on the seating area, without hitting all those walls and reflective surfaces."

With left and right three-cabinet arrays of narrow, transitional and wide dispersion boxes, VARIA also fits in well with the pre-existing design of the space, complementing both the industrial and the sleek aesthetics. And, says Miller, the dramatic shift in sound quality made the job easier, even for the Chapel's new sound guy. "He's been just getting up to speed and he usually asks a lot of questions. But we went from nobody in the room to a packed house and it was so smooth, I did not have to go to the console even once."

Miller recalls, "after the first service, I got a text: 'we want to keep these.' And I had the feeling that would be the case."



Easter Bunny Brings Pasadena Community Church an IC Live System

St. Petersburg, FL... Built in the late 1960s, Pasadena Community Church's multifaceted sanctuary presents numerous acoustical challenges. The room's unusual shape offers multiple reflective surfaces at assorted angles, plenty of concrete and glass, and a ceiling that peaks at about 75 feet above the floor. A recent renovation at the United Methodist church included reducing the seating from approximately 1,100 to about 800, updating the wooden flooring, and more, further altering the acoustics. Most of the seating area is in an expanded fan shape. Spoken word intelligibility and clarity for musical performances proved significant issues with which the church's outdated sound system couldn't cope.

The congregation enjoys traditional services featuring pipe organ, piano, and choir, as well as contemporary services featuring a praise band fronted by the talented Connect 3 vocal trio. Realizing a new sound system would be needed before Easter 2018 if the congregation were to fully enjoy the services,

the church's leaders reached out to Chris Bertler, the owner of Pro Audio Services, in North Port, Florida. Bertler designed and installed a new sound system featuring Renkus-Heinz IC Live Gen5-series steerable arrays.

"I've driven by the church many times for many years, and I was curious about the inside," Bertler muses. "It's an oddly shaped space; all those angles you see from outside are there on the inside. When sound hits those surfaces, they throw the sound back at an angle down into the room. It's a tough room. Once I saw the inside, Renkus-Heinz IC Live steerable arrays immediately became the front runner. I can't see anything else getting the job done."

Bertler chose a pair of Renkus-Heinz IC Live ICL-F-DUAL-RN arrays, taking advantage of the company's digital beam steering technology to put the sound on the audience and away from the room's



complex reflective surfaces. The ICL-F-DUAL-RN can deliver up to eight separate beams, with software-definable opening angles and aiming, so Bertler could direct the sound with great precision. Output is flat from 80 Hz to 20 kHz, and the integrated Class D amplifiers provide more than enough muscle to easily support the Pasadena Community Church's praise band. "I have the ICL-F-DUAL-RNs running about 20 dB down from zero," Bertler notes. "Any more sound is counterproductive."

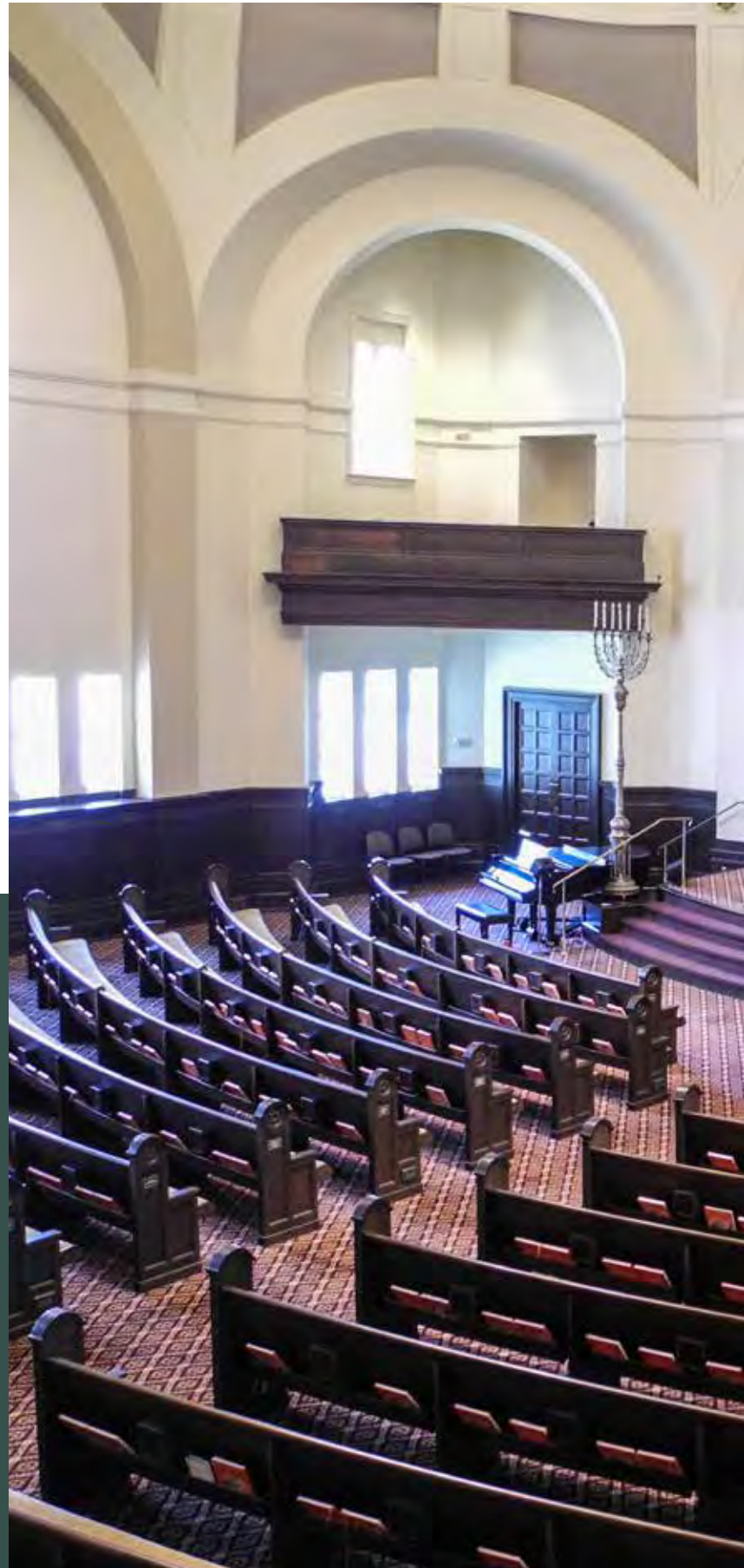
The speaker locations are white, so the slender, low-profile white ICL-F-DUAL-RN enclosures blend in without requiring custom paint

work. "We didn't remove the old speakers, though," Bertler relates. "We'd have to take out the stained glass windows on either side of the front entryway to get a lift in, and it would have been too expensive."

To manage the Renkus-Heinz arrays, Bertler installed a Symetrix Jupiter 8 DSP. "We were told to piggyback on the old wiring," he recounts, "and we didn't need Dante for this system. The Symetrix Jupiter 8 is a good, effective processor with analog outputs. We ran fresh wiring from there to the speaker locations, and we equipped each speaker with an RDL TX-AT1S isolation transformer. We also put in a couple of SurgeX FlatPack

SA-82 surge protectors. The church already had a Behringer X32 digital console, Shure ULX-series wireless mics, and older 18-inch subwoofers that were still serviceable."

The entire process went very quickly because the church leaders wanted the system installed by Easter. "They placed the order on March 12," Bertler recalls. "The Renkus-Heinz speakers hit our shop on the March 27, and we installed them the next day. The system was tuned and ready in time for Easter on April 1. And it sounds great. They're really happy."



**HISTORIC
TEMPLE
EMANU-EL
CHOOSES
ICONYX
GEN5**



"Temple Emanu-El's sanctuary is an extremely challenging acoustic environment, with a lot of hard surfaces, as well as a dome," observes Twist Technology engineer John Kendall, who designed, installed, and tuned the new system. "Renkus-Heinz ICONYX systems are excellent for music reproduction, and the congregation has a cantor who sings very beautifully. The sanctuary also has a piano. But the most crucial issue was speech intelligibility. The clarity of ICONYX, combined with their precision beam steering, made them the perfect choice for this install."

"We'd originally planned to fire the arrays straight ahead," Kendall recalls, "but we had to mount them fairly high up on the walls, and with that placement, we would have had trouble covering the front rows. Fortunately, with ICONYX we could precisely aim the beams, so we were able to crossfire the arrays to cover the front rows without creating other issues. We also steered a beam to cover the rear balcony."

Aesthetics were an important consideration, as well. "Temple Emanu-El is a beautiful, historic building, so the sound

system could not be visually intrusive," Kendall notes. "The IC16-RN's slim, low profile design, combined with a custom paint job, enables the two columns to blend with the walls. You can see the arrays but you have to look for them."

ICONYX Gen5 integrates the power of advanced beam steering algorithms with the intuitive control of Renkus-Heinz' RHAON II system designer software. "We've done numerous installations with ICONYX, and the new RHAON II software is better than ever," states Kendall. "When you change the aiming of a beam or the processing, loading the settings into the array's DSP takes less than a minute. That's a big advantage when you're tuning a system."

As always, what matters most are the results. "The congregation is extremely happy with the Renkus-Heinz ICONYX Gen5 system," relates Kendall. "It sounds great, it's visually unobtrusive, and you can hear everything clearly throughout the sanctuary. Temple Emanu-El finally has a state-of-the-art system worthy of its sanctuary!"



Renkus-Heinz Iconyx Gen5 Shines in Syracuse University's Hendricks Chapel

Syracuse, New York... For 85 years, Hendricks Chapel has been the religious, spiritual, ethical, and cultural heart of Syracuse University, connecting its large, diverse community. The beautiful Greco-Roman-style building hosts a wide variety of weddings, religious services (including contemporary praise bands), lectures, choir performances, and an assortment of music events. Crowds range from intimate gatherings of 100 to major events with more than 1,000 people. To deliver music and speech with the high quality needed at such a prestigious venue, the university recently upgraded the chapel's sound system with Renkus-Heinz Iconyx Gen5 loudspeakers.

"The space was underutilized until about 15 years ago, when we installed a sound system that combined Renkus-Heinz and other loudspeakers," recalls David May, president/manger of DCI Sound, which also designed and installed the new Iconyx Gen5 system. "Finally, people could hear, and usage of the space increased. But that system was just designed for speech intelligibility, and Hendricks Chapel now hosts many musical events." So in the summer of 2015, DCI designed and installed a new system that easily handles the chapel's needs.

DCI has extensive experience with Iconyx, so May started there. "In addition to the advantages of steered beams, Iconyx are much more musical and have higher output capability than the systems we used before," he explains. "Iconyx Gen5 is even better because you get a more flexible selection of configurations, with even more precision. That means we can customize Gen5 systems even better for the venue, and we can deliver for less money."

The Hendricks Chapel is quite reverberant, and its shape and the deep balconies complicate the acoustics. "The balcony areas are almost acoustically isolated from the main nave," May explains. "On top of that, with the wide range of events, the room has to sound consistently good throughout for music and speech, whether there are 100 people or 1,000. Fortunately, Iconyx Gen5 arrays enabled us to address the acoustical issues."

To cover the main auditorium seating, May chose a left-right pair of Iconyx Gen5 IC24-RN digitally steerable line arrays, flown over the proscenium. "Because we can choose the location of multiple beams, we were able to mount the arrays up high, getting the beams above the lectern mics," May explains. "That improved gain before feedback." For sub-bass, May opted for Renkus-Heinz CFX12S 12-inch high-performance subwoofers. "The CFX subwoofers provide excellent warmth in the low end," he notes.

The chapel's old sound system employed Renkus-Heinz TRC81 floor wedges and TRC121 sidefills as stage monitors. May determined that these speakers, which feature Renkus-Heinz' smooth, low-distortion Complex Conic horn technology, were still doing a fine job, so he integrated them into the new system.

The new sound system is a success in every respect. "The staff at the Hendricks Chapel and Syracuse University are extremely happy with the Iconyx Gen5 system," May relates. "Now they have uniform, high-quality sound throughout the space that is great for music and speech. It's a huge improvement. We're very pleased, as well; we'll do a lot more installs with Gen5."



Five Wounds Church Chooses Renkus-Heinz Iconyx Gen5

San Jose, CA... Built in 1914, the picturesque Five Wounds Portuguese National Church is one of the most photographed, sketched, and painted buildings in the area. The Old World-style Catholic church's architecture exudes Iberian charm and grace, but its acoustics have proven problematic over the years, with intelligibility an issue for their traditional Latin Mass.

"This was a particularly challenging project because of the building's age," begins Joe Orlando of Atwater, California, systems designer and integrator Commercial Media Systems. "It took three guys a full day just to run wire to the loft. The building has old knob-and-tube wiring with 100 rows of live wires under the floor, and the grounding was almost nonexistent. And then there were the acoustics."

Not surprisingly, the room's ceilings are high and arched, and the sanctuary includes a transept. It's the sort of space that gives system designers nightmares. The old distributed sound system was, Orlando reports, "absolutely terrible."

Orlando called on Layer 8 president Rocky Giannetta, an expert in acoustical measurement, system tuning, and room modeling and analysis. Giannetta demoed a passive column and a Renkus-Heinz Iconyx IC16-RN, part of the next generation Iconyx Gen5 Series. "Rocky documented reverb times as long as three to four seconds at the back of the room – the kind of conditions that could be best addressed with steerable beams."

Rather than opting for a left/right pair, Orlando flew a single Renkus-Heinz IC24-16-RN digitally steerable column array on house left to serve as the main house loudspeaker. "Less is more in such a reverberant room," he observes. "With two sources, you can have multiple arrival times and reflection issues from the transepts. The IC24-16-RN can give you up to eight separate beams, so you can do quite a lot with just one column."

The IC24-16-RN was mounted on a 12x12-inch wooden column with a gap between the inner column and the outer plastered wood. "We ran wires between the big wooden column and the plaster," Orlando recalls. "It was strong old wood, but drilling and doing the wiring right were challenging."

On house right, directly across from the IC24-16-RN, a smaller IC8-RN steered array covers an area that needed a small amount of front fill. A CFX41 four-inch coaxial two-way loudspeaker provides monitoring for the main priest's chair.

Orlando is sold on Gen5. "I've done a lot of installs for the Catholic Church with Iconyx," he notes. "This was one of the first Gen5 installs anywhere, and the new series is the best yet. The combination of normal and progressively spaced transducers helped achieve excellent speech intelligibility in a very reverberant room. We could specify the size and configuration we needed, and we still hit our budget. Most important, the Iconyx Gen5 system sounds great in the space, and the client is very happy!"



ICONYX Delivers Clarity for Church of St. Agnes

St. Paul, MN... The Land of Ten Thousand Lakes is also the home of several beautiful Catholic churches, including the Baroque-style Church of St. Agnes. Dedicated in 1912, St. Agnes' 1,000-seat sanctuary is replete with stained glass, ornate columns, and other hard surfaces and features a dome that extends 60 feet above the floor. The main entrance accesses the sanctuary below a rear balcony; there is no under-balcony seating.

In this acoustically live and complex space, intelligibility has been a challenge. Large pillars, at least three feet wide, line each side of the seating area, creating acoustical blind spots.

"The church had a distributed point-source system that wasn't installed as well as it could have been, and the speakers were an eyesore," comments Randy Keeley, VP of Sales for St. Paul systems integrator and dealer Metro Sound & Lighting (MSL), who designed and built a new system based on Renkus-Heinz ICONYX Gen5-series loudspeakers.

"We put in a pair of Renkus-Heinz ICONYX IC32-RNs and a pair of IC8-RNs because their steerable beams allowed us to cover the entire floor seating area, while minimizing reflections." Originally, the MSL team planned to put the IC32-RNs up front, as one would expect. But, notes Keeley, "as head field technician

Brian Herrick and I looked closer, we realized that wasn't the best solution. From where the front arrays needed to be located, they weren't able to cover the blind spots behind the pillars. Also, we didn't need a lot of energy at the front seating area."

The MSL team mounted the IC8-RNs on the front wall, wide left and right of the large pulpit. They put the IC32-RNs behind the first set of left and right columns in the seating area. "This addressed a number of issues," Keeley explains. "Using IC8RNs at the front helped minimize energy at the dome. The IC32-RNs behind the pillars cover the remainder of the seating area, including the seats directly behind other pillars."

MSL had Renkus-Heinz custom-paint the arrays to their specifications, using two colors, to make them visually blend in. "We are very impressed with the job Renkus-Heinz does painting their speakers." Keeley praises.

Everyone involved has been delighted with the Church of St. Agnes' new ICONYX system. "It sounds fantastic," Keeley assures. "Intelligibility is excellent; you can hear clearly throughout the seating area. Also, the custom paint helps the speakers blend in with the architecture. We are very pleased with Renkus-Heinz ICONYX arrays, and plan to continue to use them in future projects."



ICONYX Delivers Musicality, Intelligibility at St. Michael the Archangel Church

Cary, NC... St. Michael the Archangel Church is about 20 years old, and its distributed ceiling-speaker system was barely adequate at best when new. Speech intelligibility was an issue, and coverage was uneven across the space. Back then, masses were entirely traditional. Today, the church offers both traditional masses with choir, organ, piano, and orchestral instruments and contemporary-style masses with guitars, bass, piano, drums, and so on. To design and install a sound system that could handle their needs, church leaders turned to AV systems integrators AVCON, which, like the church, is based in Cary,

North Carolina. AVCON's solution: Renkus-Heinz' ICONYX digitally steerable line arrays.

"Renkus-Heinz speakers were a great choice for this space," offers AVCON Account Manager Mike Dunn. "The old system had issues with left-to-right and front-to-back coverage and with lack of intelligibility. It's a very wide room and not as deep and seats about 500 to 700, depending on whether the chapel is open. Renkus ICONYX IC24-R-II arrays fit this room well because of their wide coverage pattern and the control they give us, as well as their great sound quality."

"Traditionally we might not use a loudspeaker like this in a fan-shaped room, especially where we have the arrays mounted," declares AVCOM Design Engineer Eb Strickland. "But this space is really more of a rectangle than a fan. We had to find a loudspeaker that could focus energy down onto the listeners and keep that coverage even throughout the space. In addition, we needed to provide both speech intelligibility and music reinforcement for a variety of musical programs."

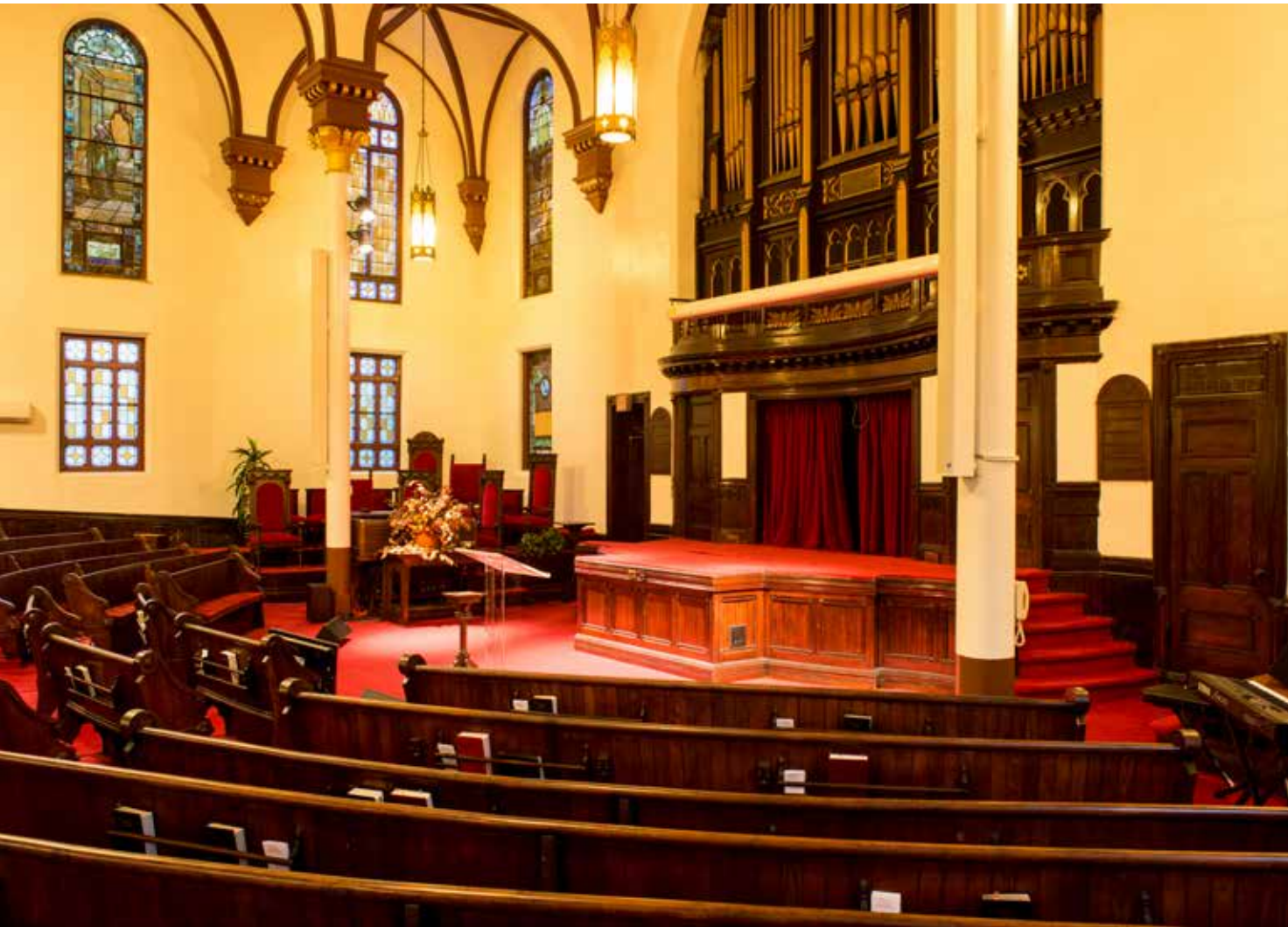
AVCON configured a monaural main system with two IC24-R-IIs, mounted left and right of the altar area. "With the old system, if you were right under the speakers, you had a different sound than if you were in the middle of the sanctuary," recalls long-time St. Michael Music Director and Liturgist Wayne Cusher. "The Renkus-Heinz column speakers made a great difference. You can hear everything in the last pew now."



ICONYX Brings a New Chapter to Historic Manhattan Church

New York, NY... The brick and brownstone building that is home to Seventh Day Adventist Church has stood on this tree-lined street in Greenwich Village since 1882. Today, this 1,000-seat landmark retains much of its original architecture and interior design, including Tiffany style stained-glass windows, dark wooden pews, and high, vaulted ceilings. A magnificent organ rises above the stage, and a balcony partially extends over the large, open auditorium.

Like many of the era's grand old churches, the acoustics can be magnificent for organ and choir, but the sermons were battling the architecture's reflective surfaces. Areas under and in the balcony suffered from particularly poor



intelligibility, and coverage was inconsistent throughout the room. The steep rake of the pew seating, covering almost one vertical story from the entry doors to the stage, only exacerbated the problem.

"The Renkus-Heinz ICONYX was really the best choice for this room," explains Geraldo Watson, President and CEO of BUSA AV Technology & Construction in Brooklyn, NY. A pair of Renkus-Heinz IC24-R-II digitally steerable column arrays are mounted left and right of the stage. "It's a bit of a challenging room because of the shape, and all the reflective surfaces."

"Two IC24 columns cover the whole room. We didn't need any fills or additional speakers," says Richard

Trombitas of Northport, NY-based Cardone, Solomon & Associates. "ICONYX enabled us to selectively steer the sound into the areas where it was needed, while minimizing reflections from the walls and windows. With the IC24s we were able to create a nice, narrow beam to cover the balcony and another to cover the area below it. This approach provided a comprehensive solution utilizing only two boxes."

Not surprisingly, aesthetics were an important consideration in this landmark building. The low profile design of the ICONYX meant they could be mounted flat against two large wooden columns, painted to match the décor, and blend almost invisibly with the architecture.

The stage area is equipped with four Renkus-Heinz TRX82/12 dual eight inch 120 X 60 degree loudspeakers for monitoring, powered by a single Powersoft M50 amplifier. "The TRX82 is a great option for stage monitors," says Trombitas. "Its low profile, controlled mid-bass directivity and 120 X 60 degree pattern are optimal for HOW and performing arts applications"

Watson reports the Church staff and congregation have been exceptionally pleased. "When they heard the sound coming from the new system, they were amazed at the clarity. They just love it."



CANTERBURY CHURCH GAINS INVISIBLE INTELLIGIBILITY WITH RENKUS-HEINZ ICONYX

Mountain Brook, AL... Established in 1950, Canterbury UMC has grown to embrace both traditional and contemporary worship styles, with separate sanctuaries for each on its Mountain Brook, Alabama campus. Recently, the church engaged Twist Technology of nearby Birmingham to address its ongoing issues with intelligibility of the spoken word in the main (traditional) sanctuary.

For Twist CEO Lynn McCroskey, there were two challenges to be overcome in this design/build project. "First, we had to create articulation in an extremely reverberant environment," he explains. "At the same time, aesthetics was a primary concern. This is a beautiful worship space, and they did not want to see a big speaker cluster or anything like that,"

Two Iconyx IC24-R-II digitally steerable column arrays cover the entire room, delivering advanced digital beam steering to direct the sound to the seating areas, and away from the side walls, balcony facings, and other reflective surfaces. And the Iconyx slim, low-profile design enabled Twist to create a system that sounded great, with minimal visual impact.

"The IC24 column is 10 feet tall, but only about six inches wide, so it's really more like an architectural element than a loudspeaker," says McCroskey. "It's designed to be flush-mounted to the walls, so there is no interference with the congregation's sightlines. With the precision color-matched paint job, they really just look like part of the building. Most people don't even realize that there are two 10-foot tall speaker columns behind the altar. The church elders are very pleased and impressed."

Iconyx steered beam technology enabled Twist Technology to meet Canterbury's seemingly conflicting goals of preserving the sanctuary's big sound while creating exceptional intelligibility. "We've used the Iconyx successfully in several architecturally sensitive installations," McCroskey reports. "The directional control is a huge help with articulation, and really helps control reverberation. For a large space like this, with high, vaulted ceilings, a balcony, and hard surfaces everywhere, beam steering is the perfect solution. The pipe organ and choir music still soars, but now the spoken word can be clearly understood from every seat."



Sweetest Heart of Mary Church Scores Sweet ICONYX Gen5 Sound System

Detroit, MI... Founded by a charismatic and provocative priest—the fascinating story is on the church’s web site—Sweetest Heart of Mary Roman Catholic Church is the largest, and arguably the most impressive, Gothic Revival church in the Midwest. The building is on the National Register of Historic Places. Services are traditional, with a Schola Cantorum choir, the oldest (1893) Austin pipe organ still in service, and spoken word.

For years the gorgeous, cathedral-style sanctuary suffered with an inadequate and outdated sound system. “It was very difficult to understand anything anywhere in the building,” observes Steve Newby, principal of Annunciation Audio-Visual Services, which designed and built a new sound system for the historic church.

The church is 88 feet tall and 202 feet long on the exterior, and 90 feet wide for the main body of the nave, while the transept is 188 feet wide. “For the size, it’s fairly acoustically friendly,” asserts Newby.

Newby’s team was able to cover the entire nave with just one IC32-24-RD on each side of the sanctuary, while minimizing reflections. “We criss-crossed the left and right arrays a little, as it was the best way to get around the blind spots behind the two rows of substantial columns,” explains Newby. “With the width of the transepts and the nave, we didn’t have horrific overlap. But some overlap is necessary because seats are masked from their near-side array, and we need the far-side array to cover those masked areas.”

“ICONYX Gen5 was definitely the right choice for this space,” Newby concludes. “Renkus-Heinz’ digital beam steering technology enabled us to cover the entire sanctuary, transept and all, with just two arrays, including dealing with the blind spots and hard surfaces. IC32-24-RDs are slim and low-profile, as well, so they’re not visually obtrusive. Best of all, Sweetest Heart of Mary finally has the clear, intelligible audio they’ve long wanted, and they’re delighted.”



St. Patrick's Catholic Church Marks Debut for Renkus-Heinz Iconyx Gen5

Rockville, Maryland... St. Patrick's Catholic Church has served its community in this Washington, D.C. suburb since 1968, and the sanctuary's sound system had served its congregation since then as well. The 1000-seat room's acoustics have always been a challenge, explains Gene Ingham of systems integrator RCI Systems, the company behind the design-build of the church's new system.

"The sanctuary has an A-frame architecture with 35-foot ceilings and lots of windows," Ingham observes. "The altar area is in the center, the choir is on one side with the organ and piano, and most of the congregation sits directly in front. The original sound system did not project far enough, so it was like a cloud of sound coming out of the sky, lacking clarity and intelligibility."

Ingham specified a pair of Renkus-Heinz Iconyx IC16-RN digitally steered arrays for the sanctuary, marking the first installation of Renkus-Heinz Iconyx Gen5, the fifth generation of the company's acclaimed Iconyx steered beam technology. "RCI Systems uses the Renkus-Heinz IC Live Series for our event production business, so I'm very familiar with their beam-steering technology," he notes. "We do a lot of work in very

reverberant spaces, and IC Live is a real problem solver for us."

With high ceilings and a transept, installation and tuning could have been tricky, but Ingham accomplished it with relative ease. "We used two beams for each loudspeaker to cover the room, and the beam coverage was so wide that I only had to put two IC16-RNs in, and it still covers the main room and at least half of the transept," he says.

"Initially I was going to put the loudspeakers closer to the audience," Ingham continues, "but when we looked at the modeling, we found that if we could place the loudspeakers to the left and right of the altar, about nine feet up, we could shoot over everything and still get plenty of sound in the back. The new RHAON II software made it come together very

quickly. And with the IC16-RN's low-profile design, half the people don't even know the speakers are there."

The job went so smoothly, Ingham was even able to finish ahead of schedule. "I budgeted an extra day, and I didn't need it," he recalls.

Of course, the bottom line is the sound. "The best part is the direct field; when you're anywhere in the main body of the church, the coverage at every seat is the same," Ingham states. "I attended a service, and whether the vicar used a handheld wireless mic or a goose-neck mic or the altar mic, his tone sounded the same through the Iconyx speakers. It was a pleasure to hear." Others noticed the difference, too: "While we were tuning the system, a parishioner remarked 'I've never heard it sound this clear back here before.'"

ST. BRIDGET CATHOLIC CHURCH

SOLVES ACOUSTIC CHALLENGES WITH RENKUS-HEINZ ICONYX

Loves Park, Illinois... Founded in 1946, St. Bridget Catholic Church dedicated its current building in 1988. The 1000-seat sanctuary's original sound system, installed behind panels above the altar area, was typical for its day, but never really addressed the hall's acoustical challenges.

"The room is about 124 feet in diameter, with a high ceiling and windows around the perimeter," explains Jon McDowell, owner of Rockford, IL-based systems integrator Jonny B Enterprises Inc. "The views are lovely but reflections were a critical issue. Ceiling reflections are not as bad as you might expect but the windows are incredibly reflective. There also were acoustic dead spots in the room. The old system was hidden behind panels, which was sort of like trying to fire sound through a tank driver's window. On top of that, service was a nightmare: You needed 20 feet of

scaffolding just to get to the grills and an extension ladder on top of that to get to the speakers. It was time for a change."

Having seen and heard Renkus-Heinz Iconyx systems at trade shows, McDowell anticipated that an Iconyx steerable array would be the best choice for St. Bridget. Steerable beams could focus sound on the congregation while keeping it off the hard surfaces, including the windows, thus minimizing reflections and other acoustical issues. McDowell recommended a system based around left and right Renkus-Heinz Iconyx-series IC24-R-II steerable arrays.

"Gene Williams from Frequency Sales came in with a demo system and set it up," McDowell recalls. "The architect was present as well. Between the demo and what we had learned at the trade shows about using steerable beams to keep

sound off the reflective surfaces and on the congregation, we quickly realized that a pair of IC24-R-IIs, with one column on each side of the altar, was the right choice. The system was tuned with Renkus-Heinz RHAON II system management software, and it all went perfectly."

The parishioners are very pleased with their new Iconyx system. "I have gotten no negative feedback and lots of positive comments," says McDowell. "Several people told us, 'that's the first time I've been able to hear everything.' We also got comments like 'I didn't even see the speakers until you pointed them out,' and 'It's just those two columns?' I'm so happy with Iconyx that I got Renkus-Heinz to qualify me on the product for future installs. Thanks, Renkus-Heinz, for great service and for a great product that solved acoustic issues in a difficult room!"





Uppsala Cathedral is Ready for Every Scenario With 40 Iconyx Columns

Uppsala, Sweden... Sweden's Uppsala Cathedral is one of the oldest houses of worship in Europe, not to mention the tallest in Scandinavia. World-renowned for its architecture and history, the Cathedral was once the burial place of Swedish royalty, and is now home not just to a devoted congregation, but uniquely historical items such as Queen Margareta's golden dress – the world's only preserved evening gown from the Middle Ages.

The Cathedral is a protected structure, and since 2010, Viktor Wadelius of Swedish systems integration specialist Svensk Klimatstyrning AB, has worked to update the building's technical infrastructure without harming the ancient stonework. His efforts have led the rejuvenation of systems as diverse as heating and ventilation through to architectural lighting. When it came to investigating more effective sound reinforcement, only Renkus-Heinz Iconyx

offered the combination of control and quality required to handle the Cathedral's challenging acoustic environment.

"It's a very personal project," explains Wadelius. "I've worked with the Cathedral on every electrical element. It means a lot to me that everything is right. It's the biggest cathedral in Sweden and I also grew up in Uppsala, so it's a big part of who I am."

"The Cathedral is very big, and one of its unique characteristics is that during the services, the priests move around a lot," Wadelius continues. "They start in the middle of the cathedral, at the central pulpit, and then head up to the high altar, then back to the pulpit, and so on. One service will take place across many locations – we call them scenarios. It's unusual to have to create a speaker system for this kind of environment."

In the past, attempts had been made to find a suitable sound reinforcement system, with only limited success – while one attempt might deliver heightened intelligibility, coverage would then



become an issue. Nevertheless, determined that it should be possible to properly cover the entire congregation with high quality, intelligible audio, Wadelius and his team went searching for an answer.

"We headed out into Europe to visit the big cathedrals and find out what they were using to solve similar problems, to see what they had chosen," he explains. "We went to Cologne, Germany, and they had Renkus-Heinz, and we went to Lund, here in Sweden, and they had Renkus-Heinz, and we went to Trondheim, in Norway, and they also had Renkus-Heinz! They were all happy with their sound systems."



"We were invited to Uppsala to perform a demonstration," continues Renkus Heinz Regional Sales Manager Håkan Sjöo. "It was immediately clear that this was a very interesting project. It's a large cathedral and very important within Sweden, hosting a number of concerts with a large choir as well as regular services. It's a truly beautiful building."

Considering the impressive scale of the solution that was eventually installed within the Cathedral, it's remarkable that the original demonstration comprised of just one loudspeaker array – an Iconyx IC32, which was located at the central altar. "From the altar to

the rear of the seating, it's approximately 40m (131 feet) – quite a long way!" continues Sjöo. "But even with only one column, the difference was clear."

But even with the impressive early results, it was clear that only a particularly ambitious design would be enough to meet the needs of the Cathedral.

"Originally, the concept was based around a priest delivering a sermon from the central altar, and that was it – all of the sound was coming from that position," says Sjöo. "But there are at least four different points of focus even for regular services plus special areas such as the rear of the building, where baptisms take place, and the Cathedral's magnificent pipe organ. From an audio point of view, that's very complicated. The system needed to be able to cover every area equally, and at a very high quality. It meant creating one of the largest Iconyx installations in Europe, with 40 individual loudspeaker arrays."

In total, Uppsala Cathedral is served by 22 IC16-8 columns, plus eight IC8 arrays, four ICX7 arrays and a single IC32. The achievement is all the more striking when you consider that the installation represented to the first use of Renkus-Heinz's Iconyx Gen5 presets.

"It's very unusual to have 40 line arrays inside one cathedral," acknowl-

edges Michal Poplawski, Renkus-Heinz Technical Sales Manager, Europe, who joined the project as it was already underway. "Common wisdom says that it's not good – when you have difficult acoustics and many sources, you will have a problem." Yet the beam steering expertise embedded deep into the DNA of Iconyx Gen5 ensures that every loudspeaker in the room maintains delicate control over the acoustic energy. Nor has the structure of the Cathedral been affected, thanks to the expertise of Viktor Wadelius and an ingenious clamp. "We have to get permission to do anything inside a cathedral that is this old," he reasons.

Crucially, the system has delivered the audio quality and coverage that the Cathedral sought for so long.

"Even with the extremely reverberant acoustic environment – measuring around five seconds – we have successfully achieved very good intelligibility and audio quality," reports Poplawski. "The results are very good."

Having spent a lifetime around the Cathedral, and almost seven years working within it, Viktor Wadelius is delighted to agree. "I am very happy with the final result – it actually sounds better than I believed possible in such an acoustically difficult environment. I am absolutely proud of what we've achieved."

Iconyx Satisfies Large Demands at Cathedral of St. Paul

St. Paul, MN... Completed in 1915, St. Paul, Minnesota's massive Cathedral of St. Paul is the country's largest church outside of New York and Washington, D.C. Its Saint Cloud granite exterior walls are matched in grandeur by the American Travertine marble coating the 3,000-capacity interior, which reaches 175 feet up to a dome nearly 100 feet in diameter.

It's a big, reverberant space. "If you took the Statue of Liberty off its pedestal and set it in here, it would fit under the dome," observes Randy Keeley of St. Paul AV systems integrator Metro Sound & Lighting. "And everything within this space is very reflective: Travertine marble all over the walls and floors, hardwood pews, different angles, glass—you've got sound literally going everywhere." These are not friendly acoustics for any kind of amplified sound, yet a sound system is the only way every worshipper can hear what is being said and sung.

It's a tough problem but all in a day's work for Metro Sound. "In the more than 40 years since Metro Sound's founding, we have performed installations in numerous churches and spaces with tough acoustics, so we understood the nature of the challenge," Keeley explains. Keeley's solution was a left/right system of two Renkus-Heinz ICONYX Gen5 IC32-RN digitally steerable line arrays, which enabled him to keep sound off the walls and on the congregation. To preserve the cathedral's aesthetics, the loudspeakers were color-matched to the marble.

Every IC32-RN houses 32 purpose-designed, 4-inch coaxial transducers, each with its own amplifier and DSP channel. Each coax transducer is paired with an "array within an array" of three tweeters, an arrangement that reduces the distance between high-frequency sources, yielding consistent, broad horizontal dispersion and greatly improved high-frequency performance.

Under software control, powerful onboard DSP can form, shape, and aim sound in up to 16 separate beams from a single IC32-RN. With a typical throw of 270 feet, the IC32-RN easily fills the 216 foot-wide cathedral. "With Renkus-Heinz ICONYX, we can steer beams vertically to keep them in the listener areas and try to prevent energizing any more of the space than we need to," Keeley explains.

The Cathedral of St. Paul is only the latest successful ICONYX installation by Keeley and Metro Sound, who have also put the IC32-RN in other Minnesota sanctuaries with challenging acoustics, including the Church of St. Charles Borrowmeo in St. Anthony and Church of St. Agnes in St. Paul. "We've had very good luck with Renkus-Heinz ICONYX," concludes Keeley. "It's become a go-to product."





ICONYX Tames **ST LOUIS BERTRAND'S** Challenging Acoustics

Louisville, KY... The Dominicans arrived in Louisville, Kentucky, just as the American Civil War came to a close, and the building St. Louis Bertrand Catholic Church still occupies was dedicated less than ten years later.

The characteristics of English Gothic churches such as St. Louis Bertrand are well known: They are very beautiful and have long reverberation times that complement choirs and pipe organs but make it difficult to understand the spoken word. One hundred ten feet long and 50 feet at its highest inside point, with lots of hard surfaces, St. Louis Bertrand is a prime example. Columns lining the interior and a choir loft with a pipe organ present further acoustical complications.

Fortunately, David Knight of Louisville's Knight Audio knew the solution. Knight installed a pair of ICONYX Gen5 IC24-RN digitally steered line array loudspeaker systems on the left and right at the front of the sanctuary.

It is rare when retrofitting a church to be able to install speakers exactly where you want them, but with the ICONYX' beam steering, Knight was able to exact good coverage, even in some hard-to-reach areas. "The columns don't line up exactly on both sides," he points out. "But even when you're standing behind a column, you're getting enough coverage from the speaker on the other side of the room that you don't notice you're behind a column."

The improvement in coverage was dramatic, so much so that at first it

was a little disorienting. "The staff at St Louis Bertrand suddenly were hearing the system so well that they thought it was too loud," recalls Knight. "I said, 'The reason we put this system in was because people couldn't hear well enough to understand what was being said. If you can hear it now, then that means other people can hear it, too.' They got used to it."

While custom finishes are available, the parish chose standard white loudspeakers to go with the church's largely white interior. "The ICONYX speakers blend in pretty well," notes Knight. "In fact, I took another customer to St Louis Bertrand to look at the system, and she didn't even notice the ICONYX columns. An IC8-RN was on a column ten feet in front of her and she asked me, 'Well, where's the speaker?'"

RENKUS-HEINZ ENABLES THE WORD TO BE HEARD AT ST. COLUMBAN CHURCH



Garden Grove, CA... The first St. Columban Catholic Church in Southern California's Orange County was dedicated in 1947, followed by the construction of Murphy Hall in 1956. The area and the congregation continued to grow, and St. Columban's current sanctuary, built in 1968, is correspondingly larger than earlier buildings. Measuring 152.5 feet long by 182 feet wide and seating 1,434, it features Roman Travertine marble-covered walls and mosaics depicting the stations in a flowing panorama. The congregation is diverse: Mass is celebrated in English, Spanish, and Vietnamese.

The church's original sound system dated back to the construction of the building and was never truly adequate. "When I arrived at St. Columban's about two years ago, one big need that was expressed to me was to do something about the sound," recalls Father Al Baca. "The problem was very noticeable. In the back third of the church, speech was not intelligible at all. Catholic churches are generally built with a sensitivity to Gregorian Chant, to the ancient forms, which carry beautifully in a church like this. But spoken word is a challenge."

To replace its outdated sound system and address the intelligibility issue, St. Columban's called on local A/V firm AudioVideo Technologies Inc., which specified a Renkus-Heinz IC2 digitally steerable loudspeaker system. "During the design process, we brought in Renkus-Heinz to demo their IC2 loudspeakers," relates AudioVideo Technologies founder and president David Lusk. "I was very impressed with what I heard. The sound was very evenly dispersed. Ultimately, we were able to design a system using a stack of two Renkus-Heinz IC2s on the left and a stack of two IC2s on the right. That's all the speakers we needed to cover the entire room."

"The IC2's steerable technology allowed us to precisely focus the sound at the pews and keep it off the marble-covered walls, the ceilings, and the hollow void in the middle of the space," explains Lusk. "The sound stays focused on the people, where it's supposed to be."

Renkus-Heinz' beam-steering technology proved a revelation for Lusk. "Renkus-Heinz steering technology forced me to change the way I do my designs," he admits. "I'm kind of old school. I've been doing this for about 30 years. I believe that the fewer moving parts you have in a project, the more reliable it's going to be. The IC2 is quite powerful, the sound is very clear, and with its precise beam-steering, we were able to cover everything with just two stacks and a total of four speakers. With a traditional approach, we might have needed 25 speakers—a lot more moving parts. Steering technology allowed me to keep it simple at St. Columban's, and the results have been exceptional."

"We're delighted with the new sound system," confirms Father Baca. "Our sanctuary was constructed so that no member of the congregation is seated more than 100 feet from the main altar, and there are no pillars, so everyone can see. Now everyone can hear too."



**Rodeph Shalom Renovates
Historic Synagogue with
Renkus-Heinz IC Live**





Philadelphia, PA... Founded in 1795, Rodeph Shalom is the oldest and largest Jewish congregation in Philadelphia. Its historic building in the heart of the city, built in 1928, has recently undergone major renovation, including a new sound system featuring Renkus-Heinz Iconyx IC Live ICL-FR steered arrays and IC212S-FR subwoofers.

With general contractor Intech Construction handling the overall building renovation, the congregation brought in acoustics, audiovisual, and vibration consulting firm Acentech to design the new system, along with audio/video systems supplier Philadelphia Sound Productions.

Rodeph Shalom's sanctuary seats about 1,400 and includes a large balcony area. The walls are gorgeously painted with gold leaf dating to the building's original construction, and soar to a domed ceiling towering 60 feet above. The synagogue hosts a wide range of speakers and events, from small ceremonies to packed High Holidays services. Sabbath services are contemporary, with nine or more musicians and sometimes a choir. So the new system had to deliver full-range music as well as clear, intelligible speech.

"The biggest challenge was the shape of the space and the dome," explains Acentech Senior Consultant Perry Artese. "The room is very live, and we had to deal with cancellation under the dome and a lot of flutter echo. We studied the acoustics, and the reverb time was not bad but the speech transmission index ranged from 0.51 to 0.55, which is just fair, so it was hard to discern speech."

"The old horn-loaded sound system created too much splash and echo," adds Philadelphia Sound's Walter Mosetter, who handled the system programming and interfacing. "We weren't looking for volume so much as clarity and consistent coverage, without over-energizing the room."

Because of aesthetic and architectural considerations—the building is on the National Register of Historic Places—acoustic treatment was unfeasible. Fortunately, beam steering provided the solution.

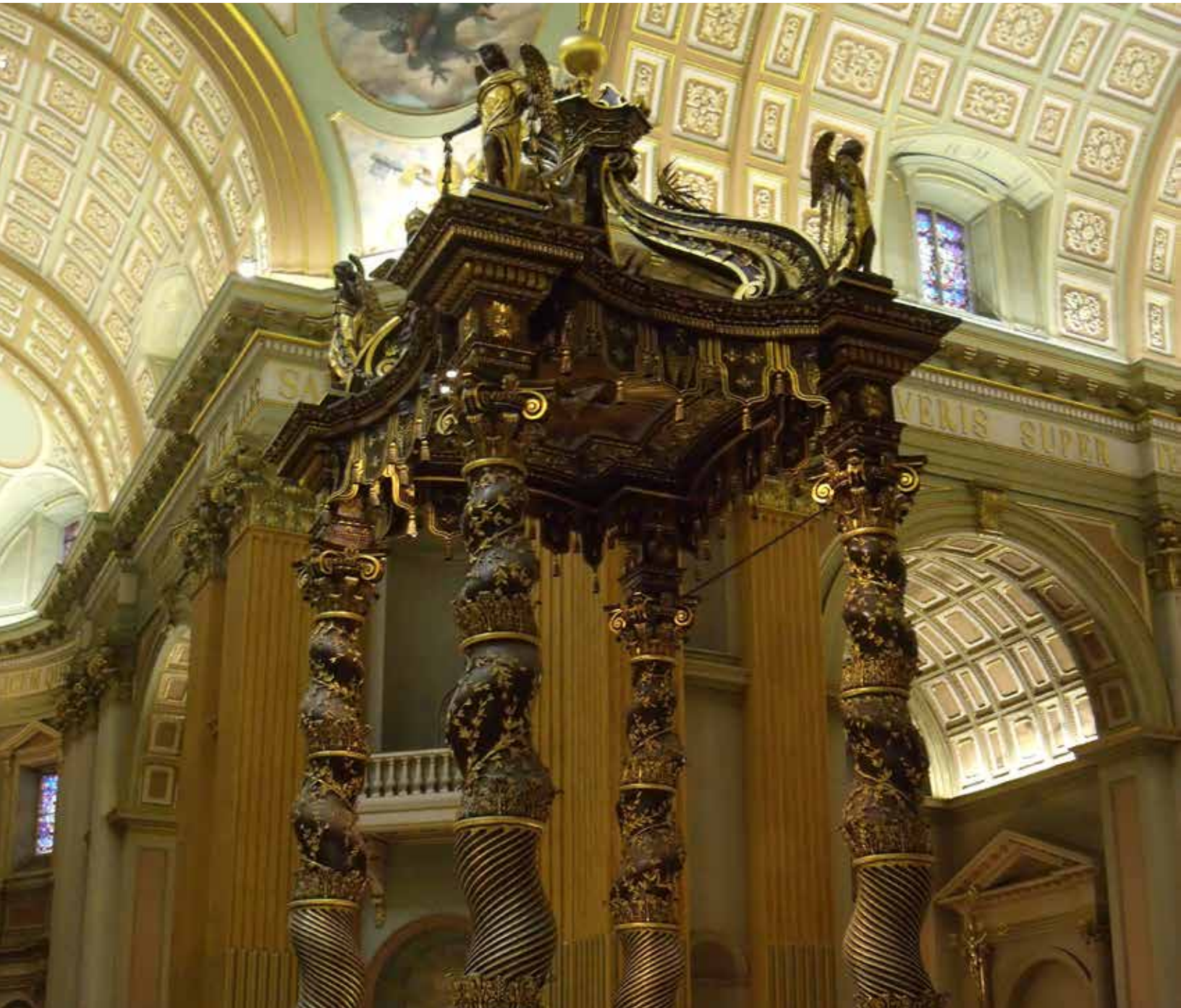
"We tested several systems," recalls Mosetter, "and what we found with the Renkus-Heinz IC Live was that not only did it sound better, but the beam-steering technology gave us much more control."

"A lot of issues went away with beam steering," adds Philadelphia Sound Senior Project Manager Raymond Stokes, who designed the wiring and power layout—and also mixes weekly services for Rodeph Shalom. "We could place the sound precisely, eliminate reflections, reduce overall volume, and get clarity and coverage everywhere."

The team opted for a pair of Renkus-Heinz ICL-FR triple stack arrays. "The acoustic models showed us we could achieve a considerable SPL throughout the sanctuary," recalls Artese. "The triple stacks gave us more than enough power and even more control over the beams than a double stack. The two IC212S-FR subwoofers are used for some events but often the arrays are more than sufficient." DSP is provided by a BSS Soundwave London system.

The loudspeakers are mounted to steel columns. "The columns provide enough offset that they look like the speakers belong in the space instead of being stuck on a wall," notes Mosetter. "This worked with the aesthetics of the architecture so everyone is happy, and it let us place the speakers optimally, making tuning the system easier."

The team's hard work and research paid off for Rodeph Shalom. Walter Mosetter sums it up: "It was a challenging project and a challenging space, but the Renkus-Heinz IC Live system was really an ideal solution."



MONTREAL'S FAMED CATHEDRAL SOUNDS GLORIOUS WITH ICONYX

Montreal, QC, Canada... If you seek inspiration and perhaps a dose of humility, you might visit Montreal's magnificent Marie-Reine-Du-Monde Basilique Cathedrale (Mary Queen of the World Cathedral Basilica). The interior may not be quite as grand as the Vatican's St. Peter's, after which the cathedral was modeled,

but the gorgeous, 3 million cubic-foot building is a true gem. Inaugurated on Easter Sunday 1894, it was the first building in Montreal to cost more than one million dollars—so expensive that fundraising and construction took 24 years.



Like other large Catholic churches with vaulted ceilings, a transept, and many hard surfaces, the acoustics are challenging. The building's old sound system was not up to the task. "The old system used traditional columns and was very outdated," relates Jean Giroux, Director General of systems integrator Siscom, Inc. "It exhibited a lot of comb filter effects and poor directivity. Our challenges for the new system were to provide uniform coverage and clear intelligibility, using the minimum number of speakers, and to account for reverb times of more than four seconds in the 500 Hz to 2 kHz frequency range." Siscom's solution: Renkus-Heinz ICONYX digitally steerable line arrays.

Giroux was one of the first contractors in the world to install Renkus-Heinz beam-steered arrays, so he knew the technology well. "I visited the Renkus-Heinz booth at the 2004 AES show, read their brochure about plans for new steerable column arrays, and told them I wanted some as soon as they were operational," he recalls.

"I got one of the first models—the serial number was something like 00006—and demonstrated it at a big basilica between Montreal and Quebec City. We experienced for the first time how a sound beam can be directed like a light beam, and it was amazing! They bought a system right way. We've been installing Renkus-Heinz digitally steered systems ever since."

For Mary Queen of the World, Giroux's team designed a system based on ICONYX IC16-R-II digitally steerable line arrays, which feature eight 4-inch coaxial transducers, each with three high-frequency tweeters. "We experimented with two IC32s," Giroux notes, "but it was not possible to cover the two arms of the transept and also cover the nave with adequate uniformity. So we installed six IC16-R-IIs for the main system: one in each arm of the transept, two at the crossing of the nave and transept, and two close to the front, at the mid part of the nave. With beam steering, the system produced uniform coverage with minimal reflections."

Two more IC16-R-IIs were installed at the back wall, under the organ balcony and choir loft, to reinforce the choir. "Sound coming from the altar area goes through the six IC16s in the main system," explains Giroux, "but when the choir sings, their voices are reproduced by the rear IC16s beneath the choir loft, so it sounds realistic." A small amount of sound is delayed and sent to the speakers that cover the left and right transepts. A BSS Soundweb London Blu-series DSP handles the processing and speaker management.

The difference between the old sound system and the Renkus-Heinz system was dramatic and immediate. "When we completed installation in 2009, Cardinal Turcotte, who was the archbishop at the time, said the difference was 'like day and night,'" Giroux confirms. "More recently, we installed an ICONYX system in the Notre-Dame Basilica in Montreal. In fact, there are four Catholic basilicas in Montreal, and we've installed ICONYX sound systems in all of them!"

First Presbyterian Church of Greensboro

CHOOSES RENKUS-HEINZ ICONYX FOR HISTORIC SANCTUARY

Greensboro, NC.... Founded in 1824, First Presbyterian Church of Greensboro, North Carolina serves a congregation of over 2,700, with 3 pastors and a staff of 40. Its beautiful, historic sanctuary, built in 1928, seats 1,560 and features an organ with more than 6,800 pipes.

In 2012, the church embarked on a \$15 million renovation to its sanctuary, including a major upgrade to the sanctuary sound system. For the A/V upgrade, First Presbyterian called on systems integrator Audio & Light of Greensboro and system designer Curtis Kasefang of Theatre Consultants Collaborative, based in Chapel Hill, NC.

Designed in the Southern French Gothic style, the sanctuary is in the traditional form of a cross. It presents a 160-foot-long center aisle and an 85-foot ceiling with lots of angles, as well as dual lofts with

pews, a rear balcony that is 33 feet above the floor, multiple alcoves, a pair of 64-foot-long transepts, and plenty of glass and hard surfaces. The choir sits in pews that are perpendicular between the pulpit and lectern areas. The room is stunning but the acoustics are complex.

Services are traditional (contemporary services with a worship band are offered in the adjacent building), and the extremely live acoustic environment works well for choir and organ music. But sermons and other speech have been hard to hear without a high-quality sound system.

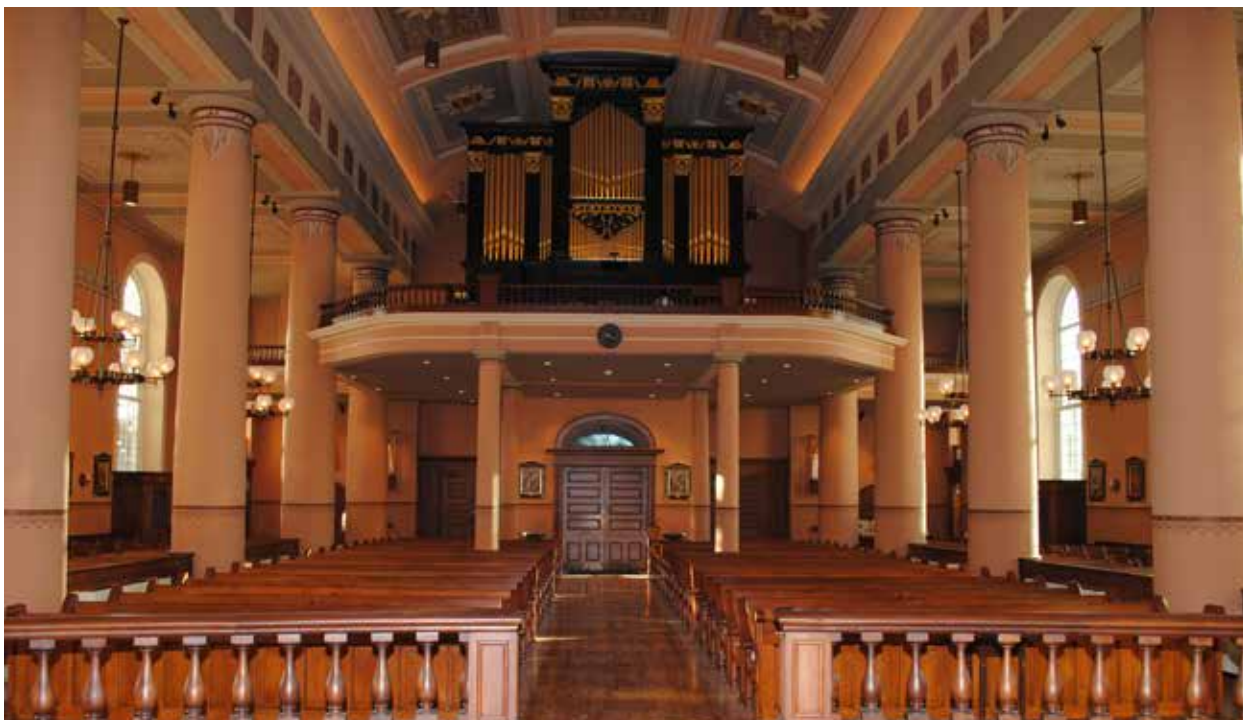
"The previous system consisted of three horns, high up in the rafters," notes Audio & Light Sales Engineer Brent Everhart. "It was typical of systems installed in the early '80s but it was not a good solution for spoken word."

For the new system, TCC's Kasefang chose a pair of Renkus-Heinz IC32-R-II loudspeakers. A pair of IC16-R-II columns is configured to cover the back seats and rear balcony, while a second pair of IC16-R-IIs cover the altar area. Two IC8-R-IIs cover the lofts.

"The Iconyx loudspeakers' ability to precisely steer beams of audio exactly where we needed it made all the difference," says Everhart. "It enabled us to provide clear, highly intelligible sound, despite the complex acoustics of the space."

The results were well worth the effort. "The client is extremely pleased with the sound system," says Everhart. "Now the congregation worships in a gorgeous sanctuary with sound quality to match."





Renkus-Heinz Iconyx Brings A New Tradition to Old **St. Louis Cathedral**

St. Louis, MO... Consecrated in October of 1834, the Old St. Louis Cathedral was built in the Roman Catholic tradition of grand, highly reverberant worship spaces. Known formally as the Basilica of St. Louis, King of France, it was the first cathedral built west of the Mississippi River. Today, it stands in the shadow of the Gateway Arch. As part of a major renovation, the archdiocese engaged St. Louis-based Tech Electronics to address the sanctuary's ongoing audio issues - most notably a lack of spoken word intelligibility and an outdated, inefficient PA system.

"The Cathedral has been known as acoustic nightmare for many years," explains Tony Badamo of St. Louis-based Tech Electronics. "When we heard they wanted to upgrade their audio system, I knew immediately that Renkus-Heinz Iconyx was the right solution for the space. The natural reverberation that makes the organ and choir sound so amazing, also makes the human voice difficult to understand. Iconyx digital beam steering enables us to overcome that conflict without a lot of visual distraction."

The entire sanctuary is covered by two IC24-R-II columns, mounted beside two structural columns on the wall behind the altar. With its low profile design, Iconyx integrates seamlessly with the church's classic architecture, and the columns' custom paint job helps them virtually disappear in plain sight. "Any other solution involves hanging large, boxy speakers in the sanctuary,

usually with acoustical treatment in the room," Baldamo observes. "In most cases, it creates a visual distraction without really addressing the intelligibility issues."

The two Iconyx columns are aimed in crossfire fashion to the opposite corners of the sanctuary. Using the system's RHAON software, Badamo created a series of audio beams to provide focused direct coverage throughout the room, while avoiding unwanted reflections off walls, balcony facings, windows, and the classic vaulted ceiling.

"Iconyx enables us to create a custom coverage pattern that is amazingly even in every seat," reports Badamo. "You can actually sit in a pew directly behind one of the huge structural columns and understand every word perfectly."

The church's audio makeover also includes a pair of Renkus-Heinz ICX7-II steered array columns, delivering clear, full-range sound to the altar without the visual distraction of floor wedge monitors. To provide a direct monitor feed to the balcony choir loft, Badamo selected full-range, 2-way Renkus-Heinz TRX81 loudspeakers.

For Tech Electronics, solving the audio issues of this historical landmark with Iconyx beam-steering technology is a source of pride. "Based on our experience in traditional churches, Iconyx steerable arrays are our go-to solution," Baldamo concludes. "They just work."

Renkus-Heinz Iconyx Gen5 System Enhances

Basilica of the Immaculate Conception



Waterbury, Connecticut... The Northeastern U.S. offers many beautiful churches, from Gothic-style buildings to meetinghouses. But a true European-style church like the stunning Basilica of the Immaculate Conception in Waterbury, Connecticut, is a rarity. Because it's an architectural gem, explains systems engineer Peter Scandone, Jr., president of New Haven systems integrator PASCOM Sound, Inc., the aesthetic challenges of installing a new sound system in the Roman Catholic basilica were even greater than the acoustical challenges.

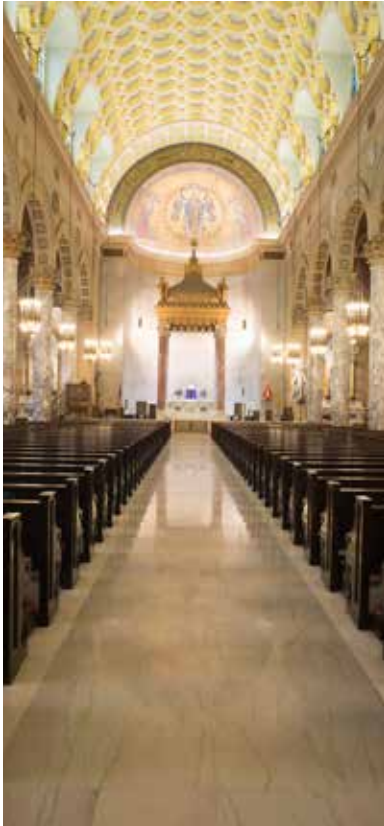
The demanding aesthetic and acoustical requirements were key reasons Scandone chose a Renkus-Heinz Iconyx Gen5 IC32-RN digitally steered line array as the heart of the new system. "I've been working in the Basilica of the Immaculate Conception for more than 25 years," Scandone begins, "and when we finally got a chance to put our own system in place, a Renkus-Heinz steerable array was clearly the best choice. I've used Iconyx in the past, and the Iconyx Generation 5 speakers are a great product. There's no other loudspeaker I would have chosen for the basilica." Scandone sourced

the system from Cardone Solomon & Associates, Inc., of Northport, New York.

The IC32-RN is a powered, coaxial system that employs 32 4-inch, low-frequency transducers, each with 3 tweeters. Up to 16 steerable beams can be individually shaped and aimed from a single column using powerful software-controlled DSP.

A single IC32-RN array, placed stage left and mounted to a large column 30 inches in diameter, covers most of the seating in the main nave. "We normally would prefer to use two IC32-RNs," he notes, "But the space around the altar is not symmetrical, and we didn't have the right situation for a left-right pair. As it turns out, we didn't need a second array. One Gen5 IC32-RN was fully up to the challenge. And it was simpler because we didn't have to account for arrival times from two arrays."

While the basilica's new IC32-RN is visible, its custom beige color and slim, low-profile form enable it to blend with its surroundings—of great importance where aesthetics are a huge consideration. "We not only needed a



system that looks and sounds good," Scandone recalls, "we had to work with layers of marble and decorative columns while being as minimally invasive as possible. Just surface-mounting one IC32-RN array to a column required extreme care. But we accomplished our goals."

Scandone is greatly impressed with the performance of the new Iconyx Gen5 arrays. "Earlier Iconyx generations sounded very good," he hastens to point out, "and the drivers are the same in Gen5. But it has new amplifiers and new DSP, and it sounds even better. The IC32-RN's intelligibility is outstanding, even at 120 feet away in a reverberant space with almost four seconds of delay."

The job was made easier by Renkus-Heinz' new RHAON 2 system management software. "RHAON 2 is a dream," Scandone enthuses. "It's very user friendly when you're setting beam directivity, and it renders much faster than the first-generation RHAON. The software allows us to squeeze every bit out of the system, maximizing performance."

Although the IC32-RN provides excellent coverage for the main nave, the basilica's new system also had to cover the transept and fill a few angles that even a digitally steered array can't reach. "For those areas, we chose a series of passive Renkus-Heinz ICX7-II to serve as fills so we could have a good match with the sound quality of the IC32-RN," notes Scandone. "With an all-Renkus-Heinz system, we could easily bring the voicings into alignment." The ICX7-II is a mechanically steered column array with four four-inch woofers and three four-inch full-range coaxial drivers, delivering up to 117 dB SPL, with a 66-foot (20m) throw.

A basilica is designed to inspire, and the Basilica of the Immaculate Conception certainly does that. Now, thanks to its new Iconyx Gen5 system, its parishioners are inspired to worship without being distracted by poor sound. "The install was a complete success, and the client is delighted," Scandone concludes, "and that's what matters most."



Renkus-Heinz Brings Light to East Sunshine Church

Springfield, MO... Sunday services at East Sunshine Christian Church are all about singing along. The church's contemporary worship style is based around four part acapella harmonies, led by the group onstage and accompanied by anyone in the congregation who cares to join in.

East Sunshine's 1500-seat sanctuary is big, bright, and welcoming, and Sunday services are well attended, but the church had

struggled for some time with an inefficient sound system. As Worship Minister Randy Wray explains, poor sound and inconsistent coverage had an impact on the congregation. "We rely on people in the congregation being able to hear their part," Wray observes. "When it's muddled and there's no distinction, it's very hard to sing and appreciate the four-part harmony."

That all changed thanks to a major renovation of the sanctuary, includ-

ing a new sound system featuring Renkus-Heinz ICONYX Gen5 digitally steered array loudspeakers, designed and installed by Sensory Integration AV of Springfield, Missouri. Sensory President Darren Smith says the room presented some interesting challenges.

"It's a very wide room, with a 60-foot peak in the middle and a very large rear wall," Smith begins. "The previous system really didn't provide the vocal intelligibility they



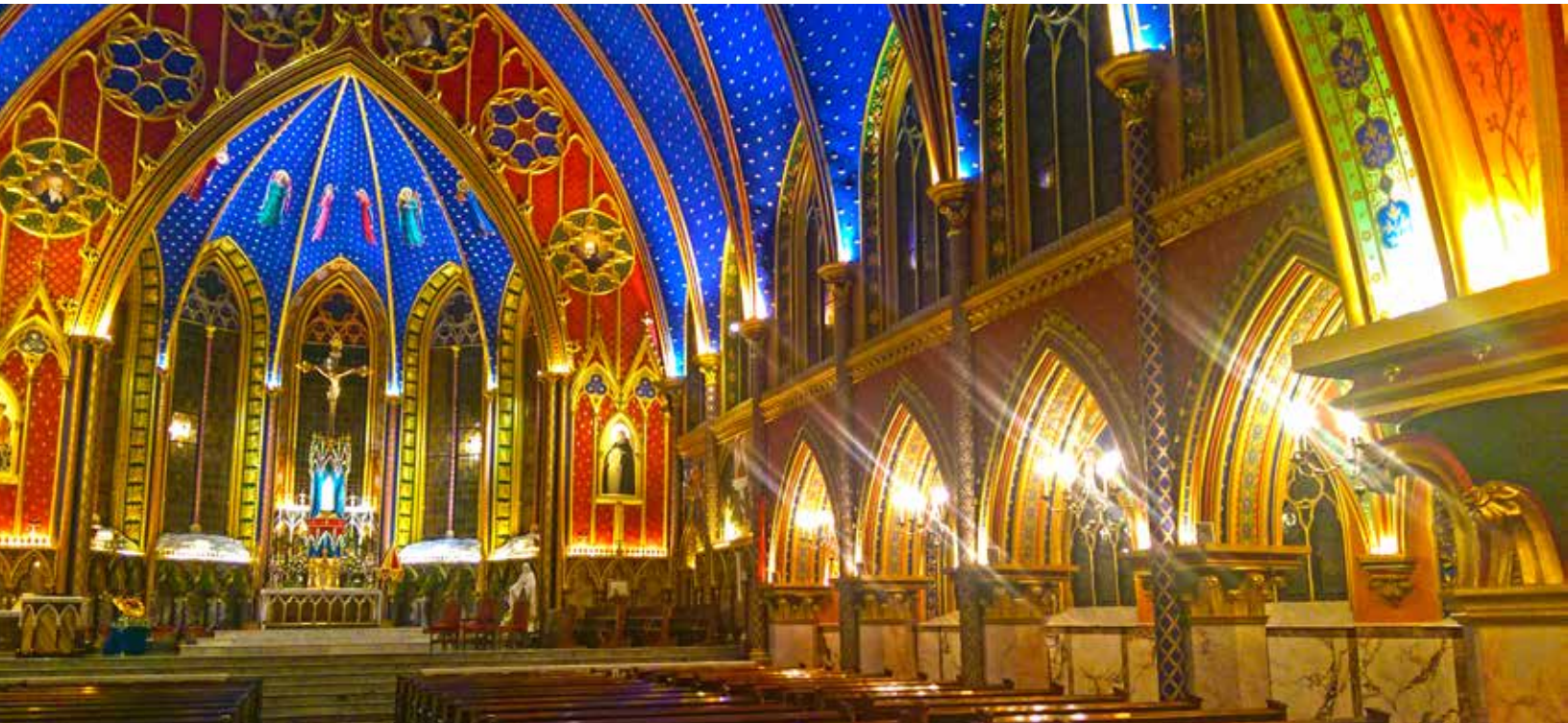
needed, and coverage was very inconsistent. We've actually done multiple demos of different line arrays in this room, and could never really achieve the coverage we needed."

Wray agrees. "The best way to describe the old system was 'muffled.' There was really no intelligibility. It also really mattered where you sat – some people complained they couldn't hear, and others said it was too loud."

Sensory Integration's solution was to create a left-center-right system using a pair of IC Live ICL-FR-N columns to the left and right of the stage and a dual IC2 array with two IC2-FR systems in the center, cut into the top of the proscenium. "The Iconyx beam steering gave us the ability to steer the sound away from the back walls, dramatically reducing reflections and increasing intelligibility. The L-C-R configuration also gave us excellent,

consistent coverage – you can sit anywhere in the auditorium and get great sound."

Randy Wray sums it up: "With the previous system, we could actually get away with weaker singers onstage. As soon as I heard the new system, my first thought was that we need to get better onstage, because people are going to hear everything."



WORLD-CLASS BRAZILAIAN BASILICA Features Renkus-Heinz

Sao Paulo, Brazil ... Built less than ten years ago, Sao Paulo's stunningly gorgeous Basilica Nossa Senhora do Rosario boasts Gothic-style architecture inspired by such medieval grand cathedrals as Notre Dame and Saint Chapelle in Paris. Its detailed ornamentation also is reminiscent of the finest European cathedrals. More than 1,200 pilgrims visit the basilica each month.

The interior of the basilica is very reverberant, with complex acoustics, so it was no small feat to design and install a suitable modern sound system. The system had to be visually unobtrusive yet deliver clear, intelligible sound everywhere. Diego Nascimento Brito and the team at systems integrator AMI Music of Sao Paulo met the challenge with Renkus-Heinz Iconyx technology.

"Masses at the basilica are very traditional, with no instrumental music but a lot of Gregorian chant, along with spoken word," explains Brito. "To handle the main part of the room, we mounted a pair of Renkus-Heinz IC16-RII to the columns. From there, we could steer multiple beams to cover the room while minimizing the effects of the many reflective surfaces."

With a building that is an awe-inspiring work of art, it was imperative that the sound system be as invisible as possible. Brito had Renkus-Heinz customize the paint so

that the slim, low-profile IC16-RIIs were the same shade of crimson as the walls. If you don't know where to look, you probably won't see them.

The corridor presented a special challenge. But, says Brito, "the IC7-IIs proved an excellent solution for the corridor, as well, thanks to their relatively short throw." The AMI team installed a pair of stacked IC7-IIs on either side of the front of the corridor, beneath the arches (four IC7-IIs total). A delayed pair of IC7-IIs was mounted further down the corridor.

"The combination of the IC16-RII main pair and the ten IC7-IIs has worked perfectly," Brito reports. "The client says that everything is fantastic, they love the system, and they want us to put a Renkus-Heinz system in the sacristy as well. People from other local churches have come to the basilica to check out the new sound system. Everyone has been very impressed!"



CCF CHURCH

Massive Sound for a Massive Hall

Manilla, Phillipines.... Founded in the early 1980s, CCF (Christ's Commission Fellowship) has grown from a 40-member evangelistic bible study group to become one of the world's mega-churches, with membership in the tens of thousands and numerous satellites across the globe. Over the years, the church has moved several times as its numbers have outgrown its seating capacity, and in May of 2013, CCF opened the doors to its new world headquarters. CCF Worship and Training Center's 750,000 square foot building is home to the church's offices and school, a youth and sports center, a 10,000-seat chapel, and a 2,000-seat overflow hall.

Audio for the massive space was designed in part by Vance Breshears of the San Diego, CA offices of Acoustic Dimensions, and installed by Manilla-based Joint Venture Sound, Light, and Entertainment Concepts. The main system comprises 36 Renkus-Heinz STLA/9R line array loudspeakers. Front fill is provided by 40 Sygma Series SG81-2R compact 8-inch two-way loudspeakers, with 12 DR18-2R dual 18-inch subwoofers covering low frequency reinforcement.

The smaller (relatively speaking) 2,000-seat overflow hall is covered by a system of 16 CF101LA-52R compact modular point source line array speakers, with 26 more SG81-2R cabinets covering front fill. Four DR18-2R subs handle the bottom end in the room. Renkus-Heinz Senior VP Ralph Heinz and engineer KK Tan assisted with commissioning the system.

"The new CCF church headquarters is a breathtakingly beautiful architectural space, and Renkus-Heinz is proud to have been selected to provide the sound for their new, state-of-the-art chapels," remarked Ralph Heinz.

RENKUS-HEINZ IC² STEERS **GROVE CITY CHURCH** IN RIGHT DIRECTION

Grove City Church of the Nazarene – known to congregants and locals as The Naz – has built a large and diverse congregation in this Columbus suburb. The church offers a mix of both contemporary and classic worship services, as well as hosting many conferences and concerts from touring Christian artists.

The Naz's 2800-seat sanctuary has long struggled with sonic issues, including poor intelligibility and uneven coverage, and the church was more than ready to upgrade their sound system. As Technical Director Matt Groves explains, the evolution of the church's worship style dictated the change. "Our church was 51 years old this past July. A few years ago we decided to transition to a more edgier type of worship, while also keeping the classic form for people who prefer that. So now we run two different types of services – a classic service and a more contemporary one. While our old point-source system was adequate for the classic service, we needed something more powerful for the contemporary service."

Groves and front of house sound engineer Doug McLaughlin under-

took the job of researching possible solutions. "We looked at several major loudspeaker brands and invited several in to do demos for us," he recalls. "They all sounded fine, but the Renkus-Heinz IC2 really stood out. They demonstrated the beam steering by putting us up in the balcony with the IC2 cabinet on stage. We could hear it just fine. Then he opens his laptop and says, 'Watch this,' and steers the speaker digitally so it's hitting us directly upstairs. All of a sudden, boom, there it was, with unbelievable clarity. I looked at my front of house engineer and we both said, 'That's the one.' It was the coolest thing."

The system, installed by Tech Art Production of Columbus, comprises a left-center-right, dead-hung configuration, with three IC2-FR modules in the center flanked by

five more on either side. Each full-range IC2-FR module contains four 8-inch speakers and four vertically aligned one-inch high frequency drivers. To deliver the bass needed for the church's powerful contemporary presentation, the arrays are supplemented by six DR18-2R powered subwoofers, hung in two groups of three between the main IC2 arrays.

Like most contemporary houses of worship, musicality and intelligibility were both primary concerns in selecting a sound system – full-spectrum fidelity for powerful musical performance, and the clarity in spoken word that's so critical in delivering the message. Groves says the IC2 system delivers on both counts. "The music sounds amazing, and the spoken word is crystal clear in every seat, even under the balcony. The IC2's digital steering enabled us to aim a beam down to hit the front rows and another to cover beneath the balcony. And we have totally eliminated the



slap-back echo from sound bouncing off the balcony facing.”

The early Sunday service is the classic presentation, with an 80-voice choir, 20-piece orchestra, plus a rhythm section. Thirty minutes after that service ends, the room is reset for the contemporary service, with the choir loft walled off and the stage reconfigured. There is also a hybrid service on Saturday. The system’s advanced RHAON control software can instantly recall multiple configurations for each service’s different demands.

“The contemporary service is a pretty high octane and edgier presentation that includes a rhythm section, six vocalists, a whole lot of bass, and is very guitar driven,” says Groves. “The traditional service needs less bass reinforcement, which we have set up in the RHAON software as a preset. Both sound fantastic from every seat in the house.”

The Renkus-Heinz IC2 has proven to be a perfect fit for the Grove City Church of the Nazarene. “From the first service onward, we’ve gotten nothing but compliments on the system,” says Groves. “The senior pastor is immensely pleased with it. It’s easy to differentiate everything in the mix, the sermon is perfectly clear, and we have plenty of power to get that rock concert feel when we need it. We couldn’t be more pleased with the system.”



Woodside Bible Church's Newest Campus Opens with VARI Ai

Lake Orion, Michigan ... From modest beginnings, Woodside Bible Church has grown to become a cornerstone of the metropolitan Detroit community, with twelve campuses serving Southeastern Michigan's Contemporary Christian population.

Woodside's Lake Orion campus was originally founded in 2009 as a portable church, operating out of an area middle school. Recently, the church acquired a new building for the Lake Orion campus to call home, outfitting the space with a Renkus-Heinz VARI Ai variable array loudspeaker system. As Bob Sullivan, Principal of Advanced Lighting and Sound in Troy, MI, explains, the

85,000 square foot former retail store was an unusual and challenging space.

"Because it was a former retail space, there were a number of structural changes that needed to be made," Sullivan begins. "There were issues with bringing power and other infrastructure up to code, as well as a need to accommodate an existing set of escalators between floors."

The sanctuary seats around 750 people. "The shape is oddly rectangular but somewhat asymmetrical to accommodate the escalator," continues Sullivan. "As always, budgets were part of the challenge, but we were



able to allocate for some minimal acoustical treatment, which helped tighten things up a bit.”

The system is comprised of two arrays of VARI Ai Variable Array loudspeakers, each utilizing two VAX101i-15/12 and two VAX101i-22/12 boxes. “We chose the VARI Ai for its ability to shape the coverage for the room, in both the vertical and horizontal planes. With the VARI Ai’s variable coverage patterns, we were able to configure a system using fewer cabinets than we would have needed with a standard line array. That flexibility was essential in meeting the room’s acoustical challenges, as well as the project’s budget constraints. The ease of installation and the system’s clean design were a plus for the church.”

The system also includes a Yamaha QL5 console at Front of House, with Rio 3224 and Rio 1608 Dante-compatible I/O racks. An Aviom personal monitor system using D800 Dante connectivity also connects to the Dante network. Crown XT i amplification completes the package.

“Advanced Lighting and Sound has worked with Woodside Baptist Church for more than ten years, providing audio, lighting, and video for all their campuses and workshop spaces,” Sullivan concludes. “This was one of the more challenging projects, and thanks to the VARI Ai system, one of the most rewarding.”



Renkus-Heinz IC Live
Solves Intelligibility Issues in
**DODGE CITY
CATHEDRAL**

Dodge City, KS ... Dodge City's Cathedral of Our Lady of Guadalupe is a stunning architectural achievement that embodies the classic disparity between traditional and contemporary worship. With its soaring ceilings and open, 270-degree seating, this 1400-seat sanctuary creates a wonderfully reverberant sense of musical majesty, but at the expense of the intelligibility needed to deliver the message.

To address these issues in the 12 year-old building, Amos Yost of Montezuma, KS-based Montezuma Sound was contracted to design and install a new sound system. His solution for creating clear intelligibility amid the room's glorious reverb was centered on the IC Live digitally steerable array system by Renkus-Heinz.



As Yost explains, the room's circular design and abundance of hard, reflective surfaces presented a number of challenges, and the existing distributed PA's speakers were aimed almost straight down at the tile floor, creating uncontrolled reflections that exacerbated the room's ringing 3.5-second reverberation time.

"The organ and choir music sounded pretty good, but voice intelligibility was sorely lacking," notes Yost. It was clear that a steerable array system would directly address the room's issues, but because the sanctuary is a circular space, effective deployment would be tricky.

Montezuma Sound's solution was to set up two ICL-FR-DUAL columnar arrays mounted on the walls behind

the altar area, cross-firing to cover the 270 degree seating spread while preserving audience sightlines. This arrangement created smooth, even coverage from the first row to the last, a throw of 120 feet. With twin IC Live columns of 16 speakers each, there was more than enough beam steering flexibility to cover all seating, even those under the balcony, while avoiding unwanted reflections from the windows, side walls, and balcony facing.

Our Lady of Guadalupe features two Catholic services each Sunday. The traditional service is in English and features pipe organ and choir. The second mass is offered in Spanish and features full musical orchestration. This made it clear that the cathedral's new loudspeaker system would require the versatility to not

only provide the desired improvement in speech intelligibility, but also provide a powerful music experience for the congregation. Yost opted to augment the IC Live system with a pair of IC215S subwoofers, installed out of sight behind a grille with the pipe organ speakers.

"The church is very happy with the Renkus-Heinz system," reports Yost. "When we brought it in to demo, the IC Live sounded so clear right out of the box, it blew them away. In fact, they didn't want us to take it back! When we performed the final installation, we barely applied any system EQ at all. The music sounds great for both worship styles, and the spoken word is now clearly understandable. It proved to be the ideal solution."





Your Message. Focused.

With 6 different steerable product lines including everything from compact, visually unobtrusive columns to large format steerable line-arrays, only Renkus-Heinz has the tools necessary to place sound where it's needed most, providing the intelligibility, clarity, and power you demand without the reverberation and reflections of traditional sound systems.

From contemporary high-energy services to traditional worship services and small congregations to mega churches, the Renkus-Heinz Iconyx family of products allows you to focus on what really matters: the message.