Wilkes-Barre/Scranton International Airport Avoca, PA

Building Summary

Demolition

A surprisingly small amount of demolition was needed to build this project. A small three-room concourse loading dock and its accessories on the end of the existing airport had to be removed. A large amount of concrete apron and bituminous runway/taxiway had to be removed from the site. The rest of old airport will be demolished after the completion of the new airport.

Structural Steel Frame

Steel columns are held in place by concrete footers. Tube steel was used in the meditation room because of its intricate shape and design. All beams are moment connected to columns. The beams are moment connected to the columns by bolts. All supported floor slabs are composite slabs. The building is only two stories tall, the structure of the building is basic and not very complex. The most complex areas will be the columns and beams that have been sized up to support a massive interior sand stone wall which runs the entire length of the building. There are also expansive architectural cable trusses that are found in the ticketing and baggage circulation of the building. These trusses are composed of metal plate with glu-lam cladding and the cable runs along a series of posts running along the metal plate at typical points of load.

Cast-In-Place Concrete

The concrete on this job will mainly be placed by truck and chute. For the areas that are below grade ramps will be used to bring the trucks in and out of the construction area. After the sub grade foundations have been poured the rest of the concrete will continue by truck and chute as well as by pump. All the grade sections of the buildings have a footing grade beam layout. The slab on grade will be in place before any steel erection will occur. Elevated slabs will be composite slabs.

Precast Concrete

A majority of the precast concrete is found along the front of the building. Columns supporting the cable trusses are encased in large concrete shells. The knee wall that runs along the front of the building is also precast concrete, supporting the storefront windows. This concrete was supplied by Sun Precast.

Mechanical System

The mechanical system for the airport is composed of twelve rooftop air conditioners; nine types of variable air volume boxes with hot water reheat coils, two dual-burner 11130 water boilers and two air-cooled condensers. All of the mechanical elements are found on the roof or in the basement of the building. There are three forms of fire protection: wet for interiors, dry for exteriors and an FM-200 rated Clean Agent Extinguishing System found in the server room.

Electrical System

The electrical system within in this building is composed of two 1500KVA Transformers. These transformers convert the electricity coming from 12.5 KVA down to 480/277V. The power is then distributed by two 2000A 277/480V 3 phase Busses. The back-up generator, a 1500KVA Diesel-powered generator, was installed in an earlier phase of the construction project. This generator is wired to the building so that, in case of a power outage at the airport, the building can support all function on its own. This is a fully loaded generator and can support the entire building in-case of power failure.

Masonry

A majority of the masonry work in this building is interior. CMU walls are found throughout the building and will act as the support for an enormous sandstone block wall that runs through the entire length of the building. There are architectural CMUs found along the lower level of the building and have a finished face for the exterior. The sandstone wall has a split face at the tunnel entrance and phases to a polished face at the end of the terminal. The blocks are approximately 150 pounds each. The wall is held in place by steel angles bolted to the wall. To keep in alignment, holes are drilled into the top and bottom of the block, and steel pins are inserted for added stability. The finish of the sandstone wall will be caulked and sealed along the joints of where the blocks meet.

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Curtain Wall

The curtain wall that encases the building is composed of metal panels and large storefront windows. The metal panels are non-insulated and require fiberglass batting to be installed before the exterior walls are constructed. The panels are attached directly to the frame of the building. The windows are double-glazed and UV-rated. A majority of the southern-facing windows have thin lines painted on them at the factory to prevent any more of the sun's heat from entering the building. General installation of the windows was set in place by workers with suction cup grips. For larger panes weighing over 250 pounds, a crane was used to set them in their frames.