Delta Air Terminal
Boston Logan Airport

PROJECT:
Delta Air Lines Terminal A
at Logan International Airport
Boston, MA

PEERLESS PRODUCTS:
Lightedge Angular Deep
Custom Lightedge Wall

LIGHTING DESIGNER:
HOK, Inc.

ARCHITECT:
HOK, Inc.
New York and San Francisco

LIGHTING REPRESENTATIVE:
St. Louis Lighting Group

PHOTOGRAPHY:
Assassi Productions
Santa Barbara, CA

With more than 28 million passengers in 2007 passing through its doors heading to destinations in the United States and around the world, Boston Logan International Airport is the twentieth busiest airport in the country (based on total passengers as reported by ACI/NA). In the mid-1990s, the Airport launched a modernization project that included rebuilding Terminal A, home to Delta Air Lines.

"The existing Terminal A was beyond the point of no return," says P. David Ziolkowski, IALD, LC, LEED-AP, senior associate/architectural lighting designer for HOK, Inc. "This project was essentially a tear-down-then-build-up."

The design for the 646,000-sq.ft. building, based on sharp edges and the Greek symbol "delta," began in 2001.

The lighting, Ziolkowski says, had to enhance and complement the architecture while ensuring the functionality of the building and supporting the project's sustainability goals as Terminal A, which opened to passengers in 2005, was the first airport terminal in the world to achieve LEED certification. For some, lighting such large spaces, some featuring ceilings as high as 28 ft., might have seemed daunting on a tight energy budget, but Ziolkowski says the project proved similar to other building types he had lighted.

"Lighting a big space is no different than lighting a little space," he points out. "It's all about geometry, aiming angles and selecting the appropriate equipment for the task at hand."

"The large-scale spaces feel even larger and more comfortable due to the illuminated ceiling plane. The transition from one space to the next is seamless. The lighting concepts remain consistent, and movement between spaces feels natural and appropriate."

Terminal A includes four major space types: concourses, tunnel, hold rooms and arrivals hall. Each of the spaces, aside from the tunnel, are lighted by cove lighting and linear pendant and modified wall-mounted Peerless Lightedge Deep Angular T8 indirect luminaires. "This extruded aluminum, triangular-cross-section product was perfect for this building because of its quality, beauty and ability to blend well with the architecture," Ziolkowski says. "Nothing less would have worked as successfully for this project."

Indirect lighting scatters light in many directions, diffusing light distribution, which can aid visual comfort and facial recognition while reducing shadows. Indirect distribution was also desirable because it allows for the lighting to integrate into the architecture while strongly accentuating it, says Ziolkowski.

"The large-scale spaces feel even larger and more comfortable due to the illuminated ceiling plane," he adds. "The transition from one space to the next is seamless. The lighting concepts remain consistent, and movement between spaces feels natural and appropriate."

The design achieved its goals of accentuating the architecture and promoting visual comfort with

a lean power density of 0.95W/sq.ft., about 20 percent lower than the ASHRAE 90.1-2001 energy standard's maximum for transportation buildings.

For Ziolkowski, the biggest challenge turned out to be tactical, not strategic—how to integrate indirect lighting solutions into the departures hall. A cove integrated above the ticketing counter was turned into a continuous uplight, softly illuminating the above ceiling. HID uplights were also mounted above the "eyebrows" on top of the mechanical louvers.

"The combination of fluorescent and metal halide works well to subtly provide enough general lighting throughout the space," he says.

The departures hall also serves as an example of the strong role daylighting played in the architectural lighting design. In the ticketing area, the main entry canopy features a series of asymmetric uplights illuminating a continuous, 28-ft.-tall curtain wall running from the floor to the ceiling. The curtain wall also allows a generous amount of daylight to penetrate the space, in turn maximized by skylights over the ticket counters. The contribution of ample daylight to this and similar spaces not only produce a pleasant, welcoming atmosphere, but also provide opportunities to convert excess light levels into energy savings by using dimmable ballasts tied to photocontrol systems.

"Daylight harvesting is a slam-dunk strategy for a lighting designer to integrate into their design," he points out. "Even if the owner does not find dimmable ballasts cost-effective, on/off strategies work sufficiently well in many applications."

The tunnel, meanwhile, utilizes a faux skylight created by alternating ceiling planes made luminous with simple integrated striplights. Some of the spaces also include supplemental downlighting where needed.

Ziolkowski credits good communication and teamwork for the project's success: "When architects and lighting designers work together to achieve a common goal, the result is more often than not an extremely successful project," he says. "This was a job where collaboration was done extremely well, and the end product shows."

ABOUT THE DESIGNER

P. David Ziolkowski, IALD, LC, LEED-AP is senior associate/architectural lighting designer for HOK, Inc. In this role, he is responsible for all phases of architectural lighting design including client communications, design development and presentation, project design, field observations and aiming, as well as completion of drawings, details, calculations, documentation, computer renderings, specifications and assisting in marketing presentations. He is a USGBC LEED-accredited design professional and recently served as president of the local section of the IESNA. In 2006, Ziolkowski was honored as one of St. Louis' "Top 30 Under 30" professionals by the St. Louis Business Journal.