

CASE STUDY - HOSPITALITY | SHIMANO BICYCLE MUSEUM





DELIVERING THE HISTORY AND FASCINATION OF BICYCLES

Shimano is a world-renowned manufacturer of bicycle components and fishing tackle. Just outside of Osaka, Japan, the company was founded in Sakai, a city known for its craftsmen skilled in iron processing, casting and molding. Sakai companies have produced a wide variety of steel products, including swords and flintlock rifles.

The Shimano Cycle Development Center is a Public Interest Incorporated Foundation that was established by Shimano. As a company that values Sakai's manufacturing heritage and vision, they opened the Bicycle Museum Cycle Center in 1992 — now named the Shimano Bicycle Museum — to contribute to the local community and promote the bicycle culture. Guests visiting the museum learn about how bicycles have changed the world throughout history by providing engaging, dynamic and hands-on content. This includes a sound and video theater, a collection of bicycles from around the world, and information that teaches visitors about bicycle mechanics and how they work.

Masahiko Jimbo, a counselor at the Shimano Cycle Development Center, worked on the launch and relocation of the museum. "We aim to convey the 200-year history of the bicycle, the technology behind it and the bicycle culture rooted in people's daily lives," he explained. "To achieve this, we wanted to keep our displays as simple as possible and concisely communicate the information with the audience."

Rather than providing a large amount of information through packed displays and description panels, Shimano wanted to create a space with easily understood content that encourages people to think about bicycles in their own way. To achieve this, they had numerous meetings with NOMURA Co. Ltd., their interior and display design construction company.

COMPLETING AN IMMERSIVE EXPERIENCE WITH SOUND

Realizing a fully immersive experience that ignited the visual and auditory senses would best capture visitors' interest, Shimano's vision required an audio solution to complement the museum's aesthetics. After receiving the design concept and acoustic request, NOMURA called Bose Professional who proposed a system using the Modeler sound system software.

Visitors first arrive at the History Theater on the first floor where seats are arranged in a semi-circle, staircase orientation in front of a large screen. Here the audience watches a short movie about the history of the bicycle from the first concept to its present form. For this theater, Panaray MSA12X steerable line array loudspeakers were specifically selected for their slim design. This allowed them to blend in with the room's aesthetics while providing outstanding voice intelligibility and tonal clarity yet still avoiding reverberation. The MSA12X loudspeakers digitally direct the sound above the seating area towards the center



of the screen. This suppresses reflections from the rear wall resulting in a clear audio experience.

Next, visitors move through the Panorama Theater that expands the entire second floor, learning about the dreams and passions that inspired various bicycle inventors. Eliciting a sense of emotional appreciation for the bicycle's transformation and timeline, the room holds numerous historical bicycles on display with six curved walls that show era-specific images and digital content.

“I could feel the visitors’ excitement and emotions as they came out of the Panorama Theater. I believe we reminded them of the history and excitement of what riding their bicycles mean ... Bose Professional [has] a long brand history and rich audio heritage, and creating authentic and inclusive sound is in its DNA.”

— Masahiko Jimbo
Counselor
Shimano Cycle Development Center

For this uniquely shaped space, the AMM108 and EdgeMax EM180 loudspeakers were strategically positioned in five locations, supported by two DesignMax DM8C-SUB subwoofers. EdgeMax loudspeakers feature proprietary Bose PhaseGuide technology with high-frequency compression drivers, combining the room-filling coverage patterns typical of larger surface-mount loudspeakers with the architect-preferred aesthetics of an in-ceiling installation.

The surround sound system needed to immerse visitors at each stage, with different audio recordings at each section — all without bleeding over and disturbing the other areas. EdgeMax EM180 loudspeakers achieve this efficiently, and the in-ceiling mounting made it possible to project images on the entire wall without obstacles. In addition, the subwoofers provided the low frequency range throughout the space adding the rich reverberance.

Progressing to the Gallery area, visitors learn about the bicycle's parts and structural features through a hands-on experience. Finally, back on the first floor, the Museum Square is used to show videos on Sakai's history with the space being versatile enough to host a variety of seminars. Installing ArenaMatch Utility AMU208 and DesignMax DM5C loudspeakers, the room now boasts even and clear sound without feedback. A variety of ControlSpace EX-1280 and ControlSpace ESP-880A digital signal processors control the audio system throughout the museum, providing the networked, flexible configuration needed for the range of spaces.

“The aesthetics matched very well with the square, symmetrical design that architects like,” shared Yutaka Tsuda, technical director for NOMURA. “In terms of sound quality, they work extremely well for speech. When conveying artwork information, I take into consideration matching the sound quality capabilities of the loudspeakers to the characteristics of the narrator’s voice. The Bose Professional loudspeakers have a wide range tolerance and can easily accommodate both male and female voices.



They are also very easy to use in facilities where it is important to convey information."

BOSE PROFESSIONAL INSPIRES BICYCLISTS THROUGH SOUND

Visitors can now experience and appreciate the bicycle's history, inventors' passion and the possibilities created regarding people's mobility in the past and future thanks to a holistic solution of video and sound.

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The Shimano Bicycle Museum will continue to highlight the passion for manufacturing in Sakai that has been nurtured over its long history and the fascination with the bicycle's boundless freedom. The renewed and updated curated content will deliver these thoughts in video and audio, and will surely accelerate the curiosity and excitement of visitors for a very long time. ■

SYSTEM COMPONENTS

Panaray MSA12X steerable line array loudspeaker

AMM108 multipurpose loudspeaker

ArenaMatch Utility AMU208 loudspeaker

ControlSpace ESP-880A sound processor

ControlSpace EX-1280 digital signal processor

DesignMax DM5C loudspeaker

DesignMax DM8C-SUB subwoofer

EdgeMax EM180 loudspeaker

PARTNER: **TARO ASHIHARA ARCHITECTS**

Architectural Design and General Direction

Mr. Hitoshi Kobayashi, Director and Osaka Office Representative, (Currently CEO of KOO-Associates)

PARTNER: **TAKENAKA CORPORATION**

Construction

PARTNER: **NOMURA CO. LTD.**

Exhibition design and construction



PANARAY **MSA12X**

Panaray MSA12X is a self-powered digital beam-steering loudspeaker that enables improved room aesthetics, with outstanding vocal intelligibility and tonal consistency. The proprietary Articulated Array transducer configuration allows wide, 160° horizontal coverage throughout the room, and MSA12X's modular design allows building of vertical arrays using 1-3 units. Dante digital audio network interface comes standard for connection with other Dante-enabled products over Ethernet-based networks.



EDGEMAX **EM180**

EdgeMax EM90 in-ceiling premium loudspeaker features nominal 180° horizontal coverage, specifically designed for in-ceiling mounting near room corners, eliminated audio dropout in difficult yet important spaces. Proprietary PhaseGuide technology with high-frequency compression drivers combine the room-filling coverage patterns typical of larger surface-mount loudspeakers with the streamlined aesthetics architects prefer.



DESIGNMAX **DM5C**

With coaxial two-way drivers, the 60-watt DesignMax DM5C loudspeaker offers rich lows and clear, intelligible highs — along with premium aesthetics that complement any commercial sound installation. The DM5C features a two-way 5.25-inch woofer and 1-inch coaxial tweeter mounted within the Dispersion Alignment system, delivering a frequency range of 65 Hz - 20 kHz. The in-ceiling DM5C is installed easily via QuickHold mounting arms.



AMM108 MULTIPURPOSE LOUDSPEAKER

The AMM108 multipurpose loudspeaker delivers a remarkably powerful audio experience for both performers and audiences with its passive, coaxial two-way design with a 3-inch compression driver, 8-inch low-frequency transducer, and high output: 128 dB peak. Its proprietary Beamwidth Matching Waveguide ensures superior sound quality, delivering consistent frequency response, clarity, and projection across the coverage area.



Bose Professional serves many different markets, delivering great sound in venues all around the world — performing arts centers, theaters, places of worship, stadiums, restaurants, schools, retail stores, hotels, and corporate buildings.

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