Must-See Green Products From Greenbuild 2011
EPS Geofoam Plays Supporting Role in School and Civic Revitalization

Known primarily for its use in major transportation projects, EPS Geofoam is being discovered by engineers to be the material of choice for an extensive array of commercial construction applications. The high compressive strength, light weight and predictable performance of Geofoam has made it especially appealing for reducing weight on concrete decks, creating green roofs, providing fill for floor elevation changes and landscapes, or reducing lateral pressure on foundations and retaining walls. Geofoam has earned accolades because it can be manufactured to precisely meet design requirements and accelerate construction schedules. It can be used for foundations and side hill fills, reducing lateral pressure and also reducing axial loads on structures because of its light weight and predictable physical properties.

As a result, Geofoam is becoming an important solution in meeting critical design requirements for schools, hospitals, institutional buildings, athletic facilities, and civic revitalization projects.

A+ for Adding School Amenities

Administrators of Jenks High School in Jenks, Oklahoma decided it was necessary to provide students with a planetarium at their new Math & Science facility. The cutting-edge planetarium was designed to be built upon the rooftop of the new Math & Science building. The project called for a 6-inch thick finished concrete slab, elevated 12 inches above the concrete roof slab, which would serve as the finished floor of the rooftop planetarium. Six inches of Geofoam provided the void fill needed for the elevated floor slab, a 60-foot diameter circle with a 16-foot wide connecting hallway.

Circular trenches were cut into the Geofoam to achieve thicker slab areas that provide support for the inner planetarium dome. According to Bob Tolomeo, Project Manager, Lithko Construction, “The availability, cost, and ability to order the Geofoam in full 6-inch thicknesses aided Lithko in maintaining the desired construction schedule.” Bob added, “Due to the cutting that was needed to achieve the circular shape and trenches, the single layer of EPS 46 made placement much easier.” The use of EPS Geofoam also helped Lithko Construction meet their LEED requirements.

The new 90,000 square foot Math & Science facility at Jenks High School was completed in the fall of 2010. Four-foot by eight-foot sheets of EPS Geofoam provided the void fill needed to elevate the floor slab. The Jenks dome is about 66 feet in diameter, almost 26 feet tall and weighs 10,300 pounds. The dome was assembled on the ground. A 250-ton crane hoisted the dome into its final location. The
new three-story building includes four science prep rooms with fume hoods and water purification systems, four 50-foot wind turbines tied to the building’s electrical grid, and geothermal energy to heat and cool the building.

Green Spaces Add Aesthetic Value to Health Center
Not only are educational facilities adding amenities for students, they are also sprucing up aesthetics to create inviting outdoor spaces. A reflecting pool and plaza with native landscaping welcomes visitors to the BJC Institute of Health at Washington University School of Medicine in St. Louis and creates an expansive and welcoming green space in the middle of Washington University Medical Center.

Geofoam installed in and around the circular reflecting pool at the BJC Institute Courtyard. The lightweight and high compressive strength of the Geofoam also helps to protect water pipes that lead to the pool.

The reflecting pool and plaza were built over an existing below-grade parking garage. EPS Geofoam was used to lighten the load on the below-grade structure, raise the fountain area, create sidewalk elevation changes, and fill planters. The main entrance walkway connects the building to the Metro public transportation platform and is one of the most heavily traveled pedestrian routes in the city of St. Louis. Emergency services are critical to this route, and Geofoam became a key component to making the area accessible.

The vertical elevation constraints of the walkway are designed to support a fully-loaded fire truck while limiting concrete cracking. The walkway design features a unique exposed aggregate reinforced concrete slab placed in two bonded layers which are supported on EPS 39 Geofoam. Five hundred cubic yards of EPS 39 Geofoam were installed in two different walkway areas to limit the total weight placed on the structural roof slab below. The planter areas are designed similarly to the fountain – raised above the sidewalk and incorporating stepped-up layers to create a three-dimensional surface.

The design of the project was especially difficult due to the sloped and tiered architectural elements. EPS Geofoam was originally fabricated with a radius edge; however, due to the cost it was changed to a square edged layered system to accommodate the tiered radius sections. Two types of Geofoam (EPS 22 and EPS 39) intersected and had to be designed to meet the engineer’s drawings. A total of 24,500 square feet of EPS Geofoam completed the plaza renovation in early spring of 2010.

The complicated design was made simple with the use
The new Kauffman Center for the Performing Arts in downtown Kansas City, viewed from the roof of its under-construction parking garage. Note the Geofoam on the garage’s rooftop.

Geofoam was used to create elevation changes to the Kauffman Center’s grassy area and walkways. The tires are used to weigh down the Geofoam during installation should high winds disturb the jobsite. The tires will be removed prior to soil being backfilled.

of ACH Foam Technologies’ installation drawings, which illustrated the layout of each piece of Geofoam. According to Joseph McGahan, Contractor, Superior Waterproofing, “The installation procedure and flexibility associated with Geofoam was very convenient and beneficial to the project we performed.” Jim Taylor, P.E., S.E., Technical Manager, ABS Consulting, further explained, “ACH Foam Technologies was a valuable team member for the WUSM Plaza project. Their expertise in specifying, supplying and working with EPS Geofoam contributed significantly to successful design and implementation of a technically challenging and aesthetically pleasing project.”

Architecturally Advanced Performing Arts Complex Revitalizes KC’s Arts District

Located downtown Kansas City, Missouri in the Crossroads Arts District, the new Kauffman Center for the Performing Arts is the home to three of the region’s leading performing arts organizations: Kansas City Ballet, Kansas City Symphony, and Lyric Opera of Kansas City.

The Kauffman Center is one of the most technically and architecturally advanced performing arts centers in the nation. Opening September 16-18, 2011, the 285,000 square foot facility includes the 1600-seat Helzberg Hall, 1800-seat Muriel Kauffman Theatre – each with its own acoustical envelope – and a 1000-car underground parking garage. An over-arching shell houses both venues. The glass roof creates a series of interior piazzas that serve as shared public spaces. The Kauffman Center’s grounds are used for outdoor performances and public gatherings.

The rooftop of the parking garage adjacent to the Kauffman Center provides the outdoor space needed for performances and gatherings. In order to create the green-roof space, engineers required a lightweight fill material that would reduce the weight of the space on the parking structure below. EPS Geofoam was selected for its light weight and high compressive strength.

Geofoam was used to fit the compound sloped concrete roof deck of the parking garage and create a compound sloped top surface for the park. Over the Geofoam in the park, grass, walkways, and trees were installed to create a beautiful green area. 350,000 cubic feet of EPS 19 Geofoam with PerformGuard termite resistance treatment were installed in thicknesses ranging from 12 inches to 14 feet. Approximately 118 truckloads of EPS Geofoam were used to complete the project.

According to Mike Miller, Geofoam Contractor & Installer, George Shaw Construction, “ACH Foam Technologies was chosen for the job because of prior successful Geofoam designs they produced with J.L. Bruce & Company landscape architects.” Miller further explains, “The ACH Foam Technologies designer worked closely with the architect
[J.L Bruce & Company] and George Shaw Construction to provide a custom fit Geofoam job involving special cut Geofoam pieces."

**Diverse Mix of Projects**
ACH Foam Technologies has sourced EPS Geofoam for a diverse collection of projects:
- Landscape fill for the Millennium Park in Chicago, Illinois.
- Green roof & landscape fill for the California Academy of Sciences in San Francisco, CA.
- Green roof fill for the Fidelity Tower Condos in Kansas City, Missouri.
- Green roof fill for the LDS Conference Center in Salt Lake City, Utah.
- Erosion control material for the Hanging Lake Tunnel in Garfield County, Colorado.
- Embankments and abutments fill for the I-15 reconstruction in Salt Lake City, Utah
- Embankment fill for the I-880 Cypress area in Oakland, California.
- Compressible inclusion to protect underground utilities in Weber Canyon, Utah.
- Slope stabilization material for retaining walls (Dubuque, Iowa).

Headquartered in Denver with locations throughout the United States, ACH Foam Technologies has been an industry pioneer in EPS foam manufacturing for over four decades; providing products for construction, geotechnical, packaging, and industrial applications.

The EPS manufacturing process at ACH is 100% closed-loop. All post-industrial scrap EPS generated during manufacture is recycled into new EPS product or thermally processed and turned into other plastics products. ACH Foam is available as a drop-off or mail-back facility to the local community for recycling of post-consumer EPS material. For more information visit www.achfoam.com.

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