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Hotel and Transit Center Project at DIA
HNTB was awarded the first place prize in the Autodesk Excellence in Infrastructure Competition for its contribution to the Hotel and Transit Center Project at Denver International Airport (DIA). HNTB, in collaboration with project partners, employed a BIM process and Autodesk software to help the fifth busiest airport in the United States to design and construct a large-scale addition set to meet LEED Silver certification. The team at HNTB guided creation of a virtual model of the building that has been used for a host of purposes including spatial coordination, clash detection, structural design analysis, design review, collaboration, cost analysis, and construction scheduling.

“One of the largest challenges to constructing the new Hotel and Transit Center at Denver International Airport was maintaining the aggressive program schedule within very limited space,” said Stuart Williams, South Terminal Redevelopment program manager, Department of Aviation, DIA. “BIM helped us identify and address potential obstacles early in the project and, with BIM, we are able to run the project more efficiently, communicate better, and provide information easily due to workflows that have been established.”

“The work we are performing with BIM for the South Terminal Redevelopment Program is not only creating a centralized system for managing the Hotel and Transit Center through its operational life, but is also providing Denver International Airport with a framework to deploy BIM facility-wide, which will help our client streamline facility operations and maintenance and achieve excellence on new projects through collaborative design and financial management,” said Julie Wienberg, director of design for aviation at HNTB and deputy program manager for the South Terminal Redevelopment Program.

HNTB used Autodesk Revit software (architecture, structure, and MEP), Autodesk AutoCAD Civil 3D, Autodesk Navisworks, Autodesk AutoCAD, Autodesk Design Review, Autodesk ReCap, Autodesk Buzzsaw, Autodesk BIM 360, and Autodesk BIM 360 Field.

Information provided by Autodesk

EPS geofoam fills void for Chicago Metro Airport
ACH Foam Technologies provided EPS geofoam for several construction projects in Chicago including Millenium Park, Soldier’s Field, and most recently, the Gary-Chicago International Airport roadway expansion. As part of the airport’s roadway expansion, a two-span steel bridge had to be built over the EJ & E Railroad tracks that bisected Airport Rd. near Chicago Ave.

Superior Construction won the general contractor position, and Superior’s Pete Keilman acted as project superintendent for the roadway expansion bridge. According to Keilman, the bridge had to be built over two existing rails as well as two future rails. There was a
potential problem with the quality of soil where the bridge was to be built. Additionally, a trucking company’s property line was too close to the bridge embankment to allow for the slope that would have been required by conventional soil fill.

Preliminary analysis found soil about 12 feet down that contained a large percentage of peat that would settle over time. It was decided that geofoam was the preferred alternative because the material would distribute the load and prevent future settling. Vertical geofoam embankments also made purchase of additional right-of-way unnecessary.

Superior’s five- to seven-man crew was able to cut a trench through the geofoam to carry a storm sewer pipe for 400 feet on each side of the bridge approach. “We hadn’t done this before,” Keilman said. “Engineers provided detailed drawings we followed on the jobsite, and ACH Foam provided a hotwire that would easily cut through the foam. We also used a chain saw and a smaller saw in various sections.

“Once we had the foam down and the sewer pipe in, we laid a single mat of rebar, then poured 6 inches of concrete on top of that. Two feet of stone topped the concrete, and that stone was surfaced with a foot of asphalt. The bulk of the geofoam embankment was installed in the fall of 2012; more geofoam was installed this spring for a total of 43,000 cubic yards of Foam-Control EPS Type 22 geofoam.”

“Using geofoam as an alternative fill reduces, and in many cases eliminates completely, the loading against bridge structures as well as adjacent roadways,” said Oracle Engineering’s Marv Cook, an EPS design engineer for projects all over the world.

It was estimated that stage one primary settlement of the soil could take six to 12 months. Using geofoam eliminated that settlement time, so the road closure only lasted about a couple of months before the airport road was reopened in November 2012.

ACH’s Frank Kiesecker said geofoam is being used in transportation projects with greater frequency. “Once it became common knowledge that geofoam weighs about 1/100th the weight of soil and saves money and time for installation as well as road closures, the Federal Highway Administration began to require DOTs to compare cost and time savings using geofoam versus soil and other alternatives,” he said.

Information provided by ACH Foam Technologies

Rainwater harvesting cleans up downtown Monterrey

A drainage project in downtown Monterrey, Mexico, has created a sustainable blueprint for rainwater reuse that experts hope can be replicated to help tackle the joint challenges of urban regeneration and water scarcity across Mexico. Monterrey is the capital of Nuevo Leon state in northeast Mexico. With a population of 4 million, it is the third largest city in Mexico. In the arid northern regions of the country, water scarcity is becoming an increasing problem caused by over-extraction from underground aquifers.

In an ambitious social rehabilitation project, 3.7 acres of abandoned street islands running along eight blocks of Monterrey’s main Edison Avenue close to the city center have been transformed from hot-spots of crime and deprivation into a meeting point for the local community, including sports facilities and children’s play areas.

With a 1.33-acre catchment basin draining almost 10.5 million cubic feet of rainwater, the area was prone to heavy flooding and subject to pollution from trash and other floatable debris as well as from hydrocarbons carried in the runoff during storm periods. A solution designed and built by Solutions Hidropluviales of Mexico City pioneered the use of stormwater treatment technologies from Hydro International in combination with stormwater storage to recycle rainwater, irrigate the islands, and plant a green corridor of 170 oak trees. The project uses Hydro vortex separation technologies to clean runoff upstream of two retention tanks, explained Alberto Burgoa, president and CEO of Solutions Hidropluviales, Hydro’s stormwater product distributor in Mexico.