

GAF LEED Playbook



GAF MATERIALS CORPORATION

2011



GAF LEED Playbook

LEED 2009 for New Construction and Major Renovations

About GAF

Founded in 1886, GAF Materials Corporation is one of the largest and fastest-growing building products manufacturers in North America. Offering high quality products in roofing, decking, railings, decorative stone, ductwork, and specialty fabrics, GAF is your best and safest choice! For more information, visit www.gaf.com.

About LEED

The LEED (Leadership in Energy and Environmental Design) Green Building Rating System is a voluntary, consensus-based national standard for developing high-performance, energy-efficient sustainable buildings. LEED certification system is a program that awards building points for satisfying specified green building criteria and requirements. GAF currently uses LEED 2009 NC* rating system and is a member of the USGBC. For more information, visit www.usgbc.org.

Why LEED?

The built environment has a profound impact on our natural environment, economy, health and productivity. Green building practices can substantially reduce or eliminate negative environmental impacts and improve existing unsustainable design, construction and operational practices. Please visit <http://gaf.ecoscorecard.com> for LEED documentation on a GAF product.

Benefits of a "Green Building"

Environmental:

- Protects and enhances ecosystems and biodiversity
- Improves air and water quality
- Conserves and limits natural resource use
- Reduces solid waste going to landfills

Economical:

- Lowers building's operational costs
- Higher building values, assets and profits
- Attracts and retains superior employees
- Improves employee productivity, satisfaction and reduces sick days
- Incentives for LEED are available at the state and local level. For more information, visit www.energystar.gov.

Health & Community:

- Enhances air, thermal and acoustical quality
- Higher levels of occupant comfort and health
- Reduces the strain on the local infrastructures
- Improves overall quality of life

LEED 2009 NC rating scale:

Certified	40-49 points
Silver	50-59 points
Gold	60-79 points
Platinum	80 points and above

LEED 2009 NC addresses 7 topics:

Sustainable Site (SS)

Water Efficiency (WE)

Energy & Atmosphere (EA)

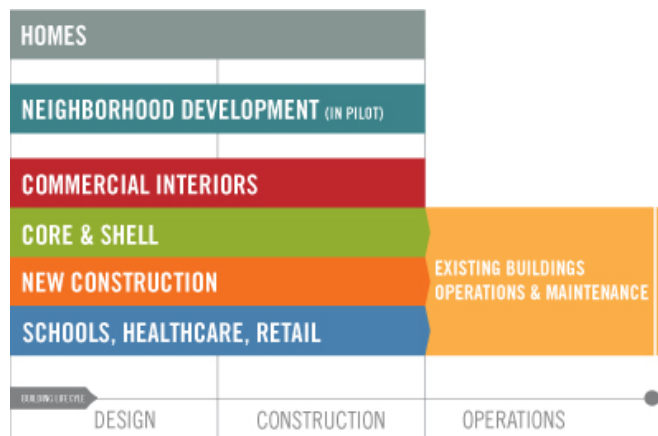
Materials & Resources (MR)

Indoor Environmental Quality (IEQ)

Innovation in Design (ID)

Regional Priority (RP)

**LEED 2009 New Construction addresses design and construction activities for both new buildings and major renovations of existing buildings.*



..... IMAGE COURTESY OF USGBC

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Sustainable Sites (SS)



SS Credit 5.1 (1 Point)	Site Development: Protect or Restore Habitat
Intent	To conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.
GAF's Eligible Option	Specify GAF GardenScapes™ vegetative roof system to meet credit requirements*.

SS Credit 5.2 (1 point)	Site Development: Maximize Open Space
Intent	To promote biodiversity by providing a high ratio of open space to development footprint.
GAF's Eligible Option	Specify GAF GardenScapes™ vegetative roof system to meet credit requirements*.

SS Credit 6.1 (1 point)	Stormwater Design: Quantity Control
Intent	To limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from stormwater runoff and eliminating contaminants.
GAF's Eligible Option	Specify GAF GardenScapes™ vegetative roof system to meet credit requirements*.

**Refer to www.usgbc.org for complete credit requirements*


SS Credit 6.2 (1 point)	Stormwater Design: Quality Control
Intent	To limit disruption of natural water flows by managing stormwater runoff.
GAF's Eligible Option	Specify GAF GardenScapes™ vegetative roof system to meet credit requirements*.

SS Credit 7.1 (1 point)	Heat Island Effect: Nonroof
Intent	To reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impacts on microclimates and human and wildlife habitats.
GAF's Eligible Option	Specify GAF GardenScapes™ vegetative roof system and/or GAF Solar Roofing System to meet credit requirements*.

**Refer to www.usgbc.org for complete credit requirements*



Image: GardenScapes™

SS Credit 7.2 (1 point)	Heat Island Effect: Roof									
Intent	To reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.									
GAF's Eligible Option	Specify qualifying GAF roofing membrane and/or GardenScapes™ vegetative roof system to reduce heat absorptions and meet credit requirements*.									
 <p>Solar Reflectance Index (SRI): A measurement of a material's ability to reject solar heat, as shown by a small temperature rise.</p>	<p>Credit Requirements:</p> <ul style="list-style-type: none"> Use roofing materials having a Solar Reflectance Index (SRI) equal or greater than the values in Table 1 for a minimum of 75% of the roof surface. <p>Table 1</p> <table border="1"> <thead> <tr> <th>Roof Type</th> <th>Slope</th> <th>SRI</th> </tr> </thead> <tbody> <tr> <td>Low-sloped roof</td> <td>≤ 2:12</td> <td>78</td> </tr> <tr> <td>Steep-slope roof</td> <td>≥ 2:12</td> <td>29</td> </tr> </tbody> </table> <p>Roofing materials having a lower SRI value than those listed in Table 1 may be used if the weighted rooftop SRI average meets the following criteria:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> $\frac{\text{Area Roof Meeting Min. SRI}}{\text{Total Roof Area}} \times \frac{\text{SRI installed Roof}}{\text{Required SRI}} \geq 75\%$ </div> <p style="text-align: center;">Or</p> <ul style="list-style-type: none"> Install a vegetated roof for at least 50% of the roof area. <p style="text-align: center;">Or</p> <ul style="list-style-type: none"> Install high albedo and vegetated roof surfaces that, in combination, meet the following equation: <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> $\frac{\text{Area Meeting Min. SRI}}{0.75} + \frac{\text{Area Vegetated}}{0.5} > \text{Total Roof Area}$ </div>	Roof Type	Slope	SRI	Low-sloped roof	≤ 2:12	78	Steep-slope roof	≥ 2:12	29
Roof Type	Slope	SRI								
Low-sloped roof	≤ 2:12	78								
Steep-slope roof	≥ 2:12	29								

*Refer to www.usgbc.org for complete credit requirements

Eligible GAF Products

Title	Product Area	Reflectivity	Emissivity	SRI index
RuberoiD® EnergyCap™ SBS 30 FR (white)	Cap Sheet	0.80	0.84	99
GAFGLAS® EnergyCap™ BUR Mineral Surfaced Cap Sheet (white)	Cap Sheet	0.80	0.90	100
RuberoiD® EnergyCap™ Torch Plus FR (white)	Cap Sheet	0.80	0.84	99
RuberoiD® EnergyCap™ SBS HeatWeld Plus FR (white)	Cap Sheet	0.75	0.82	91
RuberoiD® EnergyCap™ Torch Granule FR (white)	Cap Sheet	0.84	0.81	104
RuberoiD® EnergyCap™ Mop FR (white)	Cap Sheet	0.73	0.83	89
TOPCOAT® Surface Seal SB (white)	Coatings	0.84	0.90	106
TOPCOAT® Surface Seal SB over APP Smooth (white)	Coatings	0.84	0.90	106
TOPCOAT® Surface Seal SB over APP Granule (white)	Coatings	0.84	0.90	106
TOPCOAT® MB Plus (white)	Coatings	0.83	0.88	104
TOPCOAT® MB Plus over APP Smooth (white)	Coatings	0.83	0.88	104
TOPCOAT® MB Plus over APP Granule (white)	Coatings	0.83	0.88	104
TOPCOAT® Elastometric Roofing Membrane (white)	Coatings	0.85	0.90	107
TOPCOAT® Fireshield® SB (white)	Coatings	0.81	0.90	101
TOPCOAT® Fireshield® MB (white)	Coatings	0.72	0.91	89
TOPCOAT® Fireshield® MB w/ #10 Aggregate (white)	Coatings	0.79	0.88	98
TOPCOAT® Fireshield® EPDM (white)	Coatings	0.75	0.90	93
TOPCOAT® EnergyCote™ Elastometric Coating (white)	Coatings	0.91	0.87	115
TOPCOAT® EPDM Coating (white)	Coatings	0.86	0.88	108
MATRIX™ 322 (white)	Coatings	0.87	0.87	110

Timberline® Prestique® 40 Cool Barkwood <u>or</u> Timberline® Cool Series Cool Barkwood	Shingle Products	0.27	0.92	29
Timberline® Prestique® 40 Cool Antique Slate <u>or</u> Timberline® Cool Series Antique Slate	Shingle Products	0.27	0.92	29
EverGuard® TPO FB Ultra (white)	Single Ply Systems	0.76	0.9	94
EverGuard® TPO FB Ultra (tan)	Single Ply Systems	0.65	0.90	79
EverGuard® PVC (white)	Single Ply Systems	0.87	0.95	111
EverGuard® EGFB (white)	Single Ply Systems	0.85	0.86	107
EverGuard® TPO (white)	Single Ply Systems	0.76	0.90	94
EverGuard® TPO (tan)	Single Ply Systems	0.65	0.90	79
EverGuard® Freedom TPO (white)	Single Ply Systems	0.76	0.90	94
EverGuard® Freedom TPO (tan)	Single Ply Systems	0.65	0.90	79
EverGuard® Energy Tan TPO	Single Ply Systems	0.72	0.89	88
Everguard® Steep Slope TPO (white)	Single Ply Systems	0.76	0.90	94
EverGuard® Energy Gray TPO	Single Ply Systems	0.72	0.87	88
EverGuard® Extreme™ TPO (white)	Single Ply Systems	0.84	0.84	105
Products that May be Eligible				
Timberline® Prestique® 40 Cool Weathered Wood <u>or</u> Timberline® Cool Series Cool Weathered Wood	Shingle Products	0.26	0.92	28*
Royal Sovereign® Shingles (white)	Shingle Products	0.27	0.91	28*
Sentinel® Shingles (white)	Shingles Products	0.27	0.91	28*
Timberline® Prestique® 30 Shingles (white) <u>or</u> Timberline® HD (white)	Shingle Products	0.26	0.85	24*
Timberline® Prestique® 40 Cool Antique Slate <u>or</u> Timberline® Cool Series Cool Antique Slate (white)	Shingle Products	0.26	0.85	24*
Timberline® Prestique® Lifetime Shingles (white) <u>or</u> Timberline® Ultra HD (white)	Shingle Products	0.26	0.85	24*

* Roofing materials having a lower SRI value than those listed in Table 1 may be used if the weighted rooftop SRI average \geq to 75% (see pg.6)

Energy & Atmosphere (EA)





EA Credit 1 (1-19 points)	Optimize Energy Performance
Intent	To achieve increasing levels of energy performance above the baseline in the prerequisite instead to reduce environmental and economic impacts associated with excessive energy use.
GAF's Eligible Option	Use GAF Energyguard™ roof insulation to demonstrate a percentage increase in the building performance rating compared to the baseline per ASHRAE/IESNA Standard 90.1-2007. Other methods included using a reflective and/or vegetative roof system or solar roofing system. (See Table 2)

Table 2 Points Awarded for Increase in Energy Performance over Base Standard

Energy Efficiency Improvement		Points
New Buildings	Existing Building Renovations	
12%	8%	1
14%	10%	2
16%	12%	3
18%	14%	4
20%	16%	5
22%	18%	6
24%	20%	7
26%	22%	8
28%	24%	9
30%	26%	10
32%	28%	11

34%	30%	12
36%	32%	13
38%	34%	14
Energy Efficiency Improvement		Points
New Buildings	Existing Building Renovations	
42%	38%	16
44%	40%	17
46%	42%	18
48%	44%	19

Note: The Building Performance Rating Method includes ALL of the energy costs within and associated with the building project.

EA Credit 2 (1-7 points)	On-site Renewable Energy																
Intent	To encourage and recognize increasing levels of on-site renewable energy self-supply to reduce environmental and economic impacts associated with fossil fuel energy use.																
GAF's Eligible Option  	<p>Use a Solar Roofing System or Solar Ventilation Product to meet credit requirements in Table 3.</p> <p>Calculate the energy produced by the on-site renewable system as a percentage of the yearly energy cost of the building.</p> <p>Table 3 On-site Renewable Energy Thresholds</p> <table border="1"> <thead> <tr> <th>Percentage Renewable Energy*</th> <th>Points</th> </tr> </thead> <tbody> <tr> <td>1%</td> <td>1</td> </tr> <tr> <td>3%</td> <td>2</td> </tr> <tr> <td>5%</td> <td>3</td> </tr> <tr> <td>7%</td> <td>4</td> </tr> <tr> <td>9%</td> <td>5</td> </tr> <tr> <td>11%</td> <td>6</td> </tr> <tr> <td>13%</td> <td>7</td> </tr> </tbody> </table>	Percentage Renewable Energy*	Points	1%	1	3%	2	5%	3	7%	4	9%	5	11%	6	13%	7
Percentage Renewable Energy*	Points																
1%	1																
3%	2																
5%	3																
7%	4																
9%	5																
11%	6																
13%	7																

*Refer to www.usgbc.org for complete credit requirements

Materials & Resources (MR)



MR Credit 2.1 (1-2 points)	Construction Waste Management						
Intent	To divert construction and demolition debris from landfills and incineration facilities. Redirect recyclable resources back into the manufacturing process. Redirect reusable materials to appropriate sites.						
GAF's Eligible Option	<p>Recycle and/or salvage roofing materials which include: asphalt shingles, TPO and PVC membranes, EPDM membranes, polyiso insulation, extruded or expanded polystyrene insulation, gypsum board, mineral fiber board, ballast, metal flashings, metal roof panels, and clean wood.</p> <p>Identify construction haulers and recyclers to handle the designated materials. The donation of construction materials to a charitable organization is another method of diversion.</p> <table border="1" data-bbox="685 867 1360 1022"> <thead> <tr> <th data-bbox="685 867 1062 936">Percent Recycled or Salvaged*</th> <th data-bbox="1062 867 1360 936">Points</th> </tr> </thead> <tbody> <tr> <td data-bbox="685 936 1062 978">50%</td> <td data-bbox="1062 936 1360 978">1</td> </tr> <tr> <td data-bbox="685 978 1062 1022">75%</td> <td data-bbox="1062 978 1360 1022">2</td> </tr> </tbody> </table> <p><i>*Calculations can be done by weight or volume, but must be consistent throughout.</i></p>	Percent Recycled or Salvaged*	Points	50%	1	75%	2
Percent Recycled or Salvaged*	Points						
50%	1						
75%	2						



Image: Construction Hauler

MR Credit 3 (1-2 points)	Materials Reuse						
Intent	To reuse building materials and products to reduce demand for virgin materials and reduce waste, thereby lessening impacts associated with the extraction and processing of virgin resources.						
GAF's Eligible Option	<p>Reuse or salvage of ballast, EnergyGuard™ roof insulation, and membrane if possible so that the sum constitutes for 5% or 10%, based on cost, of the total value of the materials in the project.</p> <p>Identify opportunities to incorporate salvaged materials into the building design, and research potential material suppliers that may carry salvaged roofing materials.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Reused Materials *</th> <th>Points</th> </tr> </thead> <tbody> <tr> <td>5%</td> <td>1</td> </tr> <tr> <td>10%</td> <td>2</td> </tr> </tbody> </table> <p><i>*Based on cost of the total value of the materials in the project</i></p>	Reused Materials *	Points	5%	1	10%	2
Reused Materials *	Points						
5%	1						
10%	2						

MR Credit 4 (1-2 points)	Recycled Content						
Intent	To increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.						
GAF's Eligible Option	Select GAF products that can attribute to this goal. (See Table 4 on pages 16-17)						
<p>Pre-consumer Content: Material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it.</p> <p>Post-consumer Content: Waste material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which no longer can be used for its intended purpose.</p>	<p>Requirements:</p> <p>Use materials with recycled content such that post-consumer plus ½ pre-consumer is at least 10% or 20%.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Recycled Content *</th> <th>Points</th> </tr> </thead> <tbody> <tr> <td>10%</td> <td>1</td> </tr> <tr> <td>20%</td> <td>2</td> </tr> </tbody> </table> <p><i>*Based on cost of the total value of the materials in the project</i></p>	Recycled Content *	Points	10%	1	20%	2
Recycled Content *	Points						
10%	1						
20%	2						

Eligible GAF Products**

Table 4

Commercial Roofing	Recycled Content* Pre-Consumer <u>Up to:</u>	Recycled Content* Post-Consumer <u>Up to:</u>	Total <u>Up to:</u>
Low Slope Products			
Everguard® TPO	10%	0%	10%
Everguard® PVC FB	7%	0%	7%
Ruberoid® EnergyCap™ Torch Plus FR (white)	7.2%	0%	7.2%
Ruberoid® EnergyCap™ Torch Granule FR (white)	7.0%	0%	7.0%
GAFGLAS® EnergyCap™ BUR Mineral Surface Cap Sheet (white)	5.5%	0%	5.5%
Perlite	2%	28%	30%
Securock® Gypsum-Fiber Roof Board	95%	0%	95%
Drill-Tec™ Fasteners	0%	25%	25%
GardenScapes™ Drainage Mat	50%	0%	50%
EnergyGuard™ Insulation	<u>Ave. based on weight</u>	<u>Ave. based on weight</u>	<u>Ave. based on weight</u>
1"	14.3%	28.9%	43.2%
1.5"	12.7%	22.0%	34.7%
2"	11.9%	17.9%	29.8%
2.5"	11.2%	15.5%	26.7%
3"	10.8%	12.9%	23.7%
3.1"	10.5%	12.4%	22.9%
3.5"	10.5%	11.4%	21.9%
4"	10.1%	10.2%	20.3%
Steep Slope Products			
Shingle-Mate™	0%	60%	60%
Cobra® Attic Exhaust Vent	20%	80%	100%

Composite Decking			
Duralife™ Siesta Collection CorrectDeck® CX	62%	0%	62%
CorrectDock®	62%	0%	62%
Duralife Porch Collection CorrectPorch®	50%	0%	50%
Duralife™ Natural Grain/Veranda	50%	0%	50%
Duralife™ Railway Railing System	50%	0%	50%
Crosstimbers™ Decking	50%	0%	50%

Note:

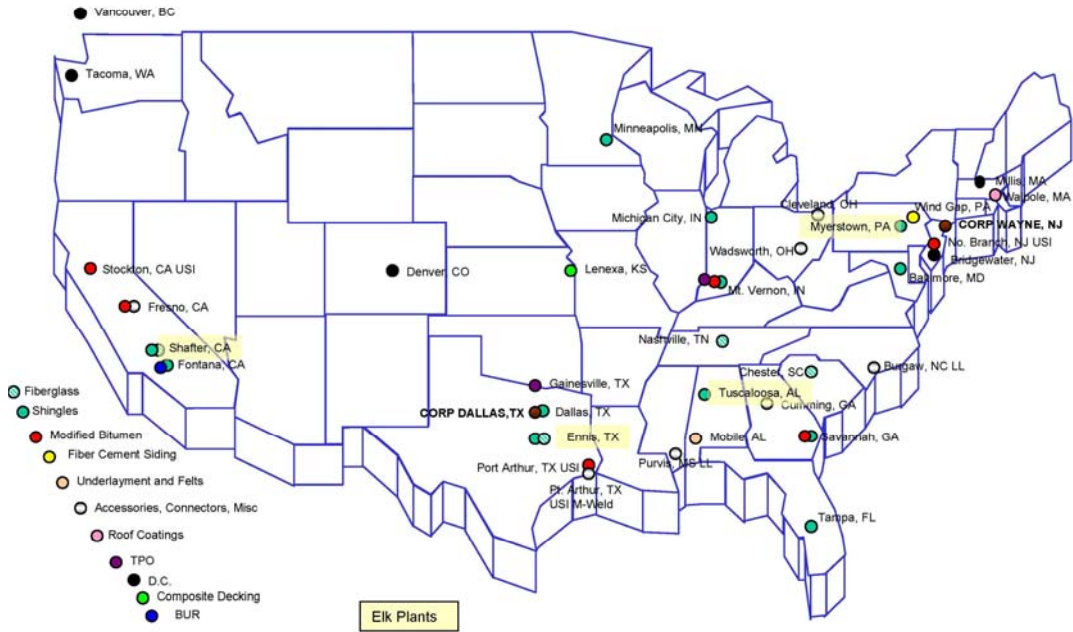
EnergyGuard™ PolyIso is sourced from manufacturing facilities nationwide and may have recycled content higher or lower than noted. The average recycled content for each thickness was taken based on weight.

**Recycled content varies by region. See product data sheets for verification.*

***Consult GAF for additional information on any product.*

MR Credit 5 (1-2 points)	Regional Materials						
Intent	To increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.						
GAF's Eligible Option	Select GAF products that can attribute to this goal. (See Table 5 on page 19)						
	<p>Requirements:</p> <p>Use building materials or products that have been <u>extracted</u>, <u>harvested or recovered</u>, as well as <u>manufactured</u>, within 500 miles of the site for a minimum of 10% or 20%.</p> <table border="1" data-bbox="683 856 1359 993"> <thead> <tr> <th>Regional Materials*</th> <th>Points</th> </tr> </thead> <tbody> <tr> <td>10%</td> <td>1</td> </tr> <tr> <td>20%</td> <td>2</td> </tr> </tbody> </table> <p><i>*Based on cost of the total value of the materials in the project</i></p>	Regional Materials*	Points	10%	1	20%	2
Regional Materials*	Points						
10%	1						
20%	2						

Plant Locations



Eligible GAF Products**

Table 5

Residential & Commercial Roofing	Manufacturing Locations*	Extraction Locations**
Low Slope Products		
Everguard® TPO	Gainesville, TX; Mt. Vernon, IN	N/A
PVC	Mountaintop, PA	N/A
BUR	Fontana, CA; Savannah, GA; Mt. Vernon, IN	N/A
Modified Bitumen	Stockton, CA; Fresno, CA; Savannah, GA; Mt. Vernon, IN	N/A
EnergyGuard™ Polyiso	Bremen, IN; Hazleton, PA; Jacksonville, FL; Cornwall, ON; Fernley, NV; Hazelton, PA; Greer, SC; Dallas, TX; Diboll, TX; Lagrange, GA; Phoenix, AZ; Northglenn, CO; East Moline, IL; Camp Hill, PA; Toronto, Canada; Franklin, OH; Hampton, GA; Bristol, CT; Deforest, WI; Florence, KY; Corsicana, TX; Aurora, CO; Salt Lake, UT; Youngwood, PA; Ashland, OH; Rockland, MA; Kingston, NY; Lake City, FL; Terrell, TX; Chicago, IL; Tooele, UT; Smithfield, PA	N/A
Perlite	Bremen, IN; Hazleton, PA; Jacksonville, FL; Cornwall, ON; Fernley, NV	N/A
Securock® Gypsum-Fiber Roof Board	Gypsum, OH	York Haven, PA (Gypsum 85%) Fremont, OH (Cellulosefibers-10%)
Densdeck® DuraGuard	Acme, TX; Camden, NJ; Ft. Dodge, IA; Savannah/Brunswick, GA	Acme, TX; Port Hawkesbury, Nova Scotia, Ft. Dodge, IA
Densdeck®	Acme, TX; Antioch, CA; Caledonia, ON; Camden, NJ; Ft. Dodge, IA; Lovell, WY; Savannah, GA; Tacoma, WA; Wheatfield, IN; Las Vegas, NV; Newington,	Acme, TX; Port Hawkesbury, Nova Scotia, Ft. Dodge, IA; Monroe, MI; Lovell, WY; Wheatfield, IN; San Marcos Island, Mexico; Centralia, WA;

	NH; Sweetwater, TX; Tacoma, WA	Sweetwater, TX; Tacoma, WA; St. George, UT
Densdeck® Prime	Acme, TX; Antioch, CA; Caledonia, ON; Camden, NJ; Ft. Dodge, IA; Lovell, WY; Savannah, GA; Tacoma, WA; Wheatfield, IN	Acme, TX; Port Hawkesbury, Nova Scotia, Ft. Dodge, IA; Monroe, MI; Lovell, WY; Wheatfield, IN; San Marcos Island, Mexico; Centralia, WA
Underlayments & Felts	Camp Hill, PA	N/A
Fiberglass	Ennis, TX; Nashville, TN; Chester, SC; Shafter, CA	N/A
Roof Coatings	Walpole, MA	N/A
Drill-Tec™ Fasteners	Agawam, MA; Itasca, IL	N/A
Adhesives	Covington, KY; Rockford, IL; Plainfield, IL; Rockland, MA; Mountaintop, PA; Agawam, MA; Itasca, IL	N/A
Steep Slope Products		
Quality Shingles	Myerstown, PA; Ennis, TX; Tuscaloosa, AL; Tampa, FL; Minneapolis, MN; Michigan City, IN; Baltimore, MD; Mt. Vernon, IN; Shafter, CA; Savannah, GA; Dallas, TX; Fontana, CA, Mobile, AL	N/A
Shingle-Mate™	Franklin, OH; Dangerfield, TX; Hampton, GA	N/A
StormGuard®	Mount Vernon, IN	N/A
WeatherWatch®	Mount Vernon, IN; Fresno, CA; North Branch, NJ	N/A
WeatherWatch® XT	North Branch, NJ	N/A
Composite Decking		
Duralife™ Siesta Collection CorrectDeck® CX	Biddeford, ME	N/A
CorrectDock®	Biddeford, ME	N/A
Duralife Porch Collection CorrectPorch®	Biddeford, ME	N/A
Duralife™ Natural Grain/Veranda	Lenexa, KS	N/A

Duralife™ Railway Railing System	Lenexa, KS	N/A
Crosstimbers™ Decking	Lenexa, KS	N/A

Note:

***GAF products are sourced from compounds nationwide and may not comply with the portion of the credit pertaining to extraction, harvesting or recovering. Consult GAF for additional information on any product.*

**Sourcing location will not be determined until time of shipment and are subject to change.*

MR Credit 6 (1 point)	Rapidly Renewable Materials
Intent	To reduce the use and depletion of finite raw materials and long-cycle renewable materials by replacing them with rapidly renewable resources.
GAF's Eligible Option	Select renewable GAF products such as Crosstimbers™ Decking and OlyBond500 Green .
Rapidly Renewable Materials: Materials considered to be an agricultural product, both fiber and animal, that takes 10 years or less to grow or raise, and to harvest in an ongoing and sustainable fashion.	Requirements: Use rapidly renewable building materials and products for 2.5% of the total value of all building materials and products used in the project, based on cost.

Rapidly Renewable Product	Rapidly Renewable Material	Percentage
Crosstimbers™ Decking	Rice Hulls	65%
OlyBond500 Green	Castor Oil Plant	12.5%



Image: OlyBond500 Green

Indoor Environmental Quality (IEQ)



IEQ Credit 4.1 (1 point)	Low-Emitting Material Adhesives and Sealants
Intent	To reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.
GAF's Eligible Option	Select GAF products that can attribute to this goal. (See Table 6,7 & 8 on pages 23-25)

Everguard® TPO Adhesives & Chemicals

Table 6

Product Name	VOC Limit of Product (g/L less water)	VOC Limit Allowed (g/L less water)
Everguard® Low VOC TPO Bonding Adhesive	250	250
Everguard® Low VOC PVC Bonding Adhesive	199	250
Everguard® Pourable Sealer -Part A	2	450
Everguard® Pourable Sealer -Part A	2	450
OLYBOND	>5	200
OLYBOND 500	>5	200
OLYBOND 500 Green	>5	200
Everguard® Caulk	341	450
Mthane	2	450
Everguard® Low VOC Primer	199	450
Everguard® WB 181 Bonding Adhesive	8	250



Image: Everguard® Low VOC Bonding Adhesive

Matrix™ Coatings

Table 7

Product Name	VOC Limit of Product (g/L less water)	VOC Limit Allowed (g/L less water)
Matrix™ 102 SBS Membrane Adhesive	289	300
Matrix™ 103 Cold Process Adhesive	289	300
Matrix™ 201 Premium SBS Flashing Cement	289	300
Matrix™ 202 SBS Flashing Cement	289	300
Matrix™ 203 Plastic Roof Cement	289	300
Matrix™ 204 Wet/Dry Roof Cement	289	300
Matrix™ 303 & 304 Aluminum Roof Coatings	289	300
Matrix™ 307 Primer	320	350
Matrix™ 322 (white)	40	300
Topcoat® Matrix™ Majorseal Liquid Flashing	25	300



Image: Matrix™ 102 SBS Membrane Adhesive

Topcoat®

Table 8

Product Name	VOC Limit of Product (g/L less water)	VOC Limit Allowed (g/L less water)
Topcoat® Flexseal	298	300
Topcoat® Flashing Grade	49	300
Topcoat® Surface Seal SB (white)	429	550
Topcoat® MB Plus (white)	30	550
Topcoat® Fireshield® SB (white)	429	550
Topcoat® Fireshield® MB (white)	30	550
Topcoat® Surface Seal Primer	489	550
Topcoat® EnergyCote™ Elastomeric Coating (white)	28	250
FireOut™ Fire Barrier Coating	4	250



Image: Topcoat® MB Plus (white)

Want to learn more?

GAF Contractor Services...can provide detail and answer questions on project specific conditions.

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For more information... about GAF's commitment to green manufacturing processes and our full line of energy saving products, visit "Green Roof Central" at www.gaf.com.

Helpful Links...

www.gaf.com

www.usgbc.org

www.ecoscorecard.com

www.coolroofs.org

www.energystar.gov

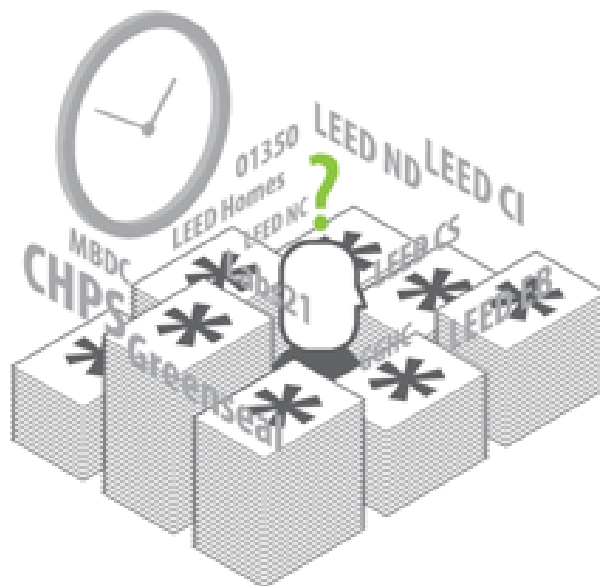
GAF Materials Corporation

US Green Building Council

ecoScorecard

Cool Roof Rating Council (CRRC)

Federal Tax Credits



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ecoScorecard is a web-based tool accessed on a manufacturer's website, that allows you to search that specific manufacturer's product catalog based on specific green characteristics. Beyond just the search function, ecoScorecard performs the required calculations and compiles all the data into a printable PDF. This PDF can then be used to help you meet the product documentation required by LEED or any other certifying body.

ecoScorecard is a no-cost service provided to you as an added customer service benefit by the manufacturer. The tool will help eliminate your dependence on the sales reps and outside LEED consultants for accurate product information and documentation. And because it's a web-based tool you have access to the answers you need 24 hours a day, 7 days a week, within minutes.

Source: www.ecoscorecard.com

Glossary of Term

Emissivity

The ratio of the radiation emitted by a surface to the radiation emitted by a black body at the same temperature.

ENERGYSTAR® Rating

The rating a building earns using the ENERGYSTAR Portfolio Manager to compare building energy performance to similar buildings in similar climates. A score of 50 represents average building performance.

Heat Island Effect

Occurs when warmer temperatures are experienced in urban landscapes compared to adjacent rural areas as a result of solar energy retention on constructed surfaces. Principal surfaces that contribute to the heat island effect include streets, sidewalks, parking lots and buildings.

Infrared or Thermal Emittance

A parameter between 0 and 1 (or 0% and 100%) that indicates the ability of a material to shed infrared radiation (heat). The wavelength range for radiant energy is roughly 3 to 40 micrometers. Most building materials (including glass) are opaque in this part of the spectrum, and have an emittance of roughly .09.

Low Sloped Roof

≤2:12 pitch

Post-consumer Content (Pre-Industrial)

Waste material generated by household or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. This includes returns of materials from the distribution chain. Examples of this category include construction and demolition debris, materials collected through curbside and drop-off recycling programs, broken pallets (if from a pallet refurbishing company, not a pallet making company), discarded products (e.g., furniture, cabinetry and decking) and urban maintenance waste (e.g., leaves, grass clippings, tree trimmings, etc.).

Pre-consumer Content (Post-Industrial)

Defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it. Examples of this category include planer shavings, plytrim, sawdust, chips, bagasse, sunflower seed hulls, walnut shells, culls, trimmed material, print overruns, over-issue publications, and obsolete inventories.

Primer

A material applied to a substrate to improve adhesion of a subsequently applied adhesive.

Recycling

The collection, reprocessing, marketing and use of materials that were diverted or recovered from the solid waste stream.

Regionally Extracted Materials

For LEED for New Construction purposes, must have their source as a raw material within a 500-mile radius of the project site

Regionally Manufactured Materials

For LEED for New Construction purposes, must be assembled as a finished product within a 500-mile radius of the project site. Assembly, as used for this LEED definition, does not include on-site assembly, erection or installation of finished components, as in structural steel, miscellaneous iron or systems furniture.

Reuse

A strategy to return materials to active use in the same or related capacity.

Salvaged Materials

Construction materials recovered from existing buildings or construction sites and reused in other buildings. Common salvaged materials included structural beams and posts, flooring, doors, cabinetry, brick and decorative items.

Sealant

Any material with adhesive properties that is formulated primarily to fill, seal, or waterproof any gaps or joints between two surfaces. Sealants include sealant primers and caulks.

Solar Reflectance (albedo)

The ratio of the reflected solar energy to the incoming solar energy over wavelengths of approximately .3 to 2.5 micrometers. A reflectance of 100% means that all of the energy striking a reflecting surface is reflected back into the atmosphere and none of the energy is absorbed by the surface.

Solar Reflectance Index (SRI)

A measure of a material's ability to reject solar heat, shown as a small temperature rise. It is defined so that a standard black (reflectance .05, emittance .90) is 0 and a standard white (reflectance .80, emittance .90) is 100.

Steep Sloped Roof

≥2:12 pitch

Stormwater Runoff

Water volumes that are created during precipitation events and that flow over surfaces into sewer systems or receiving waters. All precipitation waters that leave project site boundaries on the surface are considered to be stormwater runoff volumes.

Title 24

California's energy efficiency standards for residential and nonresidential buildings.

VOC's (Volatile Organic Compounds)

Carbon compounds that participate in atmospheric photochemical reactions (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonates, and ammonium carbonate). The compounds vaporize (become a gas) at normal room temperature.

Definitions Source: USGBC Version 2.2 Reference Guide Third Edition