

FEATURED PROJECT

Moynihan Train Hall
New York City, N.Y.

Architect: Skidmore,
Owings & Merrill

Structural Engineer:
Severud Associates

Structural Engineer (Skylight):
Schlaich Bergermann Partner

MEP/FP/IT/Telecom:
Jaros Baum & Bolles

Civil/Geotechnical Engineer:
Langan Engineering
& Environmental Services

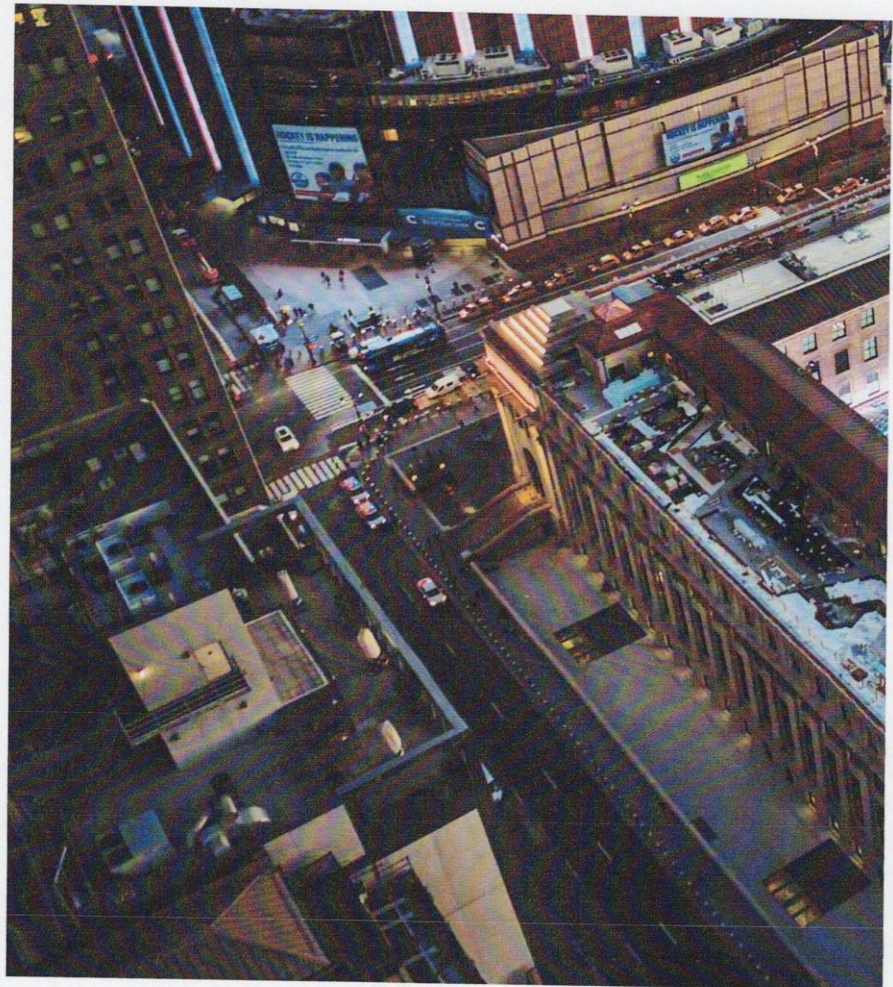
Lighting Designer: Domingo
Gonzalez Associates

Historic Building Restoration:
Building Conservation Associates

Photos: Courtesy, Empire
Development Corp.; John
Bartelstone Photography
Text: Vilma Barr

The Challenge:

Convert the former mail-sorting hall inside the James A. Farley Building, a massive Beaux-Arts structure built during the early 1910s, into one of the busiest train halls in North America, and improve the travel experience of the 650,000 (pre-pandemic) daily commuters who used the rail lines feeding into New York's Penn Station, and make the Moynihan Train Hall a significant structure on the map of New York City. In addition, the project is targeting Silver Certification in the new LEED for Transit category.



The design by architects Skidmore, Owings & Merrill (SOM) marries utility with history and delivers the functionality of a modern transportation hub in a structure of another era.

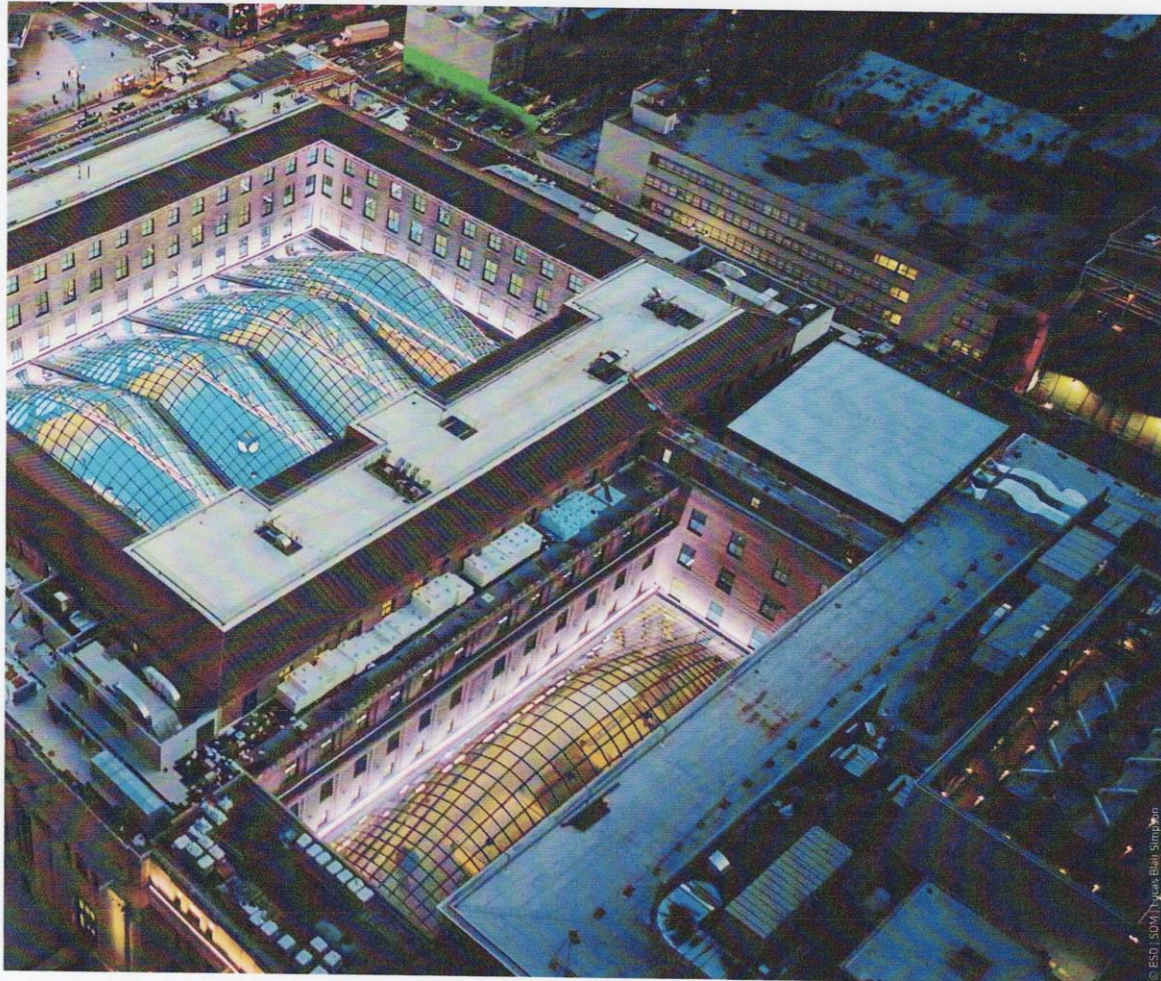
The thoughtful incorporation of natural and artificial light was critical in creating a transit space that was easy for hundreds of thousands of people to navigate and capable of providing an uplifting and inspiring experience in the process. Consulting with a lighting

design team that has extensive expertise in illuminating transportation and historical facilities was another cornerstone of the project's success.

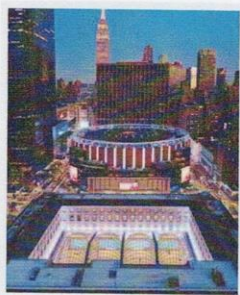
Domingo Gonzalez Associates, (DGA) has created the lighting design for numerous high-profile transit hubs, including the Miami Terminal for Go Brightline Miami, several New York subway stations for the Metropolitan Transit Authority (MTA), and airport projects including Newark

Liberty Airport, JFK Airport and is currently leading the lighting design for Delta's terminal at the LaGuardia Airport. The team has been involved with planning the illumination for the Moynihan Train Hall since the formal beginning of the design planning process in 2014. "It's been a labor of love for many years," said AC Hickox, vice president and managing principal of DGA.

The design brief, originated by the coordinating agency Empire



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State Development and architects at SOM, identified many of the design objectives for the Moynihan Train Hall.

"The project's planners expressed their desire to highlight the structure, provide a central destination for commemorative events and create a space that would become an icon in New York," said Ilva Dodaj, DGA director and lead project designer, and Hickox. State and local officials wanted to create a vibrant and

forward-looking face for New York, aspects that were lost when the original Penn Station was torn down in 1963.

The Role of RGBW

DGA conceived the idea of using dynamic, well-concealed and layered color-changing lighting to highlight the historical trusses that had been unveiled after being hidden for decades and the impressive, vaulted skylight structure. "Given the spatial constraints, the fixtures

had to be both powerful, compact and fully concealed from normal viewing angles. DGA specified continuous linear four-channel RGBW fixtures to highlight the massive skylight structure and trusses," said Dodaj.

"Because of the procurement process, all products had to be standard fixtures, available off-the-shelf," noted Hickox. In order to accommodate the potential variability that exists in the bid process, the design team prepared ▶



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DAYLIGHTING STUDIES IDENTIFIED THE POTENTIAL FOR EXTREME CONTRAST BETWEEN SKYLIT HALLS AND ADJACENT LOW-CEILINGED SPACES, WHICH COULD AFFECT WAYFINDING.

◀ several mock-ups showcasing the capabilities of the RGBW fixtures with the client team, which also included Skanska, the project's design builder. "Ultimately, the RGBW linear system from Color Kinetics was selected and coupled with sophisticated programming and controls by Crestron. This combination allowed us to develop the sophisticated lit visual environments that met and exceeded the client team's vision and what they wanted to achieve," said Dodaj.

Balance and Complement Natural Light

The presence and accommodation of daylight was another important consideration on this project because the Train Hall features four catenary vaulted skylights, which contain more than 31,000 sq. ft. of glass. Hickox pointed out that basic objectives for large and complex projects like transit hubs are to balance daylighting at the transit hub and maintain the safety of the facility for the user.

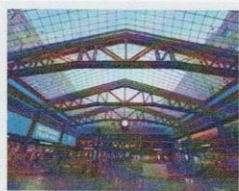
Daylighting studies identified the potential for extreme contrast

▲ **SKYLIGHT**

DGA specified continuous linear four-channel RGBW fixtures to highlight the skylight structure and trusses. Truss/skylight/façade lighting from Color Kinetics (RGBW LED linear fixtures).



© DGA | John Bartelstone



between the skylit halls and adjacent low-ceilinged spaces, which could affect wayfinding, so several measures were added into the design to ensure the issue was addressed. DGA coordinated with SOM on the frit to improve visibility of the skylight structure at night and to modulate the amount of daylight entering the space. They also added tunable-white linear frames of light at each of the skylight openings to balance contrast in circulation zones. The specified lighting control system automatically minimizes luminance ratios

in these areas and continuously adapts the lighting to complement and balance the interior visual environment with the intensity and color temperature of the natural light present at the skylight.

Here's a closer look at a few specific spaces within the Moynihan Train Hall and an explanation from the DGA team on how they achieved the design in each space.

Lighting the Trusses

The Train Hall's distinctive trusses mandated thoughtful integration of the luminaires. Layers ▶

CONCEALMENT WAS CRITICAL TO THE ARCHITECT'S REALIZATION OF A "GRAND CIVIC SPACE THAT MELDED THE OLD WITH NEW."



© DCA | John Benesh/Stone

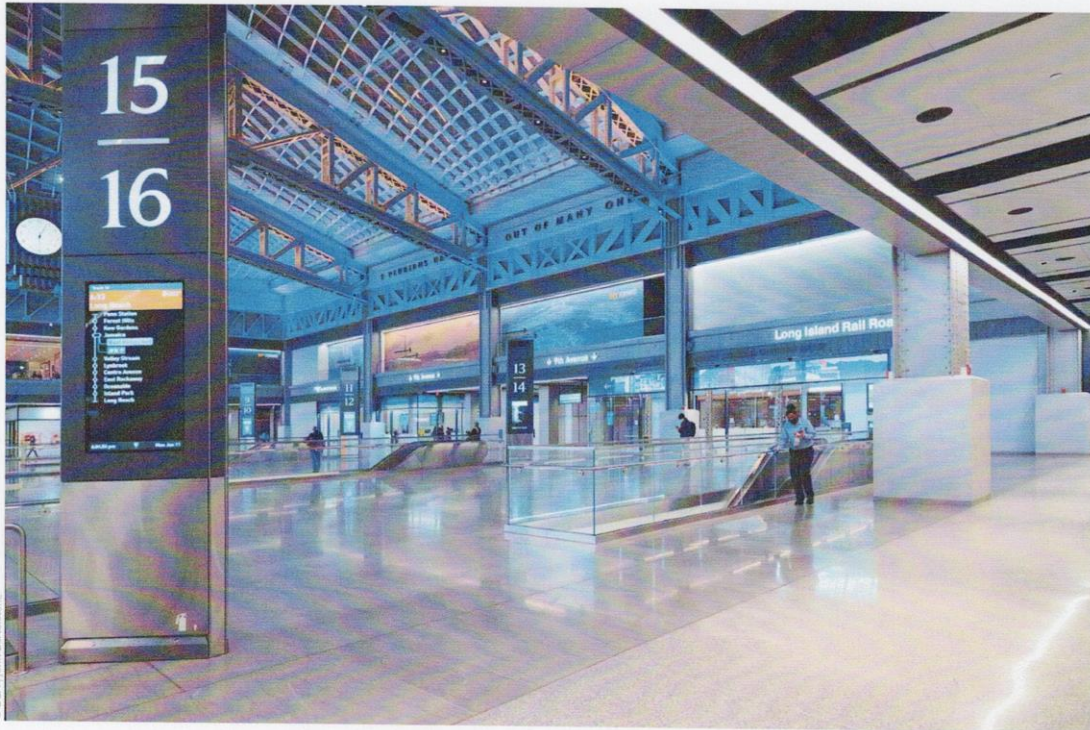
THE THOUGHTFUL INCORPORATION OF NATURAL AND ARTIFICIAL LIGHT WAS CRITICAL IN CREATING A TRANSIT SPACE THAT WAS EASY TO NAVIGATE AND PROVIDING AN UPLIFTING AND INSPIRING EXPERIENCE IN THE PROCESS.

of color-changing lighting fixtures are concealed in the double historical trusses. Trapped within the trusses' bottom cavity are deeply shielded, 14,000-lumen downlights that provide the only direct light within the hall. Concealed linear RGBW luminaires affixed to the outer side of the historical trusses beam light upward to cast soft color onto the downward slope of the vaulted skylights, 92-ft. tall at their apex. Concealment was critical to the architect's realization of a "grand civic space that melded the old with new," said Hickox.

The inner trusses are always lit to layer in with daylight and create contrast on an overcast or sunny day. Controls are programmed to allow for adjustment of the lighting system at sunset and sunrise. Special lighting scenes have also been carefully curated to mark holidays and state and local events.

Lighting the Grand Stairway
The grand stairway in the mid-block connector, between the entries at 31st. St. and 33rd. St., sits under the singular central skylight overlooking the annex and the Farley Building





© DCA, John Berensstone

façades beyond. The dramatic stair with escalators on each side funnels travelers into the Train Hall. The lighting that expresses the stone surface framing, while the escalators are hidden away from the user's direct view. Integrated hand-rail and escalator lighting create a unified visual statement. Downlights are low-glare, high brightness for this transitional space.

In the overhead skylight, linear lighting frames the daylight openings and continuously adapts to the changing intensity and color temperature of natural light. The

daytime light is set at neutral white during the day and warmer during overcast conditions.

Lighting for Navigation

All lighting in the Train Hall is LED. In the central circulation area, low-glare/high-brightness recessed downlights completely disappear, rendering ceilings absolutely "quiet." At track access areas, small aperture linear lights outline the escalator openings. Perimeter wall washers glow in the marble enclosure and reinforce direction of movement. Waiting

room and ticketing areas benefit from a more organic approach that relies on recessed downlights as well as concealed light coves in the dropped ceiling panels, which are out of user sight lines.

The demolition of the original Penn Station helped catalyze the modern historic preservation movement, and the lessons of that movement guided the creation of the Moynihan Train Hall. Rather than treating the interior of the Beaux-Arts Farley building as a blank slate, SOM developed a modern design that celebrates the landmark. ■

PRODUCTS USED:

- **Controls:** Crestron Controls
www.crestron.com
- **Truss/Skylight/Façade Lighting:** Color Kinetics (RGBW LED linear fixtures)
www.colorkinetics.com
- **Circulation Lighting:** Guzzini
www.iguzzini.com
- **Main Hall Downlights:** Luminis
www.luminis.com
- **Amtrak/LRR/Baggage Waiting Rooms:** USAI, VODE
www.usalighting.com
www.vode.com
- **Daylight Transition Zone Linear Lighting:** Lumenwerx
www.lumenwerx.com