

**LEED® - Leadership in Energy and Environmental Design**  
**Green Building Rating System™**  
**January 5, 2015 [Replaces February 7, 2014]**

The chart below lists LEED Credits associated with Siplast Roofing, Waterproofing, and Insulation Systems.

	<b>APPLICABLE PRODUCTS</b>	<b>LEED CREDIT</b>	<b>AVAILABLE POINTS</b>	<b>INTENT</b>	<b>REQUIREMENTS/COMMENTS</b>
<b>Sustainable Sites Protect or Restore Habitat</b>	Teranap & Parapro Membrane and Siplast Paragreen Vegetated Roof Systems	LEED v4 BD+C Sustainable Sites SS Credit: Site Development: Protect or Restore Habitat  This credit applies to: <ul style="list-style-type: none"> <li>• New Construction (1-2 points)</li> <li>• Core &amp; Shell (1-2 points)</li> <li>• Schools (1-2 points)</li> <li>• Retail (1-2 points)</li> <li>• Data Centers (1-2 points)</li> <li>• Warehouses &amp; Distribution Centers (1-2 points)</li> <li>• Hospitality (1-2 points)</li> <li>• Healthcare (1 point)</li> </ul>	1 - 2 points	To conserve and restore existing natural areas, restore damaged areas too provide habitat and promote biodiversity.	Preserve and protect from all development and construction activity 40% of the Greenfield area on the site (if such areas exist).  Option 1. On-site Restoration (2 points except Healthcare, 1 point Healthcare) Using native or adapted vegetation, restore 30% (including the building footprint) of all portions of the site identified as previously developed. Projects that achieve a density of 1.5 floor-area ratio may include vegetated roof surfaces in this calculation if the plants are native or adapted, provide habitat, and promote biodiversity.
<b>Sustainable Sites Maximize Open Space</b>	Teranap & Parapro Membrane and Siplast Paragreen Vegetated Roof Systems	LEED v4 BD+C Sustainable Sites SS Credit: Open Space  This credit applies to: <ul style="list-style-type: none"> <li>• New Construction (1 point)</li> <li>• Core &amp; Shell (1 point)</li> <li>• Schools (1 point)</li> <li>• Retail (1 point)</li> <li>• Data Centers (1 point)</li> <li>• Warehouses &amp; Distribution Centers (1 point)</li> <li>• Hospitality (1 point)</li> <li>• Healthcare (1 point)</li> </ul>	1 point	To create exterior open space that encourages interaction with the environment, social interaction, passive recreation, and physical activities.	Provide outdoor space greater than or equal to 30% of the total site area (including building footprint). A minimum of 25% of the outdoor space must be vegetated (turf grass does not count as vegetation) or have overhead vegetated canopy.  For projects that achieve a density of 1.5 floor-area ratio (FAR), and are physically accessible, extensive or intensive vegetated roofs can be used toward the minimum 25% vegetation requirement, and qualifying roof based physically accessible paving areas can be used toward credit compliance.

	APPLICABLE PRODUCTS	LEED CREDIT	AVAILABLE POINTS	INTENT	REQUIREMENTS/COMMENTS
Sustainable Sites Rainwater Management	Teranap & Parapro Membrane and Siplast Vegetated Roof Systems	<p>LEED v4 Sustainable Sites SS Credit: Rainwater Management</p> <p>This credit applied to:</p> <ul style="list-style-type: none"> <li>• New Construction (1-3 points)</li> <li>• Core &amp; Shell (1-3 points)</li> <li>• Schools (1-3 points)</li> <li>• Retail (1-3 points)</li> <li>• Data Centers (1-3 points)</li> <li>• Warehouses &amp; Distribution Centers (1-3 points)</li> <li>• Hospitality (1-3 points)</li> <li>• Healthcare (1-2 points)</li> </ul>	1 - 3 points	To reduce runoff volume and improve water quality by replicating the natural hydrology and water balance of the site, based on historical conditions and undeveloped ecosystems in the region.	<p>Option 1. Percentile of Rainfall Events Path 1. 95th Percentile (2 points except Healthcare, 1 point Healthcare)</p> <p>In a manner best replicating <i>natural site hydrology</i> processes, <i>manage on site</i> the runoff from the developed site for the 95th percentile of regional or local rainfall events using <i>low-impact development (LID)</i> and <i>green infrastructure</i>.</p> <p>Use daily rainfall data and the methodology in the U.S. Environmental Protection Agency (EPA) Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act to determine the 95th percentile amount.</p>

	APPLICABLE PRODUCTS	LEED CREDIT	AVAILABLE POINTS	INTENT	REQUIREMENTS/COMMENTS
Sustainable Sites Heat Island Reduction	Teranap & Parapro Membrane and Siplast Paragreen Vegetated Roof Systems	LEED v4 BD+C Sustainable Sites SS Credit: Heat Island Reduction	1 - 2 points	To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.	NC, CS, Schools, Retail, Data Centers, Warehouses, Distribution Centers, Hospitality, Healthcare  Option 1: Nonroof and Roof (2 points except Healthcare; 1 point Healthcare) - See Appendix 1  Option 2. Parking under Cover (1 point) See Appendix 1
	Parapro White Roof Membrane	This credit applies to:			
	Paradiene 30 CR FR and Paradiene 30 CR FR TG	<ul style="list-style-type: none"> <li>• New Construction (2 points)</li> <li>• Core &amp; Shell (2 points)</li> <li>• Retain (2 points)</li> <li>• Data Centers (2 points)</li> <li>• Warehouses &amp; Distribution Centers (2 points)</li> <li>• Hospitality (2 points)</li> <li>• Healthcare (1 point)</li> </ul>			
	Paradiene 30 FR BW Paradiene 30 FR TG BW				
	PC-227 Elastomeric Coating – White and Sand Colors				
	Paradiene 40 CR FR Paradiene 40 CR FR TG				
	Paradiene 40 FR BW Paradiene 40 FR TG BW				
	Veral Aluminum				
	Paracoat Roof Coating – White and Sand Colors				
	Terapro Waterproofing Systems – Coated with Pro Color Finish Silk Grey #7044				

	APPLICABLE PRODUCTS	LEED CREDIT	AVAILABLE POINTS	INTENT	REQUIREMENTS/COMMENTS									
Water Efficiency Outdoor Water Use Reduction	Teranap Geomembrane and/or Teranap Waterproofing Membrane as part of a rain collection system	LEED v4 Water Efficiency  <b>WE PREREQUISITE: OUTDOOR WATER USE REDUCTION</b>  <b>Required</b> BD&C This prerequisite applies to: <ul style="list-style-type: none"> <li>• New Construction</li> <li>• Core &amp; Shell</li> <li>• Schools</li> <li>• Retail</li> <li>• Data Centers</li> <li>• Warehouses &amp; Distribution Centers</li> <li>• Hospitality</li> <li>• Healthcare</li> </ul>	Prerequisite	To reduce outdoor water consumption.	Option 2. Reduced Irrigation Reduce the project's landscape water requirement by at least <u>30%</u> from the calculated baseline for the site's peak watering month. Reductions must be achieved through plant species selection and irrigation system efficiency, as calculated by the Environmental Protection Agency (EPA) WaterSense Water Budget Tool.									
Water Efficiency Outdoor Water Use Reduction	Teranap Geomembrane and/or Teranap Waterproofing Membrane as part of a rain collection system	LEED v4 Water Efficiency  <b>WE PREREQUISITE: OUTDOOR WATER USE REDUCTION</b>  <b>Required</b> BD&C This prerequisite applies to: <ul style="list-style-type: none"> <li>• New Construction (1-2 points)</li> <li>• Core &amp; Shell (1-2 points)</li> <li>• Schools (1-2 points)</li> <li>• Retail (1-2 points)</li> <li>• Data Centers (1-2 points)</li> <li>• Warehouses &amp; Distribution Centers (1-2 points)</li> <li>• Hospitality (1-2 points)</li> <li>• Healthcare (1 point)</li> </ul>	1 - 2 points	To reduce outdoor water consumption.	Option 2. Reduced Irrigation (1-2 points except Healthcare, 1 point Healthcare) Reduce the project's landscape water requirement (LWR) by at least <u>50%</u> from the calculated baseline for the site's peak watering month. Reductions must be achieved through plant species selection and irrigation system efficiency, as calculated by the Environmental Protection Agency (EPA) WaterSense Water Budget Tool.  Additional reductions beyond 30% may be achieved using any combination of efficiency, alternative water sources, and smart scheduling technologies.  <u>Points for Reducing Irrigation Water</u>  <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Percentage reduction from baseline</th> <th style="text-align: center;">Points (except Healthcare)</th> <th style="text-align: center;">Points (Healthcare)</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">50%</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: left;">100%</td> <td style="text-align: center;">2</td> <td style="text-align: center;">-</td> </tr> </tbody> </table>	Percentage reduction from baseline	Points (except Healthcare)	Points (Healthcare)	50%	1	1	100%	2	-
Percentage reduction from baseline	Points (except Healthcare)	Points (Healthcare)												
50%	1	1												
100%	2	-												

	<b>APPLICABLE PRODUCTS</b>	<b>LEED CREDIT</b>	<b>AVAILABLE POINTS</b>	<b>INTENT</b>	<b>REQUIREMENTS/COMMENTS</b>
<b>Energy &amp; Atmosphere</b> <b>Optimize Energy Performance</b>	Siplast Lightweight Insulating Concrete  Paratherm	LEED v4 Energy & Atmosphere EA Credit 1: Optimize Energy Performance  This credit applies to: <ul style="list-style-type: none"> <li>• New Construction (1–18 points)</li> <li>• Core &amp; Shell (1–18 points)</li> <li>• Schools (1–16 points)</li> <li>• Retail (1–18 points)</li> <li>• Data Centers (1–18 points)</li> <li>• Warehouses &amp; Distribution Centers (1–18 points)</li> <li>• Hospitality (1–18 points)</li> <li>• Healthcare (1–20 points)</li> </ul>	1 - 20 points	To achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic harms associated with excessive energy use.	Meet one of 2 options for demonstrating energy savings.  Option 1. Whole-Building Energy Simulation (1–18 points except Schools and Healthcare, 1–16 points Schools, 1–20 points Healthcare)  Option 2. Prescriptive Compliance: ASHRAE Advanced Energy Design Guide (1–6 points)
<b>Materials &amp; Resources</b> <b>Building Life Cycle Impact</b>	Paradiene Re-cover Program projects using: Paradiene 40 FR Paradiene 40 CR FR Paradiene 40 FR BW  Siplast Lightweight Insulating Concrete Systems	LEED v4 Materials & Resources MR Credit: Building Life-Cycle Impact Reduction  BD&C This credit applies to <ul style="list-style-type: none"> <li>• New Construction (2–5 points)</li> <li>• Core &amp; Shell (2–6 points)</li> <li>• Schools (2–5 points)</li> <li>• Retail (2–5 points)</li> <li>• Data Centers (2–5 points)</li> <li>• Warehouses &amp; Distribution Centers (2–5 points)</li> <li>• Hospitality (2–5 points)</li> <li>• Healthcare (2–5 points)</li> </ul>	1 - 6 points	To encourage adaptive reuse and optimize the environmental performance of products and materials.	Demonstrate reduced environmental effects during initial project decision-making by reusing existing building resources or demonstrating a reduction in materials use through life-cycle assessment. Achieve one of 3 options.  Option 1. Historic Building Reuse (5 points BD&C, 6 points Core and Shell)  Option 2. Renovation of Abandoned or Blighted Building (5 points BD&C, 6 points Core and Shell)  Option 3. Building and Material Reuse (2–4 points BD&C, 25 points Core and Shell)

	APPLICABLE PRODUCTS	LEED CREDIT	AVAILABLE POINTS	INTENT	REQUIREMENTS/COMMENTS
<b>Materials &amp; Resources</b> <b>Building Product Disclosure &amp; Optimization</b>	Paradiene 30 FR Eco-Activ® Paradiene 30 FR TG Eco-Activ®  Paradiene 40 FR Eco-Activ® Paradiene 40 FR TG Eco-Activ®  Parafor 30 Eco-Activ® Parafor 30 TG Eco-Activ®  Parafor 50 Eco-Activ® Parafor 50 TG Eco-Activ®	LEED v4 Materials & Resources MR Credit: Building Product Disclosure and Optimization- Environmental Product Declarations  BD&C This credit applies to <ul style="list-style-type: none"> <li>• New Construction (1 point)</li> <li>• Core &amp; Shell (1 point)</li> <li>• Schools (1 point)</li> <li>• Retail (1 point)</li> <li>• Data Centers (1 point)</li> <li>• Warehouses &amp; Distribution Centers (1 point)</li> <li>• Hospitality (1 point)</li> <li>• Healthcare (1 point)</li> </ul>	1 point	To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products from manufacturers who have verified improved environmental life-cycle impacts.	Option 2. Multi-attribute optimization (1 point) Use products that comply with one of the criteria below for 50%, by cost, of the total value of permanently installed products in the project. Products will be valued as below. <ol style="list-style-type: none"> <li>1. Third party certified products that demonstrate impact reduction below industry average in at least three of the following categories are valued at 100% of their cost for credit achievement calculations. <ul style="list-style-type: none"> <li>• <b>global warming potential (greenhouse gases), in CO2e;</b></li> <li>• <b>depletion of the stratospheric ozone layer, in kg CFC-11;</b></li> <li>• <b>acidification of land and water sources, in moles H+ or kg SO2;</b></li> <li>• <b>eutrophication, in kg nitrogen or kg phosphate;</b></li> <li>• <b>formation of tropospheric ozone, in kg NOx, kg O3 eq, or kg ethene; and</b></li> <li>• <b>depletion of nonrenewable energy resources, in MJ.</b></li> </ul> </li> <li>2. USGBC approved program -- Products that comply with other USGBC approved multi-attribute frameworks.</li> </ol> <p><i>Commentary: As highlighted in criteria number 1 above, Eco-Activ contributes toward the reduction of greenhouse gases and the reduction as nitrogen oxides (NOx), constituting 2 of the 6 categories as part of the strategy for improvement of life-cycle impacts.</i></p>

	APPLICABLE PRODUCTS	LEED CREDIT	AVAILABLE POINTS	INTENT	REQUIREMENTS/COMMENTS
Indoor Environmental Quality	Siplast Lightweight Insulating Concrete Paratherm	LEED v4 Indoor Environmental Quality EQ Credit: Thermal Comfort  BD&C This credit applies to <ul style="list-style-type: none"> <li>• New Construction (1 point)</li> <li>• Schools (1 point)</li> <li>• Retail (1 point)</li> <li>• Data Centers (1 point)</li> <li>• Warehouses &amp; Distribution Centers (1 point)</li> <li>• Hospitality (1 point)</li> <li>• Healthcare (1 point)</li> </ul>	1 point	To promote occupants' productivity, comfort, and well-being by providing quality thermal comfort.	Meet the requirements for both thermal comfort design and thermal comfort control.  Option 1. ASHRAE Standard 55-2010  Option 2. ISO and CEN Standards
	PS-304 Elastomeric Sealant SFT Adhesive SFT Flashing Cement PA-311 Adhesive PA-311 M Adhesive PC-227 Elastomeric Roof Coating PA-917 LS Primer PA-1130 Asphalt Emulsion Primer TA-119 Primer Paracoat Roof Coating Parapro Roof Membrane & Flashing Terapro Waterproofing Systems	LEED v4 Indoor Environmental Quality EQ Credit: Low-Emitting Materials  BD&C This credit applies to: <ul style="list-style-type: none"> <li>• Schools (1–3 points)</li> <li>• Healthcare (1–3 points)</li> </ul>	1 - 3 points	To reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment.	<u>Healthcare, Schools Only</u> Exterior applied products. Adhesives, sealants, coatings, roofing, and waterproofing materials applied on site must meet the VOC limits of California Air Resources Board (CARB) 2007 Suggested Control Measure (SCM) for Architectural Coatings, and South Coast Air Quality Management District (SCAQMD), Rule 1168, effective July 1, 2005. Small containers of adhesives and sealants subject to state or federal consumer product VOC regulations are exempt.  Hot-mopped asphalt for roofing is prohibited for this category.
	Siplast Lightweight Insulating Concrete	EQ Credit: Acoustic Performance BD&C This credit applies to: Schools (1 point)	1 - 2 points	To provide workspaces and classrooms that promote occupants' well-being, productivity, and communications through effective acoustic design.	<u>Schools Only</u> Sound Transmission Design classrooms and other core learning spaces to meet the sound transmission class (STC) requirements of ANSI S12.60–2010 Part 1, or a local equivalent. Exterior windows must have an STC rating of at least 35, unless outdoor and indoor noise levels can be verified to justify a lower rating.

**APPENDIX 1**  
**LEED CREDITS ASSOCIATED WITH SIPLAST ROOFING SYSTEMS**  
 January 8, 2014

**SS CREDIT: HEAT ISLAND REDUCTION**

BD&C

**1–2 points**

This credit applies to:

- New Construction (1-2 points)
- Core & Shell (1-2 points)
- Schools (1-2 points)
- Retail (1-2 points)
- Data Centers (1-2 points)
- Warehouses & Distribution Centers (1-2 points)
- Hospitality (1-2 points)
- Healthcare (1 point)

**Intent**

To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.

**Requirements**

**NC, CS, SCHOOLS, RETAIL, DATA CENTERS, WAREHOUSES & DISTRIBUTION CENTERS, HOSPITALITY, HEALTHCARE**

Choose one of the following options:

**Option 1. Nonroof and Roof (2 points except Healthcare, 1 point Healthcare)**

Meet the following criterion:

<b>Area of Nonroof Measures</b>	<b>Area of High-Reflectance Roof</b>	<b>Area of Vegetated Roof</b>	<b>≥</b>	<b>Total Site Paving Area</b>	<b>+</b>	<b>Total Roof Area</b>
_____	+ _____	+ _____				
0.5	0.75	0.75				

Alternatively, an SRI and SR weighted average approach may be used to calculate compliance.

Use any combination of the following strategies.

***Nonroof Measures***

- Provide shade with architectural devices or structures that have a three-year aged *solar reflectance (SR)* value of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33 at installation,

- Provide shade with vegetated structures.
- Use paving materials with a three-year aged *solar reflectance (SR)* value of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33 at installation.

1

**High-Reflectance Roof**

Use roofing materials that have an SRI equal to or greater than the values in Table 1. Meet the three-year aged SRI value. If three-year aged value information is not available, use materials that meet the initial SRI value.

**Table 1. Minimum solar reflectance index value, by roof slope**

	<b>Slope</b>	<b>Initial SRI</b>	<b>3-year aged SRI</b>
Low-sloped roof	≤ 2:12	82	64
Steep-sloped roof	> 2:12	39	32

**Vegetated Roof**

Install a vegetated roof.

OR

**Option 2. Parking under Cover (1 point)**

Place a minimum of 75% of *parking spaces under cover*. Any roof used to shade or cover parking must (1) have a three-year aged SRI of at least 32 (if three-year aged value information is not available, use materials with an initial SRI of at least 39 at installation), (2) be a vegetated roof, or (3) be covered by energy generation systems, such as solar thermal collectors, photovoltaics, and wind turbines.