Miami's Masterpiece

North Terminal Transformation nearly complete

Indian Focus Madurai Upgrade

Plus

Baggage Handling Safety Feature
Miami Airport Opens State-of-the-Industry People Mover System, by Dan McFadden, PE.

Miami International Airport (MIA) has taken proactive steps to continue its leadership in airport development. This is evidenced by its massive, $5 billion North Terminal expansion programme which includes 50 new gates to the airport. The North Terminal Development Program (NTDP) area previously consisted of Concourses A, B, C and D arranged in a ‘finger’ configuration. As part of the NTDP, this area is being transformed from a series of separate concourses into a linear terminal, which will increase gate utilisation and connection efficiencies. A key component of the NTDP is the new Skytrain automated people mover system (APM), which began passenger service at Concourse D on September 15, 2010. Skytrain is designed to decrease walking time 70% for domestic connecting passengers and 54% for international connecting travellers. Nearly 40% of all MIA passengers are connecting to other flights, with Concourse D handling more than 20 million passengers each year.

Lea+Elliot was the APM consultant to the Miami-Dade Aviation Department (MDAD). The firm provided planning, specification development, procurement support, design review, manufacturing and construction oversight (through testing and commissioning phases), and support through substantial completion of the project. “This has been a huge game changer for the mile-plus-long North Terminal at MIA. Long walks are now optional since the opening of the Skytrain,” says Juan Carlos Arteaga, AIA, the programme director for the MDAD.

During peak hours the APM operates with four, four-car trains in a pinched-loop configuration, serving four stations. With approximately 120-second headways, the system can carry nearly 9,000 passengers per hour per direction (PPHPD). The new Skytrain will operate with a 99.5% or greater system availability.

The system incorporates the MHI Crystal Mover vehicles, recognised for offering low-noise, low-pollution attributes. The large, fast, flexible vehicles with rubber tires are fully automated and driverless. The Crystal Mover has been incorporated successfully at major airports worldwide including US locations in Washington, DC and Atlanta and major international hubs in Singapore, South Korea, Dubai and Hong Kong.

“The opening of the Skytrain has helped make MIA a world-class airport,” says Carlos Jose, MDAD’s Assistant Aviation Director of Facilities Management. “The trains have been running very reliably and the positive feedback from passengers has been extraordinary.”

The Skytrain’s building infrastructure, for the most part, was built by the Parsons-Odebrecht Joint Venture with trains provided by Sumitomo Corporation of America and Mitsubishi Heavy Industries (MHI). The Skytrain system also includes a large off line Maintenance & Storage Facility (M&SF). The M&SF includes two light maintenance lanes for performing daily inspections and light maintenance tasks and two heavy maintenance lanes for longer term maintenance activities. The operations and maintenance of the new APM system is currently being performed by Crystal Mover Services, Inc. Lea+Elliot is providing technical support to MDAD related to the O&M.

When completed the North Terminal will have 48 international/domestic swing gates, two regional jet gates, an FIS facility capable of processing 3,600 international passengers per hour with 72 check lanes, 278 ticketing positions (including 126 self-service units), a new baggage handling system, and support systems capable of handling an international hub operation of 280 flights or more per day.

MDAD also has another APM project underway called the MIA Mover. The new MIA Mover APM system will link the airport to the Miami Intermodal Center in 2011 and will again implement the APM Crystal Mover technology. Lea+Elliot is currently serving as the system consultant for the MIA Mover.

Daniel McFadden, PE, is an associate principal at Lea+Elliot and project manager for the Skytrain project.
Developing Miami

Bob Baker from the URS Corporation highlights the company's baggage handling/screening project at Miami International Airport.

The North Terminal Development Program (NTDP) at Miami International Airport (MIA) was initiated ten years ago to facilitate the projected growth of MIA's major carrier – American Airlines (AA) and its regional airline, American Eagle. MIA has successfully served as one of AA's largest hub operations and is the airlines' gateway to the Caribbean and Latin America.

The NTDP consists of several major North Terminal building and system enhancements including demolition/expansion of terminal and gate facilities, operation of a new SkyTrain (automated people mover) on the roof of the mile-long NTDP terminal and installation of a new $200m automated gate delivery baggage handling/screening system to accommodate AA's 40,000 daily baggage operations.

As a result of the events of September 11, 2001, major portions of the originally designed NTDP terminal and baggage system had to be reconfigured and redesigned to accommodate an accelerated Transportation Security Administration in-line baggage screening operations. The 9/11 re-design efforts represented a substantial change in the programme, which required significant additional work and schedule extension.

The re-design included the addition of twenty-five automated in-line baggage screening devices incorporated into five separate security matrices with associated checked baggage reconciliation facilities. The design efforts were further complicated by the fact that critical portions of the new NTDP in-line baggage/screening system had to be installed in areas which were currently occupied by AA's existing baggage system.

This required extensive cooperation efforts between the building and baggage contractors in order to finalise the many demolition/installation phasing plans, which had to be developed in order to assure minimal disruptions to AA's ongoing daily operations.

In addition to the high-speed automated outbound conveying system, the NTDP system also incorporated both domestic and international inbound claim facilities, a separate integrated outbound cruise line baggage receiving/check-in facility and associated Early Bag Storage (EBS) system.

International Arrivals and Baggage Recheck – A new international Customs Border Patrol (CBP) facility has been incorporated into the NTDP baggage handling/screening system. This facility will have ten claim devices and corresponding re-check counters for international arriving and transfer passenger operations. The CBP facility will have ten, large-sloped plate baggage claim units with dual feeds (redundancy) plus two oversize, reversible conveyors to facilitate baggage tub returns from ramp level to the recheck counters.

Outbound Cruise Line Baggage Receiving/Check-in – A separate NTDP outbound cruise passenger and baggage receiving facility has also been integrated into the NTDP system. Passengers and baggage arriving from MIAs cruise ports will be transported to an accessible area at the NTDP terminal where cruise passengers will be able to check-in with their baggage several hours prior to scheduled departure. Five extendable conveyor systems will expedite the unloading of baggage from arriving buses and transport vans. The extended conveyor system will input baggage directly into the NTDP system for screening and then cleared baggage sorted to either the new-integrated Early Bag Storage (EBS) facility (if more than two hours prior to departure) or to one of the two counter-rotating (redundancy) high-speed, mainline loops for delivery to the assigned gates.

With a combined linear distance of approximately ten miles, the new NTDP automated baggage handling/screening system is one of the largest, most complex systems under development in the US today. It is scheduled to become fully operational by fall quarter of 2011.

The Author

Bob Baker is a Vice President with URS Corporation and serves as Project Coordinator to Miami International Airport for the North Terminal Development Program baggage handling and screening system. URS Corporation and their subsidiary URS Scott Wilson, provide airport and aviation development services worldwide.
Miami’s Lifesaver

Honouring MIA Employee of the Year Meghan Rafferty (centre) were Miami-Dade Aviation Department Terminal Operations and Customer Service Director Dickie Davis; Greater Miami Convention and Visitors Bureau President and CEO Bill Talbert; Assistant County Manager Ysela Lion; and Miami-Dade Aviation Department Director José Abreu.

MORE THAN two months after using a defibrillator to assist a passenger going into cardiac arrest, American Eagle flight attendant Meghan Rafferty received a letter from the passenger, now thousands of miles away in Denmark, telling her that after two weeks in the hospital and a major surgery, she is responsible for saving his life. For Rafferty’s heroism and compassion, she was named Miami International Airport’s 2010 Employee of the Year at the Miami-Dade Aviation Department’s annual Award and Recognition Gala on December 16.

Rafferty also won Employee of the Month in April and was recognized with the other monthly winners from 2010 at the Gala. As Employee of the Year, Rafferty won a weekend stay at a luxury local hotel and gift certificates for spa treatments and dining at some of Miami-Dade County’s finest restaurants during Miami Spa Month and Miami Spice Month in August, courtesy of the Greater Miami Convention and Visitors Bureau.

Jon Rosenthal, Honorary Consul General of Denmark in Miami, attended the recognition ceremony to thank Rafferty and share a letter from the passenger, Paul Ankjær, who included: “I consider Miami International Airport to be lucky to have employees like you, who show genuine dedication in their job. You cannot take this kind of commitment for granted, and once again I must point out the enormous impact your heroic actions have had on me and my whole family.”

Rafferty, an American Eagle Flight Attendant since 2007, is also a former firefighter and paramedic who volunteers with the US government’s Medical Assistance Team, which responds to natural disasters. She was walking through Concourse D when she saw a crowd of people around Ankjær on the ground and then ran to get an automated external defibrillator to resuscitate him. She then wore a heart-shaped pendant from Ankjær around her neck that reads: “TAK,” which means “thank you” in Danish.

“With more than 80,000 passengers traveling through MIA every day, providing excellent customer service depends on everyone in the airport doing their part and going above and beyond the call of duty,” said Dickie K. Davis, Miami-Dade Aviation Department Terminal Operations and Customer Service Division Director. “Thankfully, Meghan is one of those employees who did exactly that. She is a true hero.”

Silk Way Appoints Lufthansa Consulting

SILK WAY TECHNICS (SWT), the maintenance, repair and overhaul (MRO) subsidiary of Azerbaijan cargo operator Silk Way Airlines, has appointed Lufthansa Consulting to provide expertise and advice to assist it with its plans to establish a major MRO facility in Baku. SWT has already started the planning process by delivering initial drawings for the hangar building which will be to take two aircraft of the size of the Boeing 747-400, a type recently added to the Silk Way Airlines’ fleet.

The company intends to deliver base maintenance as well as heavy maintenance services including C- and D-Checks especially for Western-manufactured aircraft types such as Boeing, Airbus and ATR models. Under the terms of the deal, Lufthansa Consulting will conduct an on-site review and analysis of the planned facility location and of the established drawings and documentation. In close co-operation with a dedicated SWT project team, they will also examine the side-shop requirements and offer recommendations in terms of positioning and size.

Jet Aviation At Jeddah

Jet Aviation has moved into a new facility at Jeddah. [Jet Aviation]

ON DECEMBER 9 Jet Aviation announced that the company will be moving into a new facility that provides FBO and line maintenance services at Jeddah’s King Abdulaziz International Airport.

The company says the new building “offers fast access to King Abdullah Economic City and the King Abdullah University.” The 32,292 sq ft (3000 m²) FBO facility incorporates arrivals, departures and cargo loading handling functions, into “an innovative passenger flow system.” It also has 24/7 border police and customs services plus what Jet Aviation describes as: “better security and enhanced privacy.”

Also available are passenger and crew lounges, refreshment areas with hot and cold snacks, a newspaper service offering nearly 1,000 different daily and monthly publications, and a 24-hour shuttle to Jeddah’s International Terminal. State-of-the-art weather briefing and flight planning equipment along with crew rooms and lounges will be available for flight crews as well. Frank Kusserow, Vice President and General Manager of Jet Aviation Saudi Arabia, said: “We are very pleased to move into this new and state-of-the-art facility, which will provide us with the opportunity to better serve passengers and flight crews.”

Christof Speath, Senior Vice President MRO and FBO services for Jet Aviation EMEA & Asia, adds: “In addition to increased passenger comfort the new premises will allow the company to strengthen its global network and maintenance footprint by expanding its line and maintenance service capabilities in the region.”

Jet Aviation Saudi Arabia has operated an FBO in Jeddah since 1979 and a second facility has served at Riyadh since 1983. Both facilities offer FBO services, line maintenance and aircraft-on-ground (AOG) services to private, business and military operators.

The two locations each hold Saudi Arabian PCA licenses.

Skanska For Kalamazoo/Battle Creek

ON DECEMBER 15, 2010, Skanska USA announced that its building business unit has been selected as general contractor for the new air traffic control tower at the Kalamazoo/Battle Creek International Airport.

Atlanta, Georgia-based architecture firm Hartman/CMI will provide design services for the 167 ft (50.5 m) tower and the associated 20,100 sq ft (1867 m²) Terminal Radar Approach Control (TRACON) centre. The construction phase began in September 2010, with an expected completion in the first quarter of 2012. At that time, the FAA will begin installation of all air-traffic equipment, which is expected to take an additional 18 months. The cost of the project is approximately $12.1 million.