



# LEED and the Environmental Liquid Membrane System®

The U.S. Green Building Councils LEED (Leadership in Energy and Environmental Design) Green Building Rating System® is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. LEED® was created to:

- Define "green building" by establishing a common standard of measurement
- Promote integrated, whole-building design practices
- Recognize environmental leadership in the building industry
- Stimulate green competition
- Raise consumer awareness of green building benefits
- Transform the building market

LEED® provides a complete framework for assessing building performance and meeting sustainability goals. Based on well-founded scientific standards, LEED® emphasizes state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED® recognizes achievements and promotes expertise in green building through a comprehensive system offering project certification, professional accreditation, training and practical resources.

CERTIFICATION LEVELS	
CERTIFIED	26 – 32 Points
SILVER	33 – 38 Points
GOLD	39 – 51 Points
PLATINUM	52 + Points

The major LEED® Green Building Rating System® product today is LEED-NC Version 2.2 as of January 2006. It is designed for new construction and major renovation of buildings. Under this product there are six key sections:

- SUSTAINABLE SITES (SS)
- WATER EFFICIENCY (WE)
- ENERGY & ATMOSPHERE (EA)
- MATERIALS & RESOURCES (MR)
- INDOOR ENVIRONMENTAL QUALITY (EQ)
- INNOVATION & DESIGN PROCESS (ID)

Within each of these sections there are prerequisites and credit opportunities that provide a guideline toward building certification. The Environmental Liquid Membrane System® provides multiple opportunities for a project to earn certain prerequisites as well as certain LEED credits. These opportunities are presented below in conjunction with the LEED 2.2 guidelines for New Construction and Major Renovation where the opportunities may exist.



**Sustainable Sites (SS) Credit 7.2 – HEAT ISLAND EFFECT (Roof)****1 POINT****REQUIREMENTS**

Use roofing materials having a Solar Reflectance Index (SRI)<sup>3</sup> equal to or greater than the values in the table below for a minimum of 75% of the roof surface OR utilize a garden roof assembly for at least 50% of the roof surface OR Install high albedo and vegetated roof surfaces that, in combination, meet the following calculation - (Area of SRI Roof / 0.75) + (Area of vegetated roof / 0.5) >= Total Roof Area

ROOF TYPE	SLOPE	SRI
Low-Sloped Roof	≤ 2:12	78
Steep-Sloped Roof	> 2:12	29

- Though previously tested and approved under the U.S. EPA Energy Star<sup>®</sup> Roofing Program which was the determinate testing protocol under prior LEED<sup>®</sup> rating systems, the highly solar reflective and emissive properties of the Environmental Liquid Membrane System<sup>®</sup> have been tested and listed under the newly established Cool Roof Rating Council with an initial Solar Reflectance of .85 and an initial Emittance value of .88 which combine under the SRI formula to be in excess of 104 SRI for all three ELMS<sup>®</sup> liquid roofing membranes. Testing data for the Environmental Liquid Membrane System<sup>®</sup> may be found on the Cool Roof Rating Council website at [www.coolroofs.org](http://www.coolroofs.org). Formulation to obtain SRI for all roofing products may be obtained from Green Products, LLC.

**Energy & Atmosphere (EA) Credit 1.0 – OPTIMIZED ENERGY PERFORMANCE POINTS****1-10****REQUIREMENTS**

Demonstrate a percentage improvement in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2004 (without amendments) by a whole building project simulation using the Building Performance Rating Method in Appendix G of the Standard. The minimum energy cost savings percentage for each point threshold is as follows:

New Buildings	Existing Building	Renovations Points
10.5%	3.5%	1
14%	7%	2
17.5%	10.5%	3
21%	14%	4
24.5%	17.5%	5
28%	21%	6
31.5%	24.5%	7
35%	28%	8
38.5%	31.5%	9
42%	35%	10

Appendix G of Standard 90.1-2004 requires that the energy analysis done for the Building Performance Rating Method include ALL of the energy costs within and associated with the building project.

- Under this section, “Envelope Criteria under ASHRAE 90.1-2004” pays special significance to the roof of a building. Reflective roofs that have lower heat absorption can be modeled differently and are given credit for reduced heat gains. If the reflective roof is rated at a minimum reflectance of 0.70 and a minimum emittance of 0.75, the project is not required the



default 0.30 value for efficiency. Qualifying roofs can use a modeled value of 0.45 to the building energy efficiency map when calculating overall efficiency. The Environmental Liquid Membrane System<sup>®</sup> meets and exceeds these requirements for these criteria.

## **Materials & Resources (MR) Credit 1.1 – 1.2 – BUILDING REUSE**

**1-2 POINTS**

### REQUIREMENTS

Maintain at least 75% and up to 95% of existing building structure and shell.

- ELMS<sup>®</sup> products are designed for restoration of roofs and walls and may provide opportunities for earning these points.

## **Materials & Resources (MR) Credit 5.1 – REGIONAL MATERIALS**

**1 POINT**

### REQUIREMENTS

Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% (based on cost) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.

- The Environmental Liquid Membrane System<sup>®</sup> may contribute to this point for projects within a 500 mile radius of our factory.

## **Materials & Resources (MR) Credit 5.2 – REGIONAL MATERIALS**

**1 POINT**

### REQUIREMENTS

Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for an additional 10% beyond MR Credit 5.1 (total of 20%, based on cost) of the total materials value. If only a fraction of the material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.

- ELMS<sup>®</sup> proprietary soy oil polymers are created from regionally extracted soy oil and other constituents and may contribute to this point for projects within a 500 mile radius of the factory.

## **Materials & Resources (MR) Credit 6.0 – RAPIDLY RENEWABLE MATERIALS**

**1 POINT**

### REQUIREMENTS

Use rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle or shorter) for 2.5% of the total value of all building materials and products used in the project, based on cost.

- ELMS<sup>®</sup> is manufactured utilizing proprietary soybean oil polymers and may contribute to this point for projects that utilize a minimum of 2.5% of these types of products in their materials.

## **Indoor Environmental Quality (EQ) Credit 4.1 – LOW EMITTING MATERIALS**

**1 POINT**

### REQUIREMENTS

The VOC content of adhesives and sealants used must be less than the current VOC content limits of the South Coast Air Quality Management District (SCAQMD) Rule #1168, AND all sealants used as fillers



must meet or exceed the requirements of the Bay Area Air Quality Management District Regulation 8, Rule 51.

- The low VOC content of the Environmental Liquid Membrane System® products may contribute to this point.

With LEED® being heavily weighted on use of rapidly renewable, regionally extracted and environmentally friendly products, the Environmental Liquid Membrane System® provides a multitude of point opportunities for your green building project.

