



# ROOFING

## HIGH WIND ROOFING SYSTEMS

**Sarnafil®**

**BUILDING TRUST**





“This roof is a Cadillac system with superior wind uplift. The roof is going nowhere. Even Irma, a Category 4 hurricane that made landfall in Florida in September of 2017, couldn’t put a dent in the new Sarnafil system despite carrying sustained winds of up to 112 miles per hour.”

- Matt Cooper, Advanced Roofing, Inc.  
Fort Lauderdale, Florida

**SITUATION**

As catastrophic hurricanes like Harvey, Irma, Maria and Florence have shown, the National Oceanic and Atmospheric Administration’s (NOAA) National Hurricane Center plays a critical role in protecting Americans by forecasting and tracking these massive storm systems. This Miami-based facility has to be functional at all times, even during a Category 5 hurricane. So when the building needed to replace its failing roof, it was crucial that the new roof be storm-proof and installed without disrupting the center’s operations.

**RESULT**

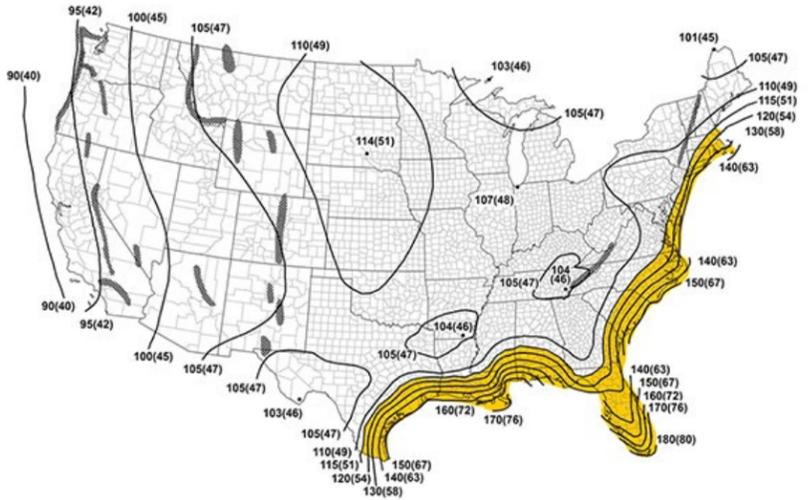
It was suggested that the existing built-up roof (BUR) be replaced with a Sarnafil G 410 EnergySmart PVC membrane. As if on cue, weeks after the roof of the National Hurricane Center was completed, Hurricane Matthew slammed into Florida. Although the Category 5 hurricane had weakened to a tropical storm by the time it reached Miami, it was still a good indicator of the new roof’s performance.

**WHAT IS A HIGH WIND EVENT?**

All too often roofing decisions are made without sufficient consideration for the wind performance of the roofing system.

A roofing system will truly be tested when it experiences multiple wind events over time in the most extreme weather conditions.

The National Oceanic and Atmospheric Administration’s National Weather Service states that “a high wind event has occurred whenever sustained winds of 40 mph or more, or a peak gust of 58 mph or more, has been reported from reliable observing equipment.”



Typical Wind Map – used by roofing designers to identify wind velocity zones.

**PROJECTS WHERE A HIGH WIND SYSTEM SHOULD BE CONSIDERED:**

High wind events are not just limited to those buildings that are located near the coastline or in tornado prone areas. Consider the following criteria when determining if your building should have a roof system designed to resist high wind loads.

- Building height of 70 feet or taller
- Location near any large body of water (coastal or inland)
- Located within hurricane prone areas
- A desire for long-term performance and complete security

**EXPERIENCE YOU CAN RELY ON**

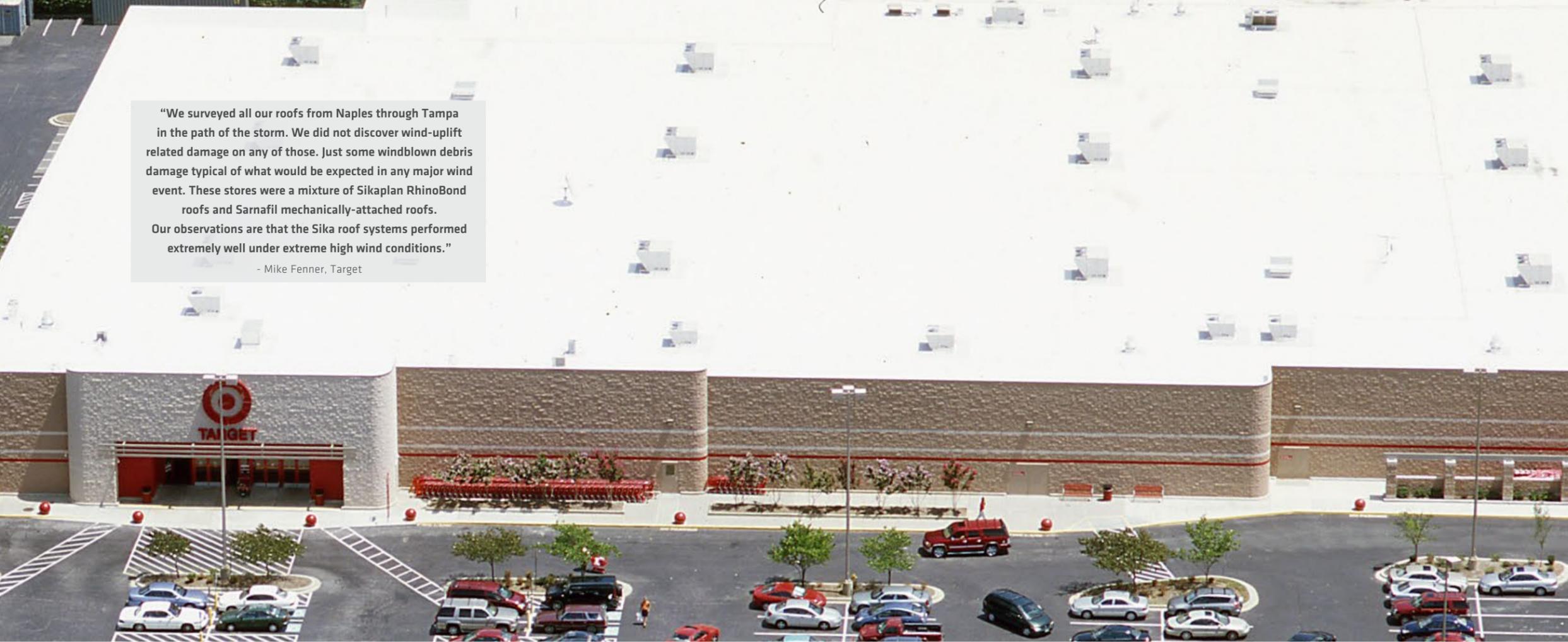
You want to choose a roofing manufacturer that has the experience to provide a roofing solution that will perform to your high wind performance needs. Sika Sarnafil roofing systems have stood the test of time in the harshest climates all over the world. Our experience with high wind roofing systems in such diverse locations as the Swiss Alps to the Florida coast will provide you with the peace-of-mind that comes from working with an experienced partner.

Sika Sarnafil roofing systems are widely recognized for exemplifying the highest standards of quality, reliability and watertight protection. Our record of proven performance is on display on buildings worldwide, in every imaginable climate. All told, we’ve manufactured more than 16 billion square feet of thermoplastic roofing and waterproofing membrane since 1964.

**HOT-AIR WELDED SEAMS AND FLASHINGS**

Faulty seams are a common source of leaks in any roofing system. Some roofing membranes use sealants, adhesives or tapes to secure the seams, but because Sika Sarnafil’s membranes are thermoplastic, seams and flashings are welded together using an automatic hot-air welder.

When welded together, the sheets of membrane become one monolithic layer of material impervious to water and moisture infiltration.



“We surveyed all our roofs from Naples through Tampa in the path of the storm. We did not discover wind-uplift related damage on any of those. Just some windblown debris damage typical of what would be expected in any major wind event. These stores were a mixture of Sikaplan RhinoBond roofs and Sarnafil mechanically-attached roofs. Our observations are that the Sika roof systems performed extremely well under extreme high wind conditions.”

- Mike Fenner, Target

**SITUATION**  
 After Hurricane Irma devastated the Caribbean in the late summer of 2017, it set its sights on Florida. The storm’s large wind field resulted in strong winds across much of the state, with the highest recorded wind gust of 142 miles per hour observed in Naples. Large-scale retailer Target had three stores directly in the path where the storm was most severe.

**RESULT**  
 Luckily, many Target stores utilize Sika roofing systems. The three stores in Hurricane Irma’s path did not suffer any roof damage due directly to a wind uplift failure. Two of the stores were damaged by windblown debris, and the third store suffered a structural failure due to weight of standing water from a combination of several clogged drains and over-capacity of the storm sewer system. However, the roof membrane system stayed attached to the metal decking even in the collapse area. Target was so happy with the watertight performance, they decided to replace the entire 17-year-old roof system with a new Sarnafil system.



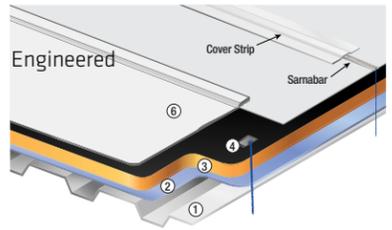
# CHOOSING A HIGH WIND ROOFING SYSTEM.

Building configuration, location, existing roof condition and building codes all play a role in roofing system design. It’s important that you select the roofing system that matches your criteria.

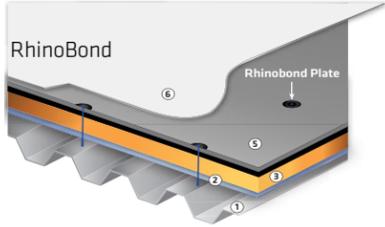
Sika Sarnafil offers a variety of high wind roofing systems to meet your specific needs. All three systems have FM, Florida Building Code and Miami-Dade approvals.

**SARNAFIL ENGINEERED ROOF SYSTEM**  
 The Sarnafil Engineered Roof System is a mechanically attached system utilizing Sika Sarnafil’s unique Sarnabar to firmly attach Sarnafil S 327 polyester scrim reinforced thermoplastic membrane to the deck. The Engineered System provides design flexibility and protection against wind that no other roofing system in the industry is capable of.

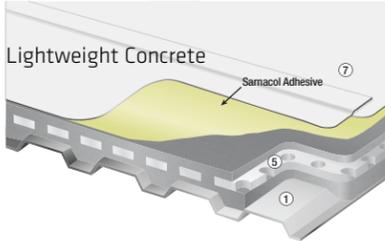
It is guaranteed to meet and exceed even the toughest of design criteria. The number of Sarnabars and fastener spacing will vary for each roofing application according to the custom uplift calculation.



The design takes into consideration wind uplift forces and fastener pullout values, since wind uplift on a roof can vary considerably depending on the location and height of a building.



**RhinoBond® ROOF SYSTEM**  
 The innovative RhinoBond Roof System is used with Sika Sarnafil PVC membranes to increase contractor productivity and enhance roof wind uplift resistance. It uses electromagnetic induction welding to eliminate fastener penetrations through the membrane, thus reducing membrane “flutter.” Specially coated membrane plates are fastened to the roof deck and later fused to the underside of the membrane using the RhinoBond tool, which is lightweight, portable and simple to use. RhinoBond is ideal for projects that require enhanced wind protection. The system achieves an FM 1-120 rating while requiring 30 percent fewer fasteners per square.



**SARNAFIL LIGHTWEIGHT INSULATED CONCRETE ROOF SYSTEM**  
 The Sarnafil Lightweight Insulated Concrete Roof System utilizes Sarnafil feltback G 410 fiberglass reinforced thermoplastic membrane adhered to lightweight insulated concrete using Sarnacol 2121 water-based adhesive.  
 Lightweight insulated concrete (LWIC) is a mixture of Portland cement, water and preformed foam. The LWIC can be applied over various types of substrates and decks. Expanded polystyrene is encapsulated within the lightweight concrete to add insulation value and enhance slope. The result is a lightweight (air dried weight of 26-38 PCF)

- Key**
1. Structural Deck
  2. Vapor Retarder
  3. Insulation
  4. Insulation Fastener
  5. Lightweight Insulated Concrete
  6. Sarnafil S Membrane
  7. Sarnafil G Feltback Membrane

substrate with a compressive strength of 120-300 PSI.

The characteristics of LWIC make it an excellent substrate for adhering Sarnafil feltback G 410 membrane, resulting in a roofing system with high wind performance characteristics. LWIC can be utilized on both new construction and reroofing applications.



Image taken shortly after the destructive 2017 hurricanes.

**SITUATION**

In 2017, Hurricane Irma's effects in the U.S. Virgin Islands were most profound on Saint Thomas, where at least 12 inches of rain fell. The island suffered widespread structural damage to many of its buildings, including Cyril E. King Airport, when the Category 5 hurricane made landfall. Just two weeks after Irma, Category 5 Hurricane Maria inflicted more damage to Saint Thomas.

**RESULT**

Though the metal portion of the airport roof was badly damaged during the successive hurricanes, the Sarnafil S 327 membrane, which was installed in 2014, weathered the storms without issue. The airport proved vital to relief efforts following the storms (see inset image) and thanks in part to the performance of its Sarnafil roof, Cyril E. King Airport was able to reopen for commercial flights just nine days after Saint Thomas was struck by Maria, its second Category 5 hurricane in a single month.



# NO MATTER WHICH SYSTEM YOU CHOOSE, WE'VE GOT YOU COVERED.

**PERIMETER EDGE DESIGN**

Numerous studies have shown that failure of a roof's edge metal is the most common cause of roof blow-offs. Sika Sarnafil offers and warrants three options to further protect the perimeter edge of your roof.

**Sarnaclad** is a 25 gauge, G 90 galvanized metal sheet with a 20 mil Sarnafil membrane film laminated on one side. It is a durable and attractive flashing product capable of being formed into a large variety of shapes and profiles. Sarnafil flashing membrane is welded directly to the Sarnaclad metal for maximum watertight protection at the roof edge. The Sarnaclad is included in the system warranty and properly designed and installed can be warranted for wind speeds up to 120 mph.

**Edge Grip** is a prefabricated perimeter edge attachment and fascia assembly comprised of three parts: the (base) rail, spring clips, and a snap-on fascia to provide labor savings during installation. Edge Grip's unique design also provides aesthetic appeal, high corrosion resistance, and strong wind resistance.

The rail is pre-punched to ensure consistent and secure fastener placement and prefabricated mitered inside and outside corners are used to ensure that the rail is positioned correctly. The snap-on fascia is held in place securely under tension applied by the spring clips, and is available in a wide range of colors, finishes and face heights to match specific project requirements. Sika Sarnafil will warrant Edge Grip for speeds up to 120 mph.

**Edge Grip Extruded** fascia system is designed to provide your roof system with maximum perimeter edge protection against wind uplift. The system achieves pull-out resistance in excess of 540 lbs. per lineal foot and is approved by FM, ANSI/SPRI and Miami-Dade to comply with the "High Velocity Hurricane Zone" of the Florida Building Code.

The prefabricated design provides labor savings during installation, aesthetic appeal with many color choices and high corrosion resistance. Sika Sarnafil will warrant Edge Grip Extruded under the system warranty for wind speeds up to 120 mph.



**Warranty:** Sika Sarnafil offers some of the best warranties in the industry.

	Maximum Wind Speed Warranty	Warranty Options
<b>Engineered System</b>	Up to 120 mph	Up to 30 years
<b>RhinoBond System</b>	Up to 99 mph	Up to 30 years
<b>Lightweight Insulated Concrete System</b>	Up to 120 mph (with adhered system)	Up to 20 years

**The Sarnafil Milestone Management process is the key to a successful installation. From specification assistance to installation, our "hands-on approach" is designed to make any project an easier task for you. Here's how we help make the process go smoothly:**

**PROVEN MATERIALS**

A high quality membrane is the key to any successful roofing or waterproofing project that demands absolute system integrity. With that in mind, Sika Sarnafil's manufacturing process uses only the highest quality materials to produce a monolithic, non-laminated membrane that offers unmatched durability and longevity.

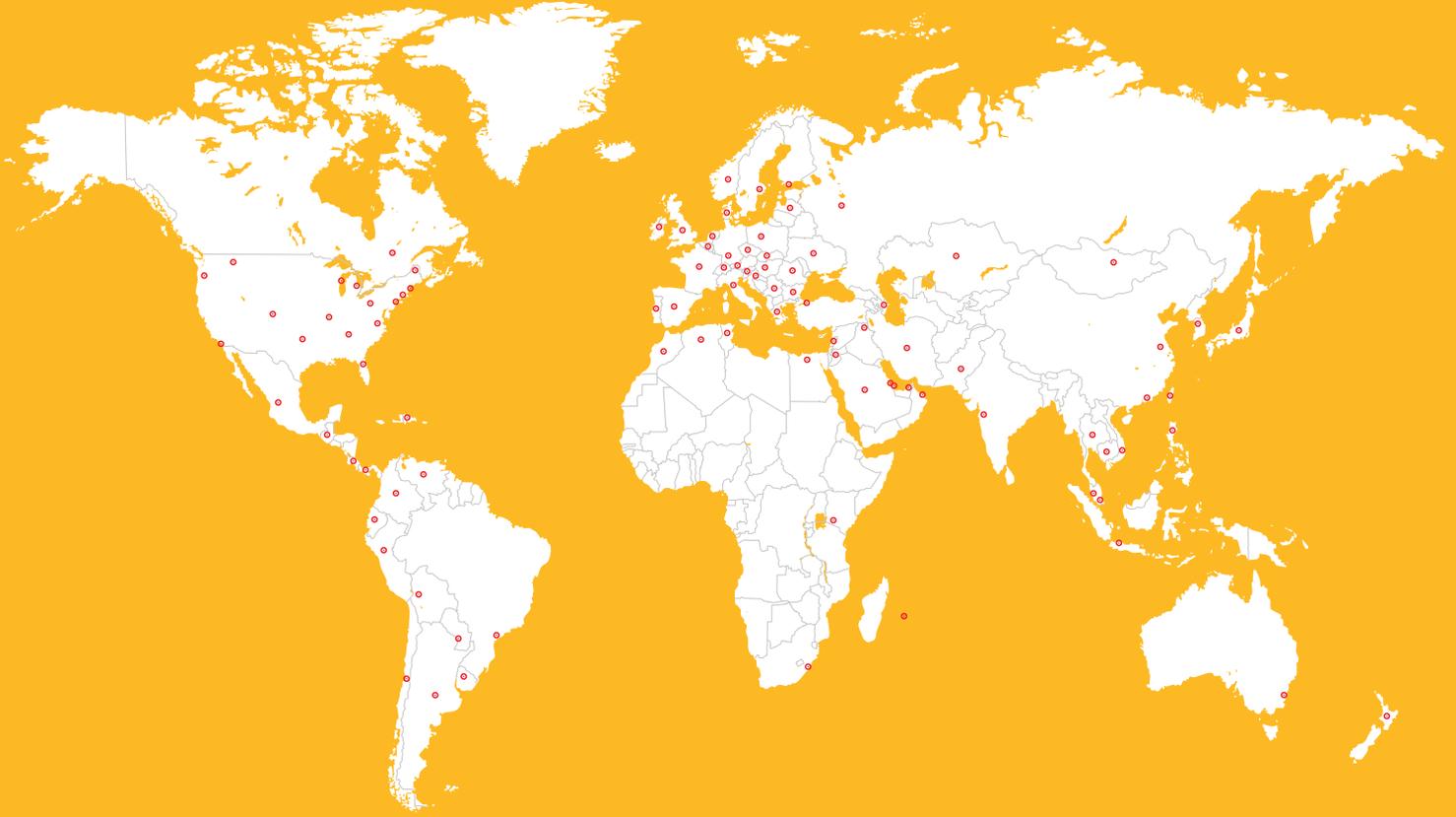
**EXPERT ASSISTANCE**

Our skilled technical experts make Sika Sarnafil stand apart from other manufacturers. We're involved at each major milestone – offering design assistance to architects and specifiers as needed, reviewing construction documents, and training authorized applicators in the classroom and at the job site.

**SKILLFUL WORKMANSHIP**

We work with a select group of trained, Authorized Applicators – only the best are invited to join our team. Maintaining strict control over the installation process means that quality is carried through from start to finish.

# GLOBAL BUT LOCAL PARTNERSHIP



## BUILDING TRUST, EVERY DAY

With over 100 years of experience, Sika is a worldwide innovation and sustainability leader in the development and production of systems and products for construction, as well as the marine, automotive, and renewable energy manufacturing industries. Sika has offices in over 100 countries with over 300 manufacturing facilities and more than 27,000 employees worldwide. With annual sales of 9.5+ billion dollars in 2021, our commitment to quality, innovation, and the environment as well as putting our customer's needs first, encompasses why Sika is a global leader in our industries. Sika, Building Trust.

Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.



LEED® is a trademark of the U.S. Green Building Council.  
Green Globes® is a trademark of the Green Building Initiative.

## SERVING YOUR NEEDS WORLDWIDE FROM ROOF TO FLOOR



Sika Corporation can assist you with your construction needs from roof to floor. Call 1-800-576-2358 to learn about our complete building system solutions.

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