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Feature Story

Concrete Sawing Clears Way for Airport Expansion

Structural Beams Lifted Off in Pre-Demolition at Miami International Airport

Miami International Airport (MIA) in south Florida is one of the world's busiest airports. With nearly 1,100 take-offs and landings a day, MIA served 30.2 million passengers in 2004. It ranks 1st in international freight and 12th in total passengers among U.S. airports. On the world scale, it ranks 8th in total freight and 20th in total passengers. The airport covers more than 3,200 acres and is rapidly expanding to handle the increased volume of incoming and outgoing air traffic.

MIA's Capital Improvement Program (CIP) was developed to fund the airport's growth. The $5.2 billion program is well underway, encompassing all aspects of airport operations from the terminal and roadways to the cargo facilities and the airfield. So far, the terminal has been expanded from 3.5 million square feet in 1995 to 4.7 million square feet today. Further development of the North and South terminals will add 2.7 million square feet for a total of 7.4 million square feet upon completion of Phase I of the CIP. The expanded terminal will have 100 international gates, 30 domestic gates, 556 ticket counters and 120 self-service devices.

Part of the terminal expansion project recently required the demolition of one of the airport's many infills. In this case, the infill was a large substructure under an existing concrete pad where airplanes parked to load and unload passengers. This infill, which was used

Above: Concrete cutting was needed to remove 15 reinforced concrete beams in one of the airport's infills.

Right: Operators used hydraulic hand saws and ring saws to cut several thousand lineal feet of concrete.

by baggage handlers to move luggage, was connected to other infills by a series of tunnels. Demolishing this infill required the cutting of concrete walls, beams, service tunnels and slab sections, in part, to raise the elevation of the tunnels. The added height in the tunnels would allow for the mobilization of large pieces of equipment needed to fully demolish the infill.

The general contractor on the project, Crompton Construction of Miami, hired demolition contractor Wildcat Contractors of Ft. Lauderdale to manage the demolition, and they in turn hired CSDA member Carrier Concrete Cutting, LLC of West Palm Beach to perform the concrete sawing portion of the job. Carrier was contracted to remove this concrete in 25 to 30 days.

With pedestrian traffic, baggage handling personnel and aircraft so close to the work areas, sawing with diamond tools provided reduced noise. In addition, there were air ventilation systems in very close proximity so reduced dust and dirt was mandated. In addition, much of the concrete was heavily-reinforced.

Wildcat and Carrier began this project by shoring and bracing the concrete to be cut. As the shoring continued, Carrier operators started hand sawing to remove the wall sections and slab areas above and below the beams. Each beam was approximately 250 feet long by 2 feet wide by 20 inches deep. Operators used Diamond Products hand saws to cut 10 inches into each beam from both sides for these horizontal cuts. A Hydra-Gen unit from Diamond Products supplied all the water, hydraulic and electric power needed. It provided 480-V, 3-phase, 50-KW and a consistent 15 gallons of hydraulic per minute at 2,200 psi.

Operators also used Partner ring saws to make more than 200 plunge cuts into the columns and beams. Plunge cutting prevented over-cutting into the steel support beams. ICS chain saws were used to cut "pockets" in some limited access areas, such as one section where a mechanical roller blocked access to the wall's edge. Once the concrete was cut, Wildcat performed the rigging and removal.

Carrier and Wildcat worked together to overcome many obstacles on this job. The biggest obstacle was securing the work areas and keeping airport workers out of the work sites. To ensure that the baggage handlers and any others in the tunnels were not injured, Wildcat and Carrier controlled the traffic beneath their work areas. Traffic was rerouted from one side of the tunnel to the other depending on where the cutting was taking place. Traffic also had to be interrupted during the project while the beam, wall and slab sections were lowered and removed. However, the cutting did not interfere with airport operations.

When the project ended in late June, after only 24 days, Carrier operators had cut several thousand lineal feet of concrete with hand saws and removed approximately 15 reinforced concrete beams. Carrier also came in within budget.

Carrier attributes much of its success on this job to its communication with the client throughout the project. Jerry Carrier, owner of Carrier Concrete Cutting said, "The satisfaction of the customer is the biggest reward on a project of this size." He knows that Carrier was chosen for the job because of the company's reputation and integrity. The client's satisfaction with this job resulted in Carrier receiving large amounts of additional work on this project and other projects within MIA. ●

Crews were careful to secure the work area to protect airport personnel using the infill.

COMPANY PROFILE

Carrier Concrete Cutting began operations in South Florida in May 2003 and became a member of CSDA that same year. Carrier has 15 employees, operates seven trucks and provides a variety of concrete cutting services including wire and circular sawing, slab sawing, chain and hand sawing and core drilling up to 96-inch-diameter holes.

RESOURCES
General Contractor:
Crompton Construction
Miami, FL
Demolition Contractor:
Wildcat Contractors
Ft. Lauderdale, FL
Sawing & Drilling Contractor:
Carrier Concrete Cutting, LLC
West Palm Beach, FL
Methods Used:
Hand Sawing, Ring Sawing, Chain Sawing
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