Los Angeles Int'l & United Boost Gate Capacity & Technology in Terminal 7

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FACTS&FIGURES

Project: Gate & Customer-Facing Area Renovations

Location: Los Angeles Intl Airport

Terminal: 7

Sole Tenant: United Airlines

Total Area: 500,000 sq. ft. including concourse, ticketing, Baggage Claim & United Club

Approx. Cost: $573 million

Project Funding: Los Angeles World Airport (LAWA) proprietary funding $533 million; United Airlines non-proprietary $40 million

Timeline: March 2014 – April 2018, with most work to be done by December 31, 2017

Architect: HNTB

Design Consultant: Krueck + Sexton Architects

General Contractor:
Hensell Phelps Construction Co.

Suppliers: Hobart Jet Bridges; FMT Aircraft Parking & Information System; ITW GSE Hobart Ground Power Equipment; John Bean Technologies (JBT Corp.); Vanderlande Baggage Handling Equipment; AvAir Pros Project Management; Twist Aero Air-handling & Hose Handling

Objective: Renovate gates & customer-facing utilities to improve experience at LAX United Terminal 7, Concourses 7 and 8.

Key Benefits: LAX Gates 7 & 8 now can accommodate larger, newer aircraft at West Coast Hub; terminal includes vast post-security public spaces; improvements in security and passenger processing reduces wait times and increases comfort.

Amid billions of dollars in passenger-oriented enhancements occurring inside Los Angeles International Airport (LAX), substantial improvements are also occurring for airlines out on the ramp—especially in Terminal7, which is used exclusively by United Airlines.

Prior to recent renovations, United had 19 gates at LAX. Now, it has 21, thanks to the addition of a unique gate that can simultaneously handle two narrow-body aircraft or accommodate one wide-body jumbo jet in a more efficient manner. The installation of the "double gate" allows the airport and airline to gain capacity without increasing United's footprint at the terminal. New state-of-the-art aircraft parking sensors and automated, self-parking ramps further increase efficiency.

Boarding procedures and passenger flow were also changed to boost overall efficiency. Passengers are now staged along the window side of aircraft instead of directly from the ramps to reduce congestion in the concourses. Further upstream, new lanes at TSA checkpoints have increased screening throughput from 160 passengers per hour to 230 passengers per hour.

New Power Systems

To meet the power needs of various aircraft using the boarding bridges, project designers specified an innovative power coil from ITW GSE that is able to supply all aircraft types. The Hobart 2400 Power Coil consists of a 90 kVA solid-state converter and a cable drum in one enclosure. Because the unit is completely encased, it is less susceptible to destructive elements such as sunlight and harsh weather; so it is expected to reduce overall maintenance costs. The space-saving Hobart Power Coil weighs up to 40% less compared traditional systems that have a separate ground power unit (GPU) and a separate coil.

Hobart personnel note that the coil features an easy and intuitive operator interface and a stainless steel front plate, and it mounts under the boarding bridge, which eliminates clutter from the passenger area. In addition, the frequency controlled direct driven coil has a cable guidance system designed for smooth coiling and less mechanical stress.

"A traditional 400-Hz ground power solution for passenger boarding bridges is made up of entirely separate systems or parts that typically include a GPU, a cable handling system, interconnection cable and aircraft cable," explains Doron Milbaum, regional sales manager for ITW GSE Americas. "These components are usually sourced from different suppliers and require separate on-site installation and testing. Our Hobart 2400 Power Coil combines all of these parts into one state-of-the-art unit that comes fully tested and adjusted from the factory—ready to be put in place."

Milbaum also highlights the unit's installation and update processes as key advantages: "Simply mount the unit under the bridge, connect the input cable, and the power coil is ready for use, thereby saving time and money. In addition, its software-based control system enables future updates or additional capabilities by simply transferring new software from a USB stick."

The Hobart 2400 Power Coil is a true Power Factor 1 ground power unit, he adds, noting that its standard overload capabilities accommodate all types of aircraft, including B787s, A350s and A380s.

Automated Parking & Air

The new bridges at LAX feature "pre-positioning" controls for parking aircraft. Essentially, the bridges drive themselves to meet the aircraft and know where the doors are for each model. After passengers deplane, a "go to home" feature takes the bridge back to its stow box. The Aircraft Parking and Information System made in Sweden by FMT allows pilots to bring in planes without the need for human marshals.

A pre-conditioned Twist Aero air system manufactured by Twist Inc. delivers larger flows of cool air into parked aircraft. This helps maintain proper temperatures for the planes' electronics plus it keeps passengers more comfortable without relying on auxiliary power units to handle this role. A Boom Air hose retrieval system, also manufactured by Twist, returns all the air conditioning hoses back to large storage boxes.

Power Play

To meet the increased power needs of the terminals and newer style electric vehicles, new distribution and transmission systems were needed.

Hans Thelenius, director of Corporate Real Estate Design & Construction for United, and Duane Mauro, manager of Facility Maintenance at LAX, agreed that the biggest challenge they faced regarding this project was "expecting the unknown."

HANS THILENIUS

Because smaller renovations were made over the years to update communications and information technology systems, the recent project turned into somewhat of a "treasure hunt." Given seismic activity in the area, all projects had to be designed and engineered to conform local codes and withstand earthquakes. Existing foundations had to be excavated and beefed up to handle changes to the building. Energy- and water-saving measures and other environmental efficiencies were also required. "

Inside the Terminals

From its iconic Theme Building that's shaped like a flyer saucer to the silver LAX block letters that greet visitors driving in on Century Boulevard, Los Angeles International Airport (LAX) is brimming with memorable features. It even inspired a hit song* back in the '70s.

In order to maintain the "aura of LA in LAX," the airport is executing $14 billion of enhancements, including the new Tom Bradley International Terminal, which opened in 2013 with gates to accommodate the newest, largest aircraft.

The latest wave of projects began three years ago and is expected to wrap up next spring.

Nearly $2 billion of renovations in terminals 1, 2, 7 and 8 are being undertaken by Los Angeles World Airports (LAWA) and airline lessees in those terminals.

United Airlines, the sole tenant in terminals 7 and 8, is partnering with LAWA on a multi-year plan to create a brighter, more open experience for customers in concourses 7 and 8 in Terminal 7. The $573 million renovation project includes an expanded ticket lobby, improved security screening checkpoints, and enhanced seating with more charging stations. The common theme for all of the elements is "United by Light,"


DUANE MAURO

Duane Mauro, manager of Facility Maintenance at LAX, notes that the biggest challenge has been performing various renovations while maintaining normal flight schedules at the terminals. "It's like being asked to cook a fantastic Thanksgiving dinner, and, by the way, the kitchen has to remain open for business while you're doing it," he quips.

"We handled this by erecting a building within an existing one to make it bigger and more modern," explains Mauro. "Then, we took the existing building out to create a 'great hall' effect. This required a lot of advance planning and scheduling to successfully pull off."

Characterizing the scope, he describes it as a "gut job" as opposed to a paint job. "The airport was renovated for the 1984 Olympics, but not to this magnitude," he notes.

"To keep the 'United by Light' theme in the forefront, we incorporated as much glass as possible into the building," he adds.

Among the key changes travelers will see are:

- renovated ticketing areas with more self-service kiosks to speed up the check-in process;
- new TSA security checkpoints, featuring automatic bin return, parallel lanes for travelers and their luggage, and an improved layout that makes screening operations more efficient;

- a new 20,000-square-foot United Club with windows on all sides and an outdoor terrace featuring panoramic views of the airport, Pacific Ocean, downtown Los Angeles and the Hollywood Hills;
- new gate areas with better seating options and added charging stations, for more comfort and productivity while waiting to board; and
- improved systems for baggage screening and retrieval.

"This is a 'destination' concourse for United, a major player at LAX, and the planning, design and renovation had to reflect our airline in the best possible way," explains Hans Thelenius, the carrier's director of Corporate Real Estate Design & Construction. "Terminal renovation is a major undertaking for all the major airlines that populate LAX, so much so that the airport authority empowered us and the others to do a first-class job and provided the funds to do it. It's important to note that each airline handled the renovations and not a third party."

Vanderlande Industries installed a new in-line baggage handling system while the original system was still operating. "This replaced a manual bag check-in system that was mandated after 9/11," Thelenius says. "Now, it's completely in-line from the ticketing area—no touch from the counter, through the X-ray machine to a sortation area where [bags are] routed to the final destination. This is a real-time system, and it is all FAA and TSA approved and certified."

The new system can process up to 2,700 bags per minute.

** "LA International Airport", sung by Susan Raye, was a top 10 country song that also enjoyed success on the pop charts in 1971. A recording of the song being performed live at the airport's 75th anniversary celebration was sealed in a time capsule with other items to be opened on LAX's 100th anniversary in 2028.*