



# COMING UP ACES

Towson University's CLA scores with extensive AV.

**BY JIM STOKES**

"Let's figure out what's real and what matters," declared IT Director Michael Bachman. And so he organized a series of collaborative sessions comprised of design, install and manufacturer representatives to determine the best AV system for the newest academic building on Towson University's campus in Towson MD. We'll be highlighting the project here, incorporating challenges and solutions. The study was far from a dry academic exercise. We'll encounter some quite candid comments and lively turns of phrase along the way, like the avoidance of "fear-based marketing" and "future proofing" the AV investment. But, first, let's get our location bearings with a look at the venue itself.

The new College of Liberal Arts (CLA) facility on Towson University's

(TU) campus near Baltimore is the first new building in 30 years. Building design was by the Washington DC office of architecture firm Burt Hill. In turn, CLA will complement the university's historic structures while setting the standard of further projects. Integration of the 250,000-square-foot multistory building's AV comprises two phases: Phase 1, the subject of our discussion here, is completed and functional; Phase 2 is scheduled for completion this Fall.

## Large University

With more than 21,000 students, Towson is the second largest public university in Maryland. As a metropolitan university, TU combines research-

The south side of the New Liberal Arts Building. The complete building features three sections (A, B and C) joined by tall atriums, and is 1/7<sup>th</sup> of a mile long. During and post construction

based learning with practical application. That's our cue to foreshadow the install with a brief example of the intense level of AV support required in the new CLA. Thus, the first floor has three clustered areas for psychology studies totaling about 40 individual rooms. The three fields include various training, activity observations and testing spaces, mainly of children. Of course, we'll further explore this topic and highlight other AV later.

Right now, here's some more perspective on Towson University. Founded in 1866, Towson is recognized as being among the nation's best regional

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public universities, offering more than 100 Bachelor's, Master's and Doctoral degree programs in the liberal arts and sciences, and applied professional fields. Towson is situated on a 328-acre, tree-lined campus encompassing 47 buildings.

## Group Discussion Members

CLA AV provided a field of study in itself. Phase 1 encompassed four floors, which house 14 classrooms, four seminar/conference rooms, two modern language labs, the aforementioned observation areas, a distance-learning center and other spaces. The large quantity of new learning space in this project required a complete review of the campus standard classroom approach.

To determine the building's AV components and distribution systems, a series of collaborative sessions was conducted. They included AV representatives from designer Convergent Technologies Design Group ([www.ctdginc.com](http://www.ctdginc.com)), Baltimore, integrator Lee Hartman & Sons ([www.leehartman.com](http://www.leehartman.com)), Baltimore, as well as equipment suppliers Crestron and Extron. Representatives from Towson University ([www.towson.edu/cla](http://www.towson.edu/cla)) included campus facilities management, the College of Liberal Arts dean, faculty groups and staff members of the office of technology services.

Now let's introduce our interviewees. The task of guiding AV discussions was the bailiwick of Michael Bachman, Towson's Director of Information Technology (IT) and Client Services. In addition to his full-time work, he's also on the adjunct faculty in the computer and information sciences department (see sidebar, "AV from a User's Perspective").

At Convergent Technologies, Paul Corraire was Principal in charge of the design team and Bill Holaday was Project Manager. Representing integrator Lee Hartman & Sons was Regional Sales Manager Quentin Mills.

## Challenges, Concerns

To begin the discussion, Bachman took center stage, providing his over-



A Foreign Language Lab/Classroom.

view of major challenges and concerns, for which design and integrator spokespersons added additional details later. Let's begin with a flashback to a fact-finding session.

"About a year ago, I pulled everyone together for what I called a 'digital roundtable discussion,'" explained Bachman. "We tried to get to the bottom of things. All the major shareholders in this project were in the room, including some people from Extron and Crestron, our facilities people and Bill Holaday from the design firm. Rather than having a 'he said, she said-[situation]', I wanted everyone to hear the same thing at one time."

Bachman noted that it was critical to have partners who were professionals and who worked together well. He had the prime responsibility of managing the project for Towson. "It was vital that the design firm [Convergent Technologies], the integrator [Lee Hartman & Sons] and the architect [Burt Hill] work together and communicate. This was a definite challenge, but we had good partners."

The large quantity of learning spaces in this project required a complete review of the campus standard classroom approach via the aforementioned AV team members' sessions. It was acknowledged that campus staff had a limited amount of resources and ability to support AV expansion, so a central-

ized master control room simultaneously allows room-to-room rebroadcast of audiovisual content, central lecture capture using the Sonic Foundry Mediasite-based system and remote help desk support of the classrooms.

## Two Phases, Two Installers

Going into detail about concerns related to the two-phased AV project, each with a separate procurement process, Bachman pointed out that the first 20 classrooms were installed and are supported by Lee Hartman & Sons. "The second phase's 60 rooms will likely be awarded to another firm," he said. "That means 30% of the building will be under one support agreement, with the remainder under another."

All rooms, however, will have to share a common Crestron interface and identical look and feel; plus, we'll have to cooperate as far as the master control room interconnections.

Knowing what we know now, we should have fought this tooth and nail three years ago and insisted that the same vendor be utilized for both phases. That's #1 on my 'lessons learned' list."

Bachman noted that the industry-wide transition from analog to digital "has been a major concern and a good deal of energy has been spent by the



**Master Control Room at Towson University.**

**From this Foreign Language Lab/Classroom lectern, faculty can control the entire room, including the PC, DVD/VHS player, laptop, iPod, document camera and lights.**

project team trying to make sense which way to go. We've tried to sort out issues ranging from the 'analog sunset' to which format for projector screens will serve us best." (The 16:10 aspect ratio was chosen.) He added, "It has been hard separating fact from fiction: legitimate concerns from fear-based marketing from the product manufacturers. In the end, we settled on something that will preserve most of our analog investment but layer a set of digital capabilities."

In the search for the best AV investment, Bachman noted in particular the efficiency of the Panasonic dual-image projector. "Most paradigms for control-system design are based on one active audiovisual source at a time. In our case, we had to design for two. At the end of the day, it was worth it. Today's students are used to taking in greater amounts of information and sifting through it.

"Being able to present two content streams, such as a DVD movie plus side-by-side internet content or content from the document camera, made for a more immersive classroom experience. Using the dual-image projector gave every classroom this capability, something that previously was available in a handful of campus classrooms lucky enough to have them." Bachman is also fond of WolfVision document cameras and SMART Podium interactive pen displays in the install.

## Room Breakdown

- 10 Typical Classroom
- 1 45-Seat Tiered Classroom
- 3 90-Seat Tiered Classroom
- 1 Distance Learning Center
- 2 Modern Language Labs
- 4 Seminar/Conference Room
- 1 Training Observation & Control Room
- 1 Testing Observation & Control Room
- 1 Activity Observation & Control Room
- 1 CLA Control Room
- 3 Lobby Displays
- 3 Alternative Learning Spaces

## CLA AV Design, Install

AV design perspectives were detailed by designers Corraine and Holaday, as well as integrator representative Mills in the Crestron touchpanel-accessed rooms. According to Corraine, the design process took about 18 months from start to finish. With construction taking about two years, the total AV involvement was 3½ years. The system had been up and running for more than six months at press time.

He affirmed that the spirit of Bachman's future-proofing the AV is inherent in the design, which interfaced analog with digital components. "We included digital infrastructures with optical fiber and digital cabling to support the evolving HDMI and DVI we're seeing now in 2011," he offered. "Basically, in Phase 1, we have analog

classrooms with digital infrastructure that will enable these classrooms to be connected to the rest of the campus, digitally. Then all the classrooms in Phase 2 will be all digital platforms as a minimum standard. Phase 1 was kind of a 'tweener' project in that all the digital [components] from manufacturers weren't there yet. With optical fiber and copper backbone infrastructure, Phase 1 has a good life expectancy and is flexible in signal compatibility." The upcoming master control room discussion will also show the analog-to-digital signal path.

A notable facet of the design incorporated Crestron amplifiers and Extron loudspeakers in various rooms. Convergent Technologies' Holaday explained that this occurrence "varies from project to project. From a support and service standpoint, it's important for the client to have a limited number of suppliers involved in the project. For example, they have a bunch of Extron switchers and converters, and they also use Extron loudspeakers. So, they have a single point of contact for whatever's going on.

## Limiting Suppliers

"On this project then, Towson wanted to limit the number of manufacturers that were involved. We checked out the new Extron loudspeakers before we specified them. And they were real-

ly up to a par with what the client wanted to accomplish." A typical CLA classroom has ceiling SI 26Ts for speech reinforcement and in-wall SI 28Ws for program audio. Similarly, the designer added, "Crestron makes a [good] power amp for the classroom. It's at the right price point, and it's functional for the size of the [particular] room. And that's one less manufacturer." That amplifier drives the speakers in a typical classroom.

Let's now highlight other components in a typical 30- to 35-seat classroom with regard to common equipment also used in the larger 45- and 90-seat classrooms. Each space has a Marshall Furniture custom lectern, which houses all the source electronics that an instructor has to access during class. Those items include a local host computer, laptop input, Blu-ray disc player with region-free software to accommodate worldwide formats, HDTV tuner, interactive pen display and a digital document camera. There's a Shure gooseneck mic at the podium.

All sources can be routed to the Panasonic dual side-by-side projector. "Towson specifically requested that projector because they've used it before and have had good experiences with it," said Holaday. The unit can show multiple images at one time on the Draper screen. As mentioned, imaging is standardized at 16:10 aspect ratio. It was found to be the most flexible size to accommodate varying content dimensions. In addition, there's a Vaddio PTZ camera and an AKG ceiling mic linked to the Help Desk. Connectivity to/from the classroom and master control is via Extron over Cat5.

Holaday pointed out that the design firm tried to emulate the same instructor experience throughout the different-sized classrooms. "When you stand at an instructor station, we don't want the experience to be substantially different. Faculty can move from space to space and not have a learning curve with different system types." The 45- and 90-seat tiered classrooms have a Sabine wireless mic to give faculty freedom to roam while lecturing. The larger rooms also have ADA-compliant assistive-listening systems. A virtual

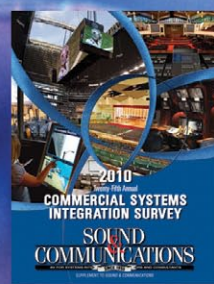
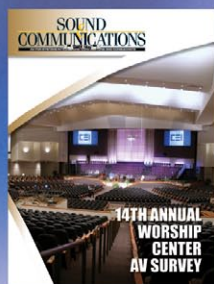
tour of representative CLA rooms can be viewed at [www.towson.edu/classroomtechnology/virtualtours](http://www.towson.edu/classroomtechnology/virtualtours).

## Integrator's Perspective

We'll continue highlighting the classrooms after Quentin Mills, Lee Hartman & Sons, gives the company's perspective on the project. First off, there were challenges unique to the integrator. One was the timing. The job was awarded very late. "It wasn't a case of six months to two months prior; it was a couple of weeks prior

to getting started," declared Mills. "So, there were hurdles in the beginning. Once we got the purchase order from the customer, we had to address all the changed equipment models. That made for some value engineering, if you will, based on the customer's needs."

That aspect was followed by customer education. "In this case, Michael Bachman was thrust into his position of overseeing the building, and audiovisual wasn't his bailiwick. In our case, we really had to take him through the process. That was a big challenge. Olivia



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# Equipment

**Typical Classroom** (see "Room Breakdown" sidebar, page 72)

- 1 AKG C 562 CM ceiling-mounted mic
  - 1 Biamp Nexia SP DSP speaker processor
  - 1 Contemporary Research 232-ATSC HDTV tuner
  - 1 Crestron PRO2 remote-control system CPU
  - 1 Crestron QM-AMP3X80MM 3-channel power amp
  - 1 Crestron TPS-6L 6" lectern-mounted color remote-control touchpanel
  - 1 Draper Access V electric projection screen
  - 1 Extron Cable Cubby lectern surface-mounted cable enclosure
  - 1 Extron Crosspoint 450 Plus 128 HVA 12x8 RGBHV/video, stereo audio matrix switcher
  - 1 Extron CVC200 component/HDTV to RGB converter
  - 1 Extron MTP RL 15HD A twisted pair receiver for RGBHV video, audio
  - 1 Extron MTP T 15HD A twisted pair transmitter for RGBHV video, audio
  - 2 Extron SI 26CT ceiling speakers
  - 2 Extron SI 28W in-wall speakers
  - 1 Extron VSC 500 hi-res computer to video scan converter
  - 1 Marshall Furniture custom lectern
  - 1 Panasonic DMP-BD30 Blu-ray disc player w/region-free capability
  - 1 Panasonic PT-FW300 3000 lumen 15:9 DLP data/video projector w/mount
  - 1 Panelcrafters custom audio/video I/O plate
  - 1 RDL FP-MP1 mic preamp
  - 1 Shure MX412S/C gooseneck mic
  - 1 SMART ID370 17" digital tablet annotation device
  - 1 Vaddio Model 100 PTZ kit pan, tilt, zoom video camera w/in-wall enclosure mount
  - 1 WolfVision Visualizer VZ-9Plus digital document camera
- \* Larger Classrooms (see "Room Breakdown" sidebar) include one 45-seat room and three 90-seat classrooms, each with 1 Sabine SW71-R 1-channel receiver for the lavalier mic in the room.

## Distance Learning Center

- 1 AKG C 562 CM ceiling-mounted mic
- 1 Contemporary Research 232-ATSC HDTV tuner
- 1 Crestron PRO2 remote-control system CPU
- 1 Crestron TPS-12 12" color remote touchpanel
- 1 Draper Access V electric projection screen
- 1 Extron Cable Cubby surfaced-mounted cable enclosure
- 2 Extron CVC200 component/HDTV to RGB converters
- 1 Extron MTP T 15HD A twisted pair transmitter for RGBHV video, audio
- 1 Extron MTP RL 15HD A twisted pair receiver for RGBHV video, audio
- 1 Extron CrossPoint 450 Plus 2424 HVA 24x24 RGBHV/video, stereo audio matrix switcher
- 1 Extron IN1502 2-input video scaler
- 1 Extron VSC 500 hi-res computer to video scan converter
- 2 Extron SI 26CT ceiling speakers
- 2 Extron SI 28W in-wall speakers
- 1 Lab.gruppen C 5:4X 4-channel audio amp
- 1 Listen LS-03-072 assistive-listening system
- 1 Marshall Furniture custom lectern
- 1 Middle Atlantic ERK-4425 82"H equipment rack
- 2 NEC LCD 5220-2-AV 52" LCD data/video displays w/mount
- 2 NEC LCD 5710-2-AV 57" LCD public display monitors
- 2 Panasonic DMP-BD30 Blu-ray disc players w/region-free capability
- 1 Panasonic PT-FW300 3000 lumen 15:9 DLP data/video projector w/mount
- 2 Panelcrafters Custom audio/video I/O plates
- 2 Polycom Eagle Eye hi-def pan, tilt, zoom HD video cameras w/mount
- 1 Polycom HDX 9004 hi-def videoconferencing codec
- 1 Polycom SoundStructure C12 12x12 DSP audio mixer



**Equipment rack in the Liberal Arts Building's Master Control Room, which interconnects the building's A, B and C sections.**

- 1 Polycom SoundStructure C16 16x16 DSP audio mixer
- 1 Polycom PSTN single-line telephony card for SoundStructure series
- 1 Sabine SW72-R 2-channel receiver w/ feedback eliminator
- 2 Sabine SWTVT50-TA4 wireless lavalier mics
- 18 Shure MX392 tabletop mics
- 1 Shure MX412S/C gooseneck mic
- 1 Sony EVI-HD1 pan, tilt, zoom video camera w/mount
- 1 SMART ID370 17" digital tablet annotation device
- 1 Vaddio Trackview instructor pan/tilt/zoom auto tracking camera
- 1 WolfVision Visualizer VZ-9Plus digital document camera

## Modern Language Labs

- 1 AKG C 562 CM ceiling mounted mic
- 1 Biamp Audia Solo audio matrix processor
- 1 Contemporary Research 232-ATSC HDTV tuner
- 1 Crestron PRO2 remote-control system CPU
- 1 Crestron QM-RMC media controller
- 1 Crestron TPS-6L 6" lectern-mounted color remote-control touchpanel w/video preview
- 1 Denon DN-A7100 surround-sound processor
- 1 Draper Access V electric projection screen
- 1 Extron Cable Cubby lectern surfaced-mounted cable enclosure
- 1 Extron Crosspoint 450 Plus 128 HVA 12x8 RGBHV/video, stereo audio matrix switcher
- 1 Extron CVC200 component/HDTV to RGB converter
- 1 Extron MTP RL 15HD A twisted pair receiver for RGBHV video, audio
- 1 Extron MTP T 15HD A twisted pair transmitter for RGBHV video, audio
- 2 Extron SI 26 surface-mount speakers
- 4 Extron SI 28W in-wall speakers
- 1 Extron VSC 500 hi-res computer-to-video scan converter
- 1 Lab.gruppen C 10:8X 8-channel audio amp
- 1 Marshall Furniture custom lectern
- 1 Panasonic DMP-BD30 Blu-ray disc player w/region-free capability
- 1 Panasonic PT-FW300 3000 lumen 15:9 DLP data/video projector w/mount
- 1 Panelcrafters custom audio/video I/O plate
- 1 Shure MX412S/C gooseneck mic
- 1 SMART ID370 17" digital tablet annotation device
- 1 TASCAM CDRW900 compact disc recorder w/MP3 playback
- 1 Vaddio Model 100 PTZ kit pan, tilt, zoom video camera w/in-wall enclosure mount

Mills, our Office Manager, really spent a lot of time going back and forth with change orders and making sure the customer got what they intended.”

There were also physical and mechanical challenges. Within the building’s structure, there weren’t enough pathways between floors to accommodate all the cabling required. “That was an oversight somewhere along the line. So they had to open up some spaces for cable pathways.”

The next discovery was that the master control room needed some mechanical changes. Specifically, the power distribution wall box was in the wrong position. Mills pointed out that the rooms are acoustically sound. All rooms have acoustic ceiling tiles. The lecture halls

and some of the conference halls have wall applications, as well.

## Psychology Training

Getting back to room components, Bachman explained that the university’s psychology department has gone from very limited resources to a trio of clustered areas comprised of individual rooms. In this regard, he called upon a background in experimental and physiological psychology. For example, there are informal interview rooms with two chairs and a coffee table for face-to-face discussions with a counselor or a therapist. In contrast, there’s a large activity room with two sides of glass, where larger groups such as children at play are gathered.

“There’s a lot of child psychology,” said Bachman. “We do a large amount of clinical work here, observing how children interact and get along together.”

The testing observation area may involve children with building blocks, which is a more intimate activity. Furthermore, he pointed out that, because the “majority of clients in this clinical setting are children, there’s an enormous amount of infrastructure in there for videotaping, not just for the children’s interactions but also for documentation of these encounters. You’re meeting with someone under 18 and so you don’t want any kind of allegations of improprieties.”

With that background and purpose in mind, here’s a summary of equipment

- 1 WolfVision Visualizer VZ-9Plus digital document camera

### Seminar Conference Room

- 2 AKG C 562 CM ceiling-mounted mics
- 1 Biamp Nexia SP DSP speaker processor
- 1 Contemporary Research 232-ATSC HDTV tuner
- 1 Crestron PRO2 remote control system CPU
- 1 Crestron QM-AMP3X80MM 3-channel power amp
- 1 Crestron TPS-6L 6" lectern-mounted color remote-control touchpanel w/video preview
- 1 Extron CVC200 component/HDTV to RGB converter
- 1 Extron MTP T 15HD A twisted pair transmitter for RGBHV video, audio
- 1 Extron MTP RL 15HD A twisted pair receiver for RGBHV video, audio
- 1 Extron Crosspoint 450 Plus 128 HVA 12x8 RGBHV/video, stereo audio matrix switcher
- 2 Extron SI 28W in-wall speakers
- 1 Extron VSC 500 hi-res computer-to-video scan converter
- 1 Marshall Furniture custom lectern
- 1 NEC LCD1970NX-BK-2 19" LCD monitor
- 1 NEC LCD 5710-2-AV 57" LCD public display monitor
- 1 Panasonic DMP-BD30 Blu-ray disc player w/region-free capability
- 2 Panelcrafters custom audio/video I/O plates
- 1 Vaddio Model 100 PTZ kit pan, tilt, zoom video camera w/in-wall enclosure mount

### Combined Representative Testing/Activity Observation Rooms & Control Rooms

- 1 Anchor AN-130 audio monitoring system
- 1 Biamp Audio FLEX audio matrix processor
- 1 Crestron PRO2 remote-control system CPU
- 1 Crestron TPS-6X 6" tabletop wireless color remote-control touchpanel w/video preview
- 1 Crown PZM-10 ceiling mic
- 16 Extron SI 26CT ceiling speaker
- 2 Lab.gruppen C 10:8X 8-channel audio amps
- 1 Middle Atlantic ERK-2725 52"H equipment rack
- 10 Mobotix D12 IP dome cameras
- 1 Panasonic DMR-EZ48VK DVD/VCR recorder/player
- 1 RDL STD-10K audio combiner

### Master Control Room

- 1 Contemporary Research 232-ATSC HDTV tuner
  - 1 Crown CTs 600 dual-channel audio amp
  - 1 Crestron RACK2 dual bus remote-control system w/card frame
  - 3 Crestron TPS-12 12" color remote touchpanels w/video preview
  - 3 Evertz 7767VIP multi-image video processors
  - 4 Extron CVC200 component/HDTV to RGB converters
  - 4 Extron MAV Plus 6464 AV 64x64 composite video, stereo audio matrix switchers
  - 3 Extron VSC 500 hi-res computer to video scan converters
  - 3 Extron MTPX Plus 3232 32x32 twisted pair matrix switchers w/IP Link
  - 1 Marshall V-R151P 15" LCD monitor w/rack kit
  - 9 Middle Atlantic SCQRK-1327 Quiet-Cool standalone rack enclosures w/custom countertop
  - 3 NEC M40-IT 40" LCD data/video displays w/mount
  - 3 Panasonic DMR-ES35 DVD/VHS combo player/recorders w/region-free capability
  - 1 Panasonic DMP-BD30 Blu-ray disc player w/region free capability
  - 1 Panelcrafters custom audio/video I/O plate
  - 1 Polycom SoundStructure C12 12x12 DSP audio mixer
  - 4 RDL STD-10K audio combiners
  - 3 Shure MX412S/C gooseneck mics
  - 5 Sonic Foundry Mediasite RL440 rich media recorder recording systems
  - 3 Sony SNC-RZ50N IP-addressable pan/tilt/zoom video cameras
  - 2 Tannoy CMS601 DC BM ceiling-mounted speakers
  - 1 Winsted custom console/equipment racks
- ### Lobby Displays
- 3 Cisco 4305G digital media players
  - 3 NEC LCD 5220-2-AVT 52" LCD data/video displays w/mount, ATSC tuner
- ### Alternative Learning Spaces
- 1 Dell PC small form factor computer w/Tidebreak software
  - 1 NEC M46-AVT 46" LCD data/video display w/mount, ATSC tuner, speakers
  - 1 Panelcrafters custom audio/video I/O plate

List is edited from information supplied by Convergent Technologies Design Group, Inc.



**An example of one of the 45-seat Distance Education Classrooms.**

## AV From A User's Perspective

Michael Bachman wears several hats at Towson University. He serves as Director of Information Technology and Client Services. In addition to his fulltime work, he also teaches part time in the computer and information sciences department. His IT experience led to taking on AV duties, as well. "When I got involved with this, I kind of had an edge in that I teach, too," he said quite candidly. "Even though I came into this field with little AV, I've been teaching for about 15 years. So I know what I want in a classroom. That gave me the opportunity to comment. I'm looking at it from a very different perspective from most people."

For example, "We need to keep the podium lean and mean for simple presentations," he said. "I fly, as well. There's nothing more disconcerting than a very busy instrument panel in an airplane. There are just too many distractions: Same thing in a podium. So that's how we went about designing our Crestron interface. There's a natural progression. It prompts you on what to do next."

A practical example of his future-proofing perspective was the decision to go with Blu-ray players. "The original design called for some traditional DVD, so we took the money we were going to spend on podium timers and shifted it to Blu-ray players. Even though most of the future content probably is going to come from the internet, there is just enough faculty that will bring in Blu-ray titles. So we're ready for it."

"We want to 'future proof' our classroom audiovisual technology investments, but the landscape is shifting constantly, more than any other time in the AV industry. It becomes difficult to make decisions and gain consensus based on the number of views. Convergent Technologies' design was solid. We know they chose good equipment. And we had a really good integrator, which was Lee Hartman & Sons. You really have to have a good company to do this. And they took incredible pride in workmanship."

common for the three areas that require various scenarios for observation and recording. Holaday explained that AV recording directly to the Mediasite recorder/servers is done via Mobotix IP dome cameras with built-in mics. Furthermore, each of the three areas has its own control room with a PC, mic, DVD/VCR and rack with essential AV gear where one or two people can sit at a desk. So, there's two-way talk between the control room and the selected room in order to issue directions and provide instruction as needed.

### Master Control Room

The master control room located on the first floor can support three different operators. Currently, on an average day, one operator is on duty. Thus, one operator at any one of the six-foot-wide Winsted custom control consoles could be in command and record AV emanating from classrooms. However, if a lot of events or recordings are scheduled and more AV management is imperative, three operators would man the control room workstations.

Each console houses such components as a DVD/VHS combo region-free player/recorder, Polycom audio mixer, a 40-inch LCD monitor and an Evertz video processor for displaying multiple images. A PTZ camera allows two-way communication with the classrooms. And there are two Tannoy ceiling-mounted speakers.

Located directly in back of the seated

operators are three full-height equipment racks that house the brains of the system, including DSP processing, Extron switching and Mediastat recording systems/servers.

### Modern Language Labs

The two modern language labs are variations on other classroom setups. And here's our cue to emphasize the region-free capability of the Blu-ray players, which are found throughout the install. They have more significance here in the language labs, however, because content is garnered worldwide. There was the need for a specific player that could handle various language CDs and DVDs from the US and overseas as a result of disc content with an encoded region code to restrict the area of the world where they can be played. Related, the TASCAM CD player/recorder has speed and pitch control to give the language facility flexibility in teaching. Another feature of the language rooms is surround sound to accommodate showing movies with multiple language audio tracks.

### Distance Learning Center

In the distance learning center, two-way videoconferencing is via Polycom codec and camera. There's phone line conferencing access, as well. Eighteen Shure tabletop mics fed through an audio mixer ensure clear audio pickup of the participants who are seated in u-

shaped tiers. “That way, mics are only a foot or two away from the students who are speaking,” said Holaday. “You have good signal-to-noise ratio and good intelligibility.”

Front of the room viewing is via a center projection screen flanked by two 57-inch flat-panel displays. There are also two LCDs in the back of the room. The instructor has a Sabine wireless mic. Program audio is heard by left/right in-wall speakers and ceiling speakers for speech reinforcement.

## Seminar/Conference Rooms

There are four seminar/conference rooms used for smaller-sized classes of 15 to 20 people doing collaborative roundtable discussions. Because each room is a small space, NEC LCDs are used for viewing. Source electronics are similar to the other classrooms. There’s a rack-style custom lectern where the instructor can access a host

**One of four seminar rooms in Liberal Arts Building Phase I.**



computer, region-free Blu-ray player and plug-in a laptop. There’s also a video camera for capturing and distributing seminar room content.

## Display Areas

And finally, there are two gathering areas that benefit from displays. There are lobby areas that adjoin three seminar rooms. Lobby displays consist of a digital media player and a 52-inch LCD display with ATSC tuner. The seminar’s elaborate accordion-style glass door opens up to a large

lobby space for special events or other groups. For instance, a meeting of 50 or 60 people could be served refreshments in the lobby and still benefit from the seminar room’s AV. Students can use the lobby AV separately for studying and informal gatherings such as poetry readings. In contrast, there are smaller gathering spots called ALS, or Active Learning Spaces. They refer to three lounge areas with a basic 46-inch LCD, tuner and speakers. Uses include study groups and project meetings. ■

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