

Project Profile



Project

The Florida Aquarium
Tampa, FL

Owner

The Florida Aquarium
Tampa, FL

Architects

HOK, Inc.
Tampa, FL
EHDD
San Francisco, CA

Waterproofing / Roofing Contractor

CFE, Inc.
Auburndale, FL

Roofing System

Adhered roofing system,
using G410 feltback membrane

Project Size

8,200 square feet

Completed

September, 1994

The Challenge

Water is the whole story at the Florida Aquarium in Tampa. Exhibits trace a droplet of water from its origin in the Florida aquifer through swamps, bayous, and rivers ... then through brackish, near shore and reef environments, to its ultimate destination in the Gulf Stream. The flow of water dictates the flow of exhibits. But the owner dictated that there would be no flow of water in the form of leaks through the aquarium's roofing and waterproofing areas. That can be a challenge in Florida.

Florida's environment alone ranks among the harshest on roofing and waterproofing materials and structures. Blistering sun, monsoon like rainstorms, sudden freezes, and airborne salt water put every inch of every application to the test.

The Choice

The natural environment, design requirements, and the construction schedule were so demanding that architects HOK, Inc. of Tampa and noted aquarium specialists EHDD of San Francisco selected Sika Sarnafil to provide the unique system solutions for both

roofing and waterproofing. "Few projects come along in a lifetime as intense as this one", said Phil McKinney president of Sika Sarnafil's authorized applicator, CFE, Inc. of Auburndale, Florida. "There were probably 10 times more details than the typical roofing job."

The result is a structure of multiple levels, a signature, clamshell-shaped skylight dome rising 67 feet above the second floor and a roof makeup of numerous set-back areas of varying shapes and sizes. The design team was challenged by the need to integrate a high performance waterproofing system for split slab construction and exposed roofing. Many roof areas were designed to be multi-functional, serving as both public overlooks and service routes capable of bearing the 10,000 pound axial load of a forklift carrying curatorial boxes for exhibits.

The design team sought not only a versatile system, but one that had a 30-year demonstrated track record of roofing and waterproofing performance. System quality control features were needed to address the challenges of multiple changes in elevation, complex flashings, and phased construction. The system manufacturer needed to provide

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a high level of quality assurance, and ongoing on site technical assistance, including full time inspection to ensure proper system installation. In short, the challenge of the Florida Aquarium demanded a unique system solution from the industry's leading thermoplastic manufacturer.

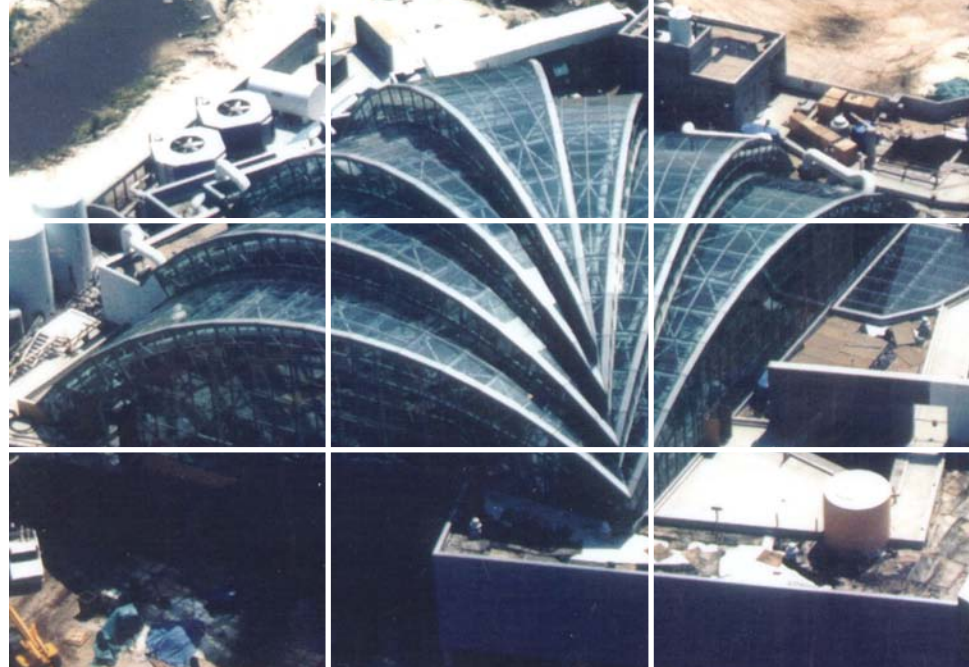
The Solution

After careful consultation, the design team selected the Sarnafil® System 1000 for the split slab concrete deck areas and the Sarnafil adhered system for the exposed roofing areas.

The Sarnafil System 1000 is specially designed for split slab construction. The system integrates a geotextile leveling layer designed to absorb inconsistencies in the concrete deck, thereby reducing substrate preparation. The 79 mil thick Sarnafil G476 waterproofing membrane was installed over the geotextile. This rugged thermoplastic membrane is specially formulated for subgrade and split slab construction, with excellent long term resistance to ponding water, high alkalinity, and algae.

The waterproofing membrane and integrated membrane flashings are hot-air welded in place. The hot-air welding process ensures that difficult flashings are secure and watertight. Each Sarnafil seam is tested for consistency and reliability.

According to Alan Temple, vice president and project manager for HOK, "CFE and Sika Sarnafil were very quality conscious about their work. They checked every detail and seam, and they didn't wait for us to ask before performing flood testing. In fact, at one point when we thought there was a leak, Sika Sarnafil conducted a test using blue die as a trace. It turned out that the



leak was in a defective block wall, not in Sika Sarnafil's system."

A protective layer of high density polyethylene was installed over the completed waterproofing. This layer protected the membrane from construction traffic and from the reinforcing steel installed prior to pouring the concrete topping slab. As always, quality control and quality assurance provide the key difference between waterproofing applications which are reliable and those that are not.

"We definitely did not want to rip up reinforced concrete if the system did not work," said Richard Magahey, project engineer for general contractor Turner / Kajima, a joint venture of two firms which are based in Orlando and Atlanta, respectively. "Sika Sarnafil's detailing department and CFE worked closely with the architect and with us to make sure their system worked right, and they responded quickly to keep us on schedule."

In comparison to the waterproofing, the roofing application was a bit easier. The Sarnafil G410 feltback membrane was adhered to cellular concrete. "This was the first time I dealt with Sarnafil roofing," said Magahey. "It's a single-ply system that's quite nice

— a lightweight deck, no ballast, just laid, glued and welded." CFE hot-air welded all seams of the Sarnafil G410 membrane to create a watertight seal. A hot-air welded seam becomes a monolithic layer of material, impervious to moisture infiltration and is as strong and resilient as the tough, flexible membrane itself.

When completed, the Florida Aquarium will be open seven days a week, 365 days a year. It cannot afford a disruption of shutting off sections to undertake arduous roofing or waterproofing repairs.

Thanks to Sika Sarnafil roofing and waterproofing systems, the only water visitors will see at the Aquarium will be part of the 1.2 million gallons in the exhibits. According to Alan Temple, "It would be difficult to find another vendor willing to subject their system to this kind of installation." Sika Sarnafil has historically provided system solutions for difficult projects like the Florida Aquarium.

Sika Sarnafil

A Division of Sika Corporation
100 Dan Road
Canton, MA 02021
Telephone: 1-800-451-2504
Telefax: 781-828-5365
www.sikacorp.com

Sika Sarnafil

A Business Unit of Sika Canada Inc.
6820 Davand Drive, Unit 2
Mississauga, Ontario L5T 1J5
Canada
Telephone: 905-670-2222
Telefax: 905-670-5278
www.sika.ca

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The Sarnafil logo, featuring the word "Sarnafil" in a bold, blue, sans-serif font with a registered trademark symbol (®) to its right.