



Brooklyn Children's Museum

Project Spotlight: April 2007



LOCATION:

Brooklyn, NY

OWNER:

Dept. of Design and Construction,
City of New York, NYC, NY

ARCHITECT:

Rafael Vinoly Architects, NYC, NY

EXTERIOR FAÇADE CONSULTANT:

Rich Goldberg, AIA, CSI, NCARB, president, architect at
Professional Consultants International, LLC, Avon, CT

GENERAL CONTRACTOR:

Skanska USA Building, Inc., NYC, NY

TILE CONTRACTOR:

Navillus Contracting, Long Island City, NY

TILE SUPPLIER:

DSA Deutsche Steinzeug America, Alpharetta, GA

TILE INSTALLATION SYSTEM:

LATICRETE International, Inc., Bethany, CT

LATICRETE DISTRIBUTOR:

Daltile, Maspeth, Queens, NY

Brooklyn Children's Museum

By Eric Carson

In 1899, one year after officially being incorporated into New York City, Brooklyn became home to the first museum in the world specifically designed for children. The Brooklyn Children's Museum, nestled in Brower Park in the Crown Heights section of New York's largest borough, has a 108-year history of inspiring young children through innovative educational programs and world-class exhibits.

Inspired by the centennial celebration, museum officials decided it was time to renovate the current structure, a 1977 bunker building, and called on internationally acclaimed architect Rafael Vinoly to design the first "green" museum in New York City.

Vinoly's \$39 million design brought the museum above ground for the first time in 25 years, doubling the square footage with a 51,000 square foot, L-shaped structure, increasing the museum's capacity from 250,000 to 400,000 annual visitors.

Vinoly's high-performance, sustainable design helped achieve the first geothermal heat and cooling system ever used in a New York cultural institution, and no fewer than seven other environmentally driven features were part of the process, including the use of responsible building materials from LATICRETE International, Inc.

The result was a LEED certificate from the U.S. Green Building Council, ironically enough, for a building covered with 8.1 million pieces of bright yellow ceramic tile.

While the "buzz" in the architectural world will most likely focus on the "green" aspects of the renovated Brooklyn Children's Museum, all anyone that walks by — or flies by for that matter, will talk about is the brilliant new yellow building that appears suspended in space above the old structure at the corner of St. Marks and Brooklyn Avenue.

As part of the "playful" aspect of designing a museum for children, Vinoly created an undulating building that rests on top of rows of glass windows, with portholes at varying heights for small children, and chose the color of the tile to fuel the creativity of young minds.

"The old structure was built in the '70s," said Lee Washesky, project manager for Rafael Vinoly Architects PC. "It was built into the ground and somewhat hidden. The landscape features were more important than the building itself. The new building stands out and really establishes itself in the community. The fifth elevation can be seen from across the street or the sky. Yellow is the color of hope, and this is a museum for little people."

To set and grout the 57,000 square feet of 1" x 1" mosaic tile from DSA Ceramic Tile on the roof and exterior walls, this innovative museum chose LATICRETE, the world leader of ceramic tile and stone installation systems. LATICRETE System materials were chosen for their proven track record in the permanent, problem-free installation of tile and stone, but also because LATICRETE was the first manufacture in the industry to obtain GREENGUARD Certification for its line of products, a contributing factor in the museum gaining LEED Certification. A major part of the design and specification for this complex structure was provided by Rich Goldberg, president and architect of Professional Consultants International, LLC, in Avon, Connecticut.

But there was one other major factor in choosing LATICRETE system materials, a revolutionary new grout, LATICRETE SpectraLOCK™ Pro Grout, which just happens to be available in 40 lifestyle colors, making it rather easy for LATICRETE to create a custom yellow that perfectly matched the specified tile. The ability to provide a grout with unmatched strength, color uniformity and stain resistance, and make it part of the flowing design concept, was another major benefit in specifying LATICRETE.

The museum superstructure is a steel frame with concrete composite floor slabs. The L-shaped second floor galleries were created with straight steel beams and joists, with limited use of curved steel beams. To achieve the undulating, continuous sloping surface, Vinoly's design called for Skanska USA Building to install 541 vertical plywood fins at 24" on center. The fins were fastened to the back of the cold formed metal framing and exterior gypsum board with

stainless steel angles and bolts. Horizontal wood purlins on 16" centers with stainless steel screws were attached to the fins. The wood fins and purlins were covered with a stainless steel lath in preparation for a one-inch mortar bed and liquid waterproofing membrane, both supplied by LATICRETE.

To install the 8.1 million pieces of yellow ceramic tile with the LATICRETE System, Matt McCormick from Navillus Inc. and a crew of 10 faced unique challenges. With the slope of the roof, Navillus had to extend the mortar bed into the one-foot by nine-inch trench gutter that surrounds the entire structure where the roof meets the walls, designed to protect the installation from rain and snow run-off. The LATICRETE technical services division specified the LATICRETE Plaza and Deck System, modified slightly to match the complexities of the installation.

"The museum specified the LATICRETE System because they guarantee the entire system for 10 years," McCormick said. "We only use LATICRETE products at Navillus. It's for piece of mind. They have the best warranty and the products are readily available. We consider LATICRETE the industry standard. They also have great technical support, which comes in handy more than one might think, especially on unique projects like the museum."

A primary waterproofing membrane was installed over the exterior gypsum board, then covered with the LATICRETE Tile Drain Mat for extra protection. Navillus then used LATICRETE 226 Thick Bed Mortar mixed with LATICRETE 3701 Mortar Admix for the 1" mortar bed, both GREENGUARD Certified products, over a 16 gauge, 2" x 2" galvanized wire mesh. Used in place of water, LATICRETE 3701 Mortar Admix improves the working and physical properties of any cement mix with a specially designed latex admixture.

Navillus added another layer of protection over the full mortar bed, LATICRETE 9235 Waterproofing Membrane, long the "industry standard" for wet areas and continuous water submersion applications, such as the roof and exterior walls of the new Brooklyn Children's Museum. GREENGUARD Certified, LATICRETE 9235 Waterproofing Membrane is rated "extra heavy" by the Tile Council of America and

inhibits the growth of mold and stain-causing bacteria with antimicrobial protection from Microban®.

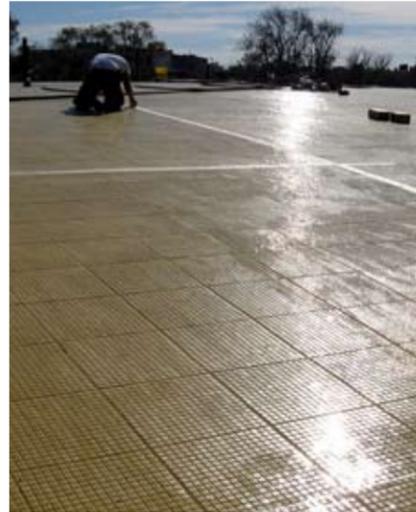
The final step in preparing to install the ceramic yellow mosaics was troweling over the waterproofing membrane with LATICRETE 254 Platinum, a polymer-fortified thin-set with unsurpassed strength, far exceeding all ANSI requirements.

Finally it was time to set and grout the 8.1 million pieces of 1" x 1" mosaic yellow tile. McCormick and his Navillus crew broke the installation down into 14' x 14' grids surrounded by 3/8" caulk joints, and snapped the lines to include 1/8" grout joints, with special and different calculations to account for the trench gutter that divides the roof from the exterior walls. When the tile was set in the grid, LATICRETE SpectraLOCK PRO Grout in custom yellow was used to fill the joints.

Because of the unique changes in plane that run continuous through the entire installation, one more step was taken to ensure the longevity of this high-profile project, and LATICRETE Latasil™ in custom-made matching yellow was used to seal the entire installation. LATICRETE Latasil is a high-performance silicone sealant designed for coves, corners, changes in plane and expansion joints, and will act as the last line of defense against harsh New York winters and inevitable spring rains.

"During the mock up," McCormick said, "the tiles that were set in the trench gutter had too many lips protruding. Originally, we couldn't bend the sheets of tile to get them to lay flat. We cut out a wood form to extend the mortar bed out in the shape of the gutter, changed the direction of the tile sheets, then set them right on top of that. Everything worked out just how it was planned."

With the "buzz" that's been generated by the sleek, new yellow building in central Brooklyn, the first green museum in a city famous for museums, it's easy to forget the true value of this progressive piece of architecture. Inside, 51,000 square feet of new space has been created to ensure that the Brooklyn Children's Museum continues to motivate, educate and inspire young children in the process of learning.





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