

Cue the Overture

THEATRE PROJECTS CONSULTANTS

A multi-year, multi-space project, Overture Center for the Arts gets off to a start with the multi-purpose Overture Hall

By John Calhoun

Funded by a single donor with open pockets and a refined aesthetic sense, the Overture Center for the Arts in Madison, Wisconsin is a dream-come-true project for an architect and theatre consultant. Occupying a full block in the state capital city's booming downtown district, the center will serve as a cultural focal point for music, theatre, dance, and visual arts. Designed by Cesar Pelli, the Overture Center moved on a fast track of conception and construction from its initial 1998 gift of \$50 million from local businessman W. Jerome Frautschi. That figure quickly increased to \$100 million, but, by the time Phase 1 of construction, which includes the 2,250-seat Overture Hall, was

completed in fall 2004, Frautschi and wife Pleasant Rowland's tab had risen to \$205 million. From all accounts, they weren't complaining. (Frautschi owned a company that made educational books; Rowland was behind the American Girl doll and book company.) "In the early days of this project, more than any other I've worked on, there was a sense of 'Don't hold back; tell us what you want and need,'" says Gene Leitermann of Theatre Projects Consultants. "There were few compromises—maybe no compromises—in terms of equipment. And you know, I've never worked on a project where there were no compromises. Eventually, money becomes an object, no matter what people say."

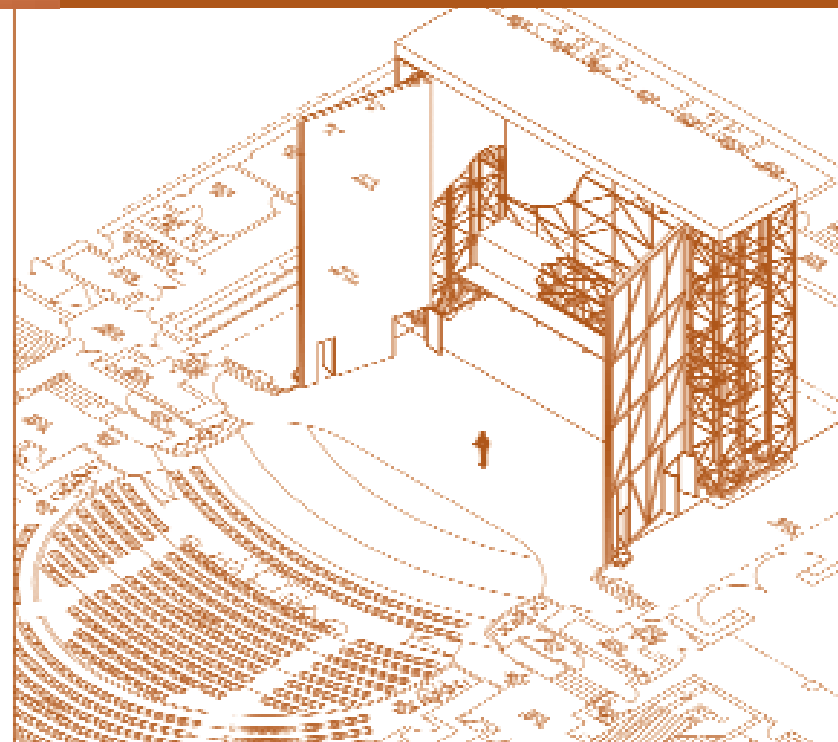
Phase 1 of the 400,000 sq. ft. Overture Center facility encompasses not only Overture Hall, which will be home to Madison Symphony Orchestra, Madison Opera, Madison Ballet, and various touring productions, but also three rehearsal rooms, one of which can be used for performances, and Rotunda Stage, a children's theatre space on the lower level of the glass-fronted, multi-floor lobby. Phase 2, scheduled for completion in 2006, will be highlighted by the renovated Capitol Theater, a 1927 movie house known as the Oscar Mayer Theatre since 1980; the reconstructed space will revert to its old name and seat up to 1,000 patrons for drama and chamber music performances. When finished, the center will also house a 350-seat thrust space for Madison Repertory Theatre, an expanded Madison Museum of Contemporary Art, and three community galleries. Cesar Pelli is design architect for the entire complex.

The jewel of this enormous center is unquestionably Overture Hall, which was conceived by the architect, theatre consultant, and acoustician Joseph Myers of Kirkegaard Associates as something of an ideal among multi-purpose spaces. Frautschi and Rowland are, most prominently, patrons of the Madison Symphony Orchestra, and the feature that most dramatically distinguishes the hall—a 350,000lb orchestra shell and pipe organ that tracks downstage for symphony performances—is driven by that user. But, Myers says, "We wanted to be able to accommodate each one of the uses at a very high level. We did not want this to be a room where it's really a symphony hall but you can sort of put Broadway in there, or it's really a Broadway house but you can put symphony in there and it doesn't sound too bad."

Touring productions of Broadway shows like *The Phantom of the Opera* and *The Producers* can make a house more economically viable, and with Broadway tours, of course, come amplification. Myers says that audio systems designer Engineering Harmonics worked "unusually closely" with Kirkegaard and Theatre Projects to integrate the equipment with the room's architecture and aesthetics. But this is where some degree of compromise—even if it just means having visible speakers—becomes inevitable in a space like Overture Hall.

"The two important drivers of the hall are the symphony and the Broadway series," says Leitermann. "They're also the two most difficult and conflicting users; everyone falls in between. If you make Broadway happy, and you make the symphony happy, you really don't have to worry about the dance company and the opera company. The donors did understand that the room needed to work for Broadway and that Broadway brings all this 'junk' along with it—all this paraphernalia of production. But they had high aspirations for the aesthetics of the room, and, more than any other project I've worked on, they expected us all to make sure that the junk didn't distract from the project as a whole."

The aesthetic character of the hall was established to a great extent by Pelli's office. Speaking of the donors, design team leader Anne Gatling Haynes says, "They wanted something classic and timeless, but contemporary—not a gilded, old-style hall. And they wanted it to be very high-end, in terms of both finishes and performance experience. We used wood as a primary material and, because they have the lights on for music, we created it in light woods. The complementary set of fabrics



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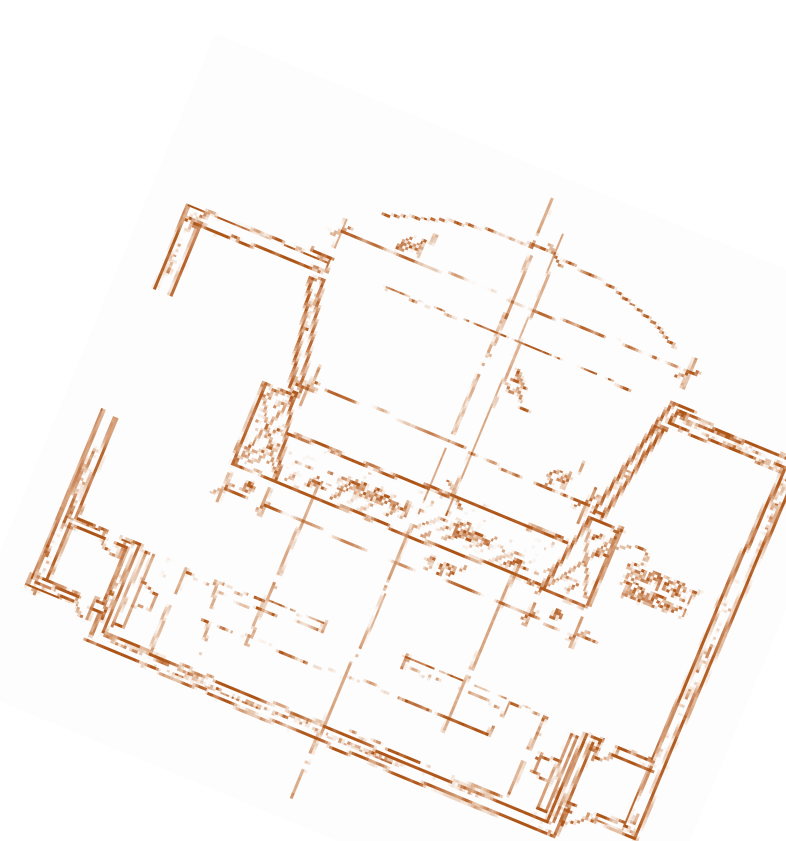
ZANE WILLIAMSON





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Opposite, a full view of the auditorium. Left, one of Brian Hall's early sketches for the orchestra shell system (seen in a more realized drawing on previous spread). Above, the lobby allows for the maximum of sunlight.

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and colors we ended up with was violet and lavender, but in a softer, grayer tone, which works with the wood but is very contemporary. We chose a theatre seat with a slightly square back, as opposed to a rounder, more traditional back. That takes something that's an older material, like the mohair on the seat, which is a very durable, high-end fabric, and gives it a very contemporary look."

A more crucial element from the aspect of performance experience was the shape of the room. Here, the key word was intimacy. "It's a warm, embracing, and amazingly intimate room," says Myers. "It feels so much smaller than 2,250 seats." The intent, of making everyone in the audience feel close to the stage and to everyone else in the audience, was realized through giving the hall a high horseshoe shape, with three semi-circular balconies flowing into side boxes and an overall impression of encircling the performance. "The shaping of all the forms, from the ceiling to the balcony edges, was to reinforce

that conception, to make it feel like a very intimate space," says Haynes, who also stresses the importance of a design's functionality. "The way we approach every project is, we work collaboratively with the theatre planner and acoustician. Cesar feels very strongly that, first and foremost, these halls have to work technically, so our effort is to make those technical requirements beautiful and consistent and integrated into the architecture of the room."

The shape of the room was also driven to a great extent by acoustical considerations. "For opera and musical theatre, it's really important that people be close to the stage, so that they can see expressions," says Myers, resulting in "a room that is wider and shorter and, if you're putting in a lot of seats, a lot of balconies. The problem is, when you stack up all of those balconies on the rear wall of the hall, it's difficult to build up the sort of reverberation you want for orchestral work." To address this problem, he says, "You want to make sure the ceiling over the top of the balcony gets relatively high." In Overture Hall, the 85' high hard-concrete ceiling is 17' above the back riser, and a waveform, sound-transparent, perforated metal ceiling extends down and joins to the proscenium, which at full exposure is 45' high. "So we have a big volume up there, and a lot going on, like catwalks for access to the lighting," the acoustician says. "But we deliberately kept duct work, which tends to absorb sound, out of it." Instead of blowing air conditioning in from above, Overture Hall makes use of a displacement ventilation system, which introduces moderately cool air to the room through vents under the seats.

There are many other acoustical accommodations in the room's design. The shape is narrow near the proscenium, with the side walls stepped back to reach a broad width at the rear of the house, but always keeping a "close-to-parallel" angle to the center of the room. The side walls also taper back slightly, from floor to ceiling, to avoid flutter, and the back walls of the first and second balconies are tilted to reflect sound to the overhead surface, and then back down to the seats. Box fronts are comparatively fat from top to bottom, in order to provide mid-frequency

ARCHITECTURE



The sound system for Overture Hall includes a center cluster of six JBL VerTec VT4887 small-format line-array speakers and 16 JBL VerTec VT4889 large-format line arrays (eight on each side). For deck fill, there are two Turbosound TG 440s per side, placed on the apron against the proscenium walls. Front fill is provided by 36 Apogee ACS SAT3 units, 18 of which are built into the lip of the stage apron and 18 built into the orchestra pit lip. There are 15 Tannoy CMS 50 ICTs for the under-balcony and four Turbosound TCS-40s for the upper balcony, with 18 Tannoy i5 AWs providing fill for the side seating boxes. Also, there are four JBL VerTec VT4880 dual 18" subwoofers for each side. Speaker connectors are available above the side boxes and under the balconies for surround speakers.

reflections to the balconies, while balcony fronts are skinny, to avoid reflection towards the front of the room or stage.

To mold the hall's sound for various types of performances, Kirkegaard also specified fixed reflectors over the perforated ceiling, as well as adjustable acoustic curtains on the upper side walls. "When they did the Saint-Saens '*Organ*' *Symphony* for the opening concert," says Myers, "we had every bit of adjustable absorption in the room pocketed, and the room was at its most reverberant. When they did the Beethoven Ninth Symphony, where you want a little more clarity and presence, we had them expose a little bit of curtaining. For opera, we're having them expose a little more, and then, for amplified shows, expose all of the curtaining."

For symphony mode, another major acoustical element is the unusually high proscenium. "The stage opening is huge," says Leitermann. "It's 65' wide, which is typical, but the height, at 45', is just off the scales. It looks like you're in a single room, because the opening is so large." For opera, Broadway, and other uses, a motorized header reduces the

proscenium to a 30' height, and tracked tormentor panels can also close in the width to 52'. Since the proscenium is fully exposed only for symphony, "You don't need the conventional two-and-a-half times that for grid height," the consultant adds. The grid extends to 96' above stage floor, covering the full 52' deep stage. "We were concerned that the stage house be high enough that we could actually raise all the scenery and drops above 50', so that the orchestra enclosure could roll downstage. That high opening drives the height of the orchestra shell."

Referring to the 50'-high orchestra shell, Leitermann says, "The symphony calls it the largest moving object on any stage anywhere; I don't know if that's true, but it certainly has to be one of the largest. It's a remarkable piece of engineering." For non-symphonic performances, the orchestra enclosure lives in a "garage" behind the back wall of the stage. When needed, the entire unit moves downstage—at a speed of 1' per minute—on tracks 30' stage left and right of center, and completely fills the proscenium opening. The organ, which is

named for Pleasant Rowland, comprises 4,000 pipes and was custom-designed and built for Overture Hall by the German firm Orgelbau Klais, makes up the back wall of the shell; doors that cover it in storage-mode swing out to become side walls when the enclosure is in place, and two tilt-and-fly panels on motorized battens drop down to form the ceiling. The roof and side wall panels have plywood and honeycomb skins, a stiff material that works for acoustical purposes but is not overly heavy. The enclosure is also adjustable to orchestra-only, or orchestra plus choral risers, which utilizes an extra ceiling panel and two side wall extensions, increasing the performance depth to 63'.

"The organ was on the table very early," says Leitermann. "Everyone on the owner's side and the design team felt strongly that it couldn't be on the side wall of the auditorium, that that asymmetrical solution just wasn't acceptable. Brian Hall, our director of design, started sketching this moving shell and a garage at the back of the stage that would hold it. The basic components there today were in his first sketch—the idea that it

tracked up and down on railroad tracks, that the organ was on a high platform, and that the side walls unfolded and formed the shell. Our technical specialist on the job, Michael Patterson, essentially was the designer; he put together the pieces and, working with Steve Walker, an independent stage engineering consultant, did the basic engineering of the frame. He did the research, came up with the track and wheels, and the rigid chain which actually pushes the unit out and pulls it back. When it was bid and J.R. Clancy was selected to build it, they really didn't deviate from the design." While Clancy was assigned to the moving enclosure system, Secoa was given the contract for the hall's overall performance equipment rigging, which includes the shell's removable ceiling pieces. When set for Broadway presentations, the hall has a manual counterweight rigging system with 75 linesets.

The other major theatre contractors were Westbury National and Electronic Theatre Controls. Westbury supplied the audio systems designed by Engineering Harmonics in association with Theatre Projects. As stated before, the major challenge with audio was that "the room is such a high-finish room, every surface, every object got examined," says Leitermann. "It's a pretty intense Broadway-level sound system, almost no-holds-barred, with high SPL requirements and expectations. Fairly early on,

Other sound equipment includes one Lexicon PCM 91 and one PCM 81 digital-effects processor and, from T.C. Electronic, one M2000 stereo processor, one M1 dual-effects processor, and one D2 multi-tap rhythm delay. Playback gear includes one Sony MDS-JE520 minidisc recorder/player, one Tascam 122B stereo cassette deck, one Technics SL-PG100 rack-mounted CD player, one Otari MX50 Mk II reel-to-reel tape deck and one Tascam DA30 Mk II stereo DAT deck. The lineup of available mics includes units from AKG, Audio-Technica, Beyerdynamic, Crown, Electro-Voice, Sennhesier, Shure, Neumann, and Sony.

there was a reconciliation in terms of lighting positions, and that, yes, there would be spotlights that are painted black within the room. But to get the loudspeakers incorporated into the architecture in a way that was aesthetically acceptable was a lot of work." The center cluster, flown in from storage pockets as needed, is composed of six JBL small-format line-array speakers, while eight JBL large-format line arrays are suspended on left and right. Tannoy under-balcony speakers are recessed and "as out of sight as they can be," while smaller Tannoy models serve the side boxes. "We thought we were going to be able to conceal those within the mill work of the balcony fronts, but, fairly late in the process, we came to the realization that these units needed to be discrete and exposed," the consultant explains. "So we found the smallest loudspeaker Engineering Harmonics was comfortable with in terms of performance." The house mixing console is a Yamaha PM1D digital audio mixing system.

As for lighting, Leitermann says, "Early on, I suggested that we negotiate an agreement with ETC, since their factory is literally eight miles away and the last thing they would want is another vendor's installation in their backyard. It's a very nice inventory of fixtures." Fixed lighting and stage lighting equipment includes hundreds of ETC Source Fours, stage lighting control is handled by an ETC Insight with Emphasis, and house lighting is operated by a programmable ETC Unison system. "Everything that could be ETC was ETC, and then there was a small fixture package of things that ETC just doesn't build," says Leitermann. The latter includes three Strong Gladiator II 2500W Xenon followspots. He adds, "The ceiling design is wonderful in terms of lighting, because it gives you these

straight-across catwalks, and a great place to put a followspot booth."

Throughout the Overture Center, says Leitermann, "There is a lot of building-wide performance technology infrastructure for casual performances in the lobby and elsewhere. All of the public spaces are run on a Unison system; each of the major spaces has an ETC network, and the larger spaces have Unison systems hung off of that network." The facility-wide treatment helps to give the center a vibrancy that extends out of its discrete performance spaces and into pre-function areas that are visible to the street. Haynes says, "It becomes something engaged in the fabric of the city. The transparency of the big glass lobby, for example, is all about trying to make the activities of the theatre—the arrival, the coming together, the community—very visible and accessible to the public." Of course, adds the architect, when one enters the Overture Hall or one of the center's other performance spaces, the function changes. "The owners want this to be a theatre where you take yourself away from normal day-to-day life, where reality is suspended and you really get into a particular performance." 📶

