

STRUX® 90/40

Synthetic Macro Fiber Reinforcement

A crowd-pleasing job at one of the world's largest aquariums



The Georgia Aquarium
Atlanta, Georgia

Designed to look like a modern Noah's Ark, the new Georgia Aquarium in downtown Atlanta (www.georgiaaquarium.org) is destined to be the largest aquarium in the world and one of the major tourist attractions in the state. More than two million visitors are expected to visit the Aquarium during its first year of operation alone. The imposing facility includes more than 505,000 square feet of conditioned space

housing and more than 100,000 animals in eight million gallons of fresh and saltwater.

Given the challenging nature of the project, Lafarge North America, the concrete supplier, worked with a team from Grace Construction Products to meet the complex demands of this construction. The Aquarium's unique requirements led to a close working relationship between Grace and Lafarge North America in order to deliver solutions to the many challenges, starting with concrete for the viewing tanks.

The tanks are among the largest in the world—some as high as 33' tall and requiring 4' thick walls at the base. The tank walls have many pipe insets, so Lafarge used its self-consolidating concrete Agilia® in all areas of the tanks where pipes and congested steel were located. The highly flowable SCC contained Grace's ADVA® superplasticizer, and was self-consolidating,

"We've been very pleased with the way this project has gone. Grace personnel have worked closely with us from design through construction."

John Brett
Commercial Project Manager
Lafarge North America

moving easily through highly congested forms to deliver strengths above 8000 psi—33% over design specifications.

Because the tanks would contain saltwater, the mix for the tank walls also incorporated the addition of Grace's DCI®-S corrosion inhibitor. This admixture helps extend the life cycle of concrete exposed to marine environments and minimizes the need for future repairs due to corrosion.

In addition, STRUX® 90/40 synthetic macro fiber reinforcement was used for secondary rein-

“The Aquarium was one of our more demanding projects, because of its scope and unusual features and structural elements... timing and communication were crucial, and we did a very good job of both.”

Kirk Deadrick
Director of Quality Assurance
Lafarge North America

forcement in slab-on-ground concrete throughout the structure, including concrete walkways, areas near the tanks and other high traffic locations. STRUX is safer to use, reduces the potential for damage to waterproofing materials placed under the concrete and eliminates the risk for corrosion compared to other types of reinforcement.

According to the contractor, STRUX fibers are easy to handle and disperse evenly throughout the concrete matrix. He noted that STRUX helped his company maintain the schedule, saving time and money.

Work on the project progressed smoothly and the Aquarium opened as scheduled in November 2005. “The mixes have performed very well, and we have been able to adapt quickly to the fast-changing demands of this project,” said John Brett, Commercial Project Manager for Lafarge.

U.S. Patent Nos.: 6,569,525; 6,569,526; 6,758,897; 6,863,969

www.graceconstruction.com

North America Customer Service: 1-877-4AD-MIX1 (1-877-423-6491)

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Workers finishing the slab near the main viewing tank. Using STRUX 90/40 synthetic fiber reinforcement to replace welded wire mesh for secondary reinforcement reduced safety hazards and helped to maintain the schedule, saving time and money.



The viewing tanks are among the largest in the world; some are as high as 30' tall and 4' thick at the base.

PROJECT CREDITS:

Owner: Georgia Aquarium, Inc., Atlanta, GA
Concrete Supplier: Lafarge North America, Atlanta, GA
Contractor: Brasfield & Gorrie, Atlanta, GA
Concrete Admixtures: Grace Construction Products
Structural Engineer: Uzun and Case Engineers, Atlanta, GA
Architect: Thompson, Ventulett, Stainback & Associates, Inc. (TVS), Atlanta, GA
Owner Representative: Heery International, Atlanta, GA

Front Photo: Courtesy of Georgia Aquarium

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