

**Firestone**  
BUILDING PRODUCTS  
NOBODY COVERS YOU BETTER™

# Firestone Sustainable Series LEED® Certification

New Construction

Schools

Core and Shell Development



LEED® 2009 Version

October, 2010



Firestone Building Products Company, LLC  
250 West 96<sup>th</sup> Street • Indianapolis, IN 46260  
Sales: 800-428-4442 • Technical: 800-428-4511



# LEED® (Leadership in Energy and Environmental Design)

Through the LEED green building certification program, the U.S. Green Building Council (USGBC) is transforming the built environment. Promoting a complete building envelope design approach to sustainability, LEED recognizes performance in seven key areas:

- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy and Atmosphere (EA)
- Materials and Resources (MR)
- Indoor Environmental Quality (IEQ)
- Innovation in Design (ID)
- Regional Priority (RP)

## Firestone Sustainable Solutions

For information regarding certification of the entire building envelope, refer to [www.usgbc.org](http://www.usgbc.org).

Firestone Building Products offers a complete line of sustainable roofing products that can contribute to points toward LEED certification for new construction, core & shell, and schools projects. The following information describes how Firestone products may be used in each of the seven key areas of LEED. For more information, contact your Firestone Sales Representative or Firestone Roofing Solutions, 800-428-4511.

### Sustainable Sites (SS)

#### SS Credit 5.1 Site Development – Protect or Restore Habitat

Firestone SkyScape™ Vegetative Roof System with native plant life can provide food and nesting areas for birds – ideal for urban projects with few landscape opportunities.

#### SS Credit 6.1 Storm Water Design – Quality Control

Firestone SkyScape™ Vegetative Roof System decreases the impervious area reducing storm water runoff volume. In addition adaptations can be made to collect and filter the runoff for reuse.

#### SS Credit 6.2 Storm Water Design – Quality Control

Firestone SkyScape™ Vegetative Roof System and SkyPaver composite pavers, installed over a moisture absorption layer, contributes to effective storm water management.

#### SS Credit 7.2 Heat Island Effect – Roof

These options will reduce the heat island effect to reducing the impact on the environment. See SRI values in the tables on the following page.

**Option 1:** For a minimum of 75% of the roof surface use roofing materials having a Solar Reflective Index (SRI) equal to or greater than the values listed below.

<u>Roof Type</u>	<u>Slope</u>	<u>SRI</u>
Low Sloped Roof	≤ 2:12	78
High Sloped Roof	> 2:12	29

**Option 2:** Install a vegetated roof for at least 50% of the roof area.

**Option 3:** Install high-albedo and vegetated roof surfaces that, in combination, meet the following criteria:  
(Area roof meeting minimum SRI/0.75) + (Area of vegetated roof/0.5) ≥ Total Roof Area



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**SRI (Solar Reflectivity Index) Values – ORNL (DOE) Calculator, ASTM E 1980-1**

<b>Firestone UNA-CLAD™ Metal PVDF* Finishes</b>	<b>SRI</b>
Almond	67
Bone White	87
Brandywine	23
Charcoal Gray	28
Cityscape	37
Colonial Red	31
Dark Bronze	24
Dark Ivy	22
Extra Dark Bronze	0
Hartford Green	2
Hemlock Green	33
Mansard Brown	30
Matte Black	24
Medium Bronze	31
Patina Green	25
Regal Blue	12
Regal Red	46
Sandstone	58
Sherwood Green	26
Sierra Tan	37
Sky Blue	29
Slate Gray	38
Stone White	67
Teal	7
Terra Cotta	36
Tropical Patina	27
Award Blue	9
Electric Blue	16
Champagne Metallic	38
Classic Copper	46
Silver Metallic	67

<b>Firestone Products</b>	<b>SRI</b>
RubberGard™ EcoWhite™ EPDM Membrane	99
UltraPly™ TPO White Membrane	102
UltraPly™ TPO XR White Membrane	102
ReflexEON™ TPO White Membrane	109
UltraWhite™ SBS Cap	87
UltraWhite™ SBS FR Cap	89
UltraWhite™ SBS Torch	87
UltraWhite™ SBS FR Torch	89
UltraWhite™ SBS Glass	87
UltraWhite™ SBS Glass FR	89
UltraWhite™ SBS Glass FR Torch	89
UltraWhite™ SBS Premium	87
UltraWhite™ SBS Premium FR	89
UltraWhite™ SBS Premium Torch	87
UltraWhite™ SBS Premium FR Torch	89
UltraWhite™ APP 180	89
UltraWhite™ APP 180 FR	89
UltraWhite™ APP 180 FR COOL	89
UltraWhite™ APP Premium FR	89
SBS Metal Flash-AL™	92
AcryliTop™ PC-100 White Coating & Acrylic Base Coat for Asphalt Systems	102
AcryliTop™ PC-100 White Coating & AcryliTop PC-100 Base Coat for EPDM Systems	102

\* PVDF – Kynar 500® / Hylar 5000®



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# Energy and Atmosphere (EA)

## EA Prerequisite Credit 2 Minimum Energy Performance

Firestone polyiso insulation and cover boards enhance the energy efficiency of the building envelope by working with the HVAC system, keeping the heat and air conditioning inside. The environmental burden of producing energy will be reduced and the overall operating costs will decrease as energy performance is optimized. Firestone products available include Firestone ISO+™ GL (flat and tapered), Resista™ (flat and tapered), ISOGARD HD™ Cover Board, and HailGard™ Composite Board.

### ISO+ GL and Resista

Typical Thickness		LTTR* R-Value
(inches)	(mm)	
1.00	25.4	6.0
1.25	31.7	7.5
1.50	38.1	9.0
1.75	44.5	10.5
2.00	50.8	12.1
2.30	58.4	14.0
2.50	63.5	15.3
2.80	71.1	17.2
3.00	76.2	18.5
3.25	82.6	20.1
3.50	88.9	21.7
3.75	95.3	23.4
4.00	101.6	25.0

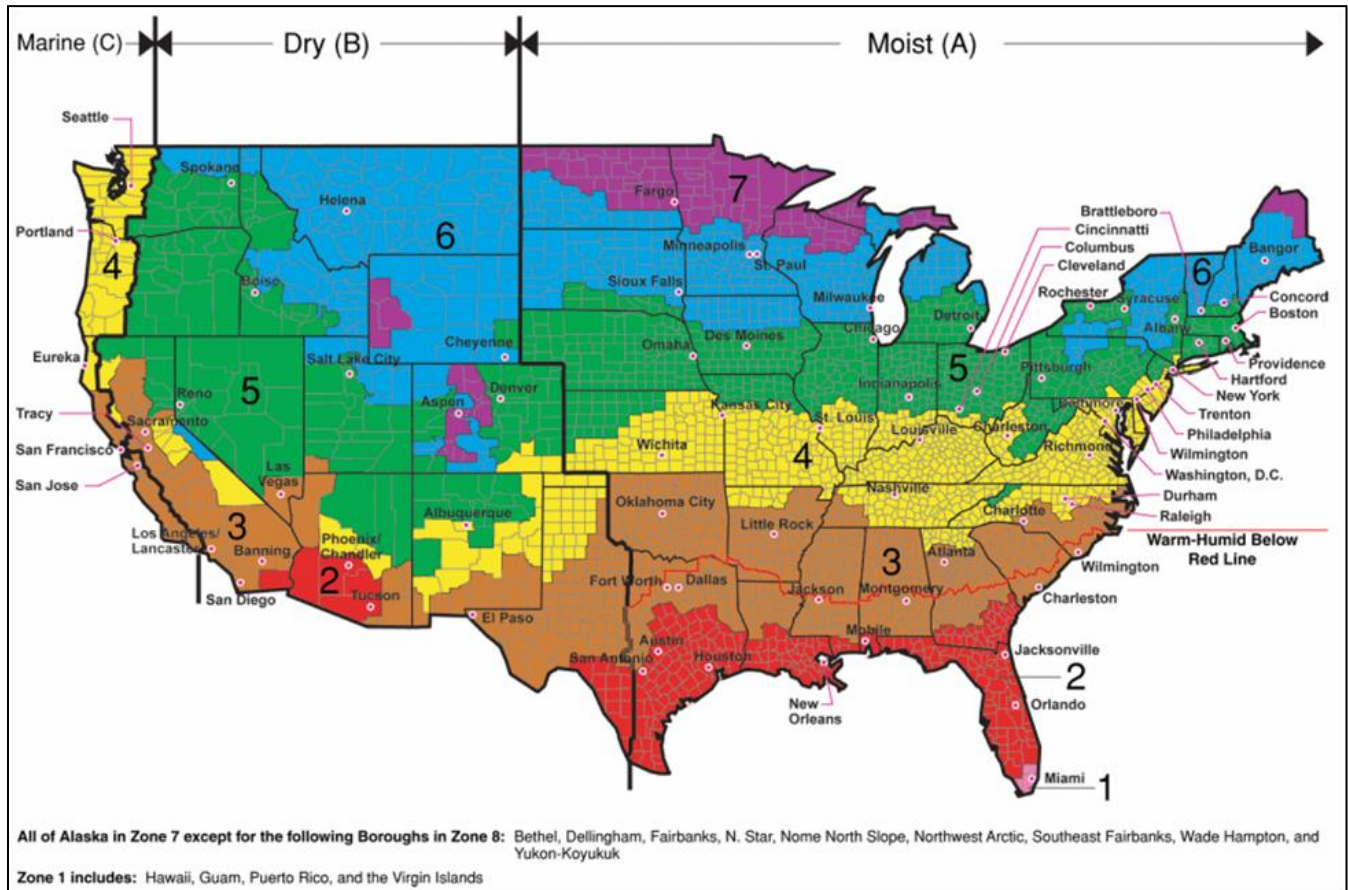
### ISOGARD HD

Typical Thickness		LTTR* R-Value
(inches)	(mm)	
0.5	12.7	2.5

### HailGard

1.5	38	6.6
2.0	51	9.6
2.5	64	12.7
3.0	76	15.9
3.5	89	19.1
4.0	102	22.3

\*Long Term Thermal Resistance (LTTR) values provide a 15-year time-weighted average in accordance with CAN/ULC-S770.



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## EA Credit 1 Optimize Energy Performance

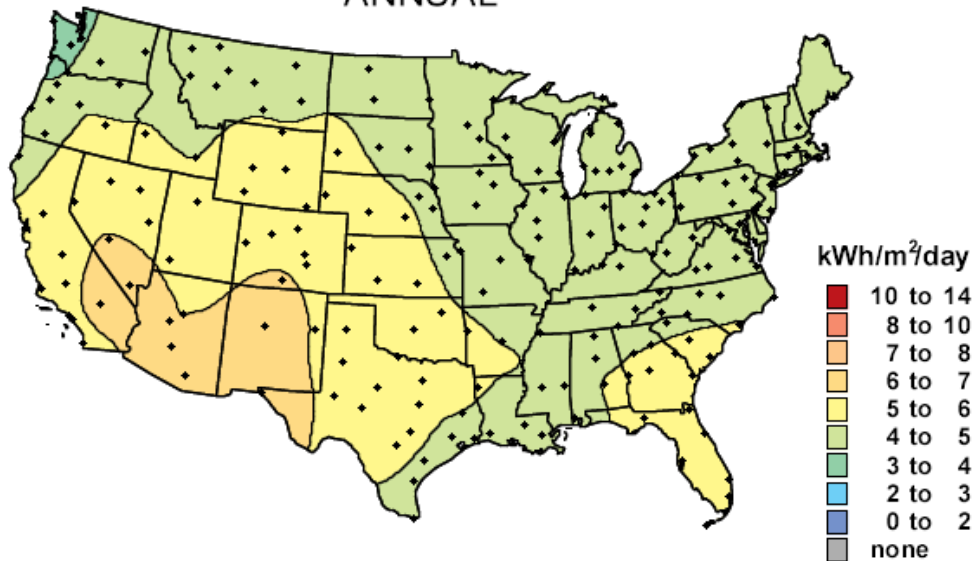
To comply with the requirements LEED, an energy efficient specification can be designed by using Firestone insulations including Firestone ISO+™ GL (flat and tapered), Resista™ (flat and tapered), ISOGARD HD™ Cover Board, and HailGard™ Composite Board along with Firestone SunWave™ Daylighting System with an automatic control system. The SunWave Daylighting System brings the maximum amount of diffused natural light into central spaces within the building.



## EA Credit 2 On-site Renewable Energy

Firestone Building Products and Firestone Energy Solutions work together to bring a photovoltaic (PV) systems to roofing. Producing PV solar energy provides renewable energy used on site or sent to a grid. Contact Firestone Energy Solutions, 888-793-0012 toll-free or 317-853-4680.

### Average Daily Solar Radiation Per Month ANNUAL



## EnviroReady™ Roofing System and Warranty

The new Firestone EnviroReady™ Roofing System and Warranty let's building owners install a high-quality conventional roof today and upgrade it with green roofing technology tomorrow. Firestone's Red Shield™ warranty keeps new EPDM or TPO systems "enviro-ready" for responsible upgrades for up to 7 years after initial installation. This exclusive program covers inspections before and after installation of new green upgrades grades. Firestone also provides premium systems offering 20, 25 and 30-year warranty options to help with achievement of sustainable building goals. Contact you local Firestone sales representative for more details.



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## Materials and Resources (MR)

### MR Credit 2 Construction Waste Management

Firestone facilitates a **recycling system** that provides quick-response quoting and established procedures for collecting materials directly from the job site. Single-ply roofing membrane and polyiso insulation can be recycled.

Contact your local sales representative.



Polyiso Insulation

Arlington, MA



EPDM

Kansas City, MO

### MR Credit 3 Materials Reuse

Firestone can accommodate this credit by incorporating the use of Firestone pavers and ballast.

### MR Credit 4 Recycled Content

The Firestone family of insulations can provide up to 15% pre-consumer/post industrial recycle content. The UltraPly TPO membranes can also offer assistance in meeting this credit with 15% on pre-consumer/post industrial recycled content. These are only a few examples of the Firestone products that can assist in meeting the criteria for this credit. For specific recycled content information on each product that Firestone offers, please refer to the Technical Information Sheet online at <http://technicaldatabase.fsbp.com/>.

Firestone Metal Products provide a high percentage of recycled content. However, specific percentages will need to be requested at the time of ordering due to the nature of the product.

### MR Credit 5 Regional Materials

Products manufactured by Firestone Building Products Company, LLC, are comprised of compounds whose raw materials are drawn from a wide variety of sources from across the U.S. and, therefore, do not comply with this portion of the credit pertaining to extraction, harvesting, and recovering.

## Indoor Environmental Quality (IEQ)

### IEQ Credit 4.1 Low-Emitting Materials – Adhesives and Sealants

The USGBC Technical Customer Service Center clarified this: Single-Ply Roof Membrane Adhesives are **not** impacted by this credit. **LEED projects can use standard bonding adhesives.** UltraPly Bonding Adhesive or EPDM Bonding Adhesive BA-2004 (T) can be used with UltraPly TPO and RubberGard EPDM respectively. Multi-Purpose MB Cold Adhesive can be used with modified bitumen membranes. Use these Firestone adhesives on LEED projects without jeopardizing eligibility of Credit IEQ 4.1.

Of course, there may be other regulations that require low VOC adhesives, such as in OTC states or in some air quality districts in California.

### IEQ Credit 8.1 Daylight and Views - Daylight

Firestone Energy Solutions offers the SunWave Daylighting System that can be used to maximize lighting performance at low sun angles and supply more diffused light for daylighting hours without glare or hot spots. Adding a lighting control device can increase energy efficiency. This system can provide visual comfort for people inside the building and save energy, offering a substantial value for the investment. Contact Firestone Energy Solutions, 888-793-0012 toll-free or 317-853-4680.



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## Sustainability

At Firestone, our commitment to the planet has resulted in sustainable products and processes. We are giving architects, building owners and suppliers the tools needed to create the most efficient, earth-friendly projects available.

UNA-CLAD™ metal systems are known for high recycled content, aesthetic appearance and complete recyclability. Metal's long life cycle and low maintenance truly represent sustainability.

Firestone membranes and insulation systems play an important role in environmental protection. EPDM, TPO and modified bitumen systems are designed to enhance the energy efficiency of the buildings they cover. When it comes to energy conservation, Firestone polyiso insulation leads the way with excellent thermal performance.

Firestone is a member of USGBC and an enthusiastic advocate of LEED for sustainable, high performance buildings. We are pleased to offer roofing materials that help achieve the program's highest ratings.

For further information please refer to the following links.

[www.firestonebpc.com](http://www.firestonebpc.com)

Firestone Building Products

<http://www.usgbc.org>

U.S. Green Building Council

[www.coolroofs.org](http://www.coolroofs.org)

Cool Roof Rating Council

<http://roofingcenter.org>

RoofPoint™ Rating System for Environmentally Innovative Roofs



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