



All Photos courtesy of The Citadel

The Citadel Military College Enlists Extron AV Solutions to Educate Business Majors at New Bastin Hall

“Knowledgeable, friendly support, solid reliability with long end-of-life product update cycles, and money-saving integrated solutions that pack interfacing, switching, amplification, and control into a single unit are key reasons why The Citadel has been an Extron school for a long time.”

Mary Chapman Bates
CTS-D, Deputy Director of Multimedia Services
The Citadel, The Military College of South Carolina

Founded in 1842, The Citadel is one of six senior military colleges in the United States. Its campus occupies 300 acres on the Ashley River near downtown Charleston, South Carolina. The academic programs are organized into five schools: Business, Education, Engineering, Mathematics, and Humanities - social sciences and science. The Citadel currently educates about 2,300 undergraduate students comprising the South Carolina Corps of Cadets. These students live and study under a classical military system that stresses leadership and character development. Another 1,000 students attend The Citadel Graduate College, a civilian evening and online program offering undergraduate, graduate, and professional degrees.

Challenges

After two years of construction, Bastin Hall, which houses the Tommy and Victoria Baker School of Business, opened for the Spring 2021 semester. The 44,000-square-foot facility is the first new academic building constructed on the school's campus in 30 years. The building is a \$25M investment in the latest educational space concepts and technology, designed to foster creativity and collaboration. State-of-the-art audiovisual teaching tools are part of that investment.



The public entrance to Bastin Hall is the Commons, a spacious venue where students gather to study, collaborate, meet, and attend group events. A circular stock ticker high above reflects the building's business focus. A videowall displays general interest messaging. The AV system includes a projector and screen that lower from the ceiling and a powerful sound system.

Design Solution

Mary Chapman Bates, Deputy Director of Multimedia Services at The Citadel, oversaw design and installation of the building's audiovisual systems. Burlington, North Carolina based Camcor, Inc. performed detailed AV design and installation. Extron supplied AV switching, distribution, and control equipment throughout the building, as well as digital matrix processors and speakers for audio in select venues.

The Commons Hosts Large Presentations with a Simple, Effective AV System

The Commons is a large, high-ceiling space that is part entry lobby, part student collaboration and meeting area, and part presentation venue. It has a videowall for public information messaging and a large projection screen and laser projector for presentations. An Extron IN1808 IPCP MA 70 scaling presentation switcher is the backbone of the AV system for this room. It performs AV signal switching, audio signal processing, and AV system control. It supplies the ceiling-mounted projector with 4K video selected from a variety of sources, including wired HDMI connected via DTP T HWP 4K 331 D wallplate transmitters, wireless HDMI from portable devices delivered via a wireless screen mirroring access point, and wired HDMI from the videowall system.

The switcher's line audio outputs drive two digitally steerable line array loudspeakers mounted on either side of the screen, each with eight

powerful built-in amplifiers. An Extron DMP 64 digital matrix processor selects and mixes audio from up to six wireless mics for delivery to the switcher. The switcher's integrated IPCP Pro control processor allows users to control all AV functions, lower and raise the projection screen, and deploy the projector lift, all from a TLP Pro 725M 7" Touchlink® Pro touchpanel mounted on the rear wall.

A Range of Standard Classroom Configurations - All Outfitted with a Versatile AV System

Four standard classrooms of different physical sizes and configurations are equipped with AV capabilities anchored by DTP Crosspoint 82 4K scaling presentation matrix switchers with integrated IPCP Pro control processor and 100-watt mono amplifier. The classrooms feature two laser projectors that receive 4K video and control from the switcher via DTP CATx cable. Students hear clear sound via nine ceiling-mounted SF 26CT Sound Field® speakers.

Available AV sources include a document camera, a wireless screen mirroring access point for portable devices, and three wired DTP floorbox connections. The mobile instructor podium also connects via DTP through a floorbox. The podium is equipped with a PC and two touchscreen monitors, plus an HDMI connection for an additional laptop. The podium contains a DA4 HD 4K distribution amplifier and a DTP T SW4 HD 4K switcher to distribute and select the podium's



Standard classroom with tiered student seating.



Standard classroom with single level student seating.



The divisible classroom, shown with the partition open and closed, is equipped with the same AV system as standard classrooms, but with duplicate AV sources and duplicate speaker systems.



AV sources. DTP HDMI 4K 230 Tx and Rx pairs implement some of the DTP connectivity to the main crosspoint switcher. Users control AV system operation through a TLP Pro 725T 7" tabletop touchpanel on the instructor podium communicating with the control processor in the switcher.

Divisible Classroom with Dual AV for Flexible Occupancy

A divisible classroom on the third floor doubles-up on the AV sources contained in standard classrooms. Each side of the divisible room has its own instructor podium, document camera, wireless screen mirroring access point, and wired DTP floorbox connections. Both sides of the room share a single DTP CrossPoint 82 4K scaling presentation matrix switcher. Doubling the speaker complement of a standard classroom, there are 18 SF 26CT Sound Field speakers, nine per side, with all speakers driven by a single XPA U 1002 stereo amplifier. An IPCP Pro 250 control processor is included to handle the additional control needs of the dual spaces.

Hybrid Learning in Classrooms that Record and Stream Lessons

Four classrooms are set up for recording and streaming. In these rooms, a DMP 64 Plus digital matrix processor and a MediaPort 200

HDMI and audio to USB scaling bridge are added to the standard classroom AV system. The DMP 64 Plus switches and conditions audio from boundary mics around the room, a wireless lavalier mic, or wireless tabletop speakerphone mics. The MediaPort 200 connects this audio, plus video and audio from PTZ cameras that capture activity in the room, to the USB port of a PC running the Zoom soft codec application, enabling remote learners to participate in classes via live videoconferencing. The PTZ cameras also send video and audio to the Mediasite® video cloud for storage and archiving, enabling remote learners to stream class sessions anytime on-demand via the school's Canvas® learning management platform.

Dean's Boardroom Equipped for In-Person AV Presentations and Videoconferencing

In the Dean's boardroom, attendees share presentations on a 75" flat panel display. They connect laptops via HDMI cables or they screen mirror from portable devices. A PTZ camera and wireless tabletop speakerphone mics are connected to a PC running Zoom software for videoconferencing. Zoom content is shown on the 75" display. An SW4 HD 4K HDMI Switcher routes content from the sources to the display in response to selections at a TLP Pro 725T tabletop touchpanel connected to an IPL Pro S1 IP Link® Pro control processor.



The rooftop terrace includes an AV alcove with 55" flat panel display and a sound system producing 200 watts of audio. From this angle, the flat panel display is visible at the far end of the terrace.

AV Amenities Complement Panoramic Views of Campus Grounds from the Rooftop Terrace

Informal outdoor gatherings on the rooftop terrace benefit from an AV system consisting of a weather-protected 55" flat panel display and sophisticated audio with mixing capability. Wired and wireless AV feeds are accepted from a connector wallplate, a digital signage source, and a wireless screen mirroring access point. Audio amplification is provided by an XPA 2001 driving two weather-resistant speakers with 200-watts of power. An MLC Plus 100 MediaLink® Plus button panel housed in a weatherproof enclosure controls AV system on-off and sound volume.

Results

It's readily apparent that The Citadel places great value on the power of AV multimedia for education. We've only scratched the surface in this article. Bastin Hall has many other AV-enabled spaces such as their sales labs equipped to record and stream student sales presentations to aid in real-time and after-the-fact reviews and critiques. There is digital signage conveying general interest information in public areas on every floor.

In a multitude of promenades, reading rooms, and other public study areas, people can share ideas on-the-fly on flat panel displays via wired

or wireless connections. Click [HERE](#) to watch a brief video that shows some of Bastin Hall's multimedia-rich spaces.

As Deputy Director of Multimedia Services at The Citadel, Mary Chapman Bates has definite thoughts about the companies that supply AV equipment to the school. She states, "I'm proud and upfront about the fact that we've been an Extron school for a long time." She enumerates some of the reasons for that. "First and foremost, I can pick up the phone and call Extron anytime and I know I will connect with someone who is knowledgeable and is not only happy to help but takes great joy in doing so. That's incredibly hard to find. Equally important, I appreciate that Extron's equipment lasts forever, and they stand behind their products for as long as we use them without invoking end-of-life restrictions or extra charges." Bates also lauds the Extron switchers used in the classrooms as being an integrated solution that saves the school money. "Extron switchers have everything you need to do the job. They support all of our inputs and outputs, contain their own control processors and audio amplifiers, and I love the fact that DTP receivers are built-in, so we don't need to purchase external receivers. That saves thousands of dollars across the many classrooms in the building."

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