

Learn To LEED
with Mannington
Flooring and LEED-CI

Mannington **Works.**

At Mannington, our environmental commitment isn't just about where we are. It's about where we want to go. Every day we focus on the steps that will take us there. We're constantly learning, revising, improving.

The LEED (Leadership in Energy and Environmental Design) rating system has emerged as an important force in today's building industry, serving as a touchstone for those seeking to build high performance, more sustainable buildings. We're working to understand all of the program's ramifications and implementation challenges.

This brochure is designed to help our customers understand the role we can play as a manufacturer of flooring products. We have outlined and illustrated how our products contribute to the achievement of certain LEED credits.

Overview of the USGBC

The U.S. Green Building Council (USGBC) is the nation's foremost nonprofit coalition of over 10,000 companies and organizations from across the building industry promoting high-performance green buildings that are environmentally responsible, profitable, and healthy places to live and work. The USGBC developed LEED as a voluntary, consensus-based national standard to support and validate successful green building design, construction, and operations. Mannington has been a member of the USGBC since 1998.

Overview of the LEED Rating System

The USGBC LEED program offers third-party certification of qualifying buildings and interiors, high-performance design guidelines, and professional training and accreditation services. After a project's completion, it may be qualified at LEED Certified, Silver, Gold or Platinum level. 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

The LEED Rating System evaluates projects over 5 core and 1 bonus credit categories:

- > Sustainable Sites
- > Water Efficiency
- > Energy & Atmosphere
- > Materials & Resources
- > Indoor Environmental Quality
- > Bonus Credits for Process and Design Innovation

LEED Certified projects achieve 40% or more of the Core Credits

LEED Silver projects achieve 50% or more of the Core Credits

LEED Gold projects achieve 60% or more of the Core Credits

LEED Platinum projects achieve 80% or more of the Core Credits

Overview of LEED Programs

The LEED Rating System originated as a program designed to evaluate new construction and major renovations for office buildings. Due to market demand and the variety of other project types needing to apply the LEED Rating System, the USGBC has created several other LEED Products.

LEED-NC (New Construction & Major Renovations)

Version 2.2 Released 2005

LEED-NC is designed to be applied to Commercial and Institutional buildings that are either new or undergoing major renovations with a focus on office buildings. Practitioners have also applied the system to K-12 schools, multi-unit residential buildings, manufacturing plants, laboratories and many other building types. LEED-NC Version 2.2 was released in late 2005. For Mannington credit contributions and formulas, please see our "Flooring and LEED-NC 2.2" brochure.

LEED-CI (Commercial Interiors)

Released 2004

LEED-CI is designed to address the specifics of tenant spaces primarily in office and institutional buildings. LEED-CI provides the opportunity for building tenants to design and certify high performance, healthy, durable, affordable and environmentally sound workplaces.

LEED-EB (Existing Buildings)

Released 2004

LEED-EB is designed to be a set of performance standards for the sustainable operation of existing buildings. It includes building operations and upgrades of systems and/or processes in existing buildings where these upgrades do not significantly change the interior or exterior surfaces of the building.

LEED-CS (Core & Shell Development)

Released 2006

LEED-CS is a set of performance standards for the sustainable design and construction of speculative and core-and-shell buildings. Based on the LEED-NC Rating system, LEED-CS has been developed in recognition of the unique nature of core and shell development, especially the lack of developer control over key aspects such as interior finishes, lighting, and HVAC distribution. LEED-CS is designed to complement the LEED-CI Green Building Rating System so that a LEED-CS certified building that also incorporates a LEED-CI certified interior fit-out will be the equivalent to a LEED-NC certified building.

How Mannington Flooring Can Contribute Points

Although LEED is comprised of five core and one bonus category, flooring products typically only play a role in two core credit categories: Materials & Resources and Indoor Environmental Quality. This document will further explain the requirements of the impacted credits and provide a description of how Mannington products may contribute to these credits.

Also another consideration to keep in mind is that the Materials & Resource Credits are mainly based on the cost of the material and the relative percentages that those materials contribute to the overall budget of the project.

Projects certifying under the LEED-CI program typically have budgets that range from \$30/sf to \$150/sf. Flooring materials typically average between \$2.00/sf - \$8.00/sf. On a commercial interior/tenant improvement project, floor covering may be a major component of the costs associated with materials. Therefore it is important to review the impacts of varying recycled content percentages and their overall impact on the LEED Calculation.

Projects certifying under the LEED-NC program will typically have budgets that range from \$120/sf to \$400/sf. Flooring materials typically average between \$2.00/sf - \$8.00/sf. On an entire building project floor covering is only a fraction of the costs associated with materials. Therefore differences of minor %'s when calculating recycled content do not necessarily have significant impacts in LEED calculations.

Note: No single product can, by itself, obtain a LEED Credit. Products can, in aggregate, contribute to attaining credits. The only exception is the Indoor Environmental Quality – Low Emitting Materials (Carpet) Credit.

LEED-CI Materials & Resources Credits

Construction Waste Management

Credit 2.1	Construction Waste Management: Divert 50%	1 Point
Credit 2.2	Construction Waste Management: Divert 75%	1 Point in addition to 2.1

Intent

Divert construction, demolition and land clearing debris from landfill disposal. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.

Requirements

Develop and implement a waste management plan, quantifying material diversion goals. Recycle and/or salvage at least 50% or 75% of construction, demolition and land clearing waste. Calculations can be done by weight or volume, but must be consistent throughout.

Mannington Credit Contribution

Mannington is striving to be what we're calling a net user of waste, which includes reducing landfill waste from both our operations and products. More information regarding being a net user of waste can be found in the "ON THE ENVIRONMENT" section of our website at www.mannington.com.

Mannington carpet products are recyclable and can be reclaimed vs. landfilled. We're involved with multiple reclamation programs operated by external organizations including LOOP, our own carpet reclamation program. Contact us if you'd like to explore carpet reclamation possibilities for your CI or NC projects.

Recycled Content

Credit 4.1	Recycled Content: 10% (post-consumer + 1/2 pre-consumer)	1 Point
Credit 4.2	Recycled Content: 20% (post-consumer + 1/2 pre-consumer)	1 Point in addition

Note: pre-consumer recycled content has the same meaning as post-industrial

Intent

Increase demand for building products that incorporate recycled content materials, therefore reducing impacts resulting from extraction and processing of new virgin materials.

Requirements

Use materials, including Division 12 (Furniture and Furnishings), with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% or 20% of the total value of the materials in the project.

The value of the recycled content portion of a material or furnishing shall be determined by dividing the weight of recycled content in the item by the total weight of all material in the item, then multiplying the resulting percentage by the total value of the item.

Recycled content materials shall be defined in accordance with the Federal Trade Commission document, Guides for the Use of Environmental Marketing Claims, 16 CFR 260.7 (e), available at www.ftc.gov/bcp/grnrule/guides980427.htm.

Mannington Credit Contribution

Mannington has a variety of products that can contribute to this credit calculation. Two simple generic examples follow.

Equations and Sample Calculations:

Equation 1:

Recycled [\$] Content Value = Material or [\$] Product Cost x Recycled [%] Content

Equation 2:

$$\text{Recycled [\%] Content Rate} = \frac{\text{Post-consumer RCV [\$]} + 1/2 \text{ Pre-consumer RCV [\$]}}{\text{Total Materials Cost [\$]}}$$

Note: For Equation 2, RCV = Recycled Content Value

Flooring Product Calculation:

Total Project Materials Cost: \$2,000,000
 Product Material Cost: \$100,000
 Recycled Content: 40% Pre-consumer
 Pre-consumer RCV: \$100,000 x 40 % = \$40,000

$$\text{Recycled Content Rate: } \frac{\text{Post-consumer RCV} + 1/2 \text{ Pre-consumer RCV}}{\text{Total Materials Cost}}$$

Calculation: $\frac{\$0 \text{ PC RCV} + 1/2 [\$40,000]}{\$2,000,000} = \frac{\$20,000}{\$2,000,000} = 1\%$

1% toward 10% (1 pt.) or 20% (2 pt.) minimum requirement of total materials cost of the LEED project

Flooring Product Calculation:

Total Project Materials Cost: \$2,000,000
 Product Material Cost: \$100,000
 Recycled Content: 15% Post-consumer & 30% Pre-consumer
 Post-consumer RCV: \$100,000 x 15% = \$15,000
 Pre-consumer RCV: \$100,000 x 30% = \$30,000

$$\text{Recycled Content Rate: } \frac{\text{Post-consumer RCV} + 1/2 \text{ Pre-consumer RCV}}{\text{Total Materials Cost}}$$

Calculation: $\frac{\$15,000 + 1/2 [\$30,000]}{\$2,000,000} = \frac{\$30,000}{\$2,000,000} = 1.5\%$

1.5% toward 10% (1 pt.) or 20% (2 pt.) minimum requirement of total materials cost of the LEED project

Regional Materials

Credit 5.1 Regional Materials 20% Manufactured Regionally

1 Point

Intent

Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the regional economy and reducing the environmental impacts resulting from transportation.

Requirements

Use a minimum of 20% of the combined value of construction and Division 12 (Furniture and Furnishings) materials and products that are manufactured regionally within a radius of 500 miles.

Manufacturing refers to the final assembly of components into the building product that is furnished and installed by the trades persons. For example, if the fiber comes from Dallas, TX, the backing from Philadelphia, PA, and the carpet is manufactured in Calhoun, GA; then the location of the final assembly is Calhoun, GA.

Mannington Credit Contribution

Mannington produces a variety of products that can contribute to the attainment of this credit. All carpet products are manufactured in Calhoun, GA. Most resilient products are manufactured in Salem, NJ.

Example:

Carpet - Calhoun, GA

Major Project Cities include: Charlotte, Atlanta, Jacksonville, Tampa, New Orleans, Nashville, Indianapolis, Chicago, Richmond, Cincinnati, etc.

Resilient - Salem, NJ

Major Project Cities include: Boston, Syracuse, New York City, Philadelphia, Washington DC, Pittsburgh, etc.



Equations and Sample Calculations:

Equation 1:

$$\text{Regionally Manufactured [\%] Products Rate} = \frac{\text{Regionally Manufactured Products Cost [\$]}}{\text{Total Materials Cost [\$]}}$$

Product Calculation for Modular Carpet Tile:

Place of Manufacture:	Calhoun, GA
Project Location:	Indianapolis, IN
Distance from manufacture to project:	373 miles
Material Cost of Carpet Tile:	\$100,000
Total Project Material Cost:	\$2,000,000

$$\text{Regionally Manufactured Products Rate [\%]} = \$100,000 \div \$2,000,000 = 5\%$$

This product is manufactured within a 500 mile radius of the project.
5% of total material cost is provided by carpet toward minimum requirement of 20%.

Regional Materials

Credit 5.2 Regional Materials 10% Extracted Regionally 1 point in addition to 5.1

Intent

Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the regional economy and reducing the environmental impacts resulting from transportation.

Requirements

In addition to the requirements of MR 5.1, use a minimum of 10% of the combined value of construction and Division 12 (Furniture and Furnishings) materials and products extracted, harvested or recovered, as well as manufactured, within 500 miles of the project.

Mannington Credit Contribution

This contribution must be calculated for every project location. For a customized calculation, call 1-800-241-2262 and go to Technical Services (option #3).

Equations and Sample Calculations:

Equation 1:

$$\text{Regionally Extracted [\%] Materials Rate} = \frac{\text{Regionally Extracted Materials Cost [\$]}}{\text{Regionally Manufactured Products Cost [\$]}}$$

Product Calculation for VCT:

Place of Manufacture: Salem, NJ

Material Cost of VCT : \$100,000

Total Project Material Cost: \$2,000,000

Minimum Regional Manufactured Material required in Credit 5.1 = $\$2,000,000 \times 20\% = \$400,000$

Minimum Regional Extracted required in Credit 5.2 = 50% of 5.1 = $\$400,000 \times 50\% = \$200,000$

<u>Material Composition [by weight]</u>	<u>%</u>	<u>Extraction Location</u>
Limestone Filler	85%	< 500 miles
Other Ingredients	15%	> 500 miles

Project Location: Washington, DC

Distance from manufacture to project: 100 miles

Regionally Manufactured Products Rate [%] = $\$85,000 \div \$200,000 = 42.5\%$

This product contains 85% of its ingredients extracted from within 500 miles of the project site, therefore 85% of its total material cost [\$100,000] can be contributed to the overall calculation.

Rapidly Renewable Materials

Credit 6 Rapidly Renewable Materials:

1 Point

Intent

Reduce the use and depletion of finite raw materials and long-cycle renewable materials by replacing them with rapidly renewable materials.

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.

Mannington Credit Contribution

Mannington offers flooring made from fast-growing bamboo.

Equations and Sample Calculations:

Equation 1:

$$\text{Rapidly Renewable [\%] Materials Rate} = \frac{\text{Rapidly Renewable Materials Cost [\$]}}{\text{Total Materials Cost [\$]}}$$

Equation 2: Flooring Product Calculation:

Total Project Materials Cost: \$5,000,000

Product Material Cost: \$30,000

Rapidly Renewable Materials Rate: $\frac{\text{Rapidly Renewable Materials Cost}}{\text{Total Materials Cost}}$

Calculation: $\frac{\$30,000}{\$5,000,000} = .6\%$

.6% toward 2.5% minimum requirement of total materials cost of the LEED project

LEED-CI Indoor Environmental Quality Credits

Low-Emitting Materials

Credit 4.1 Low-Emitting Materials - Adhesives and Sealants 1 Point

Intent

Reduce the quantity of indoor air contaminants that are odorous, potentially irritating and/or harmful to the comfort and well-being of installers and occupants.

Requirements

The VOC content of all adhesives and sealants used must be less than the current VOC content limits of South Coast Air Quality Management District (SCAQMD) Rule #1168, AND all aerosol adhesives must meet Green Seal Standard for Commercial Adhesives GS-36 requirements.

All Materials listed below that are used inside the exterior weatherproofing system must not exceed the following requirements.

Installation Products	VOC Limit (g/L)
Indoor Carpet Adhesives	50
Carpet Pad Adhesives	50
Wood Flooring Adhesives	100
Ceramic Tile Adhesives	65
VCT and Asphalt Tile Adhesives	50
Cove Base Adhesives	50

Mannington Credit Contribution

Mannington has a complete adhesive line for all products that meets the SCAQMD Limit on VOC Emissions.

Low-Emitting Materials

Credit 4.3 Low-Emitting Materials - Carpet

1 Point

Intent

Reduce the quantity of indoor air contaminants that are odorous, potentially irritating and/or harmful to the comfort and well-being of installers and occupants.

Requirements

Carpet systems must meet or exceed the requirements of the Carpet and Rug Institute's Green Label Plus testing and product requirements.

Additionally, in 2006 USGBC approved hard surface flooring products certified by the FloorScore program as an alternative compliance path to achieve this credit.

To achieve the LEED credit, a minimum of 25% of the finished floor area (both carpet and non-carpet areas) of a building must be comprised of non-carpet floor products, and all of these non-carpet floor products must be FloorScore certified.

In addition, the California Collaborative for High Performance Schools (CHPS) officially recognizes products certified under FloorScore for low-emitting materials credit (EQ2.2) in the CHPS Criteria (2006 ed.).

Mannington Credit Contribution

Mannington holds Green Label Plus certification for all of our current running-line carpet products. Most of our custom carpet products meet GL+. All Mannington commercial sheet and tile products meet FloorScore requirements..

Indoor Chemical and Pollutant Source Control

Credit 5 Indoor Chemical and Pollutant Source Control

1 point

Intent

Minimize exposure of building occupants to potentially hazardous particulates, biological contaminants and chemical pollutants that adversely impact air and water.

Requirements

Design to minimize and control pollutant or biological contaminant entry into the tenant space and later cross-contamination of regularly occupied areas through four main criteria.

Employ permanent entryway systems (such as grills or grates) to capture dirt, particulates, etc. from entering the building at all high-volume exterior entry ways within the tenant area.

Note: Entryway systems only play a part in one of the four criteria. The other criteria deal with issues related to mechanical and plumbing design features. The requirement listed above is the one that we can contribute toward.

Mannington Credit Contribution

Mannington has a line of entryway systems that meet the LEED requirements of this credit. The Ruffian/Ruffian Ridge/Recoarse product line has a variety of colors and styles to meet any projects needs.

Mannington – Continuing to Learn

At Mannington, our environmental commitment isn't just about where we are. It's about where we want to go. Every day we focus on the steps that will take us there. We're constantly learning, revising, improving.

LEED has emerged as an important force in today's building industry, serving as a touchstone for those seeking to build high performance, more sustainable buildings. We're working to understand all the program's ramifications and gaining insights we will share with the environmental community and use when working with our customers.

While we speak and act candidly when it comes to the environment, we know that, in the end, rhetoric means nothing. It's our actions that speak, and people want to know what we've learned and what we're doing with that knowledge. It may not be as sexy as winning an Oscar, but it's what we're working towards and how we would like to be judged.

Mannington recognizes that the growth of the green building movement in the world is increasing daily. We are committed to being a part of this movement and recognize that the LEED rating system is also adapting to new markets and project types. As the new LEED Rating Systems are released and new LEED Application guides developed, we will continue to be a trusted resource to our customers and their projects.

Contact Information

For more information regarding our commitment to the environment please visit mannington.com. For technical information regarding this brochure or other Mannington solutions, visit us at mannington.com or call your Mannington sales representative at 1-800-241-2262.



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