

# UPDATE

## ROOFING/COMMERCIAL

## Insulation no experiment for Cleveland's new museum

Cleveland's North Coast Harbor is booming. Since the world-renowned Rock and Roll Hall of Fame sprouted up on the shore of Lake Erie, it has drawn hundreds of thousands of visitors to the

CFC-free\*\* rigid foam insulation manufactured exclusively by The Dow Chemical Company, demonstrates important lessons on energy savings, long-term R-values, water resistance and compressive strength.

"Metal panels form the exterior walls of the building, and a high-tech metal dome is situated over the OMNIMAX theater. The structure incorporates three basic geometric forms representing science and technology: the sphere is represented by the dome of the theater; the octagon, by the central wintergarden or 'gateway to the harbor'; and the triangle or pyramid is located at the west wing of the building."

Inside, exposed mechanical systems, concrete columns and beams are juxtaposed against high-quality finishes such as carpet tile, special lighting, glass and aluminum guardrails, and an aluminum ceiling grid that together establish an appropriate environment for exhibits, Sirianni added.



Approximately 18,000 square feet of STYROFOAM brand Square Edge insulation were used to insulate the stone-faced walls of the museum.

city. The Great Lakes Science Center, the newest addition to the harbor, promises to be as exciting as the attraction next door.

The 10th-largest science museum in the country, Cleveland's \$56-million jewel offers 165,000 square feet of interactive fun with more than 350 exhibits and a six-story OMNIMAX theater. Science, technology and the environment are the main attractions in exhibits ranging from simple displays to a first-of-its-kind virtual reality demonstration involving up to six people at a time.

While not on the Great Lakes Science Center's menu of attractions, another science exhibit can be found in the walls and on the roof of the museum.

STYROFOAM\* brand insulation, the Blue\*,

### Design provides "gateway to harbor"

"Siting the museum on the North Coast Harbor invoked a design that connects it to the lake through the use of extensive outdoor exhibit decks and a 10,000-square-foot, 100-foot-high transparent entry which will function as the city's 'gateway to the harbor,'" said Project Architect Louis Sirianni of E. Verner Johnson and Associates, Inc. The Boston firm specializes in museums and has designed more than 120 such structures in the United States and abroad.

"Contemporary forms and exterior materials were chosen to reflect and invoke images of science and technology," said Sirianni of the museum's design.

### Wall construction provides insulation lessons

According to Tim Pinchot, project administrator at Acme Arsenia Company Inc., approximately 18,000 square feet of STYROFOAM brand Square Edge insulation were used to insulate the stone-faced walls of the museum. In addition to exterior insulation, Pinchot's firm was responsible for the interior walls, ceilings and floors.

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*The Best Proven Value*

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The museum features a poured-in-place concrete skeleton covered with an exterior cladding system of metal panels, glass and stone. Moisture is a fact of life in cavity walls, particularly in a windy, lakefront location, and according to Pinchot, he needed an extruded polystyrene that could withstand water to insulate behind the stone portion of the exterior cladding. To meet this challenge, he selected **STYROFOAM** brand Square Edge insulation. Behind the stone facade,  $\frac{3}{4}$  inch to  $1\frac{1}{2}$  inches of insulation are attached to the concrete base with an adhesive and stick clips and secured with retainer clips.

Manufactured in an extrusion process, **STYROFOAM** brand insulation has a closed-cell structure with no voids or gaps between the cells. The result is a high compressive strength and unequaled resistance to water absorption, which can cause insulation to lose its R-value. In fact, **STYROFOAM** brand insulation is warranted to retain 90 percent or more of its original R-value for 15 years after installation.

"In addition to its R-value and moisture resistance, **STYROFOAM** brand Square Edge insulation worked well for us because it is lightweight and easy to cut," explained Pinchot. "Those are important qualities when working on a manlift 60 feet to 80 feet above the ground. The insulation was lifted in buckets to workers on the manlift who then could cut or break the insulation to meet their needs."

Unlike other products, **STYROFOAM** brand insulation does not require special storage and works in all weather conditions, a plus for Pinchot and another subcontractor as construction took place during one of Cleveland's snowiest winters.

## **STYROFOAM** protects from above and below

Roofing contractor Roger J. Smith, vice president of Weather Mark Corporation, chose **STYROFOAM** brand insulation for



*A single-ply, ballasted system using tapered thicknesses of **STYROFOAM** brand insulation covers the concrete and metal deck roofs of the museum.*

the Great Lakes Science Center's flat roof decks.

The museum's concrete and metal deck roofs feature a single-ply ballasted system included between 2- and 6-inch tapered thicknesses of **STYROFOAM** brand Square Edge brand insulation. Both decks used a Firestone EPDM membrane, though Smith's team used the UL260 system on the metal roof decks.

The innovative UL260 system, introduced by Dow several years ago, was the first roofing system that allowed for the application of an extruded polystyrene directly on a metal deck. In the UL260 system, ribbons of sand placed perpendicular to the deck flutes allow **STYROFOAM** brand insulation to be placed directly on the deck, eliminating the need for costly underlayments such as gypsum board. While Smith is pleased with the UL260 system, he might have used new **STYROFOAM DECKMATE\*** or **STYROFOAM DECKMATE Plus** had the museum been designed a year or two later.

**DECKMATE** and **DECKMATE Plus** brand insulation eliminate the need for sand in the flutes and are the first extruded

polystyrene insulations that meet requirements established by Underwriters' Laboratories for direct application on metal decks. Both products can be installed in flat and tapered roofs.

Both contractors rated installation of the insulation easy compared to working right on the lake through one of Cleveland's worst winters in years.

While scientists young and old will enjoy the OMNIMAX theater and roam the halls of the Great Lakes Science Museum, exploring topics from motion and mechanics to electricity and magnetism to weather and atmosphere, **STYROFOAM** brand insulation will continue to insulate the structure for years to come.

For more information on the many applications of **STYROFOAM** brand insulation, write to The Dow Chemical Company, P.O. Box 1206, Midland, MI 48674; or call 1-800-441-4369; request Form No. 179-4298 and 179-5451.

\*\***STYROFOAM** brand products are manufactured with HCFC blowing agents which have ozone depletion potentials more than 90 percent less than standard CFC blowing agents.



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