

# TECHNICAL BULLETIN

## TARGET MARKET ROOFING



BUILDING TRUST



**Subject: NSF/ANSI 347 Referenced in IgCC**

**#15-9**

NSF sustainability standards are now referenced in the 2015 International Green Construction Code (IgCC). These sustainability standards developed by NSF covering resilient flooring, textiles, roofing, and stone will help when utilizing the IgCC to construct more sustainable buildings. Inclusion of these standards by architects, designers, engineers, or others involved in green building practices now have a wider selection of certified IgCC sustainable building materials. The IgCC help makes buildings more efficient, reduces waste, and has a positive impact in the community.

The inclusion of NSF 347 Sustainability Assessment for Single Ply Roofing Membranes in the IgCC (see attached pages showing where the standard is referenced in section 505.4.2) is one more reason to encourage architects to include this as a requirement in their roofing specifications. NSF 347 is an American National Standard (ANSI) which allows for it to be referenced in government specifications as well. Of the products to have achieved certification to the standard, Sarnafil S327 and G410 are the only single ply membranes to have achieved Platinum level certification (see attached certificate).

The attached article which was published in Professional Roofing provides an outline on the contents of the standard.

Please contact the Technical Department should you have any questions.

## CHAPTER 5

# MATERIAL RESOURCE CONSERVATION AND EFFICIENCY

### SECTION 501 GENERAL

**501.1 Scope.** The provisions of this chapter shall govern matters related to building material conservation, resource efficiency and environmental performance.

### SECTION 502 CONSTRUCTION MATERIAL MANAGEMENT

**502.1 Construction material management.** Construction material management shall comply with Sections 502.1.1 and 502.1.2.

**502.1.1 Storage and handling of materials.** The onsite storage and handling of materials during construction phases shall comply with the applicable manufacturer's printed or electronic media instructions. Where manufacturer's instructions are not available, *approved* printed or electronic media standards or guidelines shall be followed.

**502.1.2 Construction phase moisture control.** Porous or fibrous materials and other materials subject to moisture damage shall be protected from moisture during the construction phase. Material damaged by moisture or that are visibly colonized by fungi either prior to delivery or during the construction phase shall be cleaned and dried or, where damage cannot be corrected by such means, shall be removed and replaced.

### SECTION 503 CONSTRUCTION WASTE MANAGEMENT

**503.1 Construction material and waste management plan.** Not less than 50 percent of nonhazardous construction waste shall be diverted from disposal, except where other percentages are indicated in Table 302.1. A Construction Material and Waste Management Plan shall be developed and implemented to recycle or salvage construction materials and waste where such salvage and recycling facilities are available within 75 miles of the building site. The Construction Material and Waste Management Plan shall comply with all of the following:

1. The location for collection, separation and storage of recyclable construction waste shall be indicated.
2. Materials to be diverted from disposal by efficient usage, recycling, reuse, manufacturer's reclamation, or salvage for future use, donation or sale shall be specified.
3. The percentage of materials to be diverted shall be specified and shall be calculated by weight or volume, but not both.

4. Receipts or other documentation related to diversion shall be maintained through the course of construction. Where requested by the *code official*, evidence of diversion shall be provided.

The percentage of materials diverted shall be calculated by weight or volume, but not both. For the purposes of this section, construction materials and waste shall include, but are not limited to (1) all materials delivered to the site and intended for installation prior to the issuance of the certificate of occupancy, including related packaging; and (2) includes construction materials and waste removal during demolition or razing. For the purposes of this section, construction and waste materials shall not include land-clearing debris, excavated soils and fill and base materials such as, but not limited to, topsoil, sand and gravel. Land-clearing debris shall include trees, stumps, rocks, and vegetation. Excavated soil, fill material and land-clearing debris shall be managed in accordance with Section 406.1.

### SECTION 504 WASTE MANAGEMENT AND RECYCLING

**504.1 Recycling areas for waste generated post certificate of occupancy.** Waste recycling areas for use by building occupants shall be provided in accordance with one of the following:

1. Waste recycling areas shall be designed and constructed in accordance with the jurisdiction's laws or regulations;
2. Where laws or regulations do not exist or where limited recycling services are available, waste recycling areas shall be designed and constructed to accommodate recyclable materials based on the availability of recycling services; or
3. Where recycling services are not available, waste recycling areas shall be designed and constructed to accommodate the future recycling of materials in accordance with an *approved* design. The *approved* design shall meet one of the following:
  - 3.1. The *approved* waste recycling area design shall be based on analysis of other regional recycling services, laws or regulations.
  - 3.2. The *approved* waste recycling area shall be designed to meet the needs of the occupancy, facilitate efficient pick-up, and shall be available to occupants and haulers.

**SECTION 505  
MATERIAL SELECTION**

**505.1 Material selection and properties.** Building materials shall conform to Section 505.2, 505.3 or 505.4.

**Exception:** Electrical, mechanical, plumbing, security and fire detection, and alarm equipment and controls, automatic fire sprinkler systems, elevators and conveying systems shall not be required to comply with Section 505.2.

**505.2 Material selection.** Not less than 55 percent of the total building materials used in the project, based on mass, volume or cost, shall comply with Section 505.2.1, 505.2.2, 505.2.3, 505.2.4 or 505.2.5. Where a material complies with more than one section, the material value shall be multiplied by the number of sections that it complies with. The value of total building material mass, volume or cost shall remain constant regardless of whether materials are tabulated in more than one section.

**505.2.1 Used materials and components.** Used materials and components shall comply with the provisions for such materials in accordance with the applicable code referenced in Section 102.4 and the applicable requirements of this code.

**505.2.2 Recycled content building materials.** Recycled content building materials shall comply with one of the following:

1. Contain not less than 25 percent combined post-consumer and preconsumer recovered material, and shall comply with Section 505.2.3.
2. Contain not less than 50 percent combined post-consumer and preconsumer recovered material.

**505.2.3 Recyclable building materials and building components.** Recyclable building materials and building components shall comply with one of the following:

1. Building materials or components that can be recycled into the same material or another material with a minimum recovery rate of not less than 30 percent through recycling and reprocessing or reuse; or
2. Building materials that are recyclable through an established closed loop manufacturer's take-back program.

**505.2.4 Bio-based materials.** Bio-based materials shall be those materials that comply with one or more of the following:

1. The bio-based content is not less than 75 percent as determined by testing in accordance with ASTM D6866.
2. Wood and wood products used to comply with this section, other than salvaged or reused wood products, shall be labeled in accordance with the SFI Standard, FSC STD-40-004 V2-1 EN, PEFC Council Technical Document or equivalent *fiber procurement system*. As an alternative to an on-product label, a Certificate of Compliance indicating compliance with the *fiber procurement system* shall be per-

mitted. Manufacturer's *fiber procurement systems* shall be audited by an accredited third-party.

3. The requirements of USDA 7CFR Part 2902.

**505.2.5 Indigenous materials.** Indigenous materials or components shall be composed of resources that are recovered, harvested, extracted and manufactured within a 500 mile (800 km) radius of the building site. Where only a portion of a material or product is recovered, harvested, extracted and manufactured within 500 miles (800 km), only that portion shall be included. Where resources are transported by water or rail, the distance to the building site shall be determined by multiplying the distance that the resources are transported by water or rail by 0.25, and adding that number to the distance transported by means other than water or rail.

**505.3 Whole building life cycle assessment.** Life cycle assessment shall conform to the requirements of ASTM E2921. The requirements for the execution of a whole building life cycle assessment shall be performed in accordance with the following:

1. The assessment shall demonstrate that the building project achieves not less than a 20-percent improvement in environmental performance for global warming potential and at least two of the following impact measures, as compared to a reference design of similar usable floor area, function and configuration that meets the minimum energy requirements of this code and the structural requirements of the *International Building Code*. For relocatable buildings, the reference design shall be comprised of the number of reference buildings equal to the estimated number of uses of the relocatable building.

- 1.1. Primary energy use.
- 1.2. Acidification potential.
- 1.3. Eutrophication potential.
- 1.4. Ozone depletion potential.
- 1.5. Smog potential.

2. The life cycle assessment tool shall be *approved* by the code official.
3. Building operational energy shall be included. For relocatable buildings, an average building operational energy shall be estimated to reflect potential changes in location, siting, and configuration by adding or subtracting modules, or function.
4. For relocatable buildings, average transportation energy, material and waste generation associated with reuse of relocatable buildings shall be included in the assessment.

**505.4 Multi-attribute material declaration and certification.** Not less than 55 percent of the total building materials used in the project, based on mass, volume or cost, shall comply with Section 505.4.1 or 505.4.2. Where a material complies with both Sections 505.4.1 and 505.4.2, the material value shall be multiplied by two.

**505.4.1 Environmental product declaration.** A building material with a Type III environmental product declaration that is verified by a program operator. The environmental product declaration shall comply with the provisions of ISO 14025 and ISO 21930 and be externally verified.

**505.4.2 Multi-attribute standard.** A material specific assessment that is verified by an approved agency shall be submitted for each product in accordance with the following items, as applicable. The assessment shall be verified as meeting the minimum performance level specified in each standard, which focuses on the life-cycle stages from development to end of life. These stages shall include material selection, energy and water use during development, performance, human and environmental impact, and end of life.

1. NSF/ANSI 140 for carpet.
2. NSF/ANSI 332 for resilient floor coverings.
3. NSF/ANSI 336 for commercial furnishings fabric.
4. NSF/ANSI 342 for wall coverings.
5. NSF/ANSI 347 for single-ply roofing membranes.
6. NSC 373 for natural dimension stone.
7. TCNA ANSI/A138.1 for ceramic tiles, glass tiles, and tile installation materials.
8. UL 100 for gypsum boards and panels.
9. UL 102 for door leafs.

## SECTION 506 LAMPS

**506.1 Mercury content in fluorescent lamps.** The mercury content in straight fluorescent lamps shall comply with Section 506.1.1 and the mercury content in compact fluorescent lamps shall comply with Section 506.1.2, as applicable.

**Exception:** Mercury content is not limited for lighting integral to equipment or instrumentation and installed by the manufacturer, or for lamps with a high color rendering index that is greater than or equal to 87.

**506.1.1 Straight fluorescent lamps.** Non-preheat straight, double-ended fluorescent lamps less than 70 inches (1800 mm) and greater than 21 inches (550 mm) in length and containing a medium bi-pin base or miniature bi-pin base shall comply with the following:

1. T-5 lamps with a rated lifetime of less than 25,000 hours at 3 hours per start shall contain not more than an average of 3 milligrams of mercury per lamp.
2. T-8 lamps with a rated lifetime less than 25,000 hours at 3 hours per start on an instant start ballast shall contain not more than an average of 4 milligrams of mercury per lamp.
3. All other T5 or T8 lamps shall contain not more than an average of 5 milligrams of mercury per lamp.

**506.1.2 Compact fluorescent lamps.** Single-ended pin-base and screw-base compact fluorescent lamps shall contain not more than an average of 5 milligrams of mercury per lamp, and shall be listed and labeled in accordance with UL 1993.

# NFPA

National Fire Protection Association  
1 Batterymarch Park  
Quincy, MA 02269

Standard reference number	Title	Referenced in code section number
NFPA 70—2014	National Electrical Code .....	603.3.4, 610.1

# NSC

Natural Stone Council  
P.O. Box 539  
Hollis, NH 03049

Standard reference number	Title	Referenced in code section number
NSC 373—2013	Sustainability Assessment for Natural Dimension Stone .....	505.4.2

# NSF

NSF International  
789 Dixboro Road  
Ann Arbor, MI 48105

Standard reference number	Title	Referenced in code section number
NSF/ANSI 3—10	Commercial Warewashing Equipment .....	Table 609.2.3
NSF/ANSI 44—12	Residential Cation Exchange Water .....	704.1.2, 704.1.4
NSF/ANSI 58—12	Reverse Osmosis Drinking Water Treatment Systems .....	704.2
NSF/ANSI 140—13	Sustainability Assessment for Carpet .....	505.4.2
NSF/ANSI 332—12	Sustainability Assessment for Resilient Floor Coverings .....	505.4.2
NSF/ANSI 336—11	Sustainability Assessment for Commercial Furnishings Fabric .....	505.4.2
NSF/ANSI 342—12	Sustainability Assessment for Wall Coverings .....	505.4.2
NSF/ANSI 347—12	Sustainability Assessment for Single-Ply Roofing Membranes .....	505.4.2
NSF 350—2011	Onsite Residential and Commercial Water Reuse Treatment Systems .....	704.3

# SCAQMD

South Coast Air Quality Management District  
21865 Capley Drive  
Diamond Bar, CA 91765

Standard reference number	Title	Referenced in code section number
SCAQMD Method 302—91 (Revised 1993)	Distillation of Solvents from Paints, Coatings and Inks, South Coast Air Quality Management District. ...	806.2
SCAQMD Method 303—91 (Revised 1993)	Determination of Exempt Compounds, South Coast Air Quality Management District .....	806.2
SCAQMD Method 304—91 (Revised February 1996)	Determination of Volatile Organic Compounds (VOC) in Various Materials, South Coast Air Quality Management District .....	806.2
SCAQMD Method 316A—92	Determination of Volatile Organic Compounds (VOC) in Materials Used for Pipes and Fittings .....	806.2
SCAQMD Method 316B—92	Determination of Volatile Organic Compounds (VOC) in Adhesives Containing Cyanoacrylates .....	806.2
SCAQMD Rule 1168	Adhesives and Sealant Applications .....	806.2

# SFI

Sustainable Forest Initiative, Inc.  
900 17th Street, NW, Suite 700  
Washington, DC 20006

Standard reference number	Title	Referenced in code section number
SFI—2010-2014	Sustainable Forest Initiative 2010-2014 .....	505.2.4



### OFFICIAL LISTING

NSF International Certifies that the products appearing on this Listing conform to the requirements of NSF/ANSI Standard 347 - Sustainability Assessment for Single Ply Roofing Membranes

This is the Official Listing recorded on June 3, 2013.

**Sika Sarnafil, a Division of Sika Corporation**  
100 Dan Road  
Canton, MA 02067  
800-451-2504

Facility: Canton, MA

**Platinum Certified**

Product Category	Trade Name	Series/Number	Certification Period	Certification Number
Thermoplastic PVC	Sarnafil® G410 - Copper Brown	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-101
Thermoplastic PVC	Sarnafil® G410 - Energy Smart White	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-101
Thermoplastic PVC	Sarnafil® G410 - Evergreen	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-101
Thermoplastic PVC	Sarnafil® G410 - Lead Gray	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-101
Thermoplastic PVC	Sarnafil® G410 - Light Gray	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-101
Thermoplastic PVC	Sarnafil® G410 - Patina Green	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-101
Thermoplastic PVC	Sarnafil® G410 - Tan	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-101
Thermoplastic PVC	Sarnafil® S327 - Copper Brown	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-100
Thermoplastic PVC	Sarnafil® S327 - Evergreen	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-100
Thermoplastic PVC	Sarnafil® S327 - Lead Gray	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-100
Thermoplastic PVC	Sarnafil® S327 - Light Gray	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-100
Thermoplastic PVC	Sarnafil® S327 - Patina Green	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-100
Thermoplastic PVC	Sarnafil® S327 - Tan	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-100
Thermoplastic PVC	Sarnafil® S327 - Energy Smart White	48, 60, 72, and 80 mil	06/03/2013 - 12/31/2016	C0096984-100

Note: Additions shall not be made to this document without prior evaluation and acceptance by NSF International.



# A NEW standard FOR single-ply

A new ANSI standard will help ensure single-ply membranes live up to sustainability claims

by Stanley P. Graveline, Ralph Paroli and Maureen Sertich

In October 2009, President Obama issued Executive Order 13514, “Federal Leadership in Environmental, Energy, and Economic Performance,” which established “an integrated strategy toward sustainability in the Federal Government” to “make reduction of greenhouse gas emissions a priority for Federal agencies.”

As a result of the order, government agencies, including the General Services Administration (GSA), are looking to incorporate environmentally preferable product (EPP) requirements into their procurements. And state and municipal governments are following the federal government’s example. Now, companies are trying to meet the government’s demands for sustainable products, as well as market demand by consumers and retailers.



Photos courtesy of Sika Sarnafil, Canton, Mass.

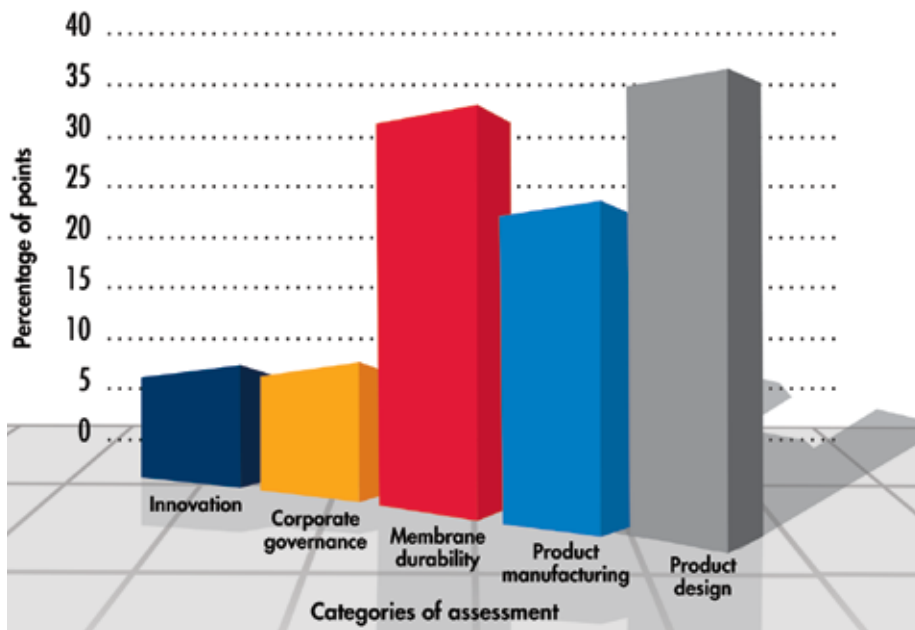




Product manufacturing is one of five categories measured for single-ply membranes' sustainable attributes.

Although the executive order's policies are admirable, the challenge in complying with those policies is figuring out how to objectively define and assess a given product's sustainable attributes. In the roofing industry, as well as in many construction sectors, most sustainability standards are based on a single attribute, such as membrane reflectivity or recycled content. Additionally, a significant shortcoming of many of these metrics is they are not national standards and, therefore, have not undergone the rigorous consensus-based drafting and vetting procedures required by the American National Standards Institute (ANSI).

As the building industry turns its focus toward sustainable materials, it needs comprehensive, multi-attribute,



Sustainability points awarded per section of NSF/ANSI standard

segment-specific, national sustainability standards to integrate into policies set forth in Executive Order 13514, as well as the GSA's and other government agency's EPP purchasing requirements. Such sustainability standards for construction materials provide a simple way for architects and contractors to distinguish one product from another when choosing materials for projects and, most important, ensure materials comply with a building owner's intent and/or specifications.

## Standard setting

One organization is trying to do just that. Founded in 1944, NSF International, Ann Arbor, Mich., writes standards and certifies products for food, water and consumer goods to minimize adverse health effects and protect the environment. In 2008, NSF International established the NSF Sustainability program to verify single-attribute environmental claims and certify products and services to multi-attribute sustainability assessment standards and protocols.

NSF Sustainability applies sustainability principles to help companies "green" their products, operations, systems and supply chains. In 2010, NSF Sustainability founded the National Center for Sustainability Standards, a national initiative to support the development of sustainability standard activities. The National Center for Sustainability Standards has been successful with developing sustainability standards and protocols for commercial furniture and furniture fabrics, wall covering products, carpet, resilient flooring products and service organizations.

NSF International is a program operator for the development of Product Category Rules (PCRs) and provides Environmental Product Declaration (EPD) verification services. (For more information about PCRs and EPDs, see "Comparing products"). Two PCRs, one for seating products and another for flooring products, are in the final stages of development and are expected to be published this spring.

To address the construction industry's needs, NSF International formed a multi-stakeholder committee to develop an American National Standard to assess the sustainable attributes of single-ply roof membranes. Development of NSF/ANSI 347, "Sustainability Assessment for Single Ply Roofing Membranes," began in May 2009; it is scheduled to be published this month.

## NSF/ANSI 347

Because ANSI standards require a balance of industry, users and regulatory officials, NSF International formed a joint committee of stakeholders from the roof membrane manufacturing industry, roof membrane users, government agencies, consultants and environmental nongovernmental organizations.

NSF/ANSI 347's overall purpose is to facilitate communication about the environmental and social effects associated with the production and use of single-ply roof membranes. Such communication is expected to encourage the demand for and supply of products generating less stress on the environment and society, thereby stimulating the potential for market-driven continuous improvement.

The standard addresses EPDM, ketone ethylene ester (KEE), PVC, TPO and polyisobutylene (PIB) products. However, the standard's principles may be applied to other single-ply membrane types to assess their environmental and social attributes.

The standard incorporates scientific principles, provides transparency and offers a credible basis for environmental preferability and sustainability claims. It also harmonizes the principles and procedures used to support such claims.

The standard provides a practice for assessing the sustainability of single-ply roof membranes. Sustainability-related information could prompt a manufacturer's decisions about supply chain modifications, product content changes, manufacturing adjustments, performance improvements, end-of-life options and corporate governance with the goal of producing more sustainable products.

Additionally, it addresses products' environmental performance and sustainability attributes and provides a means to track incremental changes to products' sustainability profiles. The standard is intended to provide a framework by which roofing professionals can compare and assess the sustainable nature of different products performing similar functions.

NSF/ANSI 347 users include building owners, building regulators, roof membrane manufacturers, membrane suppliers, architects, roofing contractors, construction material specifiers and procurement specialists, independent auditors, certification bodies and environmental labeling organizations.

The standard includes criteria for the finished membrane, covering the entire product life cycle from raw

material extraction through manufacturing, use and end-of-life management. A product's life cycle includes activities associated with the sourcing or extraction of natural resources; material transportation to a manufacturing facility; manufacture of a product from its raw material components; use of the finished product; and the disposal, reuse or recycling of the product at the end of its useful life.

## Certifying a product

NSF/ANSI 347 uses a point system to grade a product's achievement of prerequisite and optional credits in five

### COMPARING PRODUCTS

In a marketplace wary of green product hype, Environmental Product Declarations (EPDs) offer an international standard of communication to objectively compare and describe a product's environmental impact throughout its entire life cycle. EPDs are recognized globally and by the LEED® Green Building Rating System as a preferred reporting tool.

An EPD is the summary document of data collected through a life cycle assessment (LCA) as specified by a Product Category Rule (PCR). An LCA measures input, output and environmental impact of a product across its lifespan. PCRs define which data is used in an LCA and how the data is collected and reported.

A PCR is a set of specific rules, requirements and guidelines for developing Type III environmental declarations for one or more product categories. PCRs include instructions for gathering data about the consumption of resources, including energy, water and renewable resources and emissions to air, water and soil. The following categories are investigated:

- Climate change
- Depletion of stratospheric ozone layer
- Acidification of land and water sources
- Eutrophication
- Formation of photochemical oxidants
- Depletion of fossil energy resources
- Depletion of mineral resources
- Hazardous and nonhazardous waste

Because data collection methods are standardized, a PCR allows for comparison of different environmental product attributes among products in a defined category.

Through PCRs and EPDs, manufacturers can assess their products' positions in the marketplace and respond to increasing demands for environmentally sustainable products and transparency in environmental claims. LCA data collection helps identify areas for improvement of their environmental attributes and adoption of more sustainable operational practices and business approaches. Customers can more easily compare products based on their environmental attributes using objective, neutral and transparent data.



The standard measures recyclability and reclamation of single-ply membranes.

categories. The prerequisite credits are the performance minimum level to claim any conformance level to the standard. Higher achievement levels are obtained by achieving a combination of optional points from each category. Silver, gold and platinum ratings are awarded based on the total number of points achieved.

The five categories for assessing single-ply roof membranes' sustainable attributes are:

- Product design
- Product manufacturing
- Membrane durability
- Corporate governance
- Innovation

The criteria are grouped in general conformance with a product's life cycle, from design and raw material selection to manufacturing, use and end-of-service life. Additionally, criteria related to corporate governance are included to address issues of social responsibility. This life cycle approach will guide manufacturers to gather life cycle data that may be used in other programs, such as Type III EPDs through a product-specific PCR.

Product design covers prerequisites and optional requirements for demonstrating an enlightened design process, environmentally sustainable material inputs, identifying and reducing the use of chemicals of concern, informed supplier selection, recyclability of the final product into other durable products, and reclamation of pre- and post-consumer single-ply roof membranes.

The product manufacturing section contains requirements for a manufacturer's environmental policy and management, energy conservation, water resources management, optimization of material resources and protection of air resources.

Membrane durability addresses durability in terms of service life in the field; membrane surface contribution; and process-based requirements, including maintenance program and recommendations, quality-management systems and field performance evaluations.

The intent of the corporate governance section is for manufacturers to demonstrate corporate or organizational leadership in public disclosure and transparency of key environmental and social accountability objectives and data. To comply with this section's requirements, a company must have a public corporate governance policy confirming it does not use forced or child labor to manufacture its membranes. In addition, there are requirements about employee relations, development, safety, outreach and education targeted to design professionals who specify roof membranes. Community responsibility also is considered in this section. For example, there is a prerequisite for a company to invest in the communities where its products are manufactured. This can be demonstrated by donating materials for community projects.

The intent of the criteria in the innovation section is to encourage manufacturers to implement new, innovative and quantifiable ideas that promote environmental benefits in the development, manufacture, end use and reclamation of sustainable single-ply roof membranes. To earn innovation points, manufacturers must document measurable data demonstrating exceptional sustainability and performance beyond the requirements in the standard's previous sections.

## Hope for the future

The standard is the first of its kind in the building envelope industry in North America. In addition to being a useful tool for policymakers, designers and users, the standard is expected to be used as the basis for other construction material standards. The standard can be purchased through the NSF Bookstore at [www.techstreet.com/nsfgate.html](http://www.techstreet.com/nsfgate.html). 🌱

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