

Copyright Lighting & Sound America March 2017 <http://www.lightingandsoundamerica.com/LSA.html>

Refitting Madison Square Garden

By: Sharon Stancavage



Fourteen Christie Boxer 4K30 projectors are used to deliver images on the ice and/or basketball court.

Using new gear to put sizzle in the sizzles

“The world’s most famous arena,” Madison Square Garden sits in the heart of Manhattan, its location since 1968. The venue is home to the New York Rangers hockey team and New York Knicks and New York Liberty basketball teams; it also hosts hundreds of additional concerts and sporting and special events each year. “Five years ago, Madison Square Garden began a transformation—a complete, billion-dollar redesign that was done in three summer phases,” explains Marc Bauman, senior vice president, executive producer, creative and technical production services group at The Madison Square Garden Company.

Bauman explains, “We’re very unique; we have a passionate fan base and we’re sold out virtually every night. We have a large and dedicated season ticket holder base, and an interested public that wants to see a game or event at the Garden.”

The venue is also located in one of the world’s most competitive entertainment markets. Bauman notes: “You can live in this area and go to see the New Jersey Devils at Prudential Center or the New York Islanders or New York Nets at Barclays Center. There’s also the Mets, Yankees, Giants, and Jets; they’re all in the same triangle. If someone decides to come to

Madison Square Garden, they are also deciding to not go to the Metropolitan Opera, to not go to a Broadway show, to not go to a fine restaurant, to not go to Atlantic City; there are a lot of things that they have decided not to do that would cost the same thing, so we have to offer value.

“Our company’s philosophy is about engaging and entertaining our guests, and using our resources to make the experience of coming to Madison Square Garden an event,” Bauman adds; it is this vision that has driven the venue’s technological improvements. “Going to Madison Square Garden should be an event. We’re not going to change anyone’s fan loyalty, but visitors are going to have an entertaining and memorable experience.”

Photos: Scott Levy/MSG Photos



MSG's decorative ceiling made projector placement a challenge.

Lighting

"One thing we talked about was the ability to change the fan experience from that of a white-light sports-arena entertainment field to something that had more theatricality, drama, and depth," Bauman says. These thoughts drove a variety of technological changes within the venue.

"We started talking about what we could do with moving lights," he continues. "One of our lighting consultants—Zak Al-Alami, from Arc3Design [based in Long Island City, New York],—came up with a plan for what we could physically do with our available locations. That's how we came up with 12 custom trusses designed by TAIT [headquartered in Lititz, Pennsylvania], containing four lights each, plus all the

cove lights and the bridge lights." The moving light package was originally provided by Atomic Lighting, also of Lititz, which was subsequently purchased by 4Wall Entertainment. The system is comprised of 28 Claypaky Sharpys, 12 Philips Vari*Lite VL4000 Spots, 12 VL3500 Washes, 12 VL4000 BeamWashes, and 40 Claypaky Mythos 2s, as well as numerous ETC Source Four Lekos used for both game and architectural lighting. Lighting was originally controlled via an ETC Eos console. Bauman adds, "I was unaware of how much TLC some of these fixtures need, based on the amount of use they get, so we recently purchased a number of spares from [New York City-based] WorldStage Event Services."

The new theatrical lighting system premiered in October 2015. A few months later, a group of venue executives happened to walk through on New Year's Eve, as the group Phish was holding its annual performance. Shawn Bennett, vice president, event presentation for the New York Knicks and an avid Phish fan, asked Bauman to get in touch with Chris Kuroda, the band's lighting designer. Kuroda, picking up the story, says, "They called me up, we talked budget, and they got me down there for seven days to rework some of their cueing."

The key to both the Rangers and the Knicks games are "sizzles"—the pre-produced pregame opening presentations that combine lighting, video, and audio; it was Kuroda's job

to improve them, as well as the additional cueing within the games. Kuroda adds, “I rewrote the Knicks sizzle in about two days with their house programmer; I rewrote the Rangers sizzle

in about two days as well.

“While I was sitting there, randomly programming these things with their house programmer, I overheard them having a conversation about how they

really weren’t satisfied with their current in-house console,” Kuroda continues. “They wanted their install to be used by any show that came in. They wished that the building could be run on an [MA Lighting] grandMA2, but they had been informed that it couldn’t be done based on the building’s firmware structure. I turned around and stopped them and said, ‘I don’t think that’s true, and if you are interested I can prove it.’”

Kuroda decided that Andrew Giffin, his programming partner and co-designer, would be the perfect person to help make the building grandMA-friendly. Giffin arrived in New York the next day. “It took him about four or five hours, and by one in the afternoon, he had the entire building running on the MA,” Kuroda explains.

He continues, “Because we were no longer working on an Eos, we could write the cues on a grandMA, so the cueing would be better and more unique, and we would be capable of doing more. I convinced them if they wanted the best result, they should let me use Andrew.” The team at Madison Square Garden was amenable, and Giffin came onboard as associate designer and programmer.

“For the 2016/2017 hockey and basketball seasons, instead of editing old cues, we wrote every cue necessary to put on a Knicks or Ranger game from scratch on the MA,” Kuroda says. “It was about four months of a lot of cues—getting the structure together, figuring out how to write the cues, and, more importantly, trying to be clever with the cueing.” Clever cueing meant thoughtful cueing. “The one thing we noticed with the previous cueing was that everything looked the same; a T-shirt toss looked just like a goal being scored. It was random ballyhoo basic cueing. We took it upon ourselves to make every cue—of the hundreds and hundreds of cues we had to write—unique within its own form. For example, we wrote great T-shirt toss cues, but they



Video content is from Batwin + Robin Productions, Moment Factory, and MSG’s in-house motion designers.



The venue has 12 lighting positions that remain in place all year.

weren't as powerful and animated as a goal being scored, because that's a bigger moment.

"We also cued out all the Knicks City Dancer routines; there are about 40 of them," Kuroda adds. The 20 Knicks City Dancers also have RC4Magic-900 DMXpix dual string pixel drivers in their costumes, which work with RC4Magic-900 DMXio data transceivers. "The RC4 units are super reliable—especially in NYC's harsh RF environment. We run on 900MHz to avoid all the building's 2.4GHz sources," Bauman says.

"In hockey, they have period opens that are about a minute and a half of video and music; all that was also cued out," Kuroda says. The games also feature "player activations." Bauman explains, "These happen at certain times during the year, so every game isn't the same. Lotto has a promotion, Celebrity Cruises have a promotion, Delta, Kia, and so on. There are different activations that we create with projected graphics on the ice and on the court."

The grandMA platform has other advantages, Bauman notes: "What we have now for pre-viz is free; it's part of the grandMA infrastructure and anyone can have it. Now, we are able to give the video content to Chris, and he can spend time in his house, as opposed to 12 hours in the arena." He adds, "It isn't a money issue—we just never have that kind of time available in the building." Kuroda says, "We also have the technology to previz over Skype. Gif [Andrew Giffin] and I are in separate cities, but that way we are still able to accomplish the tasks given to us."

When the automated lighting package was installed, production designer Steve Cohen was the first to integrate it into his lighting rig for the Papal Mass at Madison Square Garden on September 25, 2015. Bauman notes, "The first year with the Eos, nobody really wanted to use it. Tours were coming in with their own consoles; they didn't know where our lights were and didn't have time to program them." Of course, the grandMA2 is the hands-down favorite in the concert touring market. "What Gif has done is create an MA 3-D model that's literally to the millimeter of the Garden; it's that precise," Kuroda says. "Marc can email it to tours coming into the building, saying, 'Here's a 3-D model. Program at home, come in, and you'll have some programming on the day of your setup'." Bauman adds, "We are offering this system to touring acts free of charge. So designers are getting 112 moving lights—no rental, trucking, load-in, load out, just program and go."

Kuroda explains, "For the next project, I'm going to write a show just for this system. It's going to have a significant number of cues and effects for outside designers to use; we're going to make it really, really easy to trigger, no matter what anyone brings in for a lighting console. There will be a cable to plug into, and they will have preconceived looks, already made by me, for their shows. Things like corporate events will have access to an entire light show's

DOUGHTY

Since 1970



QUICK TRIGGER CLAMP

- Spring loaded jaws leave hands free to lift and position the load
- Hang heavy luminaires and fixtures single-handedly
- Fits 38mm - 51mm tubes
- High tensile aluminium extrusion, TÜV certified.

**THE ORIGINAL
and still the best**

(615) 470-5255
sales@doughty-usa.com
doughty-usa.com



worth of programming.”

The final details are still in the works. “We’re thinking of doing it electronically, so that we can show video.” Kuroda says. “We’d like to present it on MSG’s lighting iPad Pro or whatever. We would have a still and a video of every look, and maybe another video of it being used in a recent event. We’d give them as much information as we can.”

Projection

Bauman wanted to add projections

into the mix, but the venue’s decorative ceiling provided an obstacle. He notes that in most venues, projectors are hung in full audience view. The first two vendors he approached about hanging projectors above the decorative ceiling weren’t interested. “They basically said, ‘It’s not possible; you’ll never get the convergence angles right,’” he reports. Then he contacted WorldStage Event Services, located down the street from Madison Square Garden, and got an entirely different response. “WorldStage said, ‘This is a

great challenge and we can make this work. Guaranteed,’” he notes.

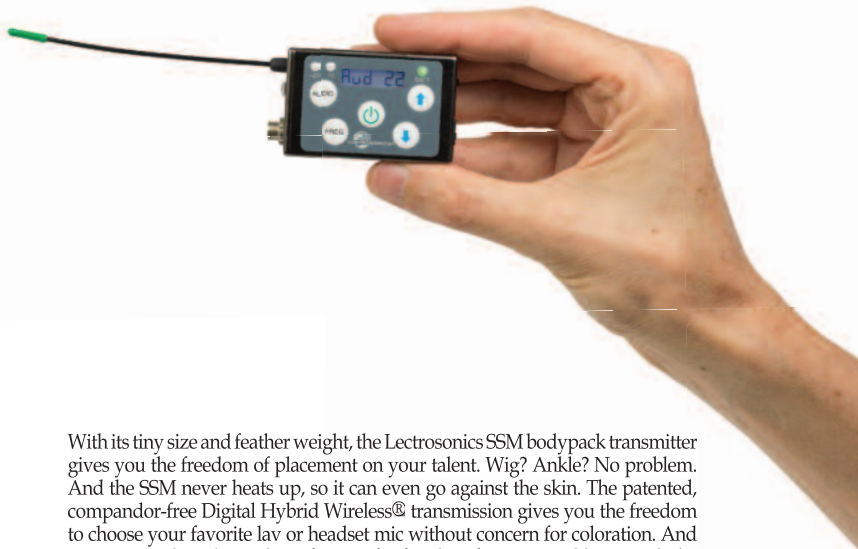
Projector placement was challenging, Bauman says: “We were limited as to where we could put them on the ceiling, because of the HVAC up there, as well as the building infrastructure.” Ultimately, 14 incandescent fixtures were removed for the installation of seven pairs of Christie Boxer 4K30s. Bauman notes that a great deal of work was necessary to accommodate the products among air-conditioning ducts and power raceways. There are four d3 Technologies 4x4 pros and two 4x2 pros controlling the projectors. “We upgraded from 8TB of storage from the original 2TB,” he adds.

Content resolution was also a concern. “We did [resolution] tests between 2K and 12K,” Bauman says. “A discerning eye can see the difference between 2K and 4K and 7K imagery. At about 7K, when you’re 75’ away in a seat, your eye does not see the difference of higher resolution. The ice creates a bit of a diffraction blur so that, at a certain point, higher resolution is massive amounts of storage and rendering time, and it doesn’t make any sense.” For the Rangers, the content is created in 7K; it is done in 4K for the Knicks.

“We spend four or five months talking with the design team, in this case, [New York City-based] Batwin + Robin Productions Inc.,” Bauman says. “We’re also working with Moment Factory in Montreal. We put a lot of time, money, effort, and thought into making these very visually dynamic; we also use original music compositions, which are mixed in the arena for ultimate sonic impact.”

“We also have our own render farm,” he adds “Two years ago, I didn’t even know if ‘render farm’ was one or two words; now, we have a 30-machine [Apple] Mac [Pro] Trashcan setup—they’re fully loaded 12 core machines, and they’re all networked together. We can create something and, instead of waiting for a week to

Freedom.



With its tiny size and feather weight, the Lectrosonics SSM bodypack transmitter gives you the freedom of placement on your talent. Wig? Ankle? No problem. And the SSM never heats up, so it can even go against the skin. The patented, compandor-free Digital Hybrid Wireless® transmission gives you the freedom to choose your favorite lav or headset mic without concern for coloration. And Lectrosonics has always been famous for freedom from RF problems, with the SSM being no exception. Then there’s the ability to use a smartphone app for changing settings, the wide 75 Mhz (3-block) tuning bandwidth, and the choice of 25 or 50 mW RF power, right in the menu.

Of course, you have the freedom to spend quite a bit more than the SSM on other miniature bodypack transmitters, but why would you?

Demo the Lectrosonics SSM and prepare to be amazed.



<< Scan here to learn more about the SSM
www.lectrosonics.com or 1-800-821-1121
 In Canada, call 877-753-2876
 In Europe, call +33 (0) 78558-3735

get it pumped out, it comes out in 15 or 20 minutes. The sizzles are created by outside agencies, but every game has content that we create with our in-house motion designers; minute-wise, at least 75% is done in-house.” Content is managed via Portal, a media asset management system from Cantemo, headquartered in Stockholm, Sweden.

Special effects

“We have pyro on almost every Knicks game,” Bauman says. The pyro is provided by Holbrook, New York-based SDFX International, headed by president Steve Dobo. For each Knicks game, Dobo uses 16 Next EFX silver gerbs. Bauman explains, “The pyro is located within the scoreboard, and that never changes. They simply lower the scoreboard on the morning of a game and load the charges. We also have four MDG ATMe hazers [from SDFX] in the ceiling, which fill the entire arena with enough haze for the lighting effects in eight minutes.” Although the Knicks use the bulk of the effects, the Rangers have been known to use them in the playoffs.

Bauman saw the *Drones Tour*, featuring the band Muse, and was intrigued by the piloted inflatables used; this led him to Airstage, headquartered in Stuttgart, Germany. “When Marc first contacted us, he came to us about our programmable AirOrbs—radio-controlled, neutrally buoyant, helium-filled spheres,” explains John R. Barker, chief sales officer of Airstage. “He wanted 15 or 20 AirOrbs to fly in choreographed formation with the Knicks City Dancers, using optical tracking and our autonomous flight-control system,” Barker, his team, and the AirOrbs took a trip to New York and worked on a plan with Madison Square Garden. In the end, for a variety of reasons the use of this many AirOrbs was shelved.

However, Bauman liked the product and went back to Barker with a new concept: one AirOrb with an RF cam-

era on it. “Specifically, I wanted it to fly over the Knicks City Dancers as they performed, to get that Busby Berkeley aerial shot,” Bauman explains.

Airstage has put cameras on other helium-filled flying objects, but never the AirOrbs. “In the past,” Barker says, “the cameras were heavy and the quality was not good. GoPro has a line of lightweight cameras that sends a very good-quality signal that’s very usable. It’s also durable, so it’s more feasible to use them on our objects.” Tests with the GoPro4 were positive,

and the Madison Square Garden team inked a deal with Airstage for two newly minted objects christened AirCamOne.

“This has helium in it, so we don’t call it a drone; we call it a blimp,” Bauman explains. “In NHL and NBA parlance, you can have blimps in the arena; you can’t fly a drone in New York unless you have a FAA license, and that’s a really complicated process.”

The AirCamOrbs react much like helium balloons, if there is a malfunc-

TRUST THE ORIGINAL

SETTING STANDARDS

UNMATCHED RELIABILITY

SUPERIOR QUALITY

INNOVATIVE SOLUTIONS

XLR XX Series

More than just connectors. We put our long time know-how and our whole passion into our innovative products and unique solutions. No matter whether a rock band or a lighting designer, an industrial application or a broadcast studio – Neutrik offers high quality and reliable solutions for every application. For more information visit www.neutrik.com

NEUTRIK

tion. Barker explains, “A drone needs to have its motors running constantly,” to keep it in the air. AirCamOrbs can turn their motors off and will still float

in the air. Should an AirCamOrb malfunction, it will drift to the ground extremely slowly; you can push it up with one finger. There’s no question of

it falling out of the sky.”

The AirCamOrb is operated by pilots from SkyCamUsa, a team of professional drone camera operators headed up by freelance drone pilot and camera operator Jimmy Olivero. “Control of the AirCamOrb is through a six-channel radio-controlled set, and is very similar in operation to a drone camera,” Olivero says.

The AirCamOrb is one of 24 cameras (manned, POV, and remote) used at Madison Square Garden; the images appear in real time with minimal lag, on GardenVision, the venue scoreboard. Barker notes, “The AirCamOrb can go anywhere, from the top of the room to over the ice or court. There’s no other camera that can do that.” Bauman adds, “We fly it up high in the 200 and 300 sections, the highest-level seats. These people are normally not engaged on camera, but now they are an integral part of the on-camera fan experience. Also, there was no practical way to get a camera



#AirCamOne, from Airstage, in action over the audience.

Photo: Michelle Farsi/MSG Photos



pointman 
LIFTING PRODUCTS

THE POINTMAN ELECTRIC CHAIN HOIST

The future of lifting for the entertainment technology industry.

- 1/4 Ton through 5 Ton capacities
- Models available for use with most variable speed control systems
- Modular design – easy to add second brake, encoders, and more
- Custom designs available for your special projects

Chain hoists aren't new, but they can be made better.

Tel: +1(805) 676-3322
Email: sales@pointmanlifting.com
Web: www.pointmanlifting.com



Pyro, provided by SDFX International, is a part of every Knicks game.

Photo: Rebecca Taylor/MSG Photos

on the organist in his loft; the AirCamOrb camera gets right up close to him. We give the feed to the

Madison Square Network, which they use on their telecasts, independently of how we use it." The GoPro can

record imagery, which is used variously, he adds. The AirCamOrb premiered last fall

Factory Direct SGM LED Fixture Closeout

Save **THOUSANDS** on **NEW IN-BOX LED Fixtures Direct From The Factory**



X-5 White LED Strobe

SGM has introduced two revolutionary new LED strobes — designed to deliver the same output as conventional strobes from one fifth of the power.

Experience the extreme luminous output of nearly 3,000 pure white LEDs placed into three individually controllable LED segments. The X-5 makes it possible to create unique effects never delivered before by a strobe.

The X-5 is a lightweight, compact and ultra-high performance LED strobe with an exceptionally low power consumption of only 4 Amps. The X-5 is a robust, state of the art LED fixture providing an alternative to traditional, expensive and fragile Xenon lamps.

Available In:
No. 80090001



XC-5 Color LED Strobe

The XC-5 has been designed to revolutionise the strobe industry and mark the end of the old xenon-based effects which have such high wattage that they need many generators to power them.

SGM's new LED strobes can produce numerous different flash combinations.

The XC-5 colour strobe utilises 1,080 RGB LEDs, boasting just 4A power consumption (with 6W standby power) and a lamp life of 50,000 hours.

Housed in a black, slim aluminium chassis, the XC-5 contains 120° lens as standard, tilt of 0°-110°, 1 to 7 DMX channels, and set up is via OLED 5-button graphic display.

Available In:
No. 80090002



P-5W LED White Wash

Offering the same mechanics and SMPS control as the P-5, it has a stunningly bright output achieved by the 44 x 4 White 10W high power LEDs.

The P-5 W is a highly effective wash light, with a power consumption of just 410W and a LED source life expectancy of 50,000 hours.

Lenses are interchangeable via 15°, 21° and 43° lens kits and the fixture boasts 1 or 2 DMX channels. Set-up is via an OLED graphic 5-button display.

Available In:
No. 80030508 15 Degree, No. 80030501 21 Degree
No. 80030507 43 Degree, and
P-5TW Tunable LED White Wash - No. 80030513 43 Degree

www.stagelightdirect.com

7020 Columbia Gateway Drive, Columbia, MD. 21046 phone: 443-538-4489

during a New York Rangers game, and was also intended for use with the Knicks City Dancers during Knicks games. Bauman explains, "The crowd was watching the AirCamOrb and not the dancers, so we ended up not doing that." The Rangers and Knicks audiences adore the AirCamOrb. Olivero notes, "Fans gesture for me to get closer with the AirCamOrb, and when I do they are always dancing and cheering."

Resorts World is sponsoring the AirCamOrb, which is shaped like a giant white roulette ball. Bauman concludes, "We're definitely the only arena in the United States with something like this. That, to me, is cool—not just to be first but to be first and it's working."

The process at Madison Square Garden is ongoing, Bauman says, "We're also talking about using CAST Blacktrax, coming up with some interactive games in the future and using the tracking technology of Blacktrax



Kuroda's color palette frequently touches on the team colors of the Knicks and the Rangers.

with the d3 server with graphics and lighting." He adds, "We shifted the paradigm in terms of what the fan experience would be during times


other than game play. We want to continue to make it more fun to be at Madison Square Garden, as opposed to any other arena in our area." 

Photo: Zack Lane/MSG Photos

Truss, staging & rigging manufacturer



Milos. Works better.

Dynamic, reliable and affordable

solutions for Events & Exhibition,
Pro-rentals, Djs & Bands, Access

www.milos-systems.com



Area Four Industries is a dynamic „think tank“ that guides activities with our MILOS, LITEC, TOMCAT & JAMES THOMAS ENGINEERING brands. Our mission is to elevate event engineering & safety practices through continuous improvement and education programs in partnership with leading industry professionals.

Area Four Industries America Inc.
5427 N. National Dr.
Knoxville TN 37914, USA
T +1 800 411 0065
info@areafourindustries.us