Honoring the Medal

By: Dan Daley

The National Medal of Honor Museum opens with an extravaganza featuring synchronized audio, video, lighting, pyro, and drones

Located in the heart of Arlington, Texas, the new National Medal of Honor Museum honors the courage, sacrifice, and service of US Armed Forces personnel who took extraordinary action in the service of others. The venue's grand opening celebration, which took place on March 22, was a nighttime spectacular whose scale and intensity were commensurate with what it commemorates.

"It was quite a production, 15 to 18 months in the making of its creative," says Dan Lamphier, VP of production at Live Events Productions, which provided the lighting, audio, and some of the video elements for the event. "We implemented what was designed, but it was the story behind it, the creative, that was brought together with [corporate and event production company] Corporate Magic, and they really did a nice job of telling the story. It was a true team effort: We worked with Corporate Magic for ten months, refining the design to create something special. Bringing everything together on-site, through a week of installation, programming, and rehearsals, it resulted in a spectacular event, and I think everybody walked away with a sense of pride. The lighting, fireworks, drones, and storyline combined to honor the history of the Medal of Honor—it was more than just a building opening; the event brought home the profound significance behind the Medal of Honor."

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ents and the millions of Americans who have served in the United States Armed Forces. The opening night celebration—titled "Mission to Inspire Spectacular"—was a grand affair, with dignitaries, donors, and many Medal of Honor recipients in attendance, along with area residents and visitors. The show took the audience on a journey, starting with a powerful opening and weaving through educational and informational moments that honored the medal's history, culminating in a dynamic finale of light, color, and impact.

Lighting it up

The event featured a stunning 360° display of fireworks, drones, storytelling, and live performances, all supported by an immersive lighting design by Ryan Stumpp, principal at Cue 13 Design. Produced by Dallas-based Corporate Magic, it was crafted to reflect the museum's core mission.

Stumpp brought his extensive experience in such events, gained from nearly two decades at Walt Disney World and Disney Live Entertainment. "The way I approach nighttime spectaculars is to carefully support the thematic emotions of the music and story through a visual journey, much like theatre, but on a much larger stage canvas with a variety of viewing angles and lighting positions," he says. "In this case, it was to set moods that reinforced the narratives of commitment and valor with big and grand looks, bravery and sacrifice with solemn beams to the heavens, and a huge grand finale celebrating honor and legacy, complementing a beautiful drone and pyrotechnics design."

Stumpp brought Kevin Harvey onboard as lighting director to handle the lighting of the gala dinner, held inside a large tent with low trim heights that required a compact framing profile fixture, for which he suggested an Elation PARAGON M as the right fixture for the job. Both designers relied heavily on Elation fixtures and systems for the ceremony, which comprised four separate events: a cocktail party, a gala dinner, a ribbon-cutting ceremony, and the "Mission to Inspire Spectacular." Most notably, Elation's new PROTEUS ATLAS beam-effects fixture, an ultra-long-throw IP66 moving head unit, was showcased, along with the company's PROTEUS BRUTUS, PROTEUS HYBRID MAX, PARAGON M, FUZE WASH 500, and KL PANEL fixtures. These comprised three-quarters of the lighting, some 110 fixtures for the nighttime show. "With the backdrop of a nighttime spectacular and such a variety of important people present, we needed large and impactful lighting looks with the finesse of perfect key lighting to put our best foot forward, and Elation lighting helped us achieve that," he says. The lighting system also relied on Obsidian Control System NETRON devices—EN6 and EN12—for signal distribution.

"It was important that the show be creative yet very emotional," Stumpp says, "but it also needed to be backed with big beams; therefore, I relied on the PROTEUS ATLAS as the flagship lighting fixture. It has a massive front lens and throws a concentrated 0.6° beam of light impressively long distances." These were strategically positioned around the site, including nearby Choctaw Stadium's rooftops, several area parking lots, and atop the Arlington Museum of Art. The fixtures created a 180° backdrop of discrete beams, adding a layered dimension to the event's overall look. "I needed a 'hero' fixture that gave me strong, regal

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moments in the show, and the ATLAS provided that," the designer adds.

The design team also had to consider the broadcast and online audiences, as the event was live-streamed, covered by various media outlets, and documented by an in-house video production team. In particular, Elation's PARAGON M LED profile moving head was selected for its high color fidelity and versatility, ensuring that the live audience and camera crews captured the event's magic in the best possible light.

Also part of the lighting rig were Martin MAC Aura XIPs, Elation SixPar 300IP and SixBar 1000 IPs, Chroma-Q Color Force IIs, hazebase Base Hazer Pros, and RC4 Wireless RC5-EASS wireless transceivers. Control was via an MA Lighting grandMA3 Full Size in Mode 3 backed up by a grandMA3 light.

The firing and launch systems took their cues from the same SMPTE time code as other systems, which triggered the Pyro Digital firing system and the control system from Verge Aero, which manufactures and operates the drones, in this case as a subcontractor to Pyrotecnico FX.

Sonic booms

Lamphier oversaw the design of the event's live and broadcast sound; its details were drawn by Thad Edwards, who was also the primary A1 for the show. The main PA system comprised a combination of L-Acoustics' K2, KIVA II, and KARA II boxes—specifically, six stacks of K2s around the lake plus a dozen SB28 subs, and six more of KARA II focused on the large VIP section—topped by several Syva boxes and with X8 and X12 speakers used as fills, powered by four LA4X amplified controllers and processing through a Lake LM44. More KIVA II and X12 speakers were grouped in point-source configurations around other areas, such as the ribbon cutting and the museum entrance. Audio was mixed through a Yamaha RIVAGE PM5 console; a second, a RIVAGE CS-R5, was used for the other location's mix. These were running the updated RIVAGE DSP-RX audio engine and paired with a Yamaha RIO 16/8 stage rack and a RIO 1608-D digital stage box. Other key gear included Sennheiser K6/ME67 long-shotgun microphones, AKG 414B multipattern condenser mics, Shure Axient wireless body-pack receivers tuned to 470-542MHz, and a Clear-Com Arcadia intercom with 48 FreeSpeak II belt pack stations and a dozen HelixNet stations.

The consoles and PA were networked on a Dante fiber backbone over four d&b audiotechnik DS10 audio network bridges. Rather than a flown system, the PA was designed to be entirely ground-stacked, the better for propagation around the lake that formed the central production stage and to minimize sightline interference with a low profile, Lamphier explains. It was also, he adds, a

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"true" stereo system, despite the breadth of the production campus, able to present a discrete left-right image to viewers.

The event's audio would be a combination of spoken word, in the form of speeches and presentations, and music, both live—the US Naval Academy's Glee Club performed—and prerecorded, notably including the late country singer Toby Keith's recording "American Soldier." Thus, the system had to maintain speech intelligibility and full-spectrum reproduction. "It was a combination of both, but we were trying to reproduce speech and spoken word at a moderate volume with high clarity, which the L-Acoustics speakers were good at, while the music had to be more bombastic, to keep up with the rest of the production," Lamphier says.

LED screen face-off

The production itself was largely programmed and automated, running via SMPTE time code, also fed across the Dante network, which triggered the lighting and pyro cues, drone patterns, and prerecorded audio and video content. That video was shown on a pair of twelve 21' DigiLED LED screens provided by Corporate Magic, arrayed in portrait mode facing each other on opposite sides of the lake, playing a combination of prerecorded and live-feed video content. (Screen content and the Watchout media server were provided by Glyph Studios.) The screens' 6.9mm pitch was more than sufficient for the approximately 75' viewing distance from the crowds. And that distance underscored what Lamphier says was the main challenge of the entire project: its scale. "We ran miles of fiber optic cable and distributed the amplified controllers for the speaker stacks and worked with the power vendor to keep that consistent throughout, all in an area that was open to the public," he says, adding that the real challenge was to make all of that work—and disappear. "There was a strong focus on appearance and aesthetics, not only from our side as a production vendor but also from the creative side, trying to understate the technology so that it was transparent to the audience but still deliver the narrative and the impact," he says. "That was the real trick."

"The rockets' red glare..."

As important as every element was, the pyrotechnics were perhaps the signature one, given the military theme of the museum. They were created and managed by Pyrotecnico FX, one of the brands that formed Live Events Productions when it was established three years ago, and which integrated the fireworks and illuminated drone displays for the Medal of Honor gala. Rocco Vitale, creative director and EVP at the company, laid out the performance campus, the so-called "showbox:" Firing and launching of both were done from the Six Flags amusement park parking lot, while pyro alone was fired from the roof of Choctaw Stadium on the right and from an eSports museum on the left, which also supported some of the more than 1,100 drones deployed for the event. The firing and launch systems took their cues from the same SMPTE time code as other systems, which triggered the Pyro Digital firing system and the control system from Verge Aero, which manufactures and operates the drones, in this case as a subcontractor to Pyrotecnico FX.

"Having that much width on a fireworks display is always an advantage, so the size of the site really helped us out," Vitale says of the aerial canvas they had to work with. "We had an entire theme-park parking lot, essentially. When you get a site that big, it allows us to paint a big picture. Sometimes you do displays and have some constraints around what the site allows and affords you. That was not the case here at all."

Just as LED screens eventually came to be regarded as illumination elements in lighting designs, so too illuminated drones are becoming part of the picture for pyro designs. "We're one of the few [companies] that have an exemption to do pyro off of drones now," says Vitale. "So, it mostly depends on the client, what they want: Some just go for a straight-up fireworks display, some just go for a drone show. But in this show, they interacted. There were moments in the show that were pure drone moments, when there was a narration [point] in the soundtrack when the [image of the] Medal of Honor appeared over the lake, and behind it fireworks were going off. We had to make sure that the color palettes were set properly for each: the Medal of Honor has its distinct colors, and we made sure the pyro behind didn't wash them out. Then there was another sequence in the show, which was a massive portrait of Abraham Lincoln that was purely a drone moment. It was important to be aware of the colors of each type

of element, so that they complemented each other and didn't wash each other out."

Checking the batteries

Traditional pyro will last as long as there's someone to light a fuse; drones, on the other hand, are limited by their battery capacity. In this case, the pyro/drone performance was set at about 25 minutes, including time to altitude, which was about 400' above the lake and spread out as much as 1,200' to 1,500' across the lake's "stage." "You are literally programming a drone show around battery time," says Vitale, whose company has been incorporating drones in aerial displays for more than two years. Then, there's the weather; wind direction and velocity can also negatively affect a drone's duration aloft, as it will need additional power to stay in formation against a headwind or random gusts. And the same source that powers the drones' motors is also juicing its LED light, another constant drain on the battery.

That's changing, however, says Vitale. "The thing about the technology is that these drones are getting brighter, faster, and getting [longer] battery life, which is good. It'll be interesting to see where the technology goes, because what you're seeing lately is that the shows are starting to get bigger, which is cool. So, seeing the technology continually improve is great." They also offer one other critically useful feature in a climatically sensitive environment: unlike actual pyro, nothing burns. "Particularly in the summertime, you have communities on the West Coast where burn bands are happening. Communities are looking to not display fireworks. To some extent, we've invested in drones as a result of that."

But like Lamphier and everyone else involved in the opening gala event of the National Medal of Honor Museum, Vitale was awed by the scale at which it chose to commemorate. "It was an amazing event and we were super proud to be a part of it," he says. "To be a part of and work on something like that was truly an honor."

"Mission to Inspire Spectactular"

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