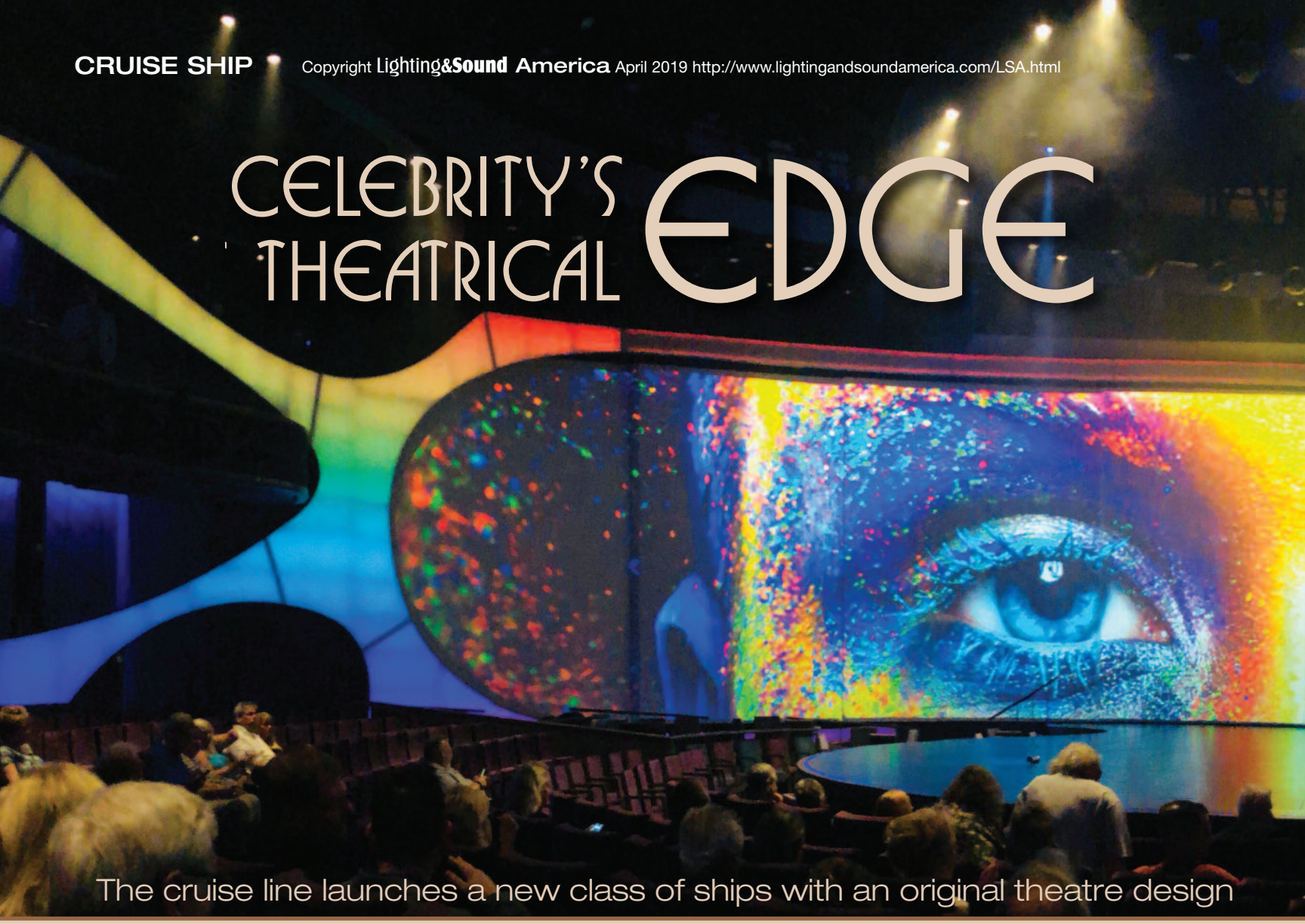
CELEBRITY'S THEATRICAL EDGE



The cruise line launches a new class of ships with an original theatre design

By: Sharon Stancavage

The client "wanted to break the fourth wall and get away from the traditional proscenium theatre," says Scott Butler, Wilson Butler Architects.

Celebrity Cruises' Celebrity Edge—the newest, grandest cruise ship on the waters—is home to The Theatre, an inventive, state-of-the-art venue that is different from anything else found across the Celebrity fleet. "The one thing that they wanted was it to be a very immersive experience for their guests. They wanted to break the fourth wall and get away from the traditional proscenium theatre," explains Scott Butler, founding director at Wilson Butler Architects and lead architect for this project.

A cruise ship theatre entails "a slightly different way of doing things," explains Christopher Vlassopulos, manager, new building entertainment robotics, sound and light, Royal Caribbean International and Celebrity Cruises. (Both Celebrity and RCI are subsidiaries of Royal Caribbean Cruises Ltd.) Butler continues: "We were given the bow of the ship for The Theatre. Prior to our design involvement, the earliest Celebrity ships had performance venues within a two-deck-high volume. We pointed out that a proper theatre can't be created in a space that compressed. A well-proportioned proscenium, raised stage, and great sightlines requires at least a three-deck-high volume—and there should be an additional deck under the stage to provide orchestra pits, lifts, and trap space; above the stage, a fifth deck level should be reserved for a fly gallery. With the added volume, it's possible to bring performers in from all different vantage points."

Vlassopulos adds, "The shipyard [Chantiers de l'Atlantique, in Saint-Nazaire, France] has the design-build contract; they are hired to do the construction detailing, build the ship, and deliver it to the owner in a turnkey manner. The equipment budget is based on the previous ship they built for the owner. So, the shipyard will come back to us and say, 'On the last ship, we gave you X number of moving lights, we gave you 20 line sets, we gave you three pit lifts, we gave you four fly tracks,' and we'll use that as a bartering position. We also designed a refer-

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"The entertainment venues are useful in terms of driving traffic patterns on the ship," Butler says. He adds that a show can lure hundreds of guests out of the dining area, freeing up space for another sitting.

ence ship that they used as the basis of complexity for the contract. The last ship built by the shipyard prior to Edge was Harmony [of the Seas], which is part of the Royal Caribbean fleet. Harmony became our reference in combination with an earlier Celebrity Solstice Class ship."

"When we started designing The Theatre, we had no idea what the shows were going to be," says Ben Marcionek, principal at Wilson Butler and project manager for The Theatre on Celebrity Edge. "We were given a brief with a vision from the entertainment team but, from there, it was very much an evolutionary process with a lot of ongoing collaboration. We were driven by creativity, and that's why we choose the consultants that we typically do—to bring in fresh, interesting ideas. This went on over a long period of time; we had ideation sessions, workshops, and various methods for arriving at the design. It has to be an extremely collaborative effort; we can't design something we're happy with and then give it to the shipyard to make, but there's a bulkhead or something that's a problem. It's different from a land-based project, where you are given floor space and asked to go at it; here we have ship acoustics, we have room acoustics, we have people living right next to the venue, and we even have staterooms above The Theatre. There are certain guidelines and principals that have to be taken into consideration from the get-go."

Although the main purpose of The Theatre is to entertain, other considerations must be kept in mind, Butler says. "The entertainment venues, in particular, are useful in terms of driving some of the traffic patterns on the ship. For example, by putting on a performance, they can use the show to draw 800 or 900 people out of dining, freeing space for another

The stage area features a pit lift about 13' wide. A center lift has two turntables that rise about 7' above the stage.

wave of guests to eat. Therefore, one of the first jobs is to create an anchor venue; to provide guests with something they can enjoy from an entertainment standpoint."

Several shows play in the 900-seat venue. "There are three main production shows and, probably, two separate guest partner shows, such as a comedian or a speaker," Marcionek explains. *Kaleidoscope, A Hot Summer Night's Dream*, and *Hype* are the current production shows, which are created with outside entertainment consultants. "These will go on for five years, assuming they're successful," Butler notes. "In the new build package, we try to deliver enough equipment in the room that someone can come in without anything and put a show together. However, the production team typically supplements the inventory."

The stage

The Theatre features four adjacent stages that work in tandem with three curved projection screens. "Each stage is about 35' or 40' wide and 10' to 15' deep," Butler says. "With this design, we were limited at the center point, and because we thrust the stage out into the audience, we don't have a traditional stage house anymore, so the center screen only has about 8' behind it."

In addition, Marcionek notes, "They have a pit lift that is 4m [about 13'] wide. A center lift has two turntables that go up about 7' above the stage. And two rectangular side lifts, located behind the projection screens, go up about 3m [roughly 10']."

"A lot of the performance takes place in the audience chamber," Butler says. "Dividing th performance areas are two spiral staircases that also revolve both clockwise and

counterclockwise. The bottom of each stairs aligns with lifts on the side stages, so you can walk from the rotating spiral stairs onto the lift, which gives a lot of interplay in the vertical plane."

Performers also appear above the audience, Vlassopulos says. "We have four winches from TAIT for scenic elements; below that is a series of rotating lifts under the fly loft that work in conjunction with the theatrical design of the space and the fly loft. The theatre starts on Deck Three and the ceiling is the ceiling of Deck Six. The fly loft takes up an entire deck."

"We provided a full show control system with Tait Navigator to control all the Videlio-HMS-supplied machinery and four performer flying winches," notes Gemma Hodgson, vice president of business development, permanent installation, at Tait. "We also provided performer flying and controls in two other venues, The Club and Eden [an events space]. The biggest challenges, as always, came from working on the first ship of a class—fitting the equipment in the space along with all the other trades installing cables, HVAC, electricity, etc. It's always a very tight squeeze."

Video

The nexus of the theatre is eight motion-controlled projection screens (two are static) that work with 18 Panasonic PT-RZ21K projectors with 21,000 ANSI lumens and 1920 x 1200 (WUXGA) resolution. "We had a lot of discussions about amping up the projectors and using 30K rather than 20K," Butler says. "But the reality is that when you have that much light, and it's a completely dark space, it's almost overpowering. Video also provides very little dimension unless some scenic pieces are in front. This makes it feel less like watching a video screen, and more like looking at a scenic backdrop. The tricky part is that when you have three to five productions each week, you typically need a lot of storage space. We don't have that on a ship, forcing us to be creative in our design solutions."

"Videlio HMS designed the tracking and rigging system itself," Marcionek says. "Ten screens provide about 16 different configurations." Butler adds. "The performances happen behind the screens, in front of them, and on them. It's almost like the screens themselves act as a backdrop for performers on the center stage and as a proscenium curtain that reveals the stages." Media, provided by several firms, is controlled by a Christie Pandoras Box system with Widget Designer, an advanced control surface creation framework that allows for dedicated user interfaces and interaction logic by simply connecting visual control components. "When the screen is moving, the video moves with it," Vlassopulos says. "The technology is not new but, as very large element in a relatively small theatre, it's pretty impressive."

TAIT Navigator controls four performer flying winches, among other elements.

Sound

To help implement the immersive environment within the theatre, the team decided on a Meyer Constellation sound system. "We have been looking at Meyer Sound and Constellation for a number of different venues and we, particularly our chairman, felt that this was the one to really go for," Vlassopulos says.

Installing the state-of-the-art Constellation acoustic system in a cruise ship—a first, as it turns out—made for a challenge, notes Pierre Germain, Constellation design manager and senior acoustic engineer at Meyer. "Although similar in many respects to high-end Las Vegas showroom systems, a shipboard installation, and associated productions, involves unique challenges, including ship engine noise and movement of the ship in heavy seas, affecting suspended microphones. The frequent rotation of audio operators among shipboard venues and across company ships requires systems and procedures with very rapid learning curves and near-foolproof 'push next cue button' advance programming."

Germain adds, "Constellation is a flexible and highly refined system of active room acoustics. By applying digital signal processing coupled to multiple ambient-sensing microphones and an array of evenly distributed lateral and overhead loudspeakers, Constellation extends or modifies the room's reverberant characteristics to create the optimum acoustics for the event at hand. With Constellation, the same physical space can emulate the acoustics of an ideal classroom, chamber music hall, symphony hall, or

vast cathedral. Constellation is not a PA system or a surround sound system. It does not amplify direct microphone signals from individual voices or instruments, nor is it designed to place discrete sound sources off to the sides or rear of the room."

Butler adds, "When someone is onstage, the sound emanates from a source. And when it hits the back wall, instead of bouncing off the hard wall, the entire room basically absorbs it. We can completely change the acoustic characteristics of a room through the sound system. It can have a reverberation time of up to two to three seconds, or it can be a very dead room for the spoken word."

The key to Constellation is the Variable Room Acoustical System (VRAS). Germain notes, "The VRAS algorithm was developed by New Zealand acoustician Mark Poletti and is available exclusively in Constellation. VRAS places a multichannel reverberator between the microphones and loudspeakers to create a separate, electroacoustically coupled room that simulates the response of architecturally coupled rooms. The effect is so strikingly natural that the result is often realized by listeners only when Constellation is turned off while the sound is being propagated in the room."

Constellation is what Meyer Sound terms a hybrid system, in that it uses both in-line and regenerative sound sources. Germain continues, "An in-line system uses sound only from microphones on or very near the sound sources, adding the early reflection component before distributing it to loudspeakers. A regenerative system also has ambient-sensing microphones placed throughout the space to capture the whole room acoustic before applying

Meyer Sound Constellation is used to create the most natural audio environment possible.

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the desired extension or modification. Some acoustic systems offer in-line capability only; the resultant acoustical characteristics are not as natural and convincing. With Constellation's hybrid systems, the in-line component is largely restricted to augmenting early reflections—arrivals within a tenth of a second after the direct sound—while the regenerative component creates the longer reverberant envelope or 'tail'."

The addition of the Constellation system came late in the process. "The creativity doesn't stop with us; sometimes we do things at the very last minute," remarks Vlassopulos. "It's the first that's been done on a cruise ship. It's a large number of speakers, a fairly high number of microphones, and some very special processing to put the system together, and it is proprietary to Meyer Sound."

Meyer Sound executive vice-president Helen Meyer proved to be key to the process. "Because it was so last-minute and we're a fairly large customer—we've been doing Meyer Sound on the Royal [Caribbean] side for a long time—they really helped make it happen," Vlassopulos says. "We like to push the envelope, and we really did take it to the eleventh hour. Through a collaborative effort, teamwork, and a lot of hours and days, we managed to pull it off. But without Meyer Sound and Helen and John Meyer [Meyer Sound CEO] making it happen for us, it would definitely not have been installed."

The theatre is loaded of Meyer Sound speaker cabinets. Germain notes, "Utilizing 148 speakers, in coordination with 30 microphones that continually sense and respond to the sounds inside the space, Constellation regenerates the optimal acoustics from one moment to the next to provide a sensory experience of sound." Within the space are nine UPQ-1Ps and nine UPQ-2Ps serving as mains, as well as 14 UPJuniors, for balcony fronts and balcony fill; 10 UPM-1XPs, for underbalcony fill; and 23 MM-4XPs, for front fill. The system also includes one 900-LFC, two 750-LFCs, 12 LINAs (six per side), and a Galileo Galaxy audio processing network.

In terms of control, Germain says, "CueStation software [also from Meyer] is used to program Constellation; it also provides the facilities for comprehensive show control and SpaceMap software for a discrete, dynamic surround and immersive effects. A Meyer Sound D-Mitri digital audio platform serves as the common core hardware for Constellation, SpaceMap, and CueStation, including multichannel audio playback and master show control functions for lighting, video, and motion control." Shows are run on a DiGiCo SD5 console.

Lighting

The lighting package includes some of the ship's house fixtures. "Ship-wide, the house lighting is by Helvar [based

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in Finland] and controlled by Helvar," Vlassopulos says. This is common in the cruise ship industry. "Because they have a DMX link, we can occasionally incorporate some of the usable LED elements in the house lighting system into the shows in The Theatre."

The ship's house lighting team included lighting designer Michael Lagrotteria, of MRD Lighting, based in Long Island City, New York, who says, "The Helvar local control station allows technicians to enter into show mode, which gives the show system—a [High End Systems] Hog 4—direct control over all of the lighting in the space. The show itself is run off the Hog 4."

The Hog 4 also works with shipboard e:cue and Madrix systems. "e:cue is a control system from Osram/Traxon," Lagrotteria explains. "It plays back sequences as it takes triggers from the ship-wide house lighting system. In show mode, we switch over; the Hog sends triggers to the e:cue. Madrix is similar in that it is takes triggers from the Hog in show mode. The difference is that the house lighting system never sends Madrix triggers directly."

The conventional fixtures within The Theatre include ETC Source Four LED Series 2 Lustrs, Martin by Harman RUSH BLINDER 1 WWs, and Martin Atomic 3000 LED strobes. The entertainment lighting system also utilizes "Acclaim Flex Tube Pixel units—controlled via e:cue—for linear ceiling and balcony face accents and SIRS-E DMX RGB pixel striplights—controlled via Madrix—for the backlit "X" form surrounding stage and house," Lagrotteria says. ["X" is the Celebrity logo.] The backlit "X" form is "a dynamic LED structure that wraps around the space and is mapped to the video," Marcionek says. Also used are four Le Maitre MVS hazers.

Theatrical lighting was specified and programmed by the team at Tristwell Solutions, based in the UK. The automated package includes 16 Martin by Harman MAC Encore Performance CLDs, 16 Mac Encore Wash CLDs, 51 Mac Quantum Profiles, 44 Mac Aura XBs, and 16 Claypaky Axcor 300 Beams. "There are 12 [Axcors] on a circular truss and four on the floor," notes Benjamin Couling, of Tristwell. The Axcor feature an 8° – 40° linear zoom, 17 gobos on two wheels, motorized focus lens, and mechanical iris. Also in the rig are 24 ETC Source Four Series 2 Lustrs, 10 Martin Atomic 3000 LED strobes, six Le Maitre MVS hazers, two JEM Gladiator X-Stream low fog units, four Lycian 2020-12/E followspots.

The initial response to the Celebrity Edge and its theatre has been strong. "This ship is a game-changer for the brand and attracting a completely new demographic for Celebrity," Butler says.