LAPOLLA™

LEED® CREDIT OPPORTUNITIES

Credits for Leadership in Energy
& Environmental Design

LEED CREDIT OPPORTUNITIES

Spray polyurethane foam offers numerous opportunities to contribute to the performance of several different LEED project types.

Direct

The use of a Lapolla product type can **directly** earn LEED points.

Contributing

The use of a Lapolla product can **contribute** towards, or assist a project in earning LEED points.

Supporting

The use of a Lapolla product type **supports** a strategy that will earn a project LEED points.

Note: Typically there are other circumstances that also influence whether or not the LEED points are earned. Specific examples follow:

Cool Roof Direct

NC, CS, EB: SSc7.2, Heat Island Effect – Roof
(1 point)

Projects earn 1 point for the use of roofing materials having a solar reflectance index (SRI) of at least 78 for low-sloped roofs (<2:12) or at least 29 for steep-sloped roofs (>2:12), and covering at least 75% of the roof surface (or in combination with a vegetated roof as described above). Use of an Spray Polyurethane Foam roofing system such as Lapolla's Foam-LOK™ with the Thermo-FLEX™ acryilic elastomeric coating for at least 75% of the roof surface complies with this credit and will therefore earn the project 1 point.

U.S. GREEN BUILDING COUNCIL MEMBER

SUSTAINABLE BUILDING ENVELOPE

ELIMINATES AIR INFILTRATION

ENERGY SAVINGS

HEALTHIER LIVING ENVIRONMENT

ENVIRONMENTALLY FRIENDLY

REDUCES LIKELIHOOD OF MOLD GROWTH

REDUCES ENERGY CONSUMPTION

Lapolla Spray Polyurethane Foam & Specialty Coatings Contributions to LEED Credits

Table lists all the LEED credits for which the use of Spray Polyurethane Foam and specialty coatings may be advantageous, and identifies the type(s) of opportunity for Spray Polyurethane Foam in each case.

Attribute	Relevant LEED Credits	Type of LEED Opportunity
Cool Roof (Urban Heat Island Effect)	NC SSc7.2, EB SSc7.2, CS SSc7.2	Direct
Low-Emitting Materials (Insulation)	Homes MR2.2	Direct
Insulating	Homes EA2	Contributing
Advanced Framing	Homes MR1	Supporting
Air Sealing	Homes EA3	Supporting
Air Sealing at Garage for IAQ	Homes EQ10	Supporting
Building Reuse	NC MRc1, CS MRc1	Supporting
Durability Management	Homes ID2	Supporting
Energy Star with Indoor Air Package (Comprehensive Air Quality Management)	Homes EQ1	Supporting
Optimizing Energy Performance	NC EAP2, EAc1; EB EAp2, EAc1; CS EAp2, EAc1; Homes EA1	Supporting
Rainwater Catchment	CS WEc1, CS WEc2, Home WE1.1, Homes SS4.3	Supporting
Thermal Comfort: Design	NC EQc7.1, CS EQc7.1	Supporting
Vegetated Roof	NC SSc7.2, CS SSc7.2, EB SSc7.2, Homes SS4.3	Supporting

Each of these credits and the potential Spray Polyurethane Foam and coatings contributions is summarized below. The full text of the credits is available at www.usgbc.org/leed. Prerequisites in the LEED Rating Systems earn no points, although projects are required to comply with them in order to earn a rating. Prerequisites in the NC, EB, and CS rating systems are indicated by a "p" in the credit abbreviation; in LEED for Homes, they are not; therefore shown "(prerequisite)" by the Homes prerequisites referenced on the following pages.

Direct Use of product can earn LEED Points

Contributing Use of product can contribute toward earning LEED Points

Supporting Use of product supports a strategy that earns LEED Points

Low-Emitting Materials Direct

Homes MR2.2, Environmentally Preferable Products – Low-Emitting Insulation
(1/2 point)

In Homes, 1/2 point is earned if the insulation used in 90% of the total insulated surface area of walls *plus* roof *plus* floor combined complies with California "Practice for Testing of VOCs from Building Materials Using Small Chambers." Spray Polyurethane Foam complies with this standard in its finished state. If Spray Polyurethane Foam is used for 90% or more of a home's insulated wall + roof + floor area, the project would earn 1/2 point.

Insulation Contributing

Homes EA2, Insulation
(prerequisite + credit, up to 2 points)

The prerequisite (EA2.1) requires that insulation be installed to meet or exceed the R-value requirements in Chapter 4 of the 2004 International Energy Conservation Code (IECC), that it be installed to meet the Grade II specification set by the National Home Energy Rating Standards (HERS), and that the installation be verified by an energy rater or "green rater" conducting a pre-drywall thermal bypass inspection. The credit (EA2.2) awards 2 points if, in addition to meeting the prerequisite, the IECC R-values are exceeded by at least 5% and the insulation is installed to meet the HERS Grade I specifications. *(Note that in LEED for Homes, EA1 is a "bundled" credit, meaning that if it is earned, the "a la carte" credits EA2 through EA6 may not be earned. Therefore, EA1 and EA2 are mutually exclusive; this is because EA1 comprises the performance standards in EA2 as well as EA3-6.)* Spray Polyurethane Foam, because of its higher R-value per inch and performance characteristics, can contribute to projects earning this credit.

Advanced Framing Supporting

Homes MR1.4, Framing Efficiencies
(up to 3 points)

Several points are available for "advanced framing" or "optimum value engineering" practices, including 1 point for spacing studs at greater than 16 inches on center and 1/2 point each for spacing ceiling joists, floor joists, and/or roof rafters at greater than 16 inches on center. Closed-cell Spray Polyurethane Foam, because its use in framing cavities increases the racking strength, can support the adoption of these material-efficient framing measures. Note that the involvement of a knowlegdable structural engineer to capitalize on this opportunity is recommended.

Air Sealing Supporting

Homes EA3, Infiltration
(prerequisite + credit, up to 3 points)

The prerequisite (EA3.1) specifies a maximum air leakage rate (which varies by IECC climate zone) and requires that the rate be tested and verified by an energy rater. The credit (EA3.2) awards either 2 points for "greatly reduced envelope leakage" or 3 points for "minimal envelope leakage" – i.e., air leakage significantly reduced below the levels required by the prerequisite. (As described above for EA2, EA1 and EA3 are mutually exclusive.) Because of its effectiveness as an air sealer and its ability to fill hard-to-reach voids, Spray Polyurethane Foam supports achievement of this credit.

Air Sealing at Garage Supporting

Homes EQ10.2, Minimize Pollutants from Garage
(2 points)

This credit is earned if all shared surfaces between the garage and conditioned spaces are tightly sealed. Because of its effectiveness as an air sealer and its ability to fill hard-to-reach voids, Spray Polyurethane Foam supports achievement of this credit.

Building Reuse Supporting

NC, CS: MRc1, Building Reuse
(1-2 points)

Projects earn 1 point if at least 75% (based on surface area) of the existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material) is maintained; 2 points are earned if at least 95% is maintained. Strategic use of Spray Polyurethane Foam may support achievement of this credit. For example, Spray Polyurethane Foam might be used for re-roofing, thereby making it possible to retain the existing roof sheathing.

Durability Management Supporting

Homes ID2, Durability Management Process
(prerequisite + credit, up to 3 points)

The prerequisites require project teams to undertake a durability risk analysis, develop specific responses to moderate and high durability risks, and incorporate those measures in project documents. Project teams that also have the implementation of these durability measures verified in the field earn 3 points. Spray Polyurethane Foam, because of its efficacy as an air sealer and waterproofing agent, has the potential to be a key component of the durability management strategy for a building. Other than specific wet room measures (e.g., avoidance of carpet in baths), points are not awarded for use of any specific materials or even any specific durability management strategies; rather, it is the approach to durability management that is rewarded.

1 http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/IAP_Specification_041907.pdf.

Indoor Air Package Supporting

Homes EQ1, ENERGY STAR® with Indoor Air Package
(13 points)

Projects that complete all the requirements of the U.S. EPA's ENERGY STAR with Indoor Air Package (IAP)[4] earn 13 points. (Note that EQ1 is a "bundled" credit, meaning that if it is earned, the following may not be earned, because EQ1 comprises the performance standards in these credits: EQ2.2, EQ3, EQ4.3, EQ6.2, EQ6.3, EQ8.1, EQ8.3, EQ9.2, EQ10.2, EQ10.3, and EQ10.4.) The IAP emphasizes ventilation and moisture management and includes several measures for which Spray Polyurethane Foam which may be relevant, including:

- 1.19 (crawl spaces shall be unvented and conditioned)
- 1.20 (exterior surface of below-grade walls shall be finished … with damp-proofing … or equivalent waterproofing)
- 5.3 (common walls and ceiling between an attached garage and living space shall be completely sealed before insulation is installed).

However, note that section 3.3 restricts the use of foam plastic insulation in specific applications, in areas of "very heavy" termite infestation.

Optimizing Energy Performance Supporting

Homes EA1, Optimize Energy Performance[3]
(prerequisite + credit, up to 34 points)

The prerequisites are met and the credits are earned by achieving improvements in energy efficiency beyond what is required by code. The higher the level of energy efficiency achieved, the more points are earned. Performance is determined based on energy simulation and, in Homes, by performance testing (including blower door testing and EPA Thermal Bypass Inspection). Spray Polyurethane Foam can contribute to projects' achievement of high levels of energy efficiency using assessment methods, because of the R-value per inch and the air sealing performance characteristics of foam.

2 The IAP is a companion program to the EPA's ENERGY STAR Homes program, and requires participation in that program. LEED for Homes, likewise, requires participation in the ENERGY STAR Homes program; it is a cornerstone of LEED for Homes.

3 The prerequisite portion of EA1 in LEED for Homes requires performance at least 15% better than code; points are earned for exceeding that level of performance. In California, because the California Title 24 energy standards are structured somewhat differently than in other parts of the U.S., only 19 points are available.

Rainwater Catchment Supporting

CS: WEc1, Water-Efficient Landscaping
(1-2 points)

CS: WEc2, Innovative Wastewater Technologies
(1 point)

Homes: WE1.1, Water Reuse
(2-4 points)

Homes: SS4.3, Management of Roof Runoff
(1 point)

In CS, WEc1, projects earn 1 point for reducing potable water consumption for irrigation by 50% from a calculated midsummer baseline; use of captured rainwater is one of the allowable means of achieving this reduction. An additional point is earned if there is *no* reliance on potable water for irrigation. In CS, WEc1, projects earn 1 point for reducing potable water use for building sewage conveyance by 50% through the use of non-potable water, including captured rainwater. In Homes WE1.1, projects may earn 2-4 points for a rainwater harvesting system; the number of points earned depends on the system's storage capacity and whether the water will be used indoors, for landscape irrigation, or both. In Homes SS4.3,
1 point is awarded for the installation of a rainwater cistern designed to manage runoff. Spray Polyurethane Foam roofing with a waterproof membrane, because it is chemically stable, is suitable for use in a rainwater catchment design scheme; it can therefore support the achievement of these credits.

Thermal Comfort Supporting

NC, CS: EQc7.1, Thermal Comfort – Design[4]
(1 point)

Buildings designed to meet the requirements of ASHRAE Standard 55-2004, Thermal Comfort Conditions for Human Occupancy, earn 1 point. If used as part of a comprehensive, high-quality approach to air sealing and insulating, Spray Polyurethane Foam can support the achievement of this credit.

Vegetated Roof Supporting

Homes: SS4.3, Management of Roof Runoff
(1/2 to 1 point)

NC, CS, EB: SSc7.2, Heat Island Effect – Roof
(1 point)

In Homes, projects earn ½ point for a vegetated roof that covers 50% of the roof area or 1 point for a vegetated roof that covers 100% of the roof area.
In NC, CS, and EB, projects earn 1 point for installing a vegetated roof that covers at least 50% of the roof area or is installed in combination with high-albedo roofing such that the roof complies with the following equation:

(Area of SIR Roof / 0.75) + (Area of Vegetated Roof / 0.5) >= Total Roof Area

Spray Polyurethane Foam roofing with a waterproof membrane, because it is chemically stable and durable, is suitable for use in a living roof design scheme; it can therefore support the achievement of these credits.

4 ASHRAE is the American Society of Heating, Refrigeration, and Air-Conditioning Engineers.

APPLY OUR EXPERIENCE

At Lapolla:

We do manufacture quality spray foam insulation and coating systems.

We can provide you with material, equipment, rigs and training.

We are a reliable partner committed to your business' growth

AirTight SPRAY FOAM INSULATION by LAPOLLA

FOAM-LOK™ SPRAY FOAM SYSTEMS

THERMO-FLEX™ ACRYLIC COATING SYSTEMS

THERMO-SIL™ SILICONE COATING SYSTEMS

LAPOLLA™

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