

NCFI Spray Polyurethane Foam:

**Contributions to the LEED™
Green Building Rating System**

**for New Construction &
Major Renovations**

(LEED-NC ver. 2.2)



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NCFI Spray Polyurethane Foam Contributions to the LEED™ Green Building Rating System for New Construction and Major Renovations (LEED-NC) Ver. 2.2

The LEED (Leadership in Energy and Environmental Design) Green Building Rating System™ is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. Members of the U.S. Green Building Council representing all segments of the building industry developed LEED and continue to contribute to its evolution.

LEED certification identifies projects which are on the cutting edge of energy and environmental design. NCFI Spray Polyurethane Foam (SPF) insulation and roofing systems can aid project designers meet LEED certification requirements (a minimum of 26 points) by providing high R-value insulation, air barrier construction, dampproofing and water vapor resistance with a single, high-efficiency construction material.





NCFI Spray Polyurethane Foam is typically utilized in the following construction assemblies:



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| <p>! Insulation / Air Barrier / Moisture Barrier / Vapor Retarder</p> <p>P Residential construction</p> <ul style="list-style-type: none"> • Stud walls <ul style="list-style-type: none"> • Attics, crawlspaces and basements • Cathedral ceilings and cathedralized attics • Sub-grade basements and slabs • Exterior insulation over adobe construction | <p>P Commercial construction</p> <ul style="list-style-type: none"> • Tilt-up concrete panels • Metal buildings • Masonry cavity walls • Hybrid EIFS <p>! Dampproofing</p> <p>P Masonry cavity walls</p> <p>! Roofing</p> <p>P New construction</p> <p>P Recover over existing roofs</p> <p>P Gravel covered</p> <p>P Coated</p> <p>P Intricate roof configurations</p> |
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NCFI is a member of the U. S. Green Building Council and was named winner of the EPA 2004 Stratospheric Ozone & Climate Protection Award for extraordinary accomplishments and significant contributions to protect the environment.



The Table on the following pages lists LEED credits and the potential contribution that NCFI Spray Polyurethane Foam can provide for your project.

| Credit Reference No. | Description | Points | NCFI Spray Polyurethane Foam Contribution |
|---|----------------------------|--------|---|
| Sustainable Sites (SS) | | | |
| SS 7.2 | Heat Island Effect: Roof | 1 | NCFI spray polyurethane foam (SPF) provides an excellent base for an Energy Star® reflective (high albedo) coating system. |
|  | | | <p>Reflective NCFI SPF roofing system.</p> |
| Energy & Atmosphere (EA) | | | |
| EA Prerequisite 2 | Minimum Energy Performance | Req'd. | <ul style="list-style-type: none"> NCFI SPF provides very high R-values per unit thickness: more R-value can be designed into projects while requiring less space. For renovations, R-value can be added without changing wall thickness. |
| <p>NCFI SPF is seamless. Very high R-values allow increasing insulation without increasing wall thickness.</p> | | |  <ul style="list-style-type: none"> NCFI SPF is seamless and fully adhered. It tends to be more “efficient” under a variety of environmental factors than other insulations. |

| Credit Reference No. | Description | Points | NCFI Spray Polyurethane Foam Contribution |
|---|-----------------------------|--------|---|
| Energy & Atmosphere (EA) [Continued] | | | |
| EA Prerequisite 2 [Continued] | Minimum Energy Performance | Req'd. | <ul style="list-style-type: none"> • Contributes significantly to controlling air infiltration. • NCFI SPF is seamless and fully adhered. It tends to be more "efficient" under a variety of environmental factors than other insulations. • Bridges construction gaps and joints (e.g., wall-roof junctions and wall-column junctions). |
| <div style="display: flex; justify-content: space-around;"> <div data-bbox="315 743 636 1163">  <p data-bbox="315 1188 659 1276">Glass fiber batts often leave construction gaps which allow air infiltration.</p> </div> <div data-bbox="701 743 1312 1163">  <p data-bbox="701 1188 1308 1276">NCFI SPF expands in-place, filling odd-shaped construction gaps and providing an air-tight barrier.</p> </div> </div> | | | |
| EA 1 | Optimize Energy Performance | 1-10 | Same as above. |

| Credit Reference No. | Description | Points | NCFI Spray Polyurethane Foam Contribution |
|---------------------------------------|--|----------|--|
| Materials & Resources (MR) | | | |
| <p>MR 1.1</p> | <p>Building Reuse: Maintain 75% of Existing Walls, Floors and Roof</p> | <p>1</p> | <ul style="list-style-type: none"> NCFI SPF can be applied to most existing substrates, providing insulation, dampproofing and reduced water vapor transmission. Allows the reuse of existing building elements.  <p>NCFI SPF was applied to existing exterior brick in this attractive renovation project.</p> <ul style="list-style-type: none"> NCFI SPF roofing systems can be applied as a recover over many common existing roofs. Avoiding tear-offs lessens waste load to landfills.  <p>Application of SPF onto an existing roof system during a condominium renovation.</p> |
| | | | <ul style="list-style-type: none"> NCFI SPF's high R-value allows for upgrading insulation while requiring less thickness, thus reducing wall thickness and maximizing usable space. |

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|---------------------------------------|---|--------|--|
| Materials & Resources (MR) | | | |
| MR 1.2 | Building Reuse: Maintain 100% of Existing Walls, Floors and Roof | 1 | Same as above (MR 1.1). |
| MR 1.3 | Building Reuse: Maintain 100% of Shell/ Structure and 50% Non-Shell/ Non-Structure | 1 | Same as above. |
| MR 2.1 | <p>Construction Waste Management: Divert 50% from Landfill</p> <p style="text-align: center;">Application of SPF to the underside of a roof deck in an unvented cathedral ceiling.</p> | 1 | <p>NCFI SPF generates virtually no scrap or waste. Unlike board stock or batt insulation, NCFI SPF is delivered to the job site in recyclable 55-gallon drums. The SPF is spray-applied as a liquid and rises in place. No scrap from cutting and fitting is generated.</p> <div data-bbox="792 982 1308 1352" style="text-align: center;">  </div> |
| MR 2.2 | Construction Waste Management: Divert 50% from Landfill | 1 | Same as above. |

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|--|--|---------------|--|
| Materials & Resources (MR) [Continued] | | | |
| <p>MR 5.1</p> <p>Regional Materials: 20% Manufactured Regionally</p> <p>Application of SPF in masonry cavity walls provides dampproofing, air barrier and insulation with one material.</p> | | <p>1</p> | <ul style="list-style-type: none"> • NCFI SPF's final manufacture occurs on the project structure. Material is delivered on site as two-component liquid system in 55-gallon drums. As this material is applied, it expands in-place. Two 55-gallon drums of material (15 ft³) expands to become approximately 330 ft³ of insulation. This represents a 95% reduction in the volume of insulation material that must be transported to the job site. • NCFI SPF is closed-cell and fully adhered allowing the project designer to utilize it as an air barrier, vapor retarder and dampproofing, thus eliminating requirements for additional materials. <div style="display: flex; justify-content: space-around;">   </div> |
| <p>MR 6</p> | <p>Rapidly Renewable Materials</p> | <p>1</p> | <p>NCFI SPF contains 10 - 20 % renewable agricultural resources.</p> |
| Indoor Environmental Quality (EQ) | | | |
| <p>EQ Prerequisite 1</p> | <p>Minimum IAQ Performance</p> | <p>Req'd.</p> | <p>Designers can utilize NCFI SPF as part of the overall air barrier system.</p> |
| <p>EQ 3.1</p> | <p>Construction IAQ Management Plan: During Construction</p> | <p>1</p> | <p>NCFI SPF insulation is delivered on site in sealed 55-gallon drums, eliminating the risk of moisture or other contamination.</p> |
| <p>EQ 4.1</p> | <p>Low-Emitting Materials: Adhesive & Sealants</p> | <p>1</p> | <p>NCFI SPF contains no VOCs.</p> |

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|---|---|--------|--|
| Indoor Environmental Quality (EQ) [Continued] | | | |
| EQ 4.2 | Low-Emitting Materials: Paints & Coatings | 1 | Same as above (EQ 4.1). |
| EQ 7.1 | Thermal Comfort: Compliance with ASHRAE 55-1992 | 1 | The high R-values and air tightness of NCFI SPF allow the designer to achieve a highly energy efficient envelope. |
| Innovation & Design Process | | | |
| ID 1 | Innovation in Design | 1 - 4 | NCFI SPF contributes to building acoustics, very high energy efficiency, low life-cycle cost, and mold/mildew control. |

WHEN JUST INSULATION ISN'T ENOUGH®



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