More Storage Space in Store for Memphis Warehouse

Challenges with Insulation and Interior Finish Face Contractors on Department of Defense Project

If you took three football fields, raised them 30 feet in the air and put walls around them, you would have Defense Logistics Agency Warehouse #360, now under construction near the Memphis, Tenn., airport. The building, designated as a “high-bay, general-purpose warehouse,” is 200 feet wide and more than 1,000 feet long.

“To fulfill the DLA’s need for more storage space in Memphis, the original Warehouse #360, a smaller structure, was completely demolished, and its’ slab, foundation and footings removed,” said J. D. Walker, site project manager for the general contractor, S&E Construction of Memphis. “The new building sits on an 8-inch slab, with concrete footings that go about 4 feet below the finished floor.”

Walker noted that any building of this size presents challenges in terms of both insulation and interior finish. In this case, S&E solved both problems for the DLA by using Celotex® Thermax® Sheathing for the building’s walls and roof.

More and more frequently, this product is being used to both insulate and finish the interior of factories, showrooms and, in this case, a warehouse. There are several reasons.
Right: Defense Logistics Agency Warehouse #360 near the Memphis, Tenn., airport is 200 feet wide and more than 1,000 feet long, and is designated as a “high-bay, general-purpose warehouse.” S&E Construction of Memphis, the general contractor, used two types of sheathing to insulate the walls and roof of the building, while providing a rugged surface and a light, finished look for the warehouse interior:


The first one is insulating ability. S&E used about 55,000 square feet of 2 1/2-inch Thermax Plus Liner Panel with 16.5 mil facer for the walls. The product provided a stabilized R-value of R-18 to help keep warehouse contents at acceptable temperatures during Memphis’s surprisingly cold winters and hot summers.

Approximately 207,000 square feet of 2 1/2-inch-thick Thermax Heavy Duty with 4.0 mil facer was used to insulate and finish the interior of the roof. It also provides an R-value of R-18, and comes with shiplap edges for a solid, moisture-proof seal. The seal is completed with joint tape and joint sealants to help generate a high performance vapor retarder, so warehouse contents are kept dry and at acceptable temperatures.

Another reason S&E used Thermax Plus Liner Panel is ruggedness. The thick facer on this product can withstand the wear and tear common to warehouse walls. To seal the joints between the rigid Thermax panels, S&E used durable 3-inch-wide Celotex PVC Tee Joint Closure.

The white embossed finish on the Thermax provides another advantage. It gives the warehouse a finished look, while its reflective white finish makes for a brighter interior while reducing lighting costs.

Finally, the insulation is easy to cut, shape, handle and install, because of its easy-to-work texture and light weight. Also, the large panel size means fewer are used, which speeds up installation. Consequently, even this enormous job could be completed in a timely manner with a reasonable work force.

**Double Duty**

Walker and S&E liked the idea of achieving two functions with one product. “Instead of blanket-type insulation, we chose to use the rigid type polystyrene insulation with a facer on it, an efficient way of achieving two things: insulating the building and getting a finished product on the inside.

“Insulation is an especially important factor in buildings of this type, which are usually constructed of steel, which conducts heat very easily.

“The building is what we call a pre-engineered metal building, made by Steelox Systems, Inc., based in Mason, Ohio,” said Walker. “The wall panels are their DL-1 (Design Line) wall panel, bronze color, pre-painted. The roof system consists of Galvalume standing seam metal panels, also made by Steelox.

“The structural frame is made by Steelox too, consisting of built-up plate rafter beams, built-up plate rigid frame columns, bar joist roof system. The large span (200 feet wide) makes this kind of construction necessary,” he said. “With the conductivity in all components of this kind of structure, it was important to go with a high R-value insulating product.”

**Production Selection**

Millard Bratton, project engineer for the U.S. Army Corps of Engineers, which supervised the project, related how product decision was made.

“We didn’t specify a particular
Below: An employee of S&E Construction, using a circular saw, cuts and shapes a 4-foot-by-24-foot sheet of liner panel.

product,” he said. “We told the contractor we wanted a product that would meet certain requirements, Underwriters Laboratories standards and ASTM (C1289) standards. Then the contractor chose what they wanted to use and asked for price quotes.

“Thermax has an aluminum facer on both sides, so being left exposed will not affect it. We also have tilt-up panels on the bottom. This configuration cuts down on maintenance and painting, and is one of the main reasons the product was chosen,” he said. “The Celotex product is the only way to go. The typical application of this kind does not allow blown-in insulation, period. Blankets could be used, but wouldn’t give the durability or the insulation value that’s required in a warehouse. So the products satisfied all our requirements, and they look great, too.”

About the Author
The Celotex Corporation, based in Tampa, Fla., is a national manufacturer of building and roofing materials for commercial and residential use.