

# SarnaProof



**BUILDING TYPE:** ARENA

**Project:**

Tampa Bay Ice Palace

**Building Owner:**

Tampa Bay Lightning  
NHL Hockey Franchise

**Manufacturer:**

Sarnafil Roofing and  
Waterproofing Systems

**Architectural Firm:**

Ellerbe Beckett,  
Kansas City, MO

**General Contractor:**

Huber, Hunt & Nichols,  
Tampa, FL

**Roofing Contractor:**

Pinnacle Roofing Contractors, Inc.,  
Jacksonville, FL

**Project Size:**

200,000 sq. ft.

**Date Installed:**

April - December 1996

**System:**

Mechanically Attached  
Engineered System

**Membrane:**

White and grey S327 48 mil

**The Challenge:**

In the planning stages for the new Ice Palace, the owners of The Tampa Bay Lightning hockey team knew they would have to pull more than a hat trick to keep the NHL team's new home tight and trim in the face of the area's frequent tropical storms.

With concert seating for 21,500, the Ice Palace was developed as a major sports and entertainment center. Its 1996 opening game drew over 20,000 fans. In addition to hosting over 40 regular season games there, the new arena had also been designed to attract large audiences all year long, for every kind of entertainment from the Tour of World Figure Skating Champions to rodeos and the Harlem Globetrotters.

The problem lay, not in attracting crowds, but in designing and installing a roof system that would hold its own over the years in the face of extreme temperatures, UV, winds, and rain.

The arena's owners had a precise wind study report completed to determine the best solution for the wind pressures on the roof and other aspects of the building.

100 feet at its highest point, the arena was considered a unique and challenging project. Situated right next to Tampa Bay, the Palace's design featured a main barrel-shaped roof, sloped on two sides, as well as a lower flat roof.

The owner, architect and general contractor knew they would need, not just a roof, but a roofing solution that was a complete roofing system, as well as one that would ensure long term performance.



Pinnacle Roofing had previously worked with Sarnafil on projects for Target stores. They knew firsthand about Sarnafil membrane technology and its expertise with engineered solutions. The project's managers had been impressed by Sarnafil's roofing successes with other arenas and stadiums throughout North America—arenas that were still performing after years of extremes.

They recommended Sarnafil.

### **The Choice:**

Wind uplift on a roof varies significantly, depending not only on the wind speeds, but on the structure's location, and on the height and type of building surface. The arena's combination of barrel or curved roof and flat roof sections, as well as its direct bay exposure, could contribute to varying wind uplift intensities at different points of the roof.

With Sarnafil's encouragement, the project team selected Sarnafil's Mechanically Attached Engineered Roofing System featuring Sarnafil polyester reinforced roofing membrane. The system utilizes the Sarnabar linear attachment method of mechanical fastening. A corrosion-resistant, roll-formed 1"-wide, pre-punched, 14-gauge galvanized steel Sarnabar is anchored to the structural roof deck using corrosion-resistant fasteners.

The Sarnabar clamps the roofing membrane securely along its full length, uniformly distributing the dynamic wind uplift load among all of the fasteners.

Providing wind protection far beyond that which is possible with traditional spot-affixed roofing systems, the Sarnabar linear attachment method is the only system that accounts for the roofing membrane's dynamic movement and resulting stress on fasteners and related elements. With roofing systems using spot-affixed methods, high wind uplift can cause membrane fatigue or fastener failure.

### **The Sarnafil Solution:**

Sarnabar configuration is engineered to support high loads while



delivering both the linear and torsional strength to resist twisting or deformation during high uplift forces.

"Every point of attachment is a possible point of 'departure'," comments Pinnacle Roofing. "With the Tampa Bay Ice Palace," they explain, "Sarnafil calculated Sarnabar and fastener spacing precisely based on projected wind uplift conditions."

A metal roof deck was installed on top of the arena's building joists, using standard 22 gauge steel for flat areas. For the barrel-shaped area, a 22 gauge steel acoustic decking with a unique rib configuration was used that presented its own challenge. The unusual deck configuration didn't allow the roofing insulation to span properly across the deck's flutes. Sarnafil's technical staff suggested using 1/2" Dens-Deck® underlayment as a base layer. The Dens-Deck® addition helped provide the needed insulation support.

For the insulation, the team installed Sarnatherm polyisocyanurate insulation, a superior performance alternative to fiberboard or perlite insulation. For those areas where the arena deck was flat, tapered insulation was installed to assist in drainage.

Following the insulation installation, Sarnafil 48 mil polyester reinforced S327 roofing membrane was applied, followed by Sarnabars and coverstrips on the barrel area. The team used Sarnafast Mechanically-Attached Engineered System on all flat areas with lower wind uplift conditions.

Pinnacle Roofing applied the S327 membrane to both the barrel and flat roof areas. White membrane was selected for most of the roofing area, with grey and white as a pattern for the barrel area. All seams were hot-air welded for a watertight installation.

In Sarnafil's spread coating manufacturing process, Sarnafil membranes become one homogeneous, reinforced sheet. Combined with its reinforced, monolithic nature and high tensile strength, the Sarnafil roofing membrane and the Sarnafil Engineered System created for the Tampa Bay Lightning a roofing solution that would be scoring for a long time to come.

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For more information on how you can have a cost-effective Sarnafil roofing or waterproofing system on your institutional, industrial or commercial building, contact Sarnafil today.

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