



MATERIALS & RESOURCES - GREEN BUILDING TECHNOLOGY TRAINING PROGRAM
FOR GREEN BUILDING AND SUSTAINABILITY SPECIALISTS
KRISHNAJI PAWAR, LEED AP BD+C, GSAS CGP, ISO 14001:2015, GCP
GREEN BUILDING SPECIALIST CURRICULUM

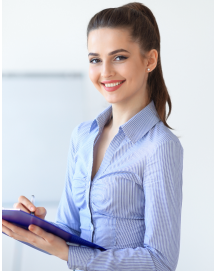




BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION – EPD - CREDIT
FOR GREEN BUILDING AND SUSTAINABILITY SPECIALIST
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LEARNING OBJECTIVES



- Intent of Building Product Disclosure and Optimization – EPD
- Behind the intent
- Step by Step Guidance
- Requirements
- Required Documentation
- Connection to Ongoing Performance
- Terms and Definitions

- Specify products from manufacturers for which the available EPDs meet at least one of the credit criteria.
- Include performance requirements or sole-source compliant products as applicable to the selected option(s) in the project specifications. To ensure compliant purchases, consider creating a Division 1, General Requirements, specification for sustainability criteria that meet MR requirements. Reference that section to distinguish it from other sections that cover products and materials (see *Further Explanation, Environmental Product Declarations and Documentation of EPD's*, Figure 3).

STEP-BY-STEP GUIDANCE +

- Similar products from the same manufacturer can be counted as separate products if they have distinct formulations, but not if they are aesthetic variations or reconfigurations (see MR Overview, *Defining a Product*).

STEP 2. TRACK PURCHASES THROUGHOUT CONSTRUCTION

During construction, coordinate a review of the construction submittals to ensure that selected products meet credit requirements. To track progress toward credit achievement, regularly enter information into the MR building product disclosure and optimization calculator provided by USGBC or an equivalent custom tool.

- Continually track substitutions and change orders during buy-out and installation to ensure that replacement products meet the credit requirements. Any product substitutions should be carefully reviewed by the design team and contractor for compliance.
- Because these requirements are not typical for all construction teams and suppliers, conduct a LEED-specific preconstruction meeting to review the credit requirements in detail and stress their importance.
- Check in periodically with team members (particularly owners, architects, interior designers, contractors, subcontractors, and suppliers) to verify progress toward credit achievement and address any gaps in credit compliance.

STEP 3. COUNT COMPLIANT PRODUCTS AND MATERIALS AND COMPILE DOCUMENTATION

With the data collected in a tracking tool or the calculator provided by USGBC, use Equation 1 (see *Further Explanation, Calculations*) to calculate the total number of products that comply with Option 1 requirements. This equation calculates compliance based on the number of products, not their cost. 

- A product is the unit of purchase. The requirement for EPDs applies to the final unit of purchase—that is, entire assemblies, not individual components.
- Products with EPDs that meet more than one criterion are weighted at the highest valuation factor (not a combined factor).
- Collect all EPDs and life-cycle assessment (LCA) reports for contributing products for credit documentation. Ensure that EPD documentation includes a summary sheet of measured impacts.
- Retain product data for all materials that contribute to credit achievement and be prepared to provide it on request (see *Further Explanation, Documentation of Product-Specific Declarations and Further Explanation, Documentation of EPDs, Figure 3*). 

STEP-BY-STEP GUIDANCE +

Option 2. Multi-attribute Optimization

STEP 1. RESEARCH PRODUCTS

Identify products that meet one or more of the attributes listed in the credit requirements under Option 2.

STEP 2. TRACK PURCHASES THROUGHOUT CONSTRUCTION

Collect documentation of environmental claims for each product expected to contribute toward credit achievement. To review progress toward credit achievement, regularly enter information into the MR building product disclosure and optimization calculator provided by USGBC or an equivalent custom tool.

- Request documentation via correspondence with the product's manufacturer or third-party certifying body.
- Continually track substitutions and change orders to ensure that the credit threshold will be met.
- Check in periodically with team members (particularly owners, architects, interior designers, contractors, subcontractors, and suppliers) to verify progress toward credit achievement and address any gaps in credit compliance.

STEP 3. CALCULATE COMPLIANCE

Purchase 50%, by cost, of permanently installed products that meet at least one of the requirements listed in Option 2. Calculate compliant materials using Equation 2 and the data collected in the tracking tool (see *Further Explanation, Calculations*). 

REQUIREMENTS

NC, CS, SCHOOLS, RETAIL, DATA CENTERS, WAREHOUSES & DISTRIBUTION CENTERS, HOSPITALITY, HEALTHCARE

Achieve one or more of the options below, for a maximum of 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: (10 different permanently installed products from three different manufacturers for CS and Warehouses & Distribution Centers).

- Life-cycle assessment and environmental product declarations.
 - Products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle to gate scope are valued as one whole product for the purposes of credit achievement calculation.
 - Product-specific Type III EPD -- Internally Reviewed. Products with an internally critically reviewed LCA in accordance with ISO 14071. Products with product-specific internal EPDs which conform to ISO 14025, and EN 15804 or ISO 21930 and have at least a cradle to gate scope are valued as one whole product for the purposes of credit achievement calculation.
 - Industry-wide Type III EPD -- Products with third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator. Products with industry-wide EPDs, which conform to ISO 14025, and EN 15804 or ISO 21930 and have at least a cradle to gate scope are valued as one whole product for the purposes of credit achievement calculation.
- Environmental Product Declarations which conform to ISO 14025 and EN 15804 or ISO 21930 and have at least a cradle to gate scope.
 - Product-specific Type III EPD -- Products with third-party certification (Type III), including external verification and external critical review are valued as 1.5 products for the purposes of credit achievement calculation.

REQUIREMENTS +

Option 2: Embodied Carbon/LCA Optimization (1 point)
Use products that have a compliant embodied carbon optimization report or action plan separate from the LCA or EPD. Use at least 5 permanently installed products sourced from at least three different manufacturers. Products are valued according to the table below.

Report Type	Reference Documentation for the Manufacturer/Supplier	Report Verification	Valuation
Embodied Carbon/LCA Action Plan	Product-specific LCA or product-specific Type II EPD	Prepared by the manufacturer and signed by company executive	15 product
Reductions in Embodied Carbon	Baseline Product-specific LCA or Product-specific Type II EPD, or publicly available Type II EPD		1 product
+10% reduction in GWP relative to baseline			
Reductions in Embodied Carbon	Optimized Product-specific LCA or product-specific Type II EPD	Comparative analysis is verified by an independent party	1.5 products
+10% reduction in GWP relative to baseline			
Reductions in Embodied Carbon	Baseline Product-specific LCA or Product-specific Type II EPD		2 products
+20% reduction in GWP and 5% reduction in two additional impact categories, relative to baseline	Optimized Product-specific LCA or product-specific Type II EPD		

Note: Reference documents for the optimization reports must be compliant with EPD Credit Option 1.

Impact categories:

- global warming potential (greenhouse gases), in CO₂e
- depletion of the stratospheric ozone layer, in kg CFC-11
- acidification of land and water resources, in moles H⁺ or kg SO₂e
- acidification, in kg nitrogen equivalent or kg phosphate equivalent
- formation of tropospheric ozone, in kg NO_x, kg O₃ eq, or kg ethane, and
- depletion of nonrenewable energy resources, in MJ using GRI₁, depletion of fossil fuels in TWh/GJ

For credit achievement calculation, products sourced (contracted, manufactured, purchased) within 100 miles (160 km) of the project site are valued at twice their base contributing number of products, up to a maximum of 2 products.

CONNECTION TO ONGOING PERFORMANCE

LEED O+M MR prerequisite Waste Performance, MR prerequisite Purchasing Policy, and MR credit Purchasing: A similar credit having some of the above requirements for existing buildings is required for the O+M v4.1 rating system and is a strategy that can help achieve MR prerequisite Waste Performance, MR prerequisite Purchasing Policy, and MR credit Purchasing.

REQUIRED DOCUMENTATION

Documentation	Option 1	Option 2
MR building product disclosure and optimization calculator or equivalent tracking tool	X	X
EPD and LCA reports or compliant summary documents for 100% of products contributing toward credit	X	
Documentation of compliance with USGBC-approved program		X

Follow LEED v4 reference guide documentation requirements with the following modifications for Option 2:

- Option 1: use the LEED v4.1 MR building product calculator. For products that have been verified for LEED by GBCI, include "Verified for LEED Documentation" ID numbers, or copies of EPD/LCA reports and compliant summary documents in LEED Online for products contributing toward credit.
- Option 2: use the LEED v4.1 MR building product calculator. For products that have been verified for LEED by GBCI, include "Verified for LEED Documentation" ID numbers for products selected in the calculator, or copies of action plans and optimization reports in LEED Online for products contributing toward credit.

REFERENCED STANDARDS

International Standard ISO 14021-1999, Environmental labels and declarations—Self Declared Claims (Type II Environmental Labeling): iso.org

International Standard ISO 14025-2006, Environmental labels and declarations (Type III Environmental Declarations—Principles and Procedures): iso.org

International Standard ISO 14040-2006, Environmental management, Life cycle assessment principles, and frameworks: iso.org



EXEMPLARY PERFORMANCE

Option 1: Purchase at least 40 qualifying permanently installed building products from ten different manufacturers that meet the credit criteria (Purchase at least 20 products from five different manufacturers for Core and Shell and Warehouse & Distribution Centers).

Option 2: Purchase at least 10 compliant products from five different manufacturers of permanently installed building products that meet the credit criteria.



TERMS AND DEFINITIONS

Cradle-to-gate assessment analysis of a product's partial life cycle, from resource extraction (cradle) to the factory gate (before it is transported for distribution and sale). It omits the use and the disposal phases of the product.

Enclosure the exterior plus semi-exterior portions of the building. Exterior consists of the elements of a building that separate conditioned spaces from the outside (i.e., the wall assembly). Semiexterior consists of the elements of a building that separate conditioned space from unconditioned space or that encloses semi-heated space through which thermal energy may be transferred to or from the exterior or conditioned or unconditioned spaces (e.g., attic, crawl space, basement).

Environmental product declaration a statement that the item meets the environmental requirements of ISO 14021-1999, ISO 14025-2006 and EN 15804, or ISO 21930-2007

Life-cycle assessment an evaluation of the environmental effects of a product from cradle to grave, as defined by ISO 14040-2006 and ISO 14044-2006

