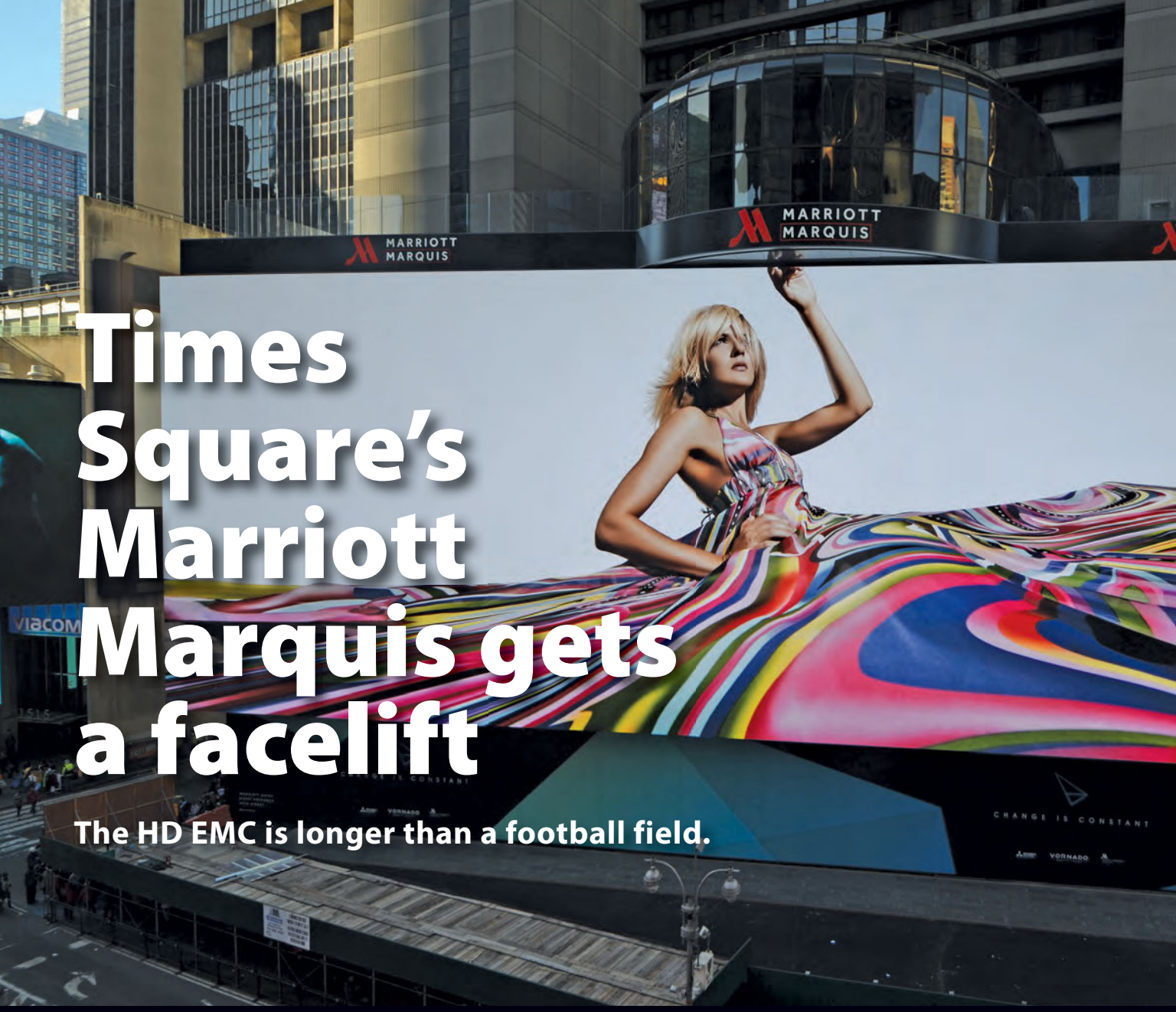


Times Square's Marriott Marquis gets a facelift

The HD EMC is longer than a football field.

By Louis M. Brill

Photo courtesy of Vornado Realty Trust

In 2014, the Marriott Marquis Hotel in Times Square redressed its building facade with a single, 25,000-sq.-ft., 10mm, HD, LED screen, which extends across the hotel's entire frontage. The six-story digital display peaks at 77 ft. high and spans 329 ft. long at 1535 Broadway (between 45th and 46th Sts.).

The sign is owned and operated by Vornado Realty Trust (NYC), a fully integrated Real Estate Investment Trust (REIT) and one of the largest U.S. owners and managers of commercial real estate. Recently, Vornado leased the front portion of the Marriott Marquis to transform it into a street-level and underground, 45,000-sq.-ft. retail space.

The new Times Square spectacular, manufactured by Mitsubishi Electric Diamond Vision (Warrendale, PA), introduces its Real Black™ LED technology, which provides a higher-contrast, continuous black face that wasn't possible with any red, green and blue (RGB) LEDs or surface-mount-diode (SMD) LEDs.

The Vornado-Marriott sign's visibility is intense, not only for its size, location and high resolution, but also for its close-up viewing opportunities.

"This is important for advertisers," says Todd Stih, Mitsubishi's national sales manager, "because many pedestrians will be very close to the sign, looking up at it. Even at a short distance, pedestrians can see the entire LED screen's crystal-clear image, without any louver obstruction or color artifacts possible when viewing a typical LED screen. Although the top of the sign is 100 ft. above street-level, viewers 17 ft. away can still clearly view its content. Thus, with a 75°, downward viewing angle, and equally expansive horizontal viewing angles, content on the Vornado-Marriott display is akin to closeup viewing of an indoor SMD LED display."

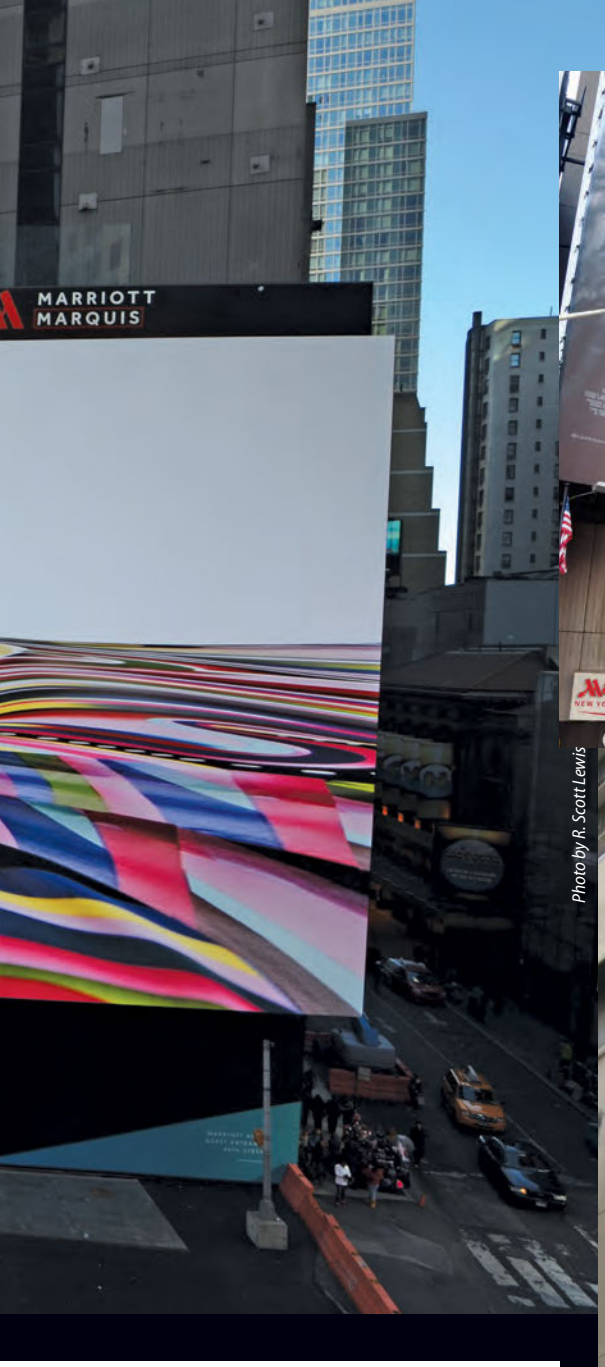


Photo by Alex Robson

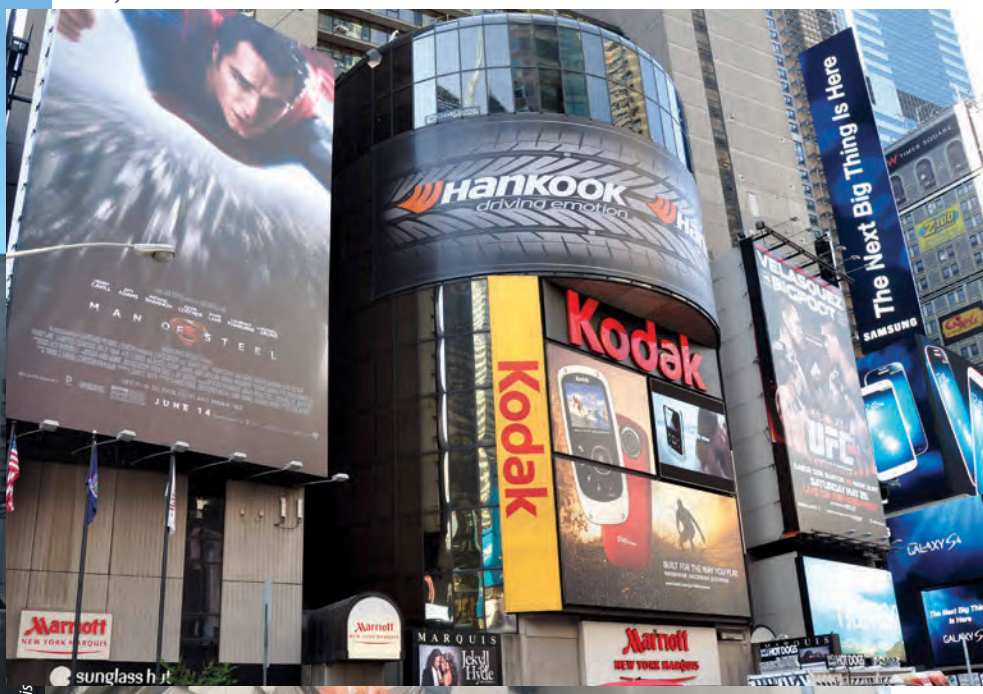
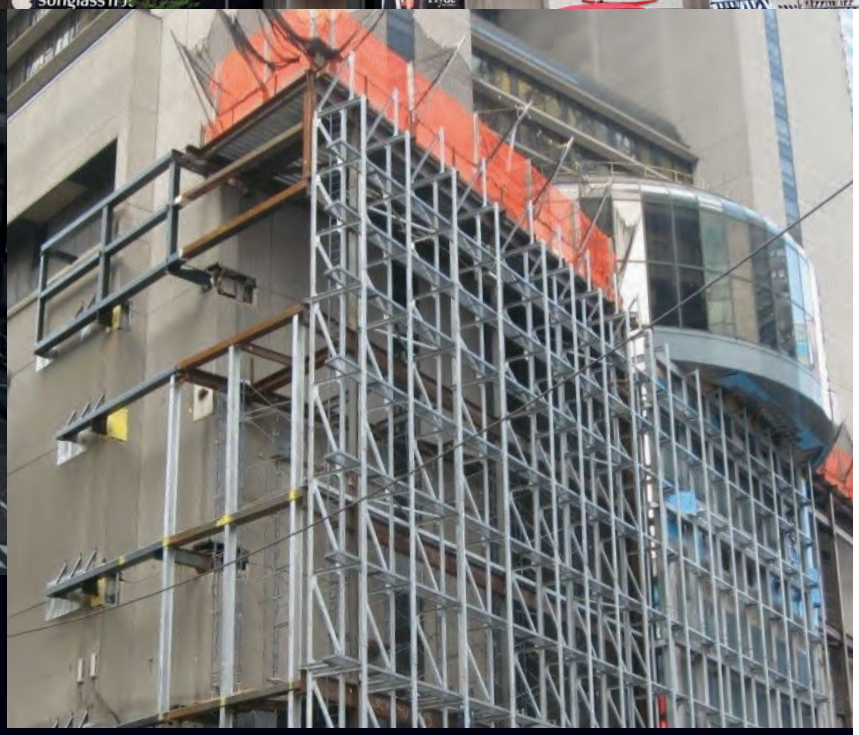


Photo by R. Scott Lewis

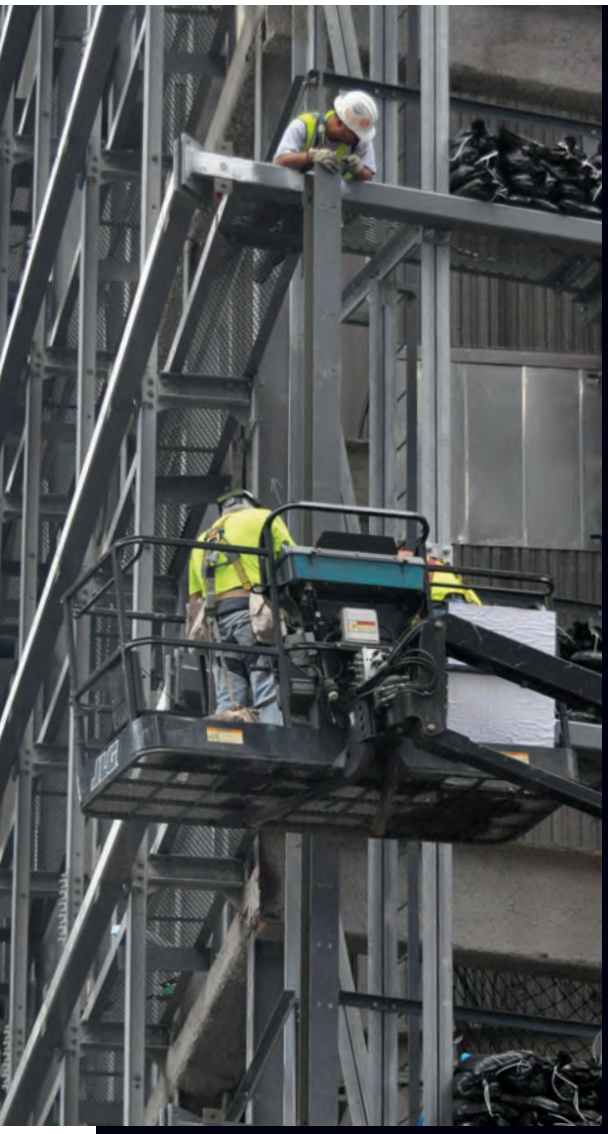


(top) The original Marriott Marquis sign debuted in 1986. Remember when Kodak sold film? (bottom) The reddish-orange horizontal beams are the primary steel structure, while the structural "face" is the secondary steel to which the LED cabinets will be attached.

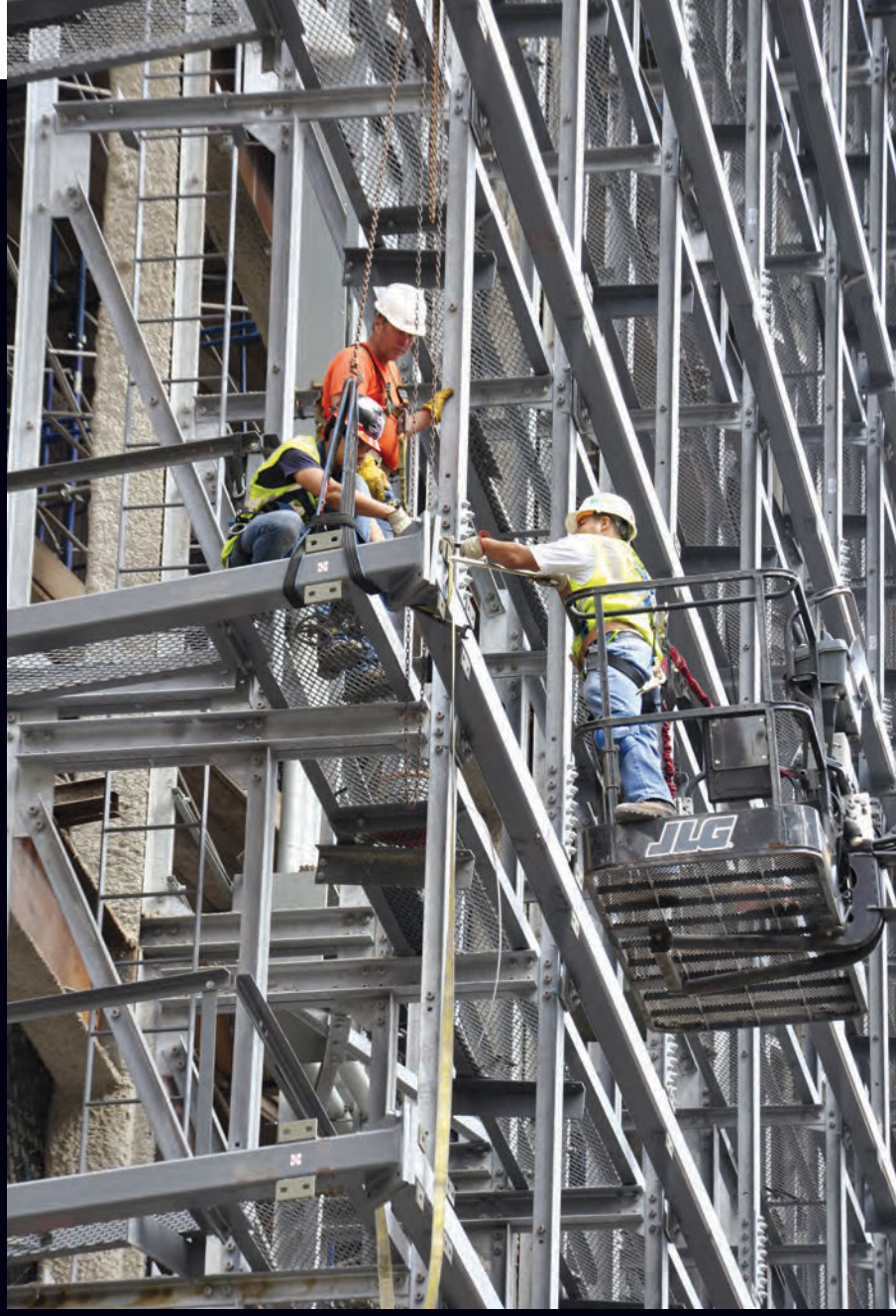
Manhattan's largest billboard

The Vornado-Marriott sign is managed by Diversified Media Group (DMG), of Kenilworth, NJ, a company that specializes in managing, monitoring and maintaining electronic-digital-signage (EDS) networks. The sign's content and playback system operates from a YCD Multimedia (NYC) C-Nario platform. File sizes vary depending on the content file formats, which have included H264, MPEG2, live video feeds and HTML5 files. The Mitsubishi screen configuration varies from a single picture filling the entire screen to a horizontal split image with the upper-screen portion filled with a single advertising image, while the lower portion simultaneously presents several smaller, 1,080, high-definition images. More specifically, Stih noted varying image templates allow the screen's content manager great flexibility in programming content on the Vornado-Marriott LED screen.

The Vornado-Marriott LED sign presents a 10mm 3:1 SMD pitch, a pixel density of 2,368 x 10,048, and nearly 24 million pixels throughout the screen. The display offers a video quality that exceeds 4K resolution by nearly 15 million pixels. The full LED screen was assembled with multiple, 6-ft.-high x 8-ft.-wide LED cabinets (IP65/front and IP57/rear) for 520 total modules.



Photos by Alex Robson



(left) Vertical beams were wrestled into position. Bags full of gravel helped hold the frames in their proper shape. (right) The sign grid corners were bolted into place.

"The sign's brightness range levels off at 5,000 nits, and has automatic sensors to adjust the sign's brightness levels depending on its changing ambient light conditions (time of day, sudden cloudy conditions, dusk, etc.)," Stih said.

A major challenge during the LED sign's incarnation in Times Square "was that its installation was on the front face of a very heavily trafficked 24/7 hotel" and, despite that, the sign's construction was accomplished without any significant disruptions to the hotel's day-to-day management. As with most sign installations, it had several phases: removing all the original sign attachments, rebuilding the Marriott's east façade, erecting the supporting sign grid and, finally, installing the sign cabinets that comprise the eventual, gargantuan sign system.

The grid

R. Scott Lewis, the engineer who designed the secondary, steel-grid framework on the front of the hotel, discussed the sign grid's installation: "The first part of that frame structure was designed by Weidlinger Associates [NYC], a company that specializes in the design and creation of high-rise buildings. It created the primary steel that anchored the sign grid to the Marriott building. With the primary steel in place, the secondary steel was attached to it, and it received and supported the final placement of the Mitsubishi LED cabinets on the building."

Lewis continued, "Essentially, the secondary-steel structure was a grid of 80-ft., vertical trusses and 6-in., horizontal square tubes that tied the trusses together and covered the entire front of the Marriott Hotel's east-facing façade. The steel grid ran the entire length of a Manhattan city block."

As for the steel grid's assembly, Lewis observed that much of it was bolted together because it's much more economical to drill

Photo courtesy of Vornado Realty Trust

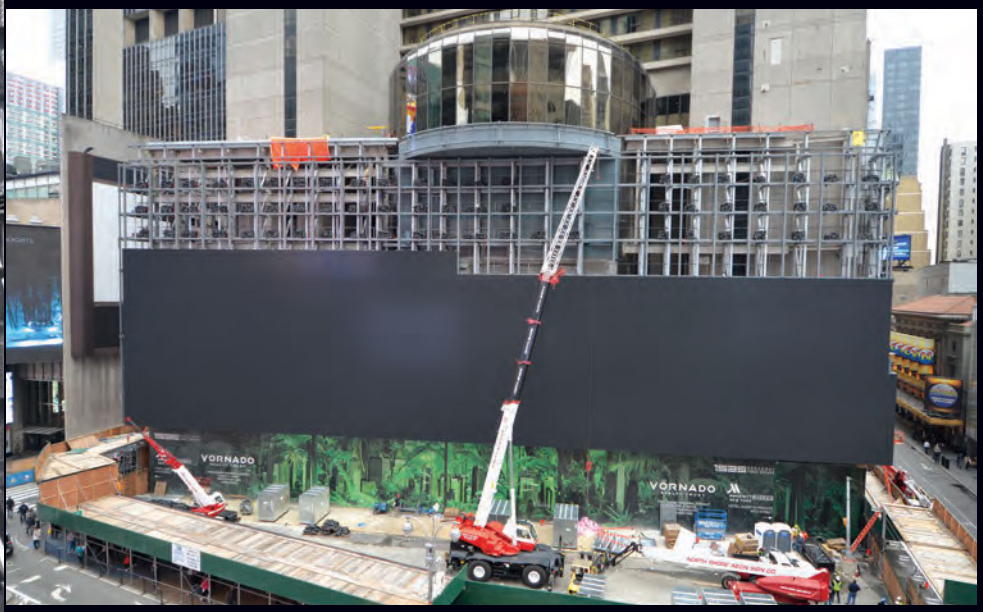


Photo courtesy of Vornado Realty Trust

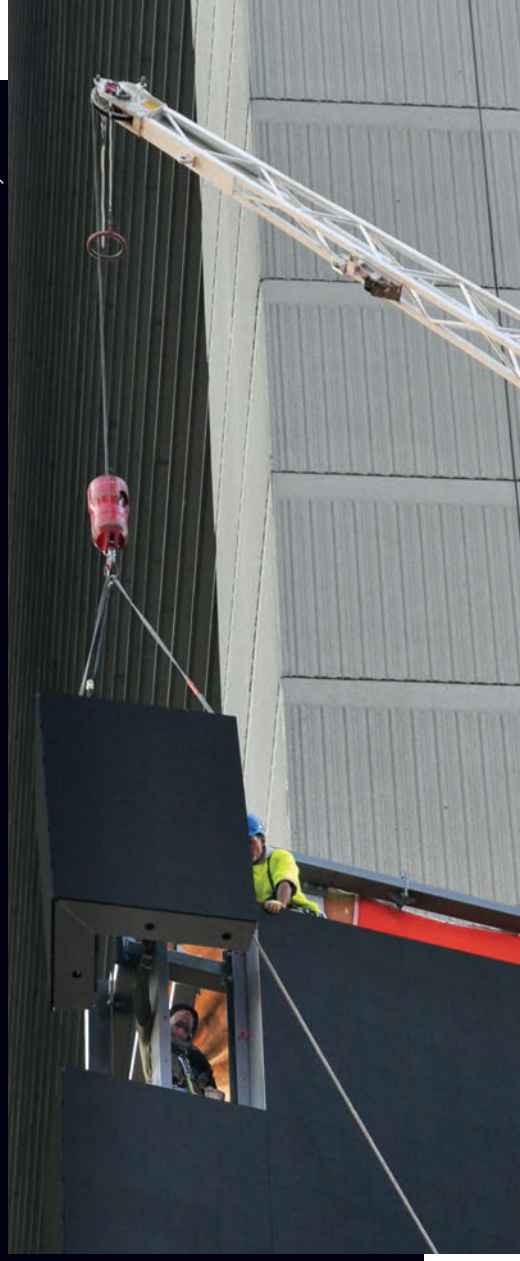


Photo by Alex Robson

(top) The completed steel sign grid is attached to the front of the hotel. (bottom) The Mitsubishi LED display cabinets begin to cover the grid.

The display's corner cabinet is carefully placed on the steel grid.

holes in plates, angles, channels and insert bolts, than welding lots of metal together. Once drilled out and set up as individual grid members, all the grid pieces were brought to the Marriott work site and assembled, which connected all the secondary steel to the primary support structure.

An interesting assembly technique involved temporarily adding a ballast system of specifically weighted gravel bags to the steel grid.

"All very large steel structures, as they are put together, have a natural tendency to deform from their preferred angular shape," Lewis said. "The sign grid has very tight, right-angle tolerances for the fitting of the LED cabinets on the steel structure. The deforming of the grid becomes a real problem for getting perfect LED cabinet alignments as they're placed on the screen grid."

The solution is very elegant and simple, Lewis said: "Before the LED cabinets were brought to the site, we loaded the grid structure with gravel bags, whose total weight matched the weight of each LED cabinet. As the gravel bags were placed on the grid, they prevented the sign grid from deforming. Later, as the LED cabinets were added onto the sign grid, the gravel bags were removed, which allowed the sign grid to keep its preferred shape intact and ready to receive the LED cabinets."

Because the sign was rear-serviced for maintenance, the sign grid had a series of nine catwalks at different levels, which allowed sign crews back-of-sign access for service and maintenance.

North Shore Neon's role

Of the many subcontractors, North Shore Neon Sign Co. (Deer Park, NY) a company that specializes in signage design, permitting, manufacturing and installation, played a pivotal role, according to Patrick Dooley, its VP of business development: "We were responsible for removing all of the previous

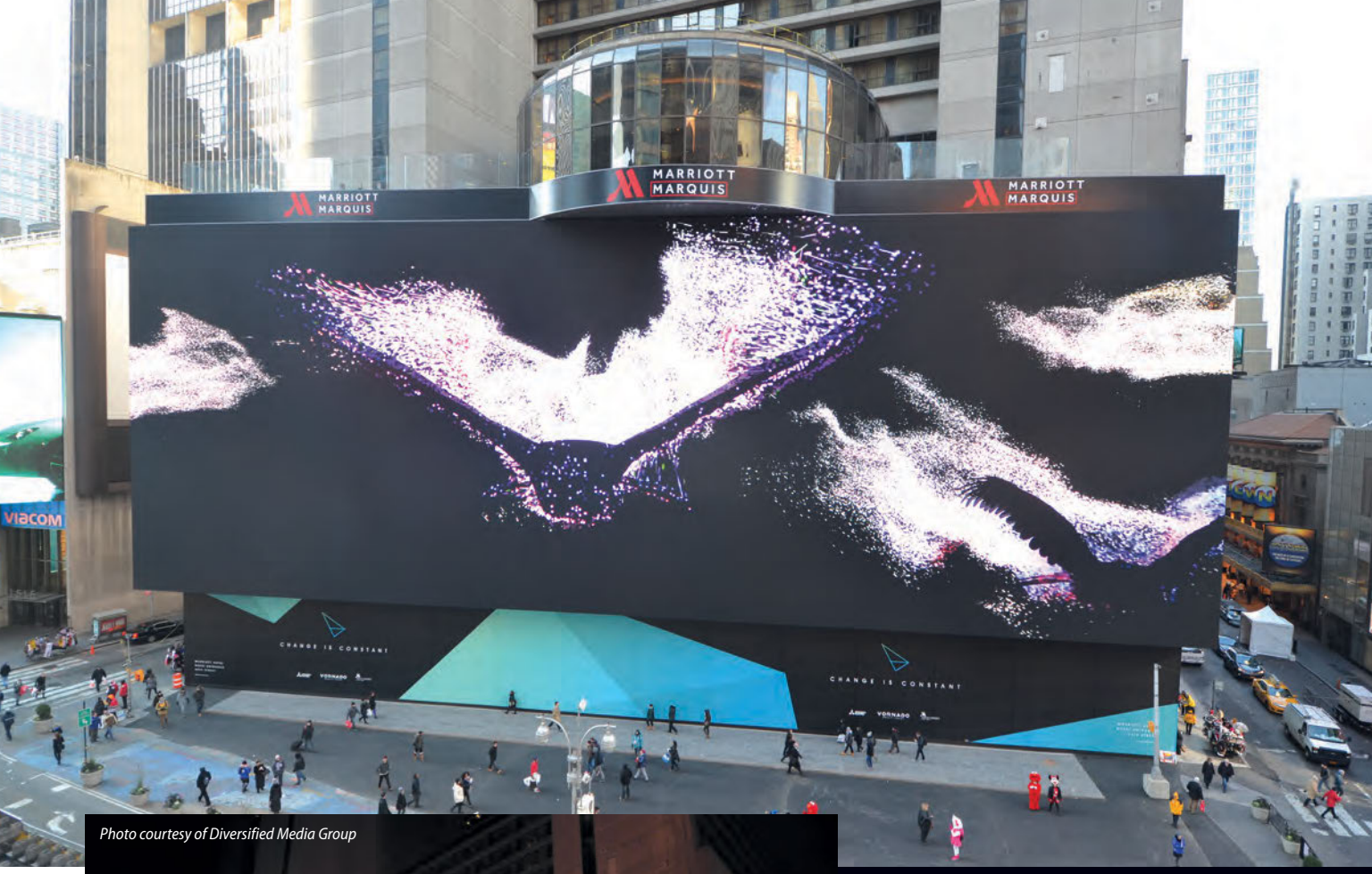


Photo courtesy of Vornado Realty Trust

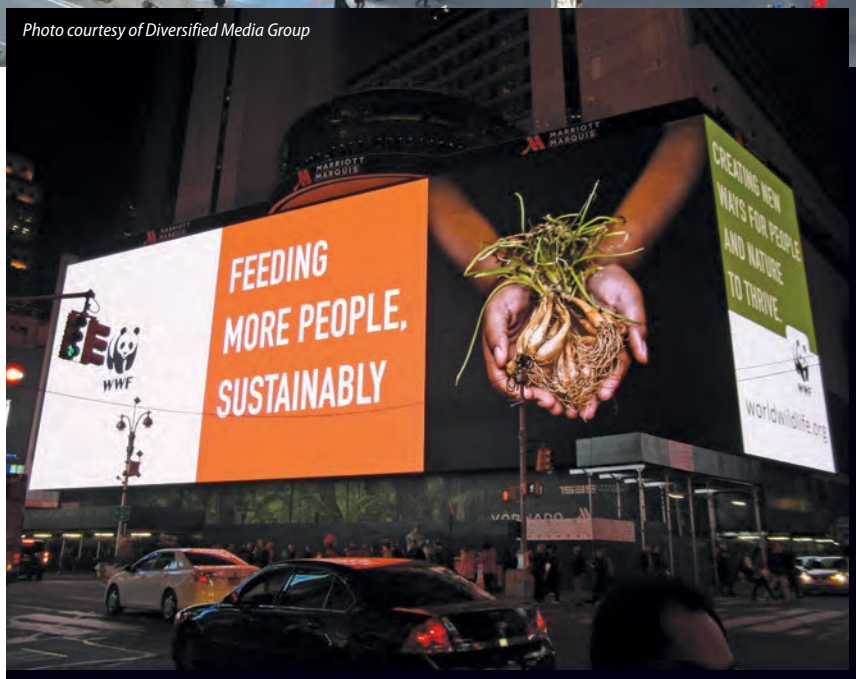


Photo courtesy of Diversified Media Group

(top) The Vornado-Marriott LED display in full form. (bottom) The display's sequence includes PSAs.

signage, and installing the new support steel and catwalk system. North Shore also brought the primary power from the face of the building to a series of large distribution panels that we installed on the Level 1 catwalks. We then wired up the Mitsubishi LED cabinets into the full screen display, which covers the entire front of the Marriott Marquis Hotel. We spent eight months from the initial removal of its previous signage to the final installation of all the LED cabinets and having the sign go live in November of 2014."

The Marriott's front-façade transformation involved several construction and installation phases, as described by project manager Alex Robson, who supervised much of the sign installation.

"Right after New Year's Day 2014, we began removing all the existing iconic signs, structure and associated electrical distribution equipment, including the original precast concrete façade of the Marriott building, which we completed by the end of March.

"We returned in June to begin our electrical work, which required building a bank of large conduits from the building face,'" stated Robson. "The conduits fan out to large distribution panels located directly behind the display. These distribution panels further branched out to feed two designated rows of LED cabinets, which, in turn, branched out one last time internally to feed all of the cabinets that made up the full display."

To erect the steel and place the LED cabinets, North Shore work crews utilized various cranes, sign boom trucks and JLG man-lifts. To orchestrate the continual movement of material to the building façade, Robson said at least two North Shore crews worked simul-

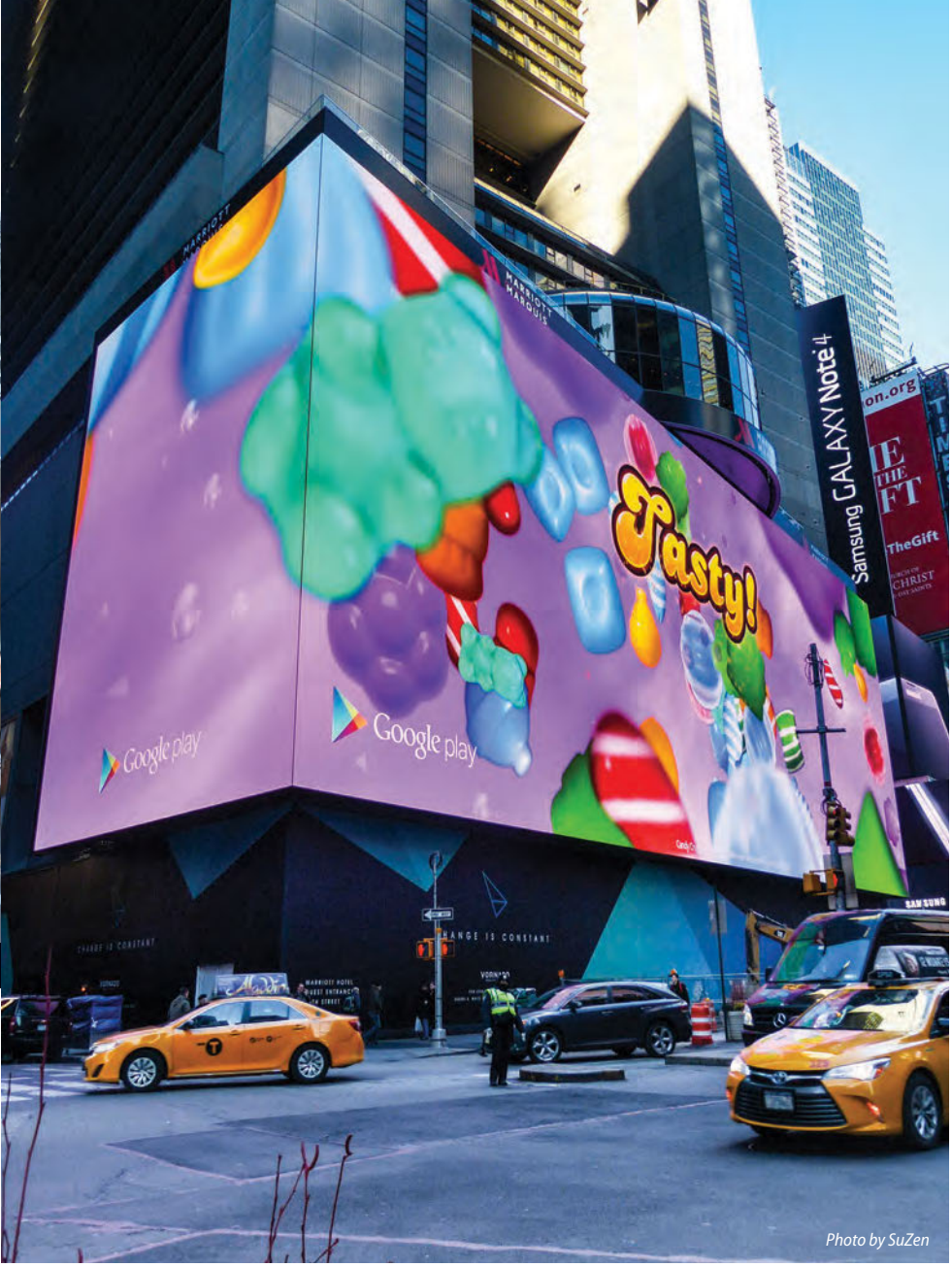


Photo by SuZen

taneously on a 6-7-day, 14-hour work schedule for eight continuous months to complete the Marriott LED display.

As the sign structure began to emerge, with each piece of primary and secondary steel set in place, Robson said an ongoing series of laser surveys ensured the steel beams were actually installed as closely as possible to their preferred "theoretical" positions, as specified by the blueprints. During survey preparation, each steel beam was tagged with a laser-reflecting target, and, once each beam was placed on the building, each was measured by a quick survey to judge its alignment between its theoretical and actual position.

"This was done thousands of times to check each vertical truss and horizontal beam as they were put into place in forming the final sign grid," Robson said. "Many times, these beams, once installed, were slightly off. Once discovered, for a final adjustment, the beams were shimmed into place with thin pieces of metal inserted into the bolted connections. Thus, all the steel beams registered into their preferred theoretical positions."

As the sign grid was completed, so began installation of the Mitsubishi LED cabinets. Each was bolted in place, powered up, and interconnected to other units and the show-control system. The LED cabinets, having been previously delivered to North Shore's facility, were prepped, placed on flatbeds and brought to Times Square for final placement on the sign grid.

Clear Channel's content

Clear Channel Outdoor (CCO) has been engaged with the Marriott Marquis Hotel since 1986, when it (in its previous incarnation as Spectacolor) brought the first advertiser to the building – the Kodak spectacular. Since then, CCO has presided over multitudes of other advertising campaigns. Now, with the super-sized LED display, its new advertising "look" is considerably different.

"What's really exciting about this sign is the flexibility it offers us as a digital-advertising medium," said CCO president Harry Coghlan. "Clearly, it's a new kind of advertising platform, and we expect to do many exciting things with it."

CCO brought the first full-screen client, Google, to the big screen, with a continuing campaign that ran from November 2014 into 2015. As part of Google's content presentation, DMG supported bringing live games to the display.

Google set up bleachers in the Times Square Pedestrian Plaza, with a gaming space at the top of the sign. This space had four Kinect sensors, which captured each player's motions, and set them against each other in a series of games that were played on the Broadway face of the display.

Additionally, following the launch event, the *Today Show* presented a live, on-air segment on the display, which was part of the backdrop for the RED World Aids Day concert in Times Square. In the new year, following the Google campaign, the New York Couture Fashion Week will also parade across the Marriott LED screen. With other forthcoming campaigns to be announced soon, "exciting" may be just the beginning of what to expect from the Marriott's new sign face. ■

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