



**Performance that Pays.
Sustainability that's Smart.**

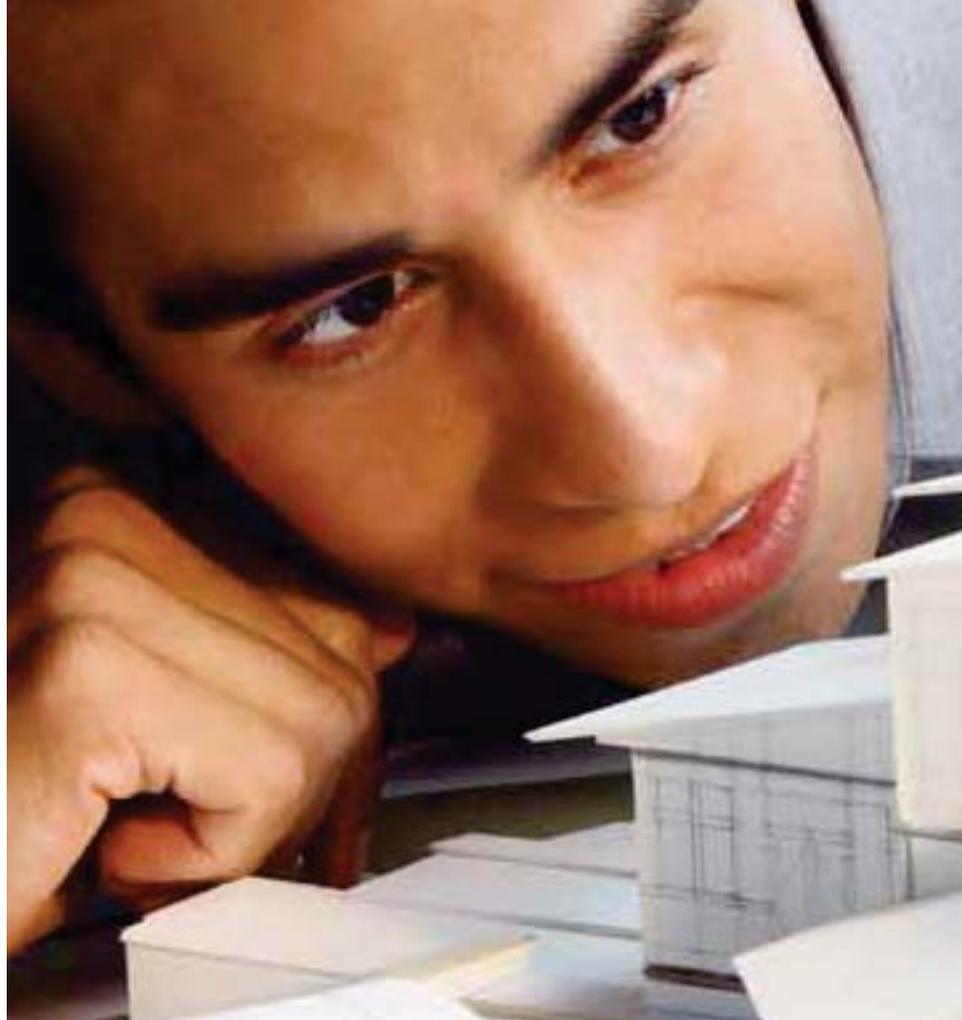


Sarnafil®

Roofing systems are an important consideration when evaluating sustainable construction. Sika Sarnafil manufactures systems with an emphasis on protecting natural resources and minimizing the impact on the environment.

The company closely follows tenets of roofing sustainability established by two respected industry organizations, the Council for Research and Innovation in Building Construction (CIB) and the International Union of Testing and Research Laboratories (RILEM) (CIBW.83/RILEM166 RMS):

- Minimize the burden on the environment, being responsible stewards of the Earth's resources.
- Conserve energy, recognizing the importance of savings benefits and improving roof systems' thermal efficiency.
- Extend roof system life spans, realizing the worthiness of seeking long-term performance.



Sustainability that Starts with Performance

Sustainable practices meet the needs of the present with an eye to the needs of future generations. Before the terms “sustainable” and “green” were commonplace, Sika Sarnafil had been designing products that perform to the highest standards, and are still performing after decades of service.

◀ **On the cover:**
Vegetated Green Roof
Target Center, Minneapolis, MN

Building owners, designers and contractors involved in the construction of commercial buildings are increasingly aware of the need to invest in “sustainable” building practices — practices that are environmentally responsible and deliver a positive Return on Investment (ROI).

Sika Sarnafil produces innovative, high quality vinyl roofing and waterproofing systems that measurably reduce a building's environmental impact — and more. These energy-efficient, single-ply membranes minimize utility and maintenance costs — and deliver these savings to building owners year after year, with longevity and outstanding system performance measured in decades, rather than years.

The company's reflective EnergySmart Roof® and vegetated “Green Roofs” help keep buildings and even the surrounding environment “cooler,” thereby lowering power consumption and helping to counter the “urban heat island effect” prevalent in cities across the country.

Solar roofing provides electrical power that helps offset the cost and carbon generation of traditional grid-supplied power.

Lessened power demands lead to improved air quality and the expenditure of fewer natural resources.

Long-lasting roofs, of course, also need to be replaced less frequently — and thus conserve natural resources while reducing the demands on landfills.

Recycling is one of the best ways to





Solar Roof

EnergySmart Roof

Vegetated Green Roof

conserve the earth's resources, when a roof does reach the end of its useful life. Sika Sarnafil established the first recycling program for single-ply roofing systems and, in recent years, has reprocessed more than 35 million pounds of vinyl into new roofing membrane products.

Sika Sarnafil systems are proven performers with a 50 year history. Company membranes continue to perform after decades of use in a wide range of climates. More than 15 billion square feet of Sika Sarnafil membrane is protecting schools, libraries, hospitals, commercial and government buildings, and other high-value institutions around the world. Superior performance with minimal environmental impact—these characteristics are documented

via numerous studies and reports from independent institutions, as noted on the following pages.

Discover how Sika Sarnafil is redefining sustainability with environmentally sensitive products that deliver higher ROI while helping you achieve your sustainability goals — energy efficiency, environmentally preferable products, greenhouse gas reduction and waste minimization.

Performance that Pays. Sustainability that's Smart. Sika Sarnafil roofing and waterproofing systems.

**REACH
HIGHER
ROI**



Sarnafil®



Energy Efficiency



Get Energy Smart

An EnergySmart Roof from Sika Sarnafil can reduce your roof temperature by up to 70 degrees and air conditioning energy consumption by up to 20% or more.

Preventing solar radiation from elevating a building's internal temperature is an important strategy in reducing building cooling energy consumption.

Buildings use more than 70 percent of our nation's electricity, with much of this total expended for cooling.¹ Dark colored roof surfaces can be up to 70 degrees hotter in the sun than reflective, light colored surfaces. This variation can have a tremendous impact on building heat gain. Even in colder climates, buildings can benefit from a "cool roof".

According to the U.S. DOE, replacing dark colored roofs with light colored, reflective roofs could result in national energy savings of about \$750 million per year.

Sika Sarnafil's EnergySmart Roof has a highly reflective, lacquer-coated surface. This system can reduce the amount of energy required to maintain comfort in an air-conditioned building by decreasing heat flow through the building envelope. The EnergySmart Roof membrane exceeds the cool roof requirements of ENERGY STAR,[®] California's Building Energy Code (Title 24), LEED[®] and Green Globes.[®]

"Cool" Roofs in Demand

Reflective roofing technologies are increasingly being included in federal, state and local energy codes. These roofs are considered "cool roofs." The Title 24 building energy code in California requires cool roofs for low-slope buildings when the owner or developer is using the program's prescriptive envelope component approach.



1 2007 Buildings Energy Data Book, U.S. DOE



▲ Sika Sarnafil's EnergySmart Roof system, totaling 640,000 square feet, was used to cover the massive fixed dome and several smaller, auxiliary roofs at Cowboys Stadium in Arlington, Texas.

Reflectivity Confirmed

Solar reflectance and thermal emissivity of roof surfaces are combined to calculate the Solar Reflective Index (SRI), defined in a scale ranging from 1 to 100.

In research conducted by Lawrence Berkeley National Laboratory (LBNL), Sika Sarnafil's EnergySmart Roof system reflected more than 80 percent of the sun's rays and scored an impressive SRI of 104. This same research showed that dark colored EPDM roof membranes and dark colored Built-Up Roofing reflected only about 5 percent of the sun's rays and had SRI scores hovering near 0.²

Studies have shown that the "Urban Heat Island" effect costs the United States in excess of \$2 billion each year and is responsible for 5 to 10 percent of the peak electrical demand across the country.³

The installation of reflective roofing systems is a practical course of action that will help to mitigate systemic increases in urban air temperature and improve air quality. Sika Sarnafil's roofing systems do just that.

Real World Comparison

In an LBNL study commissioned by the U.S. DOE and the EPA⁴, researchers compared energy consumption in a 100,000 sq. ft. Texas facility over a two-year period — with a black rubber EPDM roof in use first

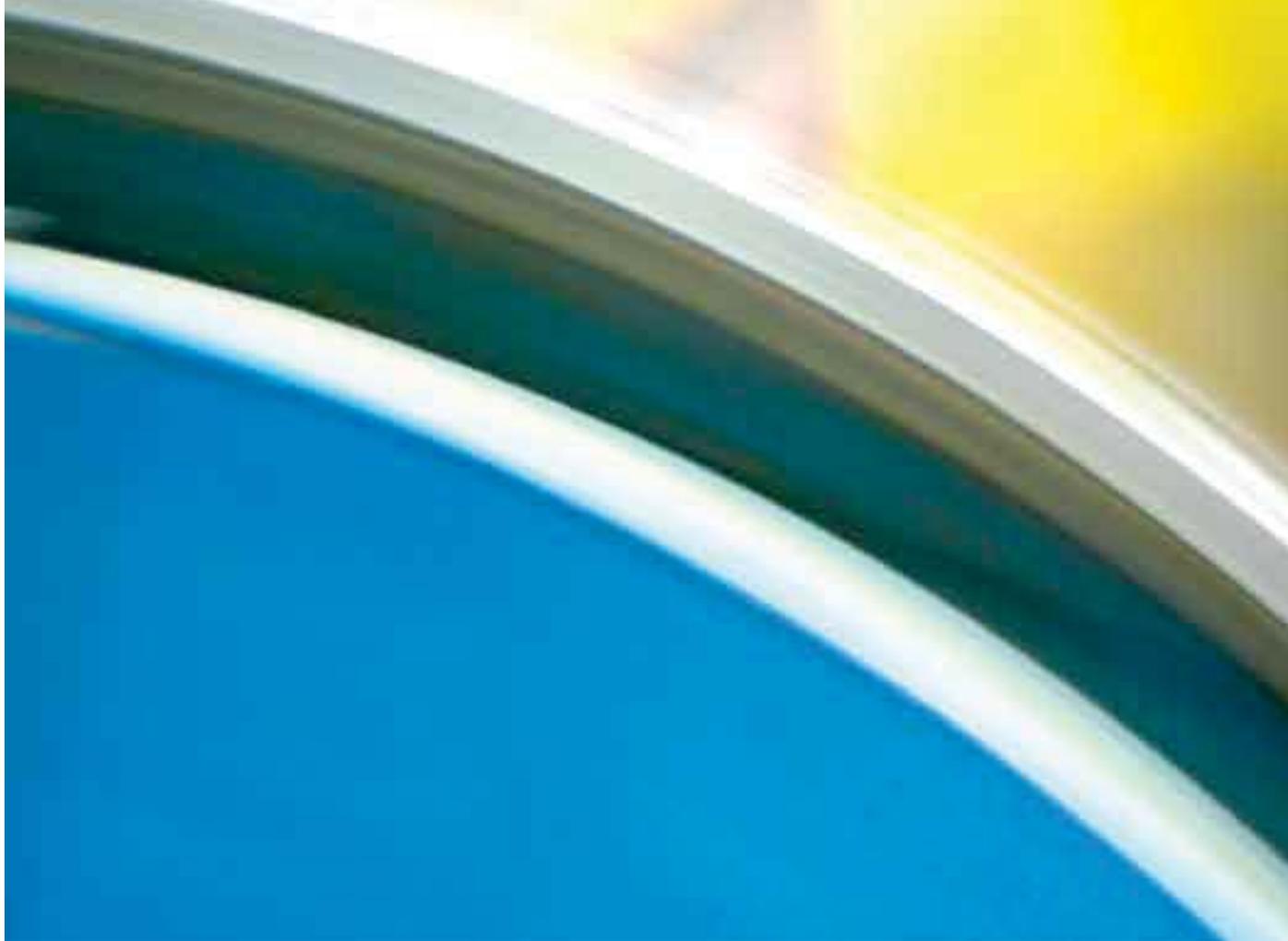
and then a Sika Sarnafil EnergySmart Roof in place for the following 12 months. The EnergySmart Roof reduced peak summertime air-conditioning demand by 14 percent and resulted in an estimated savings of \$7,200 (7.2 cents per sq. ft. per year, based on 2001 pricing).

Sika Sarnafil offers a variety of energy efficient roofing solutions — from the reflective EnergySmart Roof to Green Roofs and Solar Roofing. These Sika Sarnafil systems reduce electricity use over time, resulting in a higher ROI for the building owner.

² Lawrence Berkeley National Laboratory, Cool Roofing Materials Database (<http://eetd.lbl.gov/coolroofs/membrane.htm#membrane>)

³ "Urban Heat Islands and the Roofing Industry," RSI magazine, 1998

⁴ S. Konapacki and H. Akbari, 2001, Lawrence Berkeley National Laboratories, Berkeley CA (Report LBNL47149)



Environmentally Preferable Products



Meeting Your Sustainability Goals

Sika Sarnafil roofing and waterproofing systems can help you to achieve LEED and Green Globes certification.

The EPA defines “environmentally preferable” products and services according to health and environmental impacts across a wide variety of factors, including raw material acquisition, manufacturing, reuse, and operation and maintenance.

A comparative Life-Cycle Analysis (LCA) of commonly used low-slope roofing products conducted by Carbotech, a leading European consulting firm, ranked Sika Sarnafil vinyl roofing membranes highest in eco-efficiency, making the company the leading choice for environmentally preferable roofing solutions.⁵

The Carbotech study reported on the energy impact of system production and operation, and also included system impact on the environment — from raw materials to end-of-life.

Sika Sarnafil roof systems last for decades, with durability and longevity the hallmarks of the company’s thermoplastic membranes. Seams are hot-air welded and membranes require virtually no maintenance, helping to keep annual operational costs to a minimum. Average maintenance costs reported by Sika Sarnafil roof system owners are well below the industry average.

The feedstock of vinyl resin used to produce Sika Sarnafil membranes is 53 percent salt and represents the least amount of petroleum-based raw materials found in any common low-slope roofing product — typically less than half that of other roofing systems.

A reliable, high quality roof simply lasts longer and has lower maintenance expenses over its lifetime. The LCA ‘assessment’ is a



⁵ “Ecological and Economical Balance Assessment of US Flat Roof Systems,” Dr. F. Dinkel and C. Stettler, Carbotech AG, Eulterstrasse, Basel, Switzerland, July 2005.



Vinyl in Perspective

Vinyl gets consistent praise from roofing consultants, architects, contractors and specifiers for its performance as a low-cost, durable, and easy-to-maintain material. Though every building material has an effect on the environment, life-cycle studies that measure energy and environmental impacts — from manufacturing through processing, use, maintenance and end-of-life disposal — conclude that vinyl offers proven benefits that outperform alternative roofing materials.

Vinyl roofing products meet a demanding range of safety standards established by numerous public and regulatory agencies. Sika Sarnafil takes a forward-thinking approach to sustainability that considers the impact on environment and safety throughout the product life cycle.

▲ Vinyl membrane being manufactured at Sika Sarnafil's production facilities. Vinyl's toughness and durability make it the most widely used plastic for building and construction applications such as roofing, siding, windows, fencing, decking, wallcoverings, wall protection, and floor coverings.

key measure of environmental performance that should be used to ensure the best value in a long-term roofing investment.

Designed to Last

Research conducted by Sika Sarnafil and verified through independent sample testing conducted by the National Research Council of Canada (NRCC) revealed that Sika Sarnafil's oldest roofs in North America continue to perform decades after installation.⁶

The British Board of Agrément (BBA) provides authoritative information on the performance of building products. The BBA conducted an independent analysis of Sarnafil® vinyl roof membranes based on the "real world" performance of the roofing systems. The BBA issued a certificate indicating that

"All available evidence suggests that the durability of Sarnafil membranes, when used in accordance with the relevant BBA certificates, should have a life in excess of 35 years."⁷

"Environmentally Friendly" Choices

The "green roof" is one of today's most recognizable symbols of sustainable building practices. Sika Sarnafil has been waterproofing green roofs and other landscaped areas around the world for more than 40 years.

Sika Sarnafil's Green Roof System protects structures from the effects of water infiltration while hosting healthy, sustainable and regenerative roof landscapes.

The rooftop is an ideal setting for solar power generation. Because of its longevity, a Sika Sarnafil roof is an outstanding platform for all types of solar panels. The investment in solar power and its long life-cycle demands a long-lasting roofing system like Sika Sarnafil. Solar power helps building owners save money on electricity, especially during peak demand periods, and often enables them to get credit for feeding excess solar power into the local electrical grid.

6 S.P. Graveline, H.R. Beer, R.M. Paroli, A.H. Delgado, "Field Investigation and Laboratory Testing of Exposed Poly (Vinyl Chloride) Roof System", Proceedings of the RCI 20th Annual International Convention and Trade Show, Miami Florida 2005.

7 British Board of Agrément Assessment Report No. 08/4532, 2008.



LEED and Green Globes

The U.S. Green Building Council's LEED program and the Green Building Initiative's Green Globes program provide guidance to building owners and designers seeking to follow "green" building practices. Both programs have established point systems leading to certification — with categories that include energy, resources, emissions and others. Sika Sarnafil systems can contribute points for both programs.

Sika Sarnafil has been involved with numerous LEED and Green Globes facilities in recent years and has the knowledge and the experience necessary to assist building owners and designers seeking certification from these organizations.

Greenhouse Gas Reduction



Specify Your Carbon Footprint

Replacing a 10,000 square-foot dark-colored roof with a highly reflective EnergySmart Roof can reduce CO₂ emissions by 100 metric tons.

Buildings account for 48 percent of all U.S. greenhouse gas emissions.

Replacing dark colored roofs with reflective, light colored roofs on 80 percent of commercial building air-conditioned roof areas could reduce carbon dioxide emissions enough to offset the CO₂ emissions of 1.2 million automobiles.⁸ On average, a Sika Sarnafil vinyl membrane in North America is carbon neutral after 1.7 years.



8 R. Levinson and H. Akbari, Heat Island Group, Lawrence Berkeley National Laboratory, "Potential benefits of cool roofs on commercial buildings: conserving energy, saving money, and reducing emission of greenhouse gases and air pollutants."



The Air We Breathe

EnergySmart Roofs reflect the sun's rays, helping to alleviate oppressive urban air temperatures and slow the reaction of smog-forming pollutants. Vegetated green roofs filter the air and improve air quality, absorbing and converting carbon dioxide to oxygen.

Air Quality Relief

Reflective roofing surfaces also impact air quality. In most geographic areas, an air temperature increase translates into an air quality decrease.

Higher temperatures mean a greater need for air conditioning, and increased energy use. As power plants burn more fossil fuels, they generate additional carbon emissions.

Smog results from the photochemical reactions of pollutants in the air, and these reactions are more likely to intensify at higher temperatures.

In Los Angeles, the incidence of smog increases three percent for every one degree the temperature rises above 70 degrees Fahrenheit.

Highly reflective roofs help to lower temperatures and thus minimize this condition. Reflective roofs have been identified by many in the scientific and environmental communities as a practical course of action to help improve air quality.

The company's long-lasting, energy efficient roofing systems reduce building energy consumption, minimize smog formation, consume fewer raw materials, and generate less waste when compared to alternative roofing systems.



Sarnafil®



Waste Minimization



Converting Waste into Performance

Sika Sarnafil has diverted more than 35 million pounds of vinyl membrane from the landfill, recycling it back into roofing and waterproofing membrane products.

Waste reduction starts with durable products that stand the test of time. Long-lasting roofs need to be removed and replaced less frequently, providing lower life cycle costs and reducing the amount of waste destined for landfills.

Sika Sarnafil membranes continue to perform after decades of use in a wide range of climates. This history of proven performance assures customers of one of the longest-lasting roofing systems available.





Responsible Care® and ISO 14001: 2004

Sika Sarnafil has been certified as compliant with strict management standards established by two leading independent organizations relating to environment, health and safety, and security.

The company is compliant with Responsible Care, a technical standard created by the American Chemistry Council, and with ISO 14001: 2004, an environmental standard developed by the International Organization for Standardization.

These two programs are recognized worldwide and designed to help companies maintain a safe and secure environment for employees, assure responsible environmental stewardship, and promote harmony in the community.

Sika Corporation is a Partner in the American Chemistry Council Responsible Care initiative.



▲ Sika Sarnafil was the first U.S.-based company to introduce a recycling program for commercial roofing membranes and has successfully reprocessed millions upon millions of pounds of vinyl membrane into raw material suitable for use in the manufacture of new membrane products.

The company reduces waste at every step in the product life cycle. It gathers excess vinyl raw materials generated during manufacturing operations and converts 100 percent back into new roofing and waterproofing membranes. The company also recycles returned vinyl membrane “trimmings” contractors generate when installing new roofs and converts these materials into new products.

When a roof must be replaced, Sika Sarnafil’s post-consumer Roof Recycling Program recycles millions of square feet of used vinyl membrane yearly, further reducing the burden on landfills. These older vinyl roofs are recycled back into new roofing membrane products.

Sika Sarnafil has invested in large-scale reprocessing equipment and developed a simplified logistics plan to streamline and enhance the process for participating contractors.

The recycling program relies on proven technologies and conserves valuable natural resources.

Sika Sarnafil was honored in 2009 by the Massachusetts Office of Energy and Environmental Affairs (EEA) for its roof recycling program.



35
MILLION
POUNDS
RECYCLED
AND COUNTING!

Sarnafil®

Sika – Your Local Partner with a Global Presence

Sika is a globally active specialty chemicals company supplying the building and construction industry, as well as manufacturing industries. It is a leader in processing materials used in sealing, bonding, damping, reinforcing and protecting load-bearing structures.

Sika's product lines feature high-quality concrete admixtures, specialty mortars, sealants and adhesives, damping and reinforcing materials, structural strengthening systems, industrial flooring, and roofing and waterproofing systems. The company has a local presence in 80 countries and more than 15,000 employees to guarantee the success of all partners.



Sika Sarnafil

A Division of Sika Corporation
100 Dan Road
Canton, MA 02021
Tel: 800-451-2504
Fax: 781-828-5365
Email: webmaster.sarnafil@us.sika.com
usa.sarnafil.sika.com

Sika Sarnafil

A Business Unit of Sika Canada, Inc.
6915 Davand Drive
Mississauga, Ontario
L5T 1L5 Canada
Tel: 905-795-3177
Fax: 905-795-3192
Email: marketing.construction@ca.sika.com
can.sika.com

Serving Your Needs Worldwide from Roof to Floor



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

**Our most current General Sales Conditions shall apply.
Please consult the Product Data Sheet prior to any use and processing.
ISO 14001: 2004-Compliant**



*ENERGY STAR® for roofing products is only valid in the United States
ENERGY STAR® is a trademark of the U.S. EPA.
LEED® is a trademark of the U.S. Green Building Council.
Green Globes® is a trademark of the Green Building Initiative*

