

## What is LEED?

LEED has driven the green building market by creating a demand for environmentally preferable building products. This helped to transform the way we think about how our buildings and communities are designed, constructed, maintained, and operated.

LEED addresses the entire building lifecycle. Building projects must satisfy prerequisites and earn points to achieve different levels of certification. Prerequisites and credits differ for each of the four rating systems. A project team must determine which rating system and category is the best fit for their project.

## Overview

Recycled rubber underlayment is a growing category for sound insulation within the construction industry and continues to increase in popularity as a practical solution for construction applications. The easy installation, durability, and quality of Iso-Step® Sound Insulation make it ideal for a wide variety of sound control applications.

The popularity of recycled rubber sound insulation is also on the rise because of its positive environmental attributes. Benefits, such as high-recycled content, low-VOC emissions, and low life-cycle costs, make it an environmentally preferable underlayment solution for a number of applications. These benefits also enable it to potentially contribute to a number of points under the Leadership in Energy & Environmental Design (LEED®) rating system. Ecore designed this educational guide to assist specifiers in understanding how our products apply to the LEED v4 rating system.

## Rating Systems:

### Building Design & Construction (BD+C)

This rating system is appropriate for new construction and major renovation of these categories: New Construction, Core and Shell, Schools, Retail, Hospitality, Data Centers, Warehouses and Distribution Centers, Healthcare, Homes, and Multifamily Midrise.

### Interior Design & Construction (ID+C)

This rating system is appropriate for interior spaces that are a complete interior fit-out of these categories: Commercial Interiors, Retail, and Hospitality.

### Building Operations & Maintenance (O+M)

This rating system is appropriate for buildings that are undergoing improvement work with little to no construction. This system applies to these categories: Existing Buildings, Schools, Retail, Hospitality, Data Centers, and Warehouses and Distribution Centers.

### Neighborhood Development (ND)

This rating system is appropriate for new land development projects or redevelopment projects containing residential uses, nonresidential uses, or a mix. This system includes these categories: Neighborhood Development Plan and Built Project.

### The Benefits of LEED

Why is obtaining LEED certification beneficial? In addition to the obvious environmental benefits, certification proves to the market that a building is efficient and incorporates responsible building practices. LEED certification showcases environmental commitment and leadership to both the community and employees. As a result, positive publicity, and exposure could be generated. Green buildings have also been proven to be more economically efficient as a result of these factors:

- Increased health and safety benefits for employees or students
- Increased employee productivity and lower turnover and absenteeism
- Increased sales in retail establishments
- Reduced operating costs
- Increased building evaluation and return on investment
- Qualification for money-saving incentives, like tax rebates and zoning allowances

### How Iso-Step® Can Apply to LEED

Many products have the potential to contribute points to LEED; but, since credits are based on the performance of all the products involved in a particular project, there is not one stand-alone product that can guarantee LEED credits. It is the combination and the weight of each that is critical.

Iso-Step® Sound Control, which is supplied by Acoustical Solutions, is designed to meet the stringent criteria required to help earn points under 2 of the 5 categories of LEED—Materials and Resources and Indoor Environmental Quality. The Materials and Resources category deals with the conservation, purchasing, and waste management of physical products. Indoor Environmental Quality includes the conditions inside a building, such as air quality, lighting, thermal conditions, ergonomics, acoustics, and their effect on occupants. Based on these criteria, Iso-Step® products can, potentially, contribute up to 8 LEED points in BD+C and ID+C, 5 LEED points in BD+C: Homes/Midrise, and 3 LEED points in O+M.

BD+C, ID+C: — Iso-Step® LEED Credit Areas			
Category	Credit Title	B+C Points Attainable	ID+C Points Attainable
Material & Resources	Building Product Disclosure and Optimization-Environmental Product Declarations	1	1
	Building Product Disclosure and Optimization-Sourcing of Raw Materials	1	1
	Building Product Disclosure and Optimization-Material Ingredients	1	1
	Construction and Demolition Waste Management	2	2
Indoor Environmental Quality	Low Emitting Materials	1	1
	Acoustic Performance	1-2 (Except Core & Shell, Retail)	2 (except Retail)
O+M — Iso-Step® LEED Credit Areas			
Category	Credit Title	Points Attainable	
Material & Resources	Purchasing-Facility Maintenance and Renovation	1	
	Solid Waste Management-Facility Maintenance and Renovation	2	

BD+C: Homes — Iso-Step® LEED Credit Areas		
Category	Credit Title	Points Attainable
Material & Resources	Environmentally Preferable Products	1
	Construction Waste Management	3
Indoor Environmental Quality	Low Emitting Products	1

### Definition of BD+C, ID+C Credits — Materials and Resources:

#### Building Product Disclosure and Optimization — Environmental Product Declarations (possible 2 points)

##### Option 1: Environmental Product Declaration (EPD) (1 point)

Use at least 20 different permanently installed products sourced from at least five different manufacturers that meet one of the disclosure criteria below:

- Product specific declaration (1/4 point)
- Industry-wide (generic) EPD (1/2 point)
- Product-specific Type III EPD (1 point)

AND/OR

##### 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. 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.

- Global warming potential (greenhouse gases)
- Depletion of the stratospheric ozone layer
- Acidification of land and water sources
- Eutrophication
- Formation of tropospheric ozone
- Depletion of nonrenewable energy resources

#### Building Product Disclosure and Optimization - Sourcing of Raw Materials (possible 2 points)

##### Option 1: Raw Material Source and Extraction Reporting (1 point)

Use at least 20 different permanently installed products sourced from at least five different manufacturers that have publically released a report from their raw material suppliers, which include, raw material supplier extraction locations, a commitment to long-term ecologically responsible land use, a commitment to reducing environmental harms from extraction and/or manufacturing processes, and a commitment to meeting applicable standards or programs voluntarily that address responsible sourcing criteria. Reports from manufacturers may be self-declared (0.5 points) or a third-party verified corporate sustainability report (1 point).

AND/OR

**Option 2: Leadership Extraction Practices (1 point)**

Use permanently installed building products that meet at least one responsible extraction criteria:

- Extended producer responsibility
- Bio-based materials
- Certified wood products
- Materials reuse
- Recycled content

**How Iso-Step® Floor Underlayment can Contribute:**

Iso-Step® is comprised of shredded and cleaned recycled tire rubber (post-consumer waste) and some EPDM flecks. The result is a polymerically bound insulation with very high recycled content. Recycled content is defined in accordance with the International Organization for Standardization® document, ISO 14021 – Environmental labels and declarations:

- Postconsumer material – waste materials diverted from the waste stream after consumer or commercial use.
- Preconsumer material – material diverted from the waste stream during the manufacturing process. Excluded is rework, regrind, or scrap materials capable of being reclaimed within the same process that generated them.

Recycled content is the sum of postconsumer recycled content plus one-half the preconsumer recycled content, based on cost. Products meeting recycled content criteria are valued at 100 percent of their cost for the purposes of credit achievement calculation.

**Iso-Step® Floor Underlayment (2mm, 5mm, 10mm, 12mm) is manufactured using 94% Post-Consumer Recycled Content.**

**Potential Strategies:**

Establish a project goal to utilize materials from manufacturers who disclose raw material sourcing information and/or manufacturers that utilize responsible extraction. During the design phase, specify products that meet one or more of the criteria listed in the credit requirements. Try to focus on applications that use either significant quantities of materials or small amounts of high-cost materials. During construction, track your purchases in the Materials and Resources Building Product Disclosure and Optimization calculator. Do not forget to collect relevant documentation from manufacturers.

**Building Product Disclosure and Optimization — Material Ingredients (possible 2 points)**

**Option 1: Material Ingredient Reporting (1 point)** Use at least 20 different permanently installed products sourced from at least five different manufacturers that use any of these programs to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm):

- Manufacturer Inventory
- Health Product Declaration (HPD)
- Cradle to Cradle

AND/OR

**Option 2:** Material Ingredient Optimization (1 point) Use permanently installed building products that document their material ingredient optimization using one of these paths:

- GreenScreen v1.2 Benchmark
- Cradle to Cradle Certified
- REACH Optimization

AND/OR

**Option 3:** Product Manufactured Supply Chain Optimization (1 point)

Use permanently installed building products that are sourced from product manufacturers who engage in validated and robust safety, health, hazard, and risk programs.

**Potential Strategies:**

During the design phase, identify products that meet the criteria. Specify compliant products and track your purchases. Calculate your compliance as you go and collect all ingredient disclosure reports.

**Construction and Demolition Waste Management**

**Option 1:** Diversion (1-2 Points)

Path 1 (1 point): Divert at least 50 percent of the total construction and demolition from at least three material streams.

OR

Path 2 (2 points): Divert at least 75 percent of the total construction and demolition material from at least four material streams.

OR

**Option 2:** Reduction of Total Waste (2 points)

Do not generate more than 2.5 pounds of construction waste per square foot of the building's floor area.

**How Iso-Step® Floor Underlayment can Contribute:**

- All Iso-Step® salvages and overages can be packaged and shipped back at the owner's expense.
- All old Iso-Step® materials may be packaged and shipped back at the owner's.
- Please contact us for approval prior to shipping any materials.

**Potential Strategies:**

The key to success for this credit is to start early to allow time for planning and coordination, identifying strategies, developing contractual agreements, and educating project teams. Be sure to integrate the contractor into the early design phase. Establish goals of diversion from disposal in landfills and incineration facilities, and adopt a construction waste management plan to achieve these goals. Goals and strategies for waste diversion should be developed as part of the construction waste management plan prerequisite.

Identify products that can be recycled or whose manufacturer offers a take back program. Consider recycling cardboard, metal, brick, rubber, concrete, plastic, clean wood, glass, gypsum wallboard, carpet, and insulation. Other strategies include source reduction, such as modular construction, reduced packaging, pre-fabrication, and diversion options. Establish infrastructure, practices, and policies, such as designating a specific area on the construction site for segregated or commingled collection of

recyclable materials. Be sure to track recycling efforts throughout the construction process, keeping reports and receipts for documentation. It is also helpful to calculate diversion rates regularly so adjustments can be made to meet goals.

### Low Emitting Materials (Possible 3 points)

This credit details requirements for volatile organic compound (VOC) emissions into indoor air and the VOC content of materials, as well as the testing methods by which indoor VOC emissions are determined. Different materials must meet different requirements to be considered compliant for this credit.

#### Option 1: Product Category Calculations

Achieve the threshold level of compliance with emissions and content standards for the maximum number of product categories.

#### Option 2: Budget Calculation Method

If some products in a category do not meet the criteria, project teams may use the budget calculation method in which they achieve points for percentage compliance.

Thresholds of compliance with emissions and content standards for 2 of 7 categories of materials Iso-Step® contributes to:

Category	Threshold	Emissions & Content Requirements
Flooring	100%	Emissions: California Department of Public Health (CDPH) Standard Method V1.1-2010
Interior adhesives & sealants applied on site (including flooring adhesive)	At least 90%, by volume, for emissions; 100% for VOC Content	Emissions: California Department of Public Health (CDPH) Standard Method v1.1-2010 VOC Content: SCAQMD Rule #1168

#### How Iso-Step® Floor Underlayment can Contribute:

Iso-Step® Sound Control has earned FloorScore certification. The FloorScore program was developed by the Resilient Floor Covering Institute (RFCI) in conjunction with SCS Global Services, which tests and certifies flooring as well as flooring adhesive products, and certifies production facilities for compliance with rigorous indoor air quality emission requirements. Individual volatile organic compounds (VOCs) are evaluated using health-based specification. Flooring and adhesives that earn FloorScore certification qualify for use in high performance schools and office buildings. Products are tested to the California Standard Method for VOC Emissions Testing and Evaluation (Standard Method v1.1), otherwise known as CA Section 01350. This is the general emissions standard that must be met under LEED v4's low emitting products credit. Bearing the FloorScore label also qualifies Iso-Step® for the Collaborative for High Performance Schools (CHPS).

#### How E-Grip Evolve can Contribute:

E-Grip Evolve adhesive is CRI Green Label Plus certified. Green Label Plus is an independent testing program that identifies carpet and adhesives with very low emissions of VOCs to help improve indoor air quality. By selecting Green Label Plus carpet or adhesive, you are assured one of the lowest emitting

products on the market. To receive initial certification, the adhesive is tested to insure it meets all the compound emissions standards as outlined by California Department of Public Health Section 01350 and meets stringent total volatile organic compounds (TVOC) requirements. Annually, the adhesive is tested in accordance with established emissions testing criteria for fifteen individual compounds and stringent total volatile organic compounds (TVOC) requirements. Through this testing, E-Grip Evolve also meets the California South Coast Air Quality Management District (SCAQMD) Rule #1168.

### **Potential Strategies:**

Prior to purchasing, it is important to research and specify low or non-emitting products. Specifying only compliant products is the easiest way to ensure credit requirements are met and the building will have the lowest possible emissions. Request and review the specific documentation that will be required for the certification review, such as data sheets, product cut sheets, third-party certificates, signed attestations, or other official literature from the manufacturer clearly identifying the VOC contents or compliance with referenced standards. Calculate compliance based on the option you have selected. Flooring systems are generally comprised of multiple components, so be sure to identify all components in a spreadsheet matrix, including adhesives, underlayments, grouting, stain, and sealers applied on site.

### **Acoustic Performance (possible 1 point — except Core & Shell, Retail) (possible 2 points in BD+C: Healthcare, ID+C: Hospitality, Commercial Interiors)**

For all occupied spaces, meet the requirements, as applicable, for HVAC background noise, sound isolation, reverberation time, and sound reinforcement and masking.

#### **HVAC Background Noise**

Achieve maximum background noise levels from heating, ventilating, and air conditioning (HVAC) systems per 2011 ASHRAE Handbook, HVAC Applications, Chapter 48, Table 1; AHRI Standard 885-2008, Table 15; or a local equivalent. Calculate or measure sound levels.

#### **Sound Isolation**

Meet the composite sound transmission class (STCC) ratings, depending on adjacency combinations or local building code, whichever is more stringent.

#### **Reverberation Time**

Meet the reverberation time requirements based on room type.

#### **Sound Reinforcement**

For all large conference rooms and auditoriums seating more than 50 persons, evaluate whether sound reinforcement and AV playback capabilities are needed. If needed, the sound reinforcement systems must meet these criteria:

- Achieve a speech transmission index (STI) of at least 0.60 or common intelligibility scale (CIS) rating of at least 0.77 at representative points within the area of coverage to provide acceptable intelligibility.
- Have a minimum sound level of 70 dBA and must maintain sound-level coverage within +/-3 dB at the 2000 Hz octave band throughout the space.

### Masking Systems

For projects that use masking systems, the design levels must not exceed 48 dBA. Ensure that loudspeaker coverage provides uniformity of  $\pm 2$  dBA and that speech spectra are effectively masked.

### How Iso-Step® Floor Underlayment can Contribute:

Acoustic performance of a space is the combination of all the elements in the room, including flooring. Rubber is inherently better at sound absorption and transmission than other types of surfacing. In addition, Iso-Step® is specifically designed to insulate sound. Iso-Step® has been tested in more than 400 laboratory and field test assemblies.

### Potential Strategies:

The first step is determining the acoustic needs of a space, based on activities, user groups, and sound/privacy sensitivity requirements. Evaluate how the four performance areas addressed by this credit affect the applicable space. Prepare a log or spreadsheet to record relevant acoustic information for each space. Identify products and equipment that could contribute to the acoustic performance of the occupied space. Implement and verify HVAC background noise, sound isolation, reverberation time, and sound reinforcement and masking.

### Definition of O+M— Materials and Resources:

#### Purchasing - Facility Maintenance and Renovation (possible 2 points)

**Option 1:** Products and Materials (1 point) Purchase at least 50 percent, by cost, of the total maintenance and renovation materials that meet at least one of these criteria:

- Recycled content
- Wood products
- Bio-based materials
- Materials reuse
- Extended producer responsibility
- GreenScreen v1.2 Benchmark
- Cradle to Cradle Certified
- REACH Optimization
- Product Manufacturer Supply Chain Optimization
- Low emissions of VOCs
- VOC content requirements for wet-applied products
- Low emissions of formaldehyde

AND/OR

**Option 2:** Furniture (1 point)

Purchase at least 75%, by cost, of total furniture and furnishings that meet one or more of these criteria:

- Recycled content
- Wood products
- Bio-based materials
- Materials reuse



- Extended producer responsibility
- GreenScreen v1.2 Benchmark
- Cradle to Cradle Certified
- REACH Optimization
- Product Manufacturer Supply Chain Optimization
- Low emissions of VOCs

OR

**Option 3: No Alterations or Furniture Purchasing (1 point)**

Make no alterations to the project space and do not purchase any furniture.

**How Iso-Step® Floor Underlayment can Contribute:**

Iso-Step® can potentially contribute to three of the criterion listed in option 1: recycled content, extended producer Iso-Step®, and low emissions of VOCs. Iso-Step® is comprised of shredded and cleaned recycled tire rubber and some EPDM flecks. For more information about recycled content, please refer to page 6 of this guide.

Iso-Step®'s extended producer responsibility program is called Redeux, which can take back scrap and old material. Please contact us for more information about the Redeux program. Iso-Step® has met low emissions standards through FloorScore certification. To learn more about Iso-Step®'s FloorScore certification, please contact us. E-Grip Evolve adhesive also meets low emissions standards through CRI Green Label Plus.

**Potential Strategies:**

Review schedules for space planning or tenant fit-outs to determine whether maintenance, renovations, or furniture purchases will occur during the performance period. Determine which credit options are suitable for the project and timeline. Teams may select Option 1 and 2 simultaneously or Option 3. For option 1 and 2, evaluate purchasing patterns and determine percentage compliance. Try to swap out non-compliant items for compliant substitutes. Develop a tracking system to gather data for all purchases for the building. For option 3, verify that no facility renovation activities will be undertaken during the pre-determined performance period.

**O+M Solid Waste Management - Facility Maintenance and Renovation (possible 2 points)**

Divert at least 70 percent of the waste (by weight or volume) generated by facility maintenance and renovation activities from disposal in landfills and incinerators. Include materials and products permanently and semi-permanently installed in the project (flooring, wall coverings, etc.). Exclude furniture and furnishings that pose human health concerns as well as components not considered base building elements; mechanical, electrical, and plumbing components; and specialty items (such as elevators).

**How Iso-Step® Floor Underlayment can Contribute:**

All Iso-Step® salvages, overages, and old material can be packaged and shipped back, at the owner's expense, to the Redeux Reclamation Program. For more information about the Redeux program, please contact us.

**Potential Strategies:**

Implement the facility maintenance and renovations solid waste management policy developed in the corresponding prerequisite. As maintenance and renovation projects are scheduled, be sure to share this policy with contractors and other personnel involved in the work, so waste diversion goals can be met. You may adapt your policy to better suit renovations projects as they come along. Develop a tracking system to gather data on all facility maintenance and renovations waste during the performance period.

**Environmentally Preferable Products****(BD+C: Homes — possible 4 points, BD+C: Midrise – possible 5 points)**

Use building component materials that meet one or more of these criteria:

**Option 1: Local Production**

Use products that were extracted, processed, and manufactured locally (100 miles) for these components:

- Framing (0.5 point)
- Aggregate for concrete and foundation (0.5 point)
- Drywall or interior sheathing (0.5 point)

AND/OR

**Option 2: Environmentally Preferable Products**

Use products that meet one or more of the following criteria (0.5 points each). At least 90 percent of each compliant building component, by weight or volume, must meet one of the following requirements. A single component that meets more than one criterion does not earn additional credit.

- The product contains at least 25 percent reclaimed material, including salvaged, refurbished, or reused materials.
- The product contains at least 25 percent postconsumer or 50% preconsumer recycled content.
- Wood products must be Forest Stewardship Council (FSC) Certified.
- Bio-based products must meet the Sustainable Agriculture Network's Sustainable Agriculture Standard.
- Concrete that consists of at least 30 percent fly ash or slag used as a cement substitute and 50 percent recycled content or reclaimed aggregate OR 90 percent recycled content or reclaimed aggregate.
- Products purchased from a manufacturer that participates in an extended producer responsibility program or is directly responsible for extended producer responsibility.

**How Iso-Step® Floor Underlayment can Contribute:**

All Iso-Step® products are made with recycled materials, resulting in a high recycled content. All Iso-Step® products exceed 25 percent postconsumer recycled content. Iso-Step® Floor Underlayment (2mm, 5mm, 10mm, 12mm) is manufactured using 94% Post-Consumer Recycled Content.

### Potential Strategies:

During the design phase, look for local and environmentally preferable products. Be sure to collect relevant documentation from the manufacturer.

### BD+C: Homes and Midrise Construction Waste Management (possible 3 points)

Reduce total construction waste or divert from landfills and incinerators a large proportion of the waste generated from new construction. Excavated soil, land-clearing debris, and alternative daily cover (ADC) do not qualify for this credit. Any waste-to-energy is not considered recycling for this credit.

Percentage Reduction	Points
10%	0.5
20%	1.0
30%	1.5
40%	2.0
50%	2.5
60%	3.0

### How Iso-Step® Floor Underlayment can Contribute:

All Iso-Step® salvages, overages, and old material can be packaged and shipped back, at the owner's expense, to the Redeux Reclamation Program. Please contact us for more information about the Redeux program.

### Potential Strategies:

During the design phase, establish waste reduction goals. Try preventing construction waste by using modular construction, precut materials, and purchasing only as much as you need. For the waste that is generated, develop a waste management reduction plan regarding sorting and diverting waste materials. Document quantities of waste and calculate compliance based on percentage reduced.

### BD+C: Homes and Midrise Low-Emitting Products (possible 3 points)

In the interior of the home, use products that have been tested and found compliant with the California Department of Public Health Standard Method V1.1–2010, using CA Section 01350, Appendix B, New Single-Family Residence Scenario, for emissions testing guidance. At least 90 percent of a component must meet the requirements to earn credit.

Requirements for compliance for the low-emitting product categories Iso-Step® can contribute to:

Product	Requirement	Points Attainable
Flooring	CA Section 01350	0.5
Site-applied adhesives & sealants	CA Section 01350	0.5

**How IsoStep® Floor Underlayment can Contribute:**

IsoStep® Sound Control has earned FloorScore certification, which is tested to the California Standard Method for VOC Emissions Testing and Evaluation (Standard Method v1.1), otherwise known as CA Section 01350. For more information on IsoStep® FloorScore certification, please contact us. E-Grip Evolve adhesive also meets low emissions standards through CRI Green Label Plus.

**Potential Strategies:**

During the design phase, research low-emitting materials and finishes. Specify products and document compliance as you make purchases.

**Locally Sourced Materials**

For credit achievement calculation, products sourced (extracted, manufactured, purchased) within 100 miles of the project site are valued at 200 percent of their base contributing cost for these credit categories:

- BD+C, ID+C: Building Product Disclosure and Optimization - Environmental Product Declarations
- BD+C, ID+C: Building Product Disclosure and Optimization - Sourcing of Raw Materials
- BD+C, ID+C: Building Product Disclosure and Optimization - Material Ingredients (option 2 or 3)
- O+M: Purchasing - Facility Maintenance and Renovation



Iso-Step Floor Underlayment is manufactured in the U.S.A.