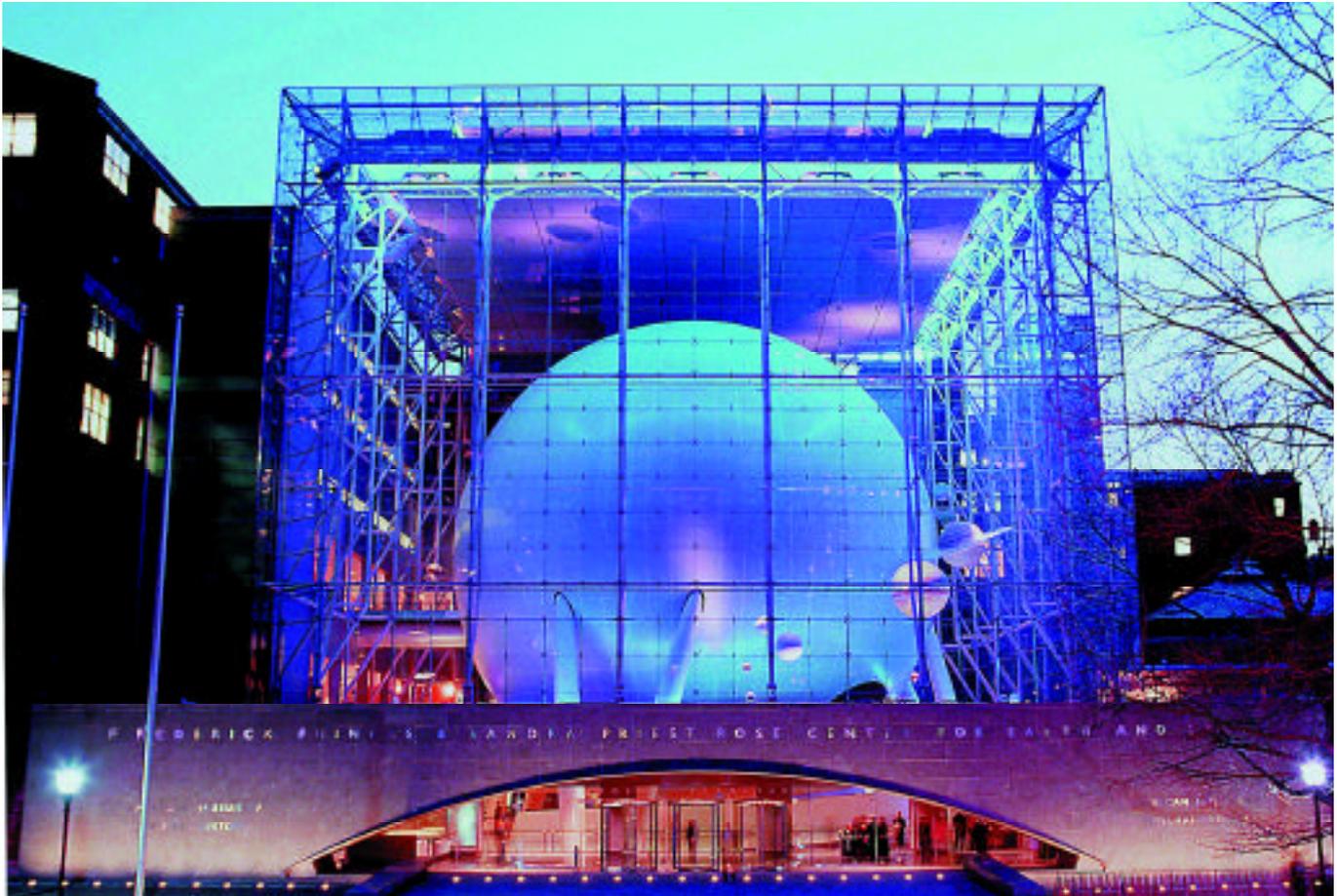


SYSTEMS Contractor News

Uniting The Earth, Sky... And Audio

■ *The Rose Center For Earth And Space Has Been Resurrected On Central Park West*



The new Hayden Planetarium—for which a 50-year-old art deco structure housing the old planetarium was demolished—is housed within the glimmering, glass encased, aluminum shrouded and transparent structure of the new Rose Center located west of Central Park in Manhattan.

by Karen Mitchell

The new \$200 million Rose Center for Earth and Space at New York City's American Museum of Natural History has succeeded in creating an architectural Big Bang. Designed by renowned architect James Stewart Polshek, and hailed by *The New Yorker's* architecture critic Paul Goldberger as "perhaps the purest piece of monumental architecture built in the United States since the Washington

'Our goal was to set the standard for planetariums in the 21st century, and when I think about the Hayden, I can't wait to come here with my three-year-old son, Jake, and tell him, 'This is what Daddy does for a living'

Paul Garrity, Auerbach + Associates

Monument," the Rose Center—which sits on the western edge of Central Park—opened to the public on February 19, to much critical acclaim.

Most anticipated of all in the

Hayden's opening was the reincarnation of one of New York's most sacred cosmic treasures, the Hayden Planetarium, with its pearl, the Space Theater. The new planetarium—for which a 50-year-old

art deco structure housing the old planetarium was demolished—is housed within the glimmering, glass encased, aluminum shrouded and transparent structure of the new Rose Center.

Auerbach + Associates, with offices in New York and San Francisco, provided theater consulting design services for the Hayden in general, and, within the planetarium dome designed the technical

systems for the planetarium show and pre-show area, as well as assisting architects with seating configuration, sight lines and staging elements. Auerbach was engaged by the Polshek Partnership architects to bring their theatrical and technical expertise to this unique project. "This spectacular project is a continuation of a strong professional collaboration that we have enjoyed with the Polshek Partnership for many years," said Auerbach + Associates president Len Auerbach.

Auerbach's work included the design of moving floor elements, the lifting platform for the Zeiss Star Projector, the ProDome 2-Pi Projector, the Omniscan laser system and special effects. In addition, A+A designed the dynamic audio system within the dome and in the pre-show area. (The pre-show video system, consisting of 16 42-inch Sony flat plasma displays, was designed and installed by Scharff Weisberg Inc., New York City.)

The planetarium auditorium is configured in the traditional surround seating arrangement, and converts automatically from a center flat floor area to a center projection platform for the projector and other effects systems. The transformation is accomplished with a high-speed, motorized slip stage, a concealed automated safety railing system and a precision platform lift, all coordinated with the master show control system.

Once in place, the platform unit is totally locked and rigidly positioned. The electromechanical drive systems enable a compact design that is sandwiched in a shallow interstitial space between the Big Bang exhibit on the lower half of the sphere and the planetarium dome in the upper half of the sphere.

The effect is stunning: As the

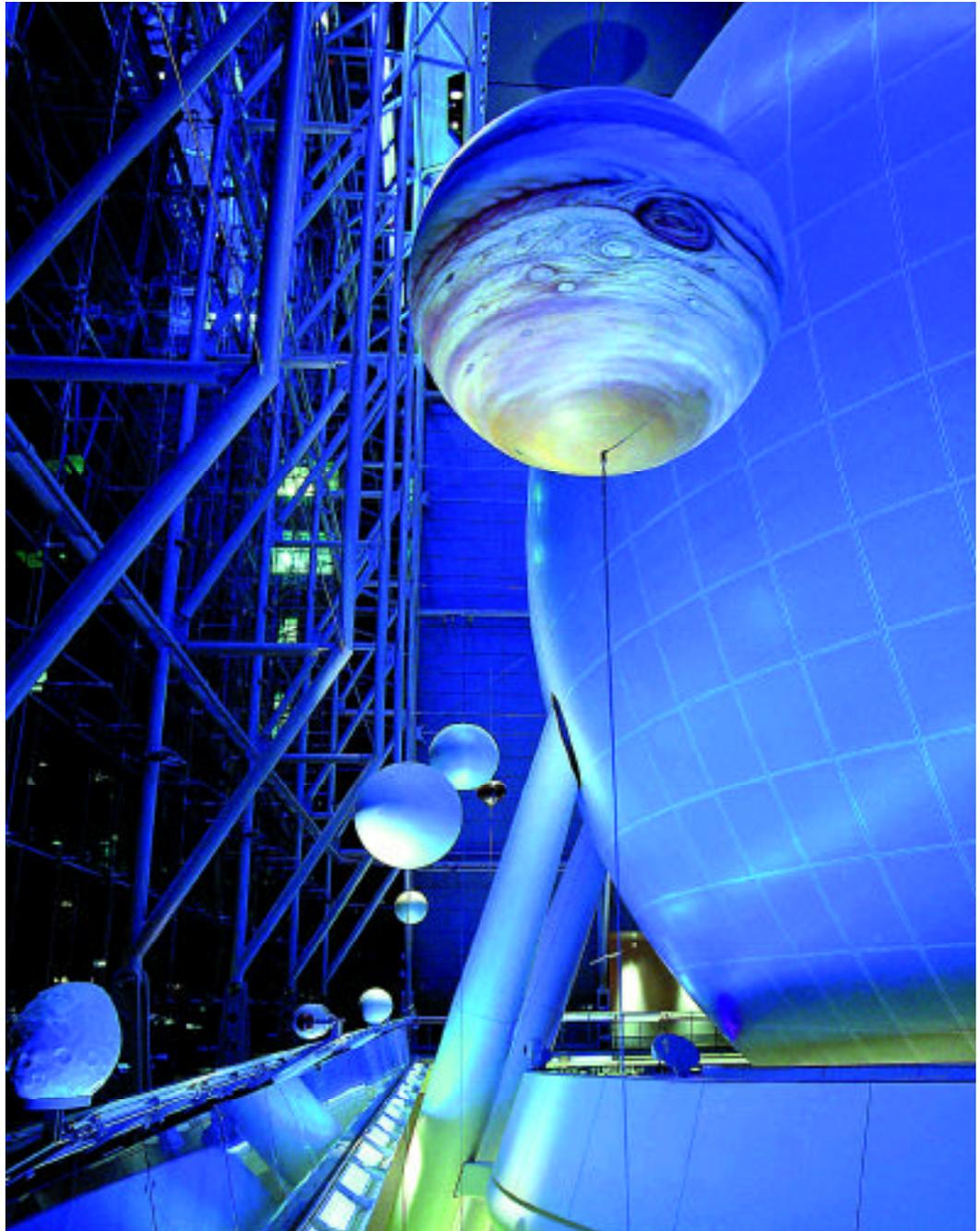


PHOTO: DENIS FINNIN, AMERICAN MUSEUM OF NATURAL HISTORY

The Hall of the Universe at night.

projector is lifted into its playing location, within a one-millimeter tolerance, a liquid nitrogen fog system creates a rolling fog. At show's end, the projector slips unobserved from view, as if returning to a black hole in the universe.

TOUGH TO SAY GOODBYE

"This is the project that I'll hate to see finished, because my job there will be over," said Auerbach + Associates principal Paul

Garrity. Garrity was the firm's project manager for the Hayden Planetarium's Space Theater and pre-show, and, with Auerbach's senior consultant, Dan Mei, designed the complex audio systems for those spaces.

In designing a system for the Space theater, non-traditional events were given much consideration, said Garrity, who fondly recalls attending an evening of Renaissance Christmas music

"under the stars" at old Hayden Planetarium.

"The musicians surrounded the star ball," he recalled. "Unlike most planetariums, at the new Hayden, the star ball can be sunk into the floor so that the room becomes a theater-in-the-round that can accommodate a little chamber orchestra or other concerts."

The Space theater's full-range dimensional surround system has a central loudspeaker cluster at

the top of the dome, 8 channels at the mid-sky level and 12 channels of speakers at the horizon line, all behind the perforated dome.

The theater's main matrix system, sending sound around the room, is the Level Control Systems SuperNova digital audio processing system controlled by LCS CueStation software. A VRAS (Variable Room Acoustics System) has also been installed.

"VRAS has been added to allow for artificial acoustics," Garrity said. "Mics are placed so that when you walk in, the room can sound like a live, bouncy, reverberant space, and we can adjust the acoustics to make it natural for a musical performance. A dome is dangerous for sound, so our system has a lot of fuzz, on purpose. We can add reverberation electronically—we wanted the room to feel as if you're in a live and friendly space, not a claustrophobic closet. At a moment's notice, we can change the effect to achieve a vacuum of space with no reverb at all. This is one of the first VRAS installations."

Aura's Bass Shaker sub-

woofers, each fitted with a modular IMP amplifier, are mounted in custom boxes attached to individual theater seats and to the floor, Garrity said. "They're a low frequency driver that vibrates the

'A dome is dangerous for sound, so our system has a lot of fuzz, on purpose... At a moment's notice, we can change the effect to achieve a vacuum of space with no reverb at all' Garrity added

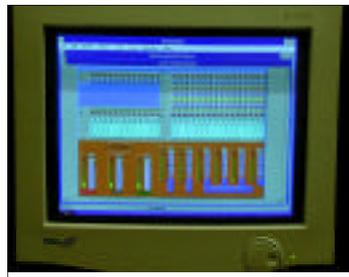


PHOTO: CASEY SYSTEMS INC.

them in, and they worked. They made the project go a lot faster. We also have Bag End subwoofers above the dome."

The goal was to drive the bass without having it too loud, and without having it bleed down to the Big Bang room underneath the planetarium. "We wanted the room to feel like 110 dB without actually generating anything near that level," Garrity said, "so that people could leave without feeling as though they were at a rock concert. The Bass Shakers gave us that."

Los Angeles-based production sound designer François Bergeron did the



The facility's paging system contains almost 40 Crown amplifiers for 145 EAW and 42 Soundolier loudspeakers.

Felix Robinson, regional operations manager for the Northeast for SPL/Integrated Solutions, noted that familiarity with Peavey MediaMatrix and LCS played a role in the Planetarium installation. "MediaMatrix provides the required capabilities for switching and routing of audio signals given the unique, multi-dimensional perspective. Our qualified experience with MediaMatrix and with LCS helped us to understand the audiences' listening position perspective and the show control complexities involved," he said.

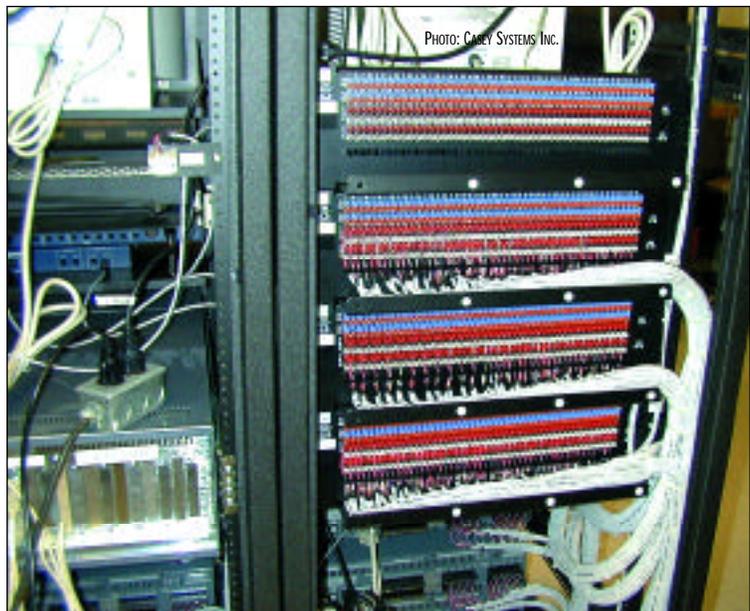


PHOTO: CASEY SYSTEMS INC.

object they're attached to, so when the Planet Jupiter passes by, for example, there's a vibration in the seats."

With no space for traditional amp racks, Garrity chose Meyer self-powered loudspeakers as the theater's primary speakers. "They're great and we were pressed for space in this room," he said. "We were able to plug

mix for *Passport to the Universe*, the planetarium's first show, narrated by Tom Hanks. Bergeron remarked that the system was "great."

"There's an inherent gamble in working on a system for two or three years and having it up-to-date at the opening," Garrity added. "But our goal was to set the standard for planetariums in

the 21st century, and when I think about the Hayden, I can't wait to come here with my three-year-old son, Jake, and tell him, "This is what Daddy does for a living."

SPACE THEATER AUDIO

It's a challenge to design a speaker system for a planetarium, and Paul Garrity did a fabulous job, said Felix Robinson, regional operations manager for the Northeast for SPLIS (SPL/Integrated Solutions). Formerly known as ProMix Installations, in December '99 the installation division was folded into the PRG System Group (Production Resource Group) headed up by SPL, Columbia, MD, the cornerstone company of the systems group within PRG.

SPLIS provided equipment, engineering and the necessary supervisory labor for the complete installation of the audio system within the Space Theater. Other recent SPLIS projects include the Center of Jewish History, a multimedia lecture and performance facility with teleconferencing and Webcast capability in New York City, and Barcode, an Australian-owned multimedia entertainment complex in Times Square. The Space Theater was the first planetarium project for the company.

"In a typical theater, people are sitting in rows facing a stage," Robinson said. "In most performance venues the audience faces something as a group. In a planetarium, where seats are arranged in a circular configuration and people are looking up, the experience is three-dimensional. Each seat needs the same multifunctional experience. Even an IMAX is not as complex as a planetarium experience."

The Space Theater represents the latest technology for planetarium experiences, and the project merited a company that was capable of theatrical presentation and performance quality audio, he

said. "Via ProMix's extensive background in theater, we have a unique blend of capabilities for providing a system with these complex technical requirements. Auerbach endorsed our presence."

Familiarity with Peavey MediaMatrix and LCS played a role, Robinson said. "MediaMatrix provides the required capabilities for switching and routing of audio signals given the unique, multi-dimensional perspective. Our qualified experience with MediaMatrix and with LCS helped us to understand the audiences' listening position perspective and the show control complexities involved."

The installation of Meyer loudspeakers was never questioned, he said, "When it comes to theatrical reproduction of music and voice for theater, Meyer speakers are peak-of-form. The accuracy and intelligibility of the speakers in the Space Theater are proof that few other products would have been able to provide that same quality. Because the observer's eye needs to focus on a sometimes minute stellar object, the directionality of the sound source is critical for sensory location of the intended visual image. It's an important element linking the visual experience to the audience member."

Although few visitors to the new planetarium know what they're in for, some have an idea, having experienced the technology as an emerging concept in earlier planetariums.

This new technology has to be the ultimate experience, Robinson said. "Visitors expect it to be fabulous and they're never disappointed. I brought some friends to a testing performance and their jaws dropped. We all have that sense of [outer] space we know from sci-fi movies, but the way the planetarium show takes you through the planets blows that away. Space ships don't shoot at

each other, but you travel through space, and who's to know what the real trip would be like. Here you're enjoying a comfortable seat in a planetarium. The fabulous computer generated images, the sound system, and the contained environment make for one of the most entertaining experiences a person can have."

CODE CONSIDERATIONS

Providing for the systems rigging requirements presented somewhat of an earth-bound challenge, Robinson said. "We needed to accommodate the latest New York City seismic code interpretations, a recent improvement to the building code. The speaker system's mounting equipment is isolated with seismically-compliant materials. We had to wait for clear information about the actual equipment. And there were design issues in progress. This affected some of our flow of equipment to the field in order to incorporate those seismic requirements into our rigging design."

The space requirements in the theater were another consideration. "The system racks and control gear are in areas contained within this huge sphere in a glass box," he said. "The project was similar to shipbuilding where every inch counts. We had to negotiate every square inch—what was planned for in the drawings was rapidly consumed by all the other trades, and often equipment can't be estimated for its final space requirements."

Working in such a restrictive environment requires patience, coordination and a strong back, he said. "Our project manager was Larry Politi and our engineer was Peter Romandetti. They put their hearts and souls into this project."

The opportunity to work in such a high-profile space as the Rose Center was very exciting, said Joe Mezzafonte, director of

A-V and Pro Sound for Casey Systems, Hicksville, NY. The company was prime A-V contractor for the project areas outside the Space Theater, such as the Cullman Hall of the Universe.

"This was our first project of this type, and we will probably be known forever for it," Mezzafonte said. "We were invited to bid this work by general contractor Morse Deisel. Other current Casey projects include the new, three-phase, International Arrivals building at JFK [Airport], designed by Arup and Associates.

"The biggest challenge for us was coordinating the installation of the sound system with the fabrication of the structural system," Mezzafonte said. "The sphere went up like the ribs of a bowling ball and everything had to be attached to its structural frame. And the Hall is reflective—it's all glass and marble. We're basically very proud of what we did and we think it's a unique opportunity for a sound contractor to be involved in such a project. After all, there's only one Hayden Planetarium."

Karen Mitchell is a freelance writer based in Boulder, CO.

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PLANETARIUM AUDIO CONTRACTOR:
SPLIS, New York City

HALL OF THE UNIVERSE AND PAGING
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GENERAL
CONTRACTOR/CONSTRUCTION
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PRIME A-V CONTRACTOR: Casey
Systems Inc., Hicksville, NY