

# Washington, D.C.'s Newseum a technophile's dream

by Darren Murph | April 11th 2008 at 10:29 am



Interested in taking a peek at a few Christie DLP projectors, Stewart screens, Tannoy speakers and Bag End subs? What if a few HD flat-panels and a "4D" theater are thrown in? Astoundingly enough, all of the aforesaid equipment and much, much more has been installed at the soon-to-open Newseum in Washington, D.C. Put simply, the venue "traces the history of news reporting from the 16th century to the present," and needless to say, it does so in impressive fashion. There's no telling exactly how many Benjamins Electrosonic burned through installing the plethora of high-end gear, but with 250,000 square feet of technology-laced area, we're thinking a trip (for "education," of course) may be in order.

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We interrupt this program to bring you a news bulletin just in to our studios. We do not hear those words often, but when we do, we stop whatever we are doing and take notice because we know something important has happened somewhere - down the street, across town, two states away or halfway around the world - something that may impact our lives. When we listen, we receive news, the end result of a chain of activity that brings important events from anywhere in the world to our attention, sometimes in only minutes.

Have you ever wondered how that news bulletin got to your television, radio or newspaper? Wonder no more. An unusual museum, the Newseum, brings to life the business of gathering and disseminating news. Described as "the world's only interactive museum of news," the Newseum provides visitors with an experience like no other, a trip behind the scenes of television, radio and print journalism.

Located in Arlington, VA, across the Potomac River from Washington, D.C., the Newseum provides visitors with a sampling of the information that the free press of a free nation distributes every day, 24 hours a day, and also gives them, for a few moments, at least, the opportunity to become a TV news personality or a big-city newspaper editor.

"By taking visitors behind the scenes, we hope to forge a deeper understanding of the role of news and a free press in our lives," said Joe Crubel, executive director and senior vice president of the Newseum, which is funded and operated by Freedom Forum, a nonpartisan, international foundation dedicated to free press, free speech and free spirit.

To better appreciate the rich, 5,000-year-old history of news, visitors can relive great news stories of all time through multimedia displays and news memorabilia. Included among the Newseum's artifacts are a pair of Paul Revere's glasses, one of only nine existing 18th-century wooden printing presses, a camera used by Mathew Brady to photograph the Civil War, famed World War II columnist Ernie Pyle's typewriter, the mic Edward R. Murrow used to broadcast back to America his vivid descriptions of the bombing of London, and a set of color TV studio cameras that brought Walter Cronkite's evening newscasts into millions of American homes for two decades.

To help visitors grasp the scope of the modern-day process of newsgathering, the \$50 million, 72,000-ft superscript 2 (6,700 m superscript 2) facility employs a wide range of technological wizardry. The Newseum uses 21 projectors, more than 100 computers, 100 laserdisc players, about 200 monitors, 25 Beta tape machines, 63 touchscreen terminals, about 20 projection screens (including one that is 126 feet or 38 m long), more than 80 miles (129 km) of video, audio, telephone and power cable, and dozens of loudspeakers.

Two of the Newseum's more popular features involve immersion technology, where visitors can step in front of TV cameras and mics and be television newscasters or reporters, appear on a magazine cover, investigate a news story or, via interactive touchscreen computer programs, edit a news paper's front page.

Electrosonic Systems, Burbank, CA, designed the blue screen in the Newseum's Interactive Newsroom. A visitor, taking on the role of a TV reporter, stands in front of the blank blue screen in the newsroom. Using chroma key technology, a background image, such as the front steps of the Capitol building, can be inserted onto the blue screen. Then, the reporter, standing in front of the blue screen, reads his or her news report from a teleprompter. Via a computer editing process, the scene is recorded digitally, inserted between a standard opening and closing, and the reporter is magically transformed into a TV network reporter talking about the latest news from Capitol Hill. For a small charge, the novice reporter can obtain a VHS copy of the TV debut.

Perhaps the most impressive feature of the Newseum is its gigantic, 126-foot (38 m) video news wall. The wall is a gallery of the day's news. Visitors experience the pulse of real breaking news from across the country and around the world to better understand its enormous scope and universality. The 10.5-foot (3.2 m) news wall takes center stage, featuring a panorama of the day's news gathered via satellite feeds, cable and computer networks.

The kaleidoscopic video images and graphics play across a seemingly endless wall, shifting, overlapping and expanding in an electronic collage of information, imagery and sound. Among the displays are the front pages of 70 different newspapers from across the nation and around the world so that easy comparisons can be made of how news is played, and a news zipper above the front pages displays current headlines from the Associated Press as they are distributed to news outlets around the world.

The video news wall is enormous, composed of nine Stewart Film screen screen panels, displaying images from nine high-resolution Hughes-JVC ILA projectors mounted on the ceiling in front of the wall. (The configuration of the space precluded rear screen projectors.) The video news wall mixes live TV news broadcast feeds received via satellite with in-house videotaped productions. Each of the nine projectors can show a different image or can be split into quadrants to produce a total of 36 images. Alternatively, a seamless panoramic image can be displayed across the entire screens, causing the screens to merge into one huge screen.

"The job required simultaneous hardware and software development," said Jim Uplike, director of engineering for the Newseum, formerly with NBC Worldwide News. "It required an understanding of video, audio and data processing systems integration, and we needed a high-quality video picture and clear, crisp sound. Electrosonic Systems was chosen because of its worldwide experience in large-scale video imagery and custom hardware and software systems."

The challenge was formidable. It required processing many different sources in real time, standardizing them to create uniform picture and audio quality and then sizing, positioning, sharing and transitioning the images among nine projectors. The secret to making it all work is Electrosonic's new system, WORKSURFACE, which took the inventive concepts of Newseum designer, Ralph Applebaum Associates of New York and turned them into spectacular reality.

WORKSURFACE is an image processor that accepts and combines scanned display data of different resolutions from various sources, including video, graphics, and HDTV. The unit converts the data to digital format and a hardware-based "convolver" resizes each image with each pixel calculated using weighted pixel values from the original image. Electrosonic developed the processor, which it describes as a "pixel picker." It selects pixels from the input images to make one composite output image. The system can project any of the images, including full-motion video, in any size without losing picture information or distorting spatial or temporal resolution.

Each of the nine projectors for the video news wall has its own WORK-SURFACE unit, which supports image resolutions up to 1,600 in infinity 1,200. The overall video news wall display is managed by a system that controls the video sources, processors and programmed audio system.

A full-time Newseum production staff creates formal programs and templates for the live broadcasts. While the display can run either pre-taped programs or live programming, the emphasis is on comparative live broadcasts. In addition to the images, the WORK-SURFACE system also controls a dynamic audio system. It ensures that the audio heard at any one location in the viewing gallery matches the image at that location or in the case of flying images, the system makes sure the audio flies to match the image.

To deliver accurate, time-aligned sound to enhance and enrich the experience of the video news wall, Electrosonic selected BAG END Loudspeaker Systems loudspeakers as the main program loudspeakers. In all, Electrosonic used 15 BAG END TA-12 loudspeaker systems to cover mid- and high-frequency audio and 12 BAG END S18-E, single 18-inch (457 mm) subwoofer loudspeaker cabinets driven by nine BAG END ELF-M2 (extended low-frequency) controllers to handle the job.

BAG END was chosen based on its reputation, according to Electrosonic project manager Dan Laska. "We had never used BAG END loudspeakers prior to this, but the reputation of its ELF (extended low-frequency) subwoofer system was what caught our attention. After testing the loudspeakers, we decided to use BAG ENDS for the entire system because they were such a good match."

The BAG END ELF-M2 subwoofer system provides low distortion, extended low-frequency response in a compact, highly efficient design, down to 8 Hz. The ELF processor features stereo high-pass output with CVR limiter and dual integrated ELF output with Coequalment. ELF cutoff frequency and high-pass frequency are internally adjusted with plug-in resistors.

"News today is a video and audio industry," Uplike said. "Our peers take video and audio quality very seriously, and their expectations for this museum were very high. I'm happy to report the reviews have been glowing."