

New Expo Center Relies on High Performance Sound System

CARLISLE EXPO CENTER

Carlisle, PA

The Challenge

- Ceiling heights vary from 12 feet at the east and west walls to 18 feet in the center
- Business and ticket offices, lobby and queue area, seminar room, full-service kitchen and truck dock area
- Wall materials range from glass to sheet rock, concrete block and metal panels
- 40-year-old manufacturing plant remodeled to fit state of the art convention center
- 22,378 square feet expo floor (167 feet by 134 feet); 30,200 square feet for entire 192 feet long by 157 feet wide single-floor building
- Two indoor zones and one outdoor zone

The Solution

Located about 25 miles west of Harrisburg, PA, the recently completed Carlisle Expo Center cost \$2 million to build and was planned to serve the needs of a broad range of users. To illustrate, shortly after opening, the Center was the venue of choice for an auto auction and a wedding reception. During the recent anniversary of the attack on Pearl Harbor, WWII veterans gathered to recognize their service at a ceremony at the Carlisle Expo Center.

For the Chamber of Commerce Business Expo, 94 exhibitors used booth spaces. Other shows hosted at the Center include a spa show, a fly-fishing fair, a bicycle show and a motorcycle show. Serving all of these diverse events emphasizes the demand for sound system performance and flexibility.

The Carlisle Expo Center was recognized by the *Central Pennsylvania Business Journal* as the third largest non-hotel meeting space in Central Pennsylvania. Carlisle Productions, which owns and operates the Carlisle Expo Center, has made Carlisle a household name for over 30 years, producing car shows that draw 500,000 attendees.

The Center relies on a mix of construction materials. One of the Center's walls is entirely made of windows and an epoxy surface covers the concrete floor while the HVAC conduits extend through the rafters. The speakers hang from the rafters that support the steel-panel ceiling.

Despite the acoustic challenges of the architectural design, the solution to achieving great sound was to use first-rate components and an installer who knew how to approach a challenging installation like this and get the greatest degree of flexibility from the system. The Carlisle Expo Center managers hired Fibertech Communications, known for its customer service, integrity, quality work and reliability to plan and install the sound system.

CONVENTION CENTERS



Multi-Zone System

System Components

Jason Knight, President of Fibertech Communications, and Bogen sound specialists analyzed the audio needs along with building characteristics and discussed the site conditions and requirements with Tom Flannery, New York-Metro Regional Sales Manager with Bogen Communications. Bogen offers a Free Design Service for prospective customers to help make installation easy and provide the sound needed to satisfy customer needs. Knight and Flannery suggested 48 NEAR® OPS1W Orbit Pendant Speakers in white and three Bogen amplifiers. These included the 250-watt Gold Seal Series Amplifier (GS250) for the main amplifier, a 15-watt Telephone Paging Unit (TPU15A) Amplifier, and a 2-watt Utility Amplifier (GA2).

Integrating the telephone paging and CD player into a two-zone (indoor) main speaker system was easy to install. One outdoor horn makes up a third zone. At the center of the system is a multi-zone Universal Telephone Interface (UTI312). Its programmability results in high flexibility for demanding applications. The UTI312 is a multi-zone system suitable for use with amplified or self-amplified equipment. The audio pair can drive up to 150 amplified speakers per zone.

The Result

"The sound system quality is excellent and very flexible," said Tim Bowman, Carlisle Productions Facilities Director. "We can adjust the sound system for voice or music, and we enjoy listening to a broad range of music even when there's no event," he added. Those who visit the Carlisle Expo Center will clearly benefit from the music and public address announcements thanks to Fibertech and the Bogen sound equipment selected for this installation.

BOGEN

Product Highlights

Speakers

The NEAR ORBIT Pendant Speakers are perfect for the Carlisle Expo Center because ceiling heights vary from 12 to 18 feet throughout the facility. To achieve even, balanced sound, the speakers were hung 12 feet apart and 12 feet from the floor throughout the hall. By limiting the distance from floor to speakers to 12 feet, the event attendees can hear better while the demand for maximum speaker volume is minimized. "We selected the Bogen speakers and amplifiers because they blend well together and it's a flexible system that integrates music and telephone paging," said Knight. Speakers are tapped to 4 watts, according to Flannery.

Sound quality remains consistently high throughout the Center because the NEAR ORBIT pendant speakers were specially designed to provide exceptional bass in free space without the bass reinforcement speakers get when mounted in ceiling or corners of rooms. The stable, high-definition, metal-alloy woofer cone and polycarbonate tweeter provide 140-degree wide dispersion for broad, even coverage and contribute to their crisp sound quality. In addition, the 6-1/2 inch metal-alloy cone delivers highly detailed sound.

The NEAR ORBIT Pendant Speakers (available in black and white) use a patented magnetic liquid suspension (MLS) technology to precisely center the voice coil in the magnet gap. This eliminates the need for voice coil spiders found in conventional speakers and allows for longer speaker excursion. Since voice coil spiders can cause distortion, it's an improvement to remove them. Thanks to MLS technology, as the audio becomes louder centering becomes more accurate. The metal cone and MLS also improve heat dissipation from the voice coil, which increases power handling and reliability.

Eleven Bogen Easy Install® Surface-Mount Ceiling Speakers (SM1EZ) were installed in the office area, and they are powered by a Bogen Telephone Paging Amplifier (TPU15A) as a separate zone. For exterior emergency pages, a Self-Amplified Horn Speaker (SAH15) was installed as a separate zone, and is powered by the Multi-Zone Telephone Interface (UTI312) which has a 1A, 24V DC, built-in power supply.

The Self-Amplified Horn Loudspeaker (SAH15) located on the Center exterior provides extended low frequency response from a 1.6-inch diameter voice coil and 3.54-inch, 12-ounce magnet. Also, the horn's flare shape results in a controlled sound dispersion over the full frequency range for maximum intelligibility. To ensure long life and trouble-free service, the speaker features a weatherproof, UV-protected plastic housing.

Amplifiers

Bogen's Gold Seal Series public address amplifiers come in a wide range of power outputs, from 35 to 250 watts, and include many useful features including a 10-band graphic equalizer. Audio Enhancement circuitry returns the high frequency harmonics that are lost through the handsets and speakers in the Center's offices. This results in peak intelligibility while preventing miscommunication and resulting frustration.

Zone Controllers

Because some messages to be broadcast should only go to staff (inside, outside or both) while others need to reach consumer visitors, the Center needed a three-zone paging system. The Bogen Multi-Zone Universal Telephone Interface (UTI312) has a capacity for up to 150 amplified speakers with volume control. This interface includes many helpful features to make communication easy and powerful. These include adjustable limiter control, zone volume controls and background music source inputs assignable per zone.

Quick and Easy to Install

Installing the Expo Center sound system began in late summer and was completed in early fall but fine-tuning the system only required three Fibertech technicians about two hours because the speakers and amplifiers were easy to adjust, according to Knight. In addition, each Easy Install Surface-Mount Ceiling Speaker (SM1EZ) requires only three easy-to-do actions, taking less than one minute to install, saving labor costs for buildings where ceiling tiles are used. Also, Easy Install® Speakers comply with NFPA National code 160b that allows speakers to be installed in plenums and other air handling spaces. These speakers also comply with UL-2043.

Specifications:

- 48 NEAR OPS1W Orbit Pendant Speakers (white)
- 48 CK10W Cable Suspension Kits (white)
- 11 SM1EZ Easy Install Ceiling Speakers
- 1 UTI312 Multi-Zone Universal Telephone Interface with 1 ZX3 3-Zone Plug-in Expansion Module
- 1 GS250 250-Watt Gold Seal Series Amplifier
- 1 TPU15A 15-watt Telephone Paging Amplifier
- 1 GA2 2-watt Utility Amplifier
- 1 SAH15 15-watt Self-Amplified Horn

Key Products



OPS1W NEAR®
ORBIT Pendant Speakers (white)



SM1EZ
Easy Install Ceiling Speakers



GS250
250-Watt Gold Seal Series Amplifier



UTI312
Multi-Zone Telephone Interface

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