

A Hall of Many Parts

The Marybelle and Sebastian P. Musco Center for the Arts is ready-made for virtually any kind of performance

By: Mel Lambert



Originally founded in 1861 as Hesperian College, the establishment was renamed in 1934 Chapman College, following an endowment by Valencia orange magnate Charles Clarke Chapman; by 1954, it had relocated to its present home on the former campus of Orange Union High School in Orange, some 40 miles west of Los Angeles. The college extended its higher-education access when it began offering classes to military personnel at the nearby El Toro

Marine Base and, as Chapman University, currently hosts some 6,300 undergraduate and nearly 2,000 graduate students.

“I am particularly proud of what I believe are the unique characteristics of this university, namely its attention to individual students, coupled with an emphasis on high-quality, internationally renowned scholar-teachers,” says Dr. Daniele C. Struppa, the college’s newly named president, and who for the last nine years has also held the



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position of chancellor. With a strong focus on the arts, the university recognizes the value of endeavors in the graphic, visual, and performing arts, as well as many other artistic disciplines.

But, despite its avowed strong focus on the creative

arts—witnessed by the highly regarded College of Performing Arts; Dodge College of Film and Media Arts; Escalette Permanent Art Collection; Hilbert Museum of California Art; and Wilkinson College of Arts, Humanities, and Social Sciences, together with a BFA program in the-

atre performance—until recently, Chapman University lacked a world-class venue for local and touring artists. All that changed earlier this year.

After a six-year genesis, the Marybelle and Sebastian P. Musco Center for the Arts has opened on 88,000 sq. ft. of the university campus. The new venue both stakes out a highly visible arts identity within the local community and provides students with a venue to help foster their learning in the arts, while meeting the needs of Chapman University’s award-winning music conservatory and music and theatre departments.

Designed by architects Pfeiffer Partners in collaboration with Theatre Projects, including acoustics by Dr. Yasuhisa Toyota, of Nagata Acoustics, and AV consultant Sonitus, Musco Center houses the multi-purpose Julianne Argyros Orchestra Hall, which features 1,044 seats on three levels. The auditorium is designed for large-scale opera and theatre productions, touring dance companies, symphonies, chamber performances, jazz concerts, popular music, and more. A flexible design allows the hall to function with an orchestra in the pit and singers on stage, while a large, removable acoustical shell has been designed for an alternative configuration.

“As the university’s new front door, we were challenged to create a building of this scale within a 55’ height limit from the City of Orange,” says William Murray, FAIA, of Pfeiffer Partners Architects, which also has worked on Colburn School in Los Angeles, Cal State Fullerton’s Clayes Performing Arts Center, and Hyperion Theatre at Disney’s California Adventure. “We therefore had to depress the hall into the ground and create a large new campus green that transitions audiences down a story into the ground.”

The Musco Center’s formal opening on March 19 featured performances by Plácido Domingo, Deborah Voigt, and Milena Kitic, together with an orchestra and chorus of more than 150 Chapman students and an array of distinguished artists, including Chapman University alumnus Efrain Solis performing “Largo al Factotum” from *The Barber of Seville*. The evening ended with a rousing performance of “Make Our Garden Grow” from Leonard Bernstein’s *Candide*, with added members of Los Angeles Opera and Los Angeles Opera Orchestra, conducted by John DeMain, formerly with Opera Pacific.

Marybelle and Sebastian P. Musco paid nearly half of the hall’s \$82-million price tag; they are also members of the Los Angeles Opera board’s executive committee, as was Milan Panić, another major donor. (The latter’s former wife, Milena Kitic, who played Suzuki in the company’s recent production of *Madama Butterfly*, is also a Chapman University artist-in-residence.) Richard T. Bryant, a former Orange County arts executive, serves as the center’s executive director, working closely with dean and artistic director William Hall.



The rigging system features more than 50 linesets.

The flexible auditorium

According to Michael Ferguson, project manager and performance lighting system designer for Theatre Projects and now principal consultant of the firm TheatreDNA, “Theatre Projects has worked with Nagata Acoustics—Yasu Toyota, in particular—on a number of projects, including Richard B. Fisher Center for the Performing Arts at Bard College, Kauffman Center for the Performing Arts [See LSA March 2012], New World Center [See LSA, May 2012], and Walt Disney Concert Hall.” Theatre Projects, Nagata Acoustics, and Sonitus also collaborated on the New World Center and Walt Disney Concert Hall projects.

Theatre Projects provided programming, concept design, theatre planning, and performance equipment design/specification for the Musco Center. “We worked with the design team to create an intimate auditorium with a mezzanine, side boxes, and two levels of balconies that step down toward the stage,” Ferguson explains. “The seating in Julianne Argyros Orchestra Hall wraps the audience around the stage and draws them closer to the performers, for memorable and impactful performances. The theatre features a large stage with full fly tower, stage

traps, and two orchestra lifts that can create a Broadway pit, large opera pit, or stage extension when in concert mode. It also features a modern theatrical dimming and relay system, advanced LED lighting, and full array of rigging, including a motorized house curtain.”

A major design feature of Julianne Argyros Orchestra Hall is its sidewall, which feature heavy construction and diffusive elements specified by Toyota. “We were looking for a design motif to create the articulated diffusion that Yasu needed,” Murray states. “We came up with the abstracted acanthus leaf patterns, which, through their compound radii and large articulated surface area, were perfect to achieve the sound diffusion he needed. However, their construction was very challenging.” In addition to the sidewalls, large, radiused metal-woven wire ceiling and proscenium elements help scale the room but are sound-transparent. “These materials are critical to the intimacy of the room,” the architect says. “They also conceal the technical catwalk elements within the space.”

“But the real story of the room is its versatility,” Ferguson emphasizes. “The university wanted both a dynamic performance space for drama, dance, and opera, and a world-class venue for symphonic and choral music. As a result, the design team created a room that can transform from proscenium theatre to concert hall in less than an hour, through the use of a one-of-a-kind, fully flown orchestra shell. Designed by Nagata Acoustics, this unique 120,000-lb shell not only creates an exceptionally dynamic sonic environment, but also provides a cohesive architectural style to the room.” Working with Ferguson on

the project was theatre equipment designer Michael Nishball, also of Theatre Projects.

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“The shell puts quite a bit of demand on the stage house in terms of weight, storage above, and handling,” says Nishball. Theatre Projects worked with Pook Diemont & Ohl—together with partners C. K. Wegner and Thern—to create the shell and reliable hoist machinery to lift and fly it



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into the stage house through carefully coordinated grid slots. “The team was very good at planning and executing the work and also did a great job at engineering, fabricating, and installing,” Nishball adds. “The result is an outstanding environment for acoustic music that still manages to maintain an efficient and fast changeover.”

“I received a call five years ago from William Hall to discuss the types of AV systems the new project would need,” recalls Sonitus principal Frederick R. Vogler. “The idea was to outfit a ‘modern theatre’ that could accommodate a range of world-class musical productions with a flexible pit and adjustable acoustics. We also discussed the center’s programming, including drama and opera, which informed the types of sound-reinforcement and video-projection systems it would need, including 5.1-channel playback, if necessary,” the latter utilizing the hall’s left-center-right line array and dedicated surround loudspeakers. “We also specified a motor-driven array, so that it could disappear into the ceiling via bomb-bay doors when not required,” adds Vogler, who worked closely on the project with former Sonitus colleague Tim Boot, who

recently joined Meyer Sound.

“The deference to music, along with the architect’s same approach, meant that we tried to make it a great room—a concert hall,” Ferguson continues. “Because of that criterion, we immediately realized we needed to make the orchestral shell something more than a typical off-the-shelf product. We designed a completely custom shell, with flying and rotating walls, and ceilings that fly and flip. There was also the requirement by Nagata Acoustics to have two 5’ shelves, very specifically placed on the shell’s rear and side walls, for acoustic reflections. Additionally, because the surface weights required by Yasu Toyota exceed those typically seen, it was a very heavy piece of scenery to move, travel, and fly.

“We also developed sidelighting positions that went away for concert mode,” Ferguson continues. “In that way, we could provide good sidelighting for opera and dance, which was completely hidden for concerts when they aren’t required. We also have a lot of adjustable acoustic draperies and banners on the sidewalls and at the catwalks.” Murray adds, “These banners are a first of their



The rigging system, seen during installation.

kind, with the pattern of the wall behind it printed on their surface fabric. We really wanted the banners, when implemented, to be visually less apparent, and to blend into the sidewalls when deployed.”

The goal was to provide everything that the university would expect from a functioning theatre. “There are two lifts downstage, to accommodate a Broadway-sized pit or a larger, Wagner-sized orchestra,” Ferguson adds. “This configuration also allows the orchestra to play very far forward into the auditorium. And there is a full complement of linesets, a large trappable stage area, and an adjustable proscenium, allowing for a finished stage opening.”

The custom shell designed by Theatre Projects and Nagata Acoustics was constructed and installed by C. K. Wegner, with Thern providing hoists and rigging. Pook Diemont & Ohl handled installation of the rigging equipment and control systems needed to support the orchestra shell, and the adjustable acoustic systems. C. K. Wegner’s project manager, Randy Pawlicki, worked as a subcontractor to McCarthy Building Companies, which was GC/construction manager for the center.

“We fabricated an orchestra shell that was comprised of a flown rear wall, four flown and pivoting side-wall assemblies, and two flown and rotating overhead ceiling assemblies,” Pawlicki states. “Pook, Diemont & Ohl supplied and installed the line shaft rigging and controls that deploy and store the shell components. Their subcontractor, Thern Stage

Equipment, fabricated the winches, rigging hardware, and controls for the shell, as well as the manual counterweight rigging hardware installed in conjunction on the stage.”

At the suggestion of Nagata Acoustics, “We also added a series of adjustable AcouRoll drapes [from acouStaCorp] and vertical banners in custom lengths and widths to adjust the room’s RT60 reverb time,” says Nishball.

“We really achieved our goal of creating a concert hall that turns into a performance theatre,” Ferguson considers. “The acoustics weren’t compromised in any way, and the functionality for theatre and opera is fully achieved. The adjustable acoustic shell takes four people less than an hour to change over. And, considering that it weighs 120,000lb—60 tons—and they have only done it about 12 times, it’s already fast...and getting faster!”

Sound systems

Audio systems for Julianne Argyros Orchestra Hall were specified by Sonitus and supplied by Sound Image Integration, based in Escondido, California. The sound system utilizes Meyer Sound components, driven by Yamaha consoles for front-of-house and stage monitoring. Michael Martin served as Sound Image’s senior project manager, working with Jason Schmidlapp, the original sales engineer who bid the project. “The Musco Center was an interesting installation with many challenges,” Martin recalls, “mostly due to the sheer raw size of the

main theatre space, which is impressive in both its size and design.” Justin Paul Lucas served as SI’s project manager, responsible for the day-to-day build process, with Ryan Ash as project engineer.

“Although Sound Image had to competitively bid on the project, they had input throughout the actual build/construction process with some of the technical directors at Chapman University,” adds Martin. “It took three years from the point of being awarded the project and nearly 18 months for the build process.”

A Yamaha CL5 digital console, with an MB200 meter bridge and three Dante-MY16-AUD cards, was specified for the front of house and a CL3 digital console for stage monitors or video mixing, plus a Yamaha DM2000 digital console for recording duties, with three RIO-3242-D Audinate Dante-format I/O interfaces. Two Yamaha PW800 redundant power supplies were also supplied. “Dante networking played a big part in the install, and it interfaced to the campus IT network to enable streaming of musical performances,” the senior project manager says. A Yamaha 01V96 digital recording console is also available, as necessary. “The Yamaha CL Series is reliable, affordable, and great-sounding,” Vogler adds. “These consoles are easy to use and commonplace in audio production.”

The left-center-right Meyer PA system comprises 29 MINA compact line-array cabinets mounted on a trio of MG-MINA rigging brackets—10 boxes left and right, and nine in the center—plus three 700-HP subwoofers. Delay, balcony, and front-fill cabinets comprise 10 Meyer UP-Junior XP full-range loudspeakers, 10 UPJunior speakers, and 10 UP-4XP compact loudspeakers, plus 33 HMS-10 surround-sound speakers in custom paint colors to match the hall décor and acoustic treatments. “The Meyer loudspeakers produce a comprehensive, high-performance sound—one that integrates nicely with the Nagata acoustic,” Vogler confirms. Also included are three Sound Image W6 custom wiring harnesses, two Meyer iLon-100 network adapters, and three Meyer RMS I/O modules. A 360 Systems Instant Replay2 provides audio playback.

Audio recordings in the separate control room are accomplished with a pair of Apple MacPro 2.66GHz workstations running Avid Pro Tools HD software and connected to an Avid HDX 16x16 digital I/O rack with a SyncHD master clock. Three ATC Model SCM50ASL loudspeakers on Sound Anchor ADMID1-44 stands are used for studio monitoring, augmented by two pairs of Meyer HMS-10 loudspeakers for surrounds.

“The Musco Center project was very challenging,” Lucas recalls, “basically due to the 18-month time frame we had to install the system and then get everything up and running. Construction of the building was around six months behind schedule, so basically we had to stop production on all systems—other than the audio portion—in an effort to ensure vital production systems were ready for

the first performances. Thankfully, we were able to rely on the Dante audio network to quickly overcome the struggle. We had three RIO interfaces and a few Cisco [Ethernet] switches for primary and secondary Dante networking in the control room tying the system together.”

“Use of the Dante network was a vital part in pulling off this rushed performance,” confirms Lucas. “The RIO racks feed two Meyer Galileo 616 units for the main LCR system, front fills, delays, and three levels of theatrical surrounds. In addition, a pair of BSS Soundweb London BLU-160 network processors control distributed audio through the building. We weren’t able to fully power on the main PA system until a couple of days before the first performance, which left no time for error. With the help of Fred Vogler we were able to get the system up and running utilizing the three levels of theatrical surrounds to assist in any gaps in sound coverage. The grand opening, featuring Plácido Domingo, went over beautifully. The house engineer Seiyua Tang, with Fred’s assistance, mixed the main house system on the Yamaha CL5 console, while I had the pleasure of mixing the feeds for an off-campus broadcast, as well as distributed audio and assisted listening. It was a wonderful feeling to pull off such an event.”



One of the theatre’s Meyer Sound MINA line arrays.

Video, projection, and lighting systems

A Christie Roadster HD20-J 1080p projector with an ILS 2.8-4.5:1 SX plus 2.6-4.1:1 lens was specified by Sonitus, together with three Viewsonic NMP-640 network media players connected to a pair of Dell Precision T5600 MS Windows-based PCs for video playback from a dedicated AV control room. A Philips Strand Lighting system was provided by Forman and Associates, with the installation project being managed by Peter Rogers, who for several years served as Strand's vice president of sales.

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Video production utilizes a Panasonic AV-HS450N switcher, AW-HE870 HD cameras with Fujinon XA20sx8.5BMD lens and AJA SDI sync generator, converter, Ki Pro Rack, and a Sierra Video Lassen 3232HD video router. The five built-in camera positions allow for professional in-house video capture and production, all equipped with PTZ controls. The Christie projector delivers HD images on to a 12' x 22' perforated screen, thereby maintaining the 16:9 ratio, and can be easily deployed with the touch of a few buttons. “Infrastructure with fiber, BNC, and data makes outside video production easy to set up, operate, and integrate,” Vogler says. “The film school and other production departments are all making plans” to use the space.

The lighting inventory comprises eight Strand LEKO LITE 5° fixed-beam ellipsoids, 42 LEKO LITE 10° ellipsoids, 80 LEKO LITE 1° ellipsoids, 54 LEKO LITE 26° ellipsoids, 48 LEKO LITE 36° ellipsoids and 20 LEKO LITE 50° ellipsoids, plus 25 ETC Source Four MCM PARs, and 36 Philips Showline SL PAR 155 Zooms. LED instruments include 20 Philips Selecon PLFresnel1, 20 Selecon PLProfile4, and 20 Selecon PLCyc luminaires. A dozen ETC Source Four Lustr2 LEDs with cyc lens and a pair of Robert Juliat Topaze 1119 followspots were also specified. Altman Lighting provided Chalice tunable white LED houselights to provide low-maintenance, high-performance lighting for the audience.

“The Strand Lighting NEO console features nine

portable two-port Strand ShowNet nodes,” Rogers explains, “and connects to a bank of Strand C21 dimmers,” comprising three hundred thirty-six 2.4K performance dimmers, forty-two 2.4K concert dimmers, ninety-six 2.4K house and lobby dimmers, and ten 6K dimmers. Also provided were a bank of Strand Contact relay panels, including forty-eight 1P 20A performance relays, forty-eight 2P 20A performance relays, and forty-eight 1P 20A work-light relays.

“We went with a flexible rig that could easily turn the room according to the center's programming requirements,” Ferguson states. “We also combined LED with conventional lighting, with half on dimmers and the other half under DMX serial control.”

Positive feedback

“What's great about the Musco Center, and what we put a lot of care and effort into, was making a beautiful performance space that doesn't just feel like a room with an orchestra shell wedged into it,” Ferguson concludes. “It's one of the most well-integrated orchestra shells we've ever designed.” Murray adds, “We worked with a great client group and a donor whose vision was to create a world-class facility for students and the public. I think we have done that and more; I couldn't be happier with the result.” Vogler declares: “Helping integrate AV technology into this type of performance space was rewarding. There were a lot of considerations, and we feel good about the outcome. We really benefited from a strong design team.”

“Musco Center for the Arts was conceived with one driving purpose: empowering Chapman University students and faculty to reach the highest levels of achievement in fine arts education, production, and performance,” Bryant considers. Expected to take its place among the nation's top university performance and education venues, “Musco Center stands as a testament to Chapman University's uncompromising standards, relentless pursuit of excellence, and passionate commitment to attracting world-class talent to our campus,” he says.

As classical-music critic Mark Swed commented recently in the *Los Angeles Times*: “Thanks to Toyota, the city of Orange now houses an ideal opera house, potentially the best in the West, and maybe even something more. Unlike Toyota's trademark vineyard-style venues—where, as with Disney, the audience surrounds the stage and feels at one with the musicians—the Musco is a proscenium hall meant for concerts, opera, Broadway, and spoken theatre.”

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