CASE STUDY

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TRANSFORMATIVE PROJECT AT NEW WESTERN UNIVERSITY VENUE HIGHLIGHTS THE IMPORTANCE OF CAREFUL PLANNING AND EXPERT INTEGRATION

REFERENCE SERIES ENSURES SEAMLESS VOICE AND MUSIC REPRODUCTION IN PROJECT WITH UNIQUE ARCHITECTURAL CHALLENGES

Founded in 1878 in London, Ontario, Western University is one of Canada's top research-intensive universities. Western recently crafted a state-of-the-art special events space in the new Ronald D. Schmeichel Entrepreneurship and Innovation Centre (SEI). The multipurpose room was designed to host a wide variety of functions, ranging from keynote speeches to musical performances. However, the room's architecture, which features extensive concrete, glass and high ceilings, presented significant acoustic challenges.

Western University's Classroom Technology Group partnered with leading experts in audio integration, ultimately selecting EM Acoustics' Reference Series as its core solution. With the space intended to host high-profile speaking events, ceremonies and presentations, the emphasis was on implementing a system that would provide clear and uniform speech reinforcement throughout the SEI building's main event space, along with ensuring high-quality music reproduction. A secondary concern was that the audio system needed to blend seamlessly with the space's modern architectural design. Chris Jordan, Manager and AV Systems Architect for the Classroom Technology Group at Western University, oversaw the project.

The choice of EM Acoustics' Reference Series loudspeakers was made following an extensive evaluation that included EASE modelling of various systems from multiple manufacturers. The modelling revealed that the Reference Series were by far the best fit for the space. "The advanced engineering of the EM Acoustics Reference Series was already a known quantity to me, and the range stood out for this project because of its consistent voicing, excellent pattern control and flexible design options," says Dieter Kunz, Design and Engineering Consultant at DKE.

The support provided by EM Acoustics and their distributor, Contact Distribution, was another significant factor. Kunz notes, "Contact Distribution's responsiveness and the direct communication with the EM Acoustics team was enormously helpful."

The system design centred on EM Acoustics' Reference Series loudspeakers, including one R12 large-format 3-way precision passive loudspeaker at the centre of the cluster, flanked closely by two R10s. A compact S-18 high-power reflex subwoofer was positioned behind the cluster for additional low-frequency support.

Two DQ10D 4-channel advanced system amplifiers power the setup, with one amplifier dedicated to the primary operation and the second serving as a backup, crucial for hosting live events. The system also employed EM Acoustics' variable angle mounts and a custom rigging solution by DKE designed to attach securely to a heavily reinforced concrete beam above the event space.

The SEI building's architectural features posed various challenges for the project. The space includes reflective surfaces such as glass and concrete, a high ceiling, and asymmetrical seating arrangements, all of which complicate audio design. Additionally, the placement of large LED displays and a central podium required the loudspeakers to be mounted above the displays due to limited placement options.

"EASE modelling helped calculate coverage requirements and addressed how to minimise excess energy on the nearby second-floor glass surface whilst still providing adequate coverage to seats on the floor below," says Kunz. "The rigging solution was also critical, as the installation required custom mounting hardware to attach to the concrete structural beam containing embedded rebar." A structural engineering firm reviewed and approved the designs to ensure safety and compliance.

"The engineering of the Reference Series waveguide options made it possible to create a compact cluster that met both the acoustic and aesthetic requirements," remarks Kunz. "The flexibility offered by providing two different interchangeable HF horns with two different coverage patterns was great to work with in conjunction with the EASE modelling."

This project represents a significant milestone for Western University, showcasing its commitment to high-quality infrastructure and technology. "Projects like this set an important precedent for how universities can successfully integrate complex AV systems," emphasised Bill Coons, Director at Contact Distribution. "Under the direction of Chris Jordan, all stakeholders knew exactly what was expected of them, the level of articulation and the timeframes the work needed to be completed in. As such, nothing fell through the cracks."

"During our initial testing of the EM Acoustics' cluster, we took immediate notice of the strikingly flat response and even coverage that was realised in the venue," confirms Chris Jordan of the Western University Classroom Technology Group. "The overall sound quality exceeded our expectations. The tonal consistency throughout the room was well beyond what one might usually experience. Although the primary use case was to support detailed voice reproduction, the exceptional performance of the EM Acoustics boxes meant that both voice and music could be featured in top form, which is fantastic."

The completed installation has exceeded expectations. The Reference Series delivers outstanding performance, providing clear and detailed sound for both speech and music. "The result is truly remarkable," confirms Kunz. "The DQ10D amplifier factory presets for the individual loudspeaker models produced an initial look of disbelief at the analysis screen during testing. I had never seen response curves this smooth before tuning. After some basic adjustments, the remaining EQ to fine-tune the system response were minor."

The SEI building can now confidently step into a future of hosting a variety of events, from academic lectures to cultural performances. The project demonstrates the value of thoughtful planning, expert collaboration and high-quality engineering. EM Acoustics' Reference Series proved to be the ideal solution for the challenging space, delivering exceptional sound quality and maintaining an unobtrusive visual profile.

"We have since met our completion target for the larger AV project as of the end of March 2025 and it exemplifies a unique, collective effort," remarks Chris Jordan. "I would be remiss if I didn't acknowledge those who have been instrumental partners along the path and express my thanks to Dieter Kunz of DKE Engineering, Bill Coons of Contact Distribution, the good folks at One Diversified, Joel Theatrical, King Components, Malcom O'Brien of Arcon Electric, Cody Ruthman of University Machine Services, Hayman Construction, Dan Heald, Matt Vantfoort, Tyler Vollett, and the rest of my team in the Classroom Technology Group for all of their support in making this vision a reality."

The Kit

2 x R10
2 x DQ10D
1 x R12
1 x S-18

About EM Acoustics

EM Acoustics is a leading independent British manufacturer of high-end professional loudspeaker systems. An innovative, robust, and free-spirited organisation, EM has an outstanding reputation in live entertainment, experiential, installation and theatre sectors. We were established in 2002, and the company's 26,000 sq. ft factory in Dunsfold, Surrey, UK, houses woodworking, cabinet assembly, preparation and paint spraying, final assembly and quality control. Our extensive R&D facility enables the pursuit of both free-thinking acoustics research and the rapid development of commercially proven, market-leading solutions. The EM Acoustics range encompasses line array, point source, subwoofer and stage monitor loudspeakers, in addition to complementary DSP amplifiers. Our products are found in the most prominent theatres, concert halls, and live performance spaces worldwide. We're unashamedly devoted to keeping things simple, using natural materials, avoiding complicated processing where it's not needed, supporting sustainable ideals wherever possible, and designing out anything that gets in the way of emotional engagement. For further information please visit www.emacoustics.co.uk

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