

## EMERGING FROM THE ASHES: THE RENOVATION AND UPGRADE OF MEMORIAL UNION

Dramatic technological upgrades necessary after fire destroys central campus meeting space.

To say the forced closing of Arizona State University's Memorial Union Building caused disruption at the Tempe ASU campus is putting it mildly. Damaged by fire in November 2007, the building closed entirely for two months and didn't fully reopen until August 2008. Essentially it's a community centre for ASU's 60,000 students, as well as faculty, staff and guests, housing the campus' main food services, meeting and conference spaces, as well as various retail and recreational facilities. It's the hub of student life and the impact was huge, says Sean Snitzer, of the ASU Info Tech Department. "They had to relocate every event, we had a gym allocated for food service and tents set up to house events."

As the central campus meeting space, bookings for the multiple rooms on the MU's expansive 2nd floor run the gamut from meetings for student organizations, to symposiums and conferences held by private corporations and non-profits, to one off events ranging from a chef's conference, to a Geography Bee for area schools, to hosting guest lecturers like Nancy Pelosi, Speaker for the U.S. House of Representatives.

Although conceived out of necessity, the re-fit allowed ASU to dramatically upgrade the space. "The rooms, historically, had issues," says Snitzer. "They were in need of a refresh for a number of years." Specifically in terms of the existing sound systems. That task fell to Paul Corraine and Convergent Technologies Design Group, Inc., Principal Designer on the engineering team responsible for the new A/V systems, telecommunications, voice, data, and video cable design as well as acoustics, noise and vibration control on the project.



*Executive Dining Conference Room*

"Convergent put a lot of effort behind the audio engineering of the spaces. The system would pretty much rival any high end convention center or hotel."

Sean Snitzer, ASU Info Tech Dept.



### **Arizona Ballroom**

“Essentially, ASU asked us to expand on their existing standards and improve where we could with current technologies,” he says. In terms of sound reinforcement; to spec and implement systems that provided exceptional clarity and coverage for a variety of speech reinforcement and program music applications – From monaural public address, to stereo and surround applications. In response he chose a suite of Tannoy speakers and Lab Gruppen amplifiers to suit both ASU’s audio requirements and speak to specific architectural concerns with their compact, low profile design.

Though running the gamut from the 1000 seat Ventana and Arizona Ballrooms through a variety of smaller meeting rooms and a 150 seat lecture theatre, Convergent was able to meet their client’s needs using Tannoy speakers virtually exclusively – a mixture of CMS12 TDC’s, and iS-52’s throughout, enhanced with Tannoy iw6 DS’s and iw62 TDC’s and the innovative CMS110 TB sub in the Pima Lecture Theatre.

“They’re a reliable, highly intelligible, loudspeaker,” says Corraine. “I like the line because they offer a full complement of loudspeakers for a variety of applications, and this project was one that had a variety of applications; from the surround sound in-walls, to applications where we needed high output, full-range loudspeakers in the ceiling to the somewhat eclectic use of the iS-52 in-stairs. We try to standardize where it makes sense. Not all the time can we use a single, sole source manufacturer for our entire palette of loudspeaker, but it seemed to make good sense in this project.”

In many cases, the sound system had to compete for space with other infrastructure: emergency lighting, sprinklers, cabling and video systems comprised of various sized Draper Access V Electric Projection screens and Panasonic PT-DW5100U Data/Video Projectors. “The challenge, or opportunity – however you choose to see it – was to weave our loudspeakers and other A/V elements in with the fabric of the architecture,” says Corraine. “There were some architectural accents in the ceilings, for example, and we used the iS-52, in-stair loudspeakers in a ceiling application to fit the openings in the ceiling grid.”

“We were using a system called Eventscape,” Architect Chris Alt of Phoenix based Studio MA explains. “A custom system of Aluminum frames with fabric wrapped panels.” It was a theme repeated throughout the facility, but owing to the sheer number of devices and equipment vying for space between the fabric clouds, it was the ballrooms that required the highest level of coordination. “Lighting was in the same slot with A/V. We had to locate every single device there – fire alarms, emergency lights, the projectors – everything had to be carefully orchestrated within a very small amount of space.” All of which necessitated close consultation between all the teams involved in the build.

In order to increase the flexibility of the rooms and better accommodate more complex audio scenarios it was necessary to make provisions within the audio architecture for multiple zones, says Convergent Project Manager, Brian Whitlock.

"I assigned the speakers to individual channels out of the DSP and individual amp channels in order to keep the flexibility for the audio system for whatever purpose it could be used for. So if you subdivide the room into three sections you could have three different audio presentations going on at the same time. Even if you are using an entire ballroom, you may have seating on one side and dinner on the other, and may want to use the speakers in flexible layouts."

Of all the audio systems, those created for the Pima Lecture Theatre involved the greatest back and forth between Studio MA and Convergent. As a venue for all manner of applications – from Powerpoint presentations to viewing of student projects, to campus movie nights – the Pima incorporates a stage area for small productions, a lectern system for lectures and presentations, and a 7.1 surround sound system.

Here again, architectural and A/V elements vied heavily for space. "We had customized vertical grain Douglas fir wall panels on the walls and on the ceilings," says Alt. "We had what we call the tech zones, where we would locate lights, or speakers, or sprinkler heads, and these would occur in certain patterns around the room." The key was developing that pattern in a way that would allow maximum functionality, without interfering with the planned aesthetic. Again Convergent applied an innovative solution using the Tannoy iS-52's as well as the iw6 and iw62 in-walls to integrate the technology as seamlessly into the room as possible. "This room worked very well," says Whitlock. "You don't see speakers splattered all over the walls – Everything's hidden and it sounds really good."

Sound quality and aesthetics weren't the only concern however, Alt explains. "We had a certain amount

of stage elevation to maintain and a limited amount of floor area to deal with EVA and accessibility." Previously a ramp had been located at the front of the stage. In the new build it was to be concealed behind the stage, resulting in an opening in the centre of the stage's rear wall. A coiled metal fabric curtain and in stage LED lighting was employed to limit the visual impact of the space, but the design also impacted speaker placement. "We couldn't put a speaker on center so we split the center channel," says Whitlock. "We put it near left and near right to the center of the stage, so there's three different speaker channels covered by four speakers. We have a left surround, right surround and a left and right rear surround, ceiling mounted sub woofers, as well as ceiling mounted speakers for voice reinforcement. Then, at another point, we were looking at the size the projection screen – We were trying to ceiling mount that front channel, but there were some other architectural challenges – ductwork and other things of that nature. And we were trying to maximize the ceiling height so we didn't have very much room above the ceiling to fiddle with."

An audio system architecture that provided multiple zones was designed in order to increase flexibility and in support of a variety of presentation scenarios within a space...

Brian Whitlock, CTDG Project Manager



*Executive Conference Room*

To further complicate matters, the space between architectural elements, specifically the Eventscape ceiling clouds, in other rooms wasn't enough to accommodate standard size back boxes, requiring customized pieces to be built. "There were basically 18" gaps between the ceiling clouds and the standard box for the speakers was 24"," says Whitlock. "Tannoy really made themselves available to do that. There wasn't any question whether we could have it done, we just had to coordinate it. No mean feat considering the timeline. "You've heard of fast track projects," Alt says. "We called it super track – it was a 22 million dollar project, designed in 60 days and constructed in 102."

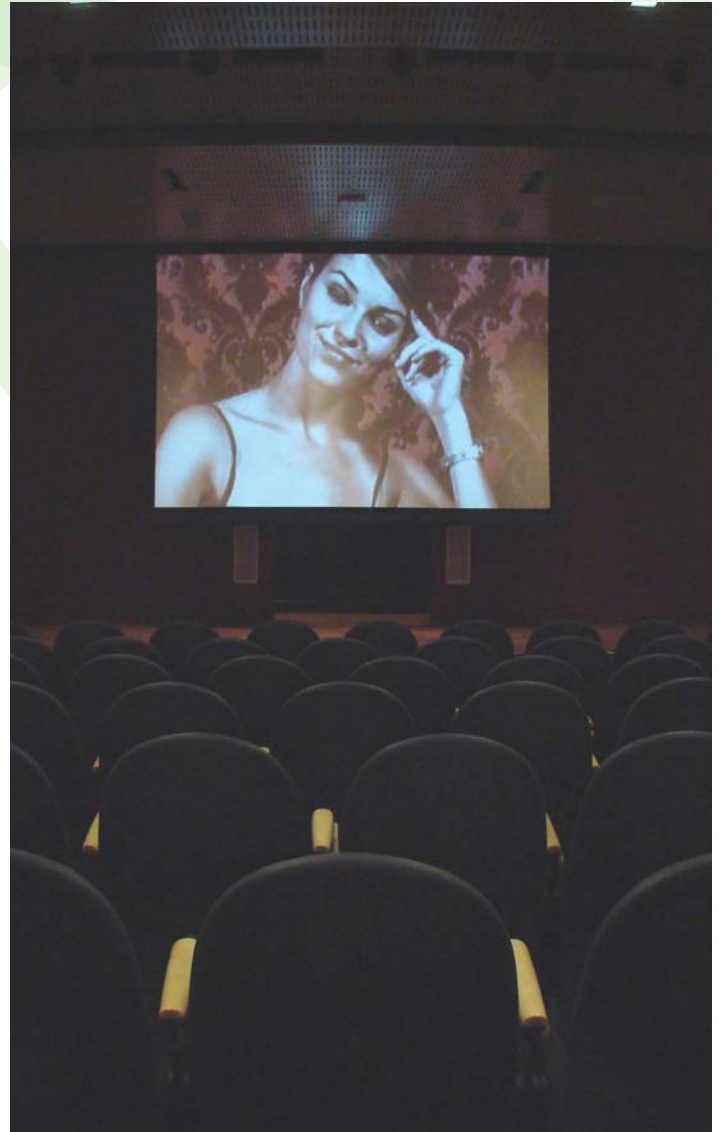
Overall, the task of weaving the A/V elements into the build was accomplished very well, Corraine says. And dramatically improved the sound quality and flexibility necessary for ASU's diverse needs, says Sean Snitzer. "Convergent put a lot of effort behind the audio engineering of the spaces. The system would pretty much rival any high end convention center or hotel."

"Tannoy ASU Memorial Union Press Release"  
Kevin Young,  
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Paul Corraine, CTDG Principal Designer

*Pima Lecture Theater*



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