



LEED IMPLEMENTATION GUIDE

FOR DESIGN PROFESSIONALS

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MATERIALS AND RESOURCES - MR

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LEARNING OBJECTIVES





- INTRODUCTION TO MR / STORAGE AND COLLECTION OF RECYCLABLES
- CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLANNING
- BUILDING LIFE-CYCLE IMPACT REDUCTION
- BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION - ENVIRONMENTAL PRODUCT DECLARATIONS
- BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION - SOURCING OF RAW MATERIALS
- BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION - MATERIAL INGREDIENTS
- CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT



MATERIALS AND RESOURCES



The Materials and Resources (MR) credit category focuses on minimizing the embodied energy and other impacts associated with the extraction, processing, transport, maintenance, and disposal of building materials. The requirements are designed to support a life-cycle approach that improves performance and promotes resource efficiency. Each requirement identifies a specific action that fits into the larger context of a life-cycle approach to embodied impact reduction.

-  **CRITERIA IN THIS CATEGORY**
- MR PR STORAGE AND COLLECTION OF RECYCLABLES
- MR PR CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLANNING
- MR CR BUILDING LIFE-CYCLE IMPACT REDUCTION
- MR CR ENVIRONMENTAL PRODUCT DECLARATIONS
- MR CR SOURCING OF RAW MATERIALS
- MR CR MATERIAL INGREDIENTS
- MR CR CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT
-  **MAXIMUM POSSIBLE CREDITS : 2 P / 13 C**

MR - PR- DESIGN

INTENT

To reduce the disproportionate burden of landfills and incinerators that is generated by building occupants' waste hauled to and disposed of in landfills and incinerators through reduction, reuse and recycling service and education, and to conserve natural

POTENTIAL TECHNOLOGIES & STRATEGIES

☒Waste disposal continues to be a significant environmental burden on communities and ecosystems. In the U.S., paper, food, glass, metals, and plastics: all recyclable—make up approximately 68% of total municipal solid waste (Figure 1). By diverting such recyclable waste from landfills, building owners can not only reduce hauling costs but also help convert recyclables into new products, reducing demand for virgin materials.

STORAGE AND COLLECTION OF RECYCLABLES

REQUIREMENTS

Provide dedicated areas accessible to waste haulers and building occupants for the collection and storage of recyclable materials for the entire building. Collection and storage areas may be separate locations. Recyclable materials must include mixed paper, corrugated cardboard, glass, plastics, and metals. Take appropriate measures for the safe collection, storage, and disposal of two of the following: batteries, mercury-containing lamps, and electronic waste.

IMPLEMENTATION

REQUIRED DOCUMENTATION		
Documentation	All projects	Retail only
Verification of recycled material types	X	
Narrative describing recycling storage and collection strategies	X	
Floor plans indicating recycling storage and collection areas	X	
Methodology and results of waste stream study		X

MR - PR - CONSTRUCTION

INTENT

To reduce construction and demolition waste disposed of in landfills and incineration facilities by recovering, reusing, and recycling materials

POTENTIAL TECHNOLOGIES & STRATEGIES

☒Construction waste is a significant portion of the waste produced in the world. The U.S. Environmental Protection Agency (EPA) estimated that in the U.S. In 2002, 170 million tons of construction and demolition waste were generated and, of that, 40% from nonresidential construction projects. The European Commission estimates that 510 million metric tonnes of construction waste is generated annually by European Union member nations.² Keeping these materials out of landfills prevents ground and water pollution, promotes recycling, and keeps materials in active use longer.

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLANNING

REQUIREMENTS

Develop and implement a construction and demolition waste management plan: Establish waste diversion goals for the project by identifying at least five materials (both structural and nonstructural) targeted for diversion. Approximate a percentage of the overall project waste that these materials represent. . Specify whether materials will be separated or commingled and describe the diversion strategies planned for the project. Describe where the material will be taken and how the recycling facility will process the material.Provide a final report detailing all major waste streams generated, including disposal and diversion rates. Alternative daily cover (ADC) does not qualify as material diverted from disposal. Land-clearing debris is not considered construction, demolition, or renovation waste that can contribute to waste diversion.

IMPLEMENTATION

REQUIRED DOCUMENTATION	
Documentation	All projects
Construction waste management plan	X
Total construction waste	X

MR- CR(5) - CONSTRUCTION

INTENT

To encourage adaptive reuse and optimize the environmental performance of products and materials.

POTENTIAL TECHNOLOGIES & STRATEGIES

Over their lifetimes, buildings have local, regional, and global environmental effects. Some occur during the harvest, extraction, manufacture, and transportation of materials; others involve construction and operations; still others take place at demolition and disposal. A life-cycle assessment (LCA) examines as many of these environmental effects as possible. This credit identifies several strategies for reducing harm done to the environment over a building's entire life cycle: restoring existing buildings, reusing building components, and reducing a building's environmental footprint through LCA.

BUILDING LIFE-CYCLE IMPACT REDUCTION

REQUIREMENTS

Demonstrate reduced environmental effects during initial project decision-making by reusing existing building resources or demonstrating a reduction in materials use through life-cycle assessment. Achieve one of the following options.
Option 1. Building and Material Reuse (1-5 points BD+C, 2-6 points Core and Shell)
Option 2. Whole-Building Life-Cycle Assessment (1-4 points)

IMPLEMENTATION

REQUIRED DOCUMENTATION

Documentation	Option 1	Option 2	Option 3	Option 4
Documentation of historic designation status	X			
Historic building designation (if any)	X			
Documentation of new addition and alterations (prior to first scheduled occupancy)	X			
Historic building designation or registration		X		
Record documents book dedications		X	X	
Documentation of LCA applications, codes and data sources used in building and product LCA				X
LCA-related assessment criteria showing data transparency and program goals contributing to program objectives				X

MR- CR(2) - CONSTRUCTION

INTENT

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products from manufacturers who have verified improved

POTENTIAL TECHNOLOGIES & STRATEGIES

As EPDs become commonplace, this credit will recognize the most advanced disclosures available. Giving preference to products with EPDs supports the transition from a "single-attribute" approach to one that relies on more comprehensive reporting and rewards manufacturers whose products are less harmful to the environment. The diversity of options and compliance paths in this credit is designed to reward both initial first steps and leadership in life-cycle information disclosure. The credit intends to help transform the market for building products and materials for which life-cycle information is available and encourage manufacturers that have verified their environmental performance.

ENVIRONMENTAL PRODUCT DECLARATIONS

REQUIREMENTS

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).

IMPLEMENTATION

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

MR- CR(2) - CONSTRUCTION

INTENT

To encourage the use of products and materials for which life cycle information is available and that have environmentally, economically, and socially preferable life cycle impacts. To reward project teams for selecting products verified to have been extracted or sourced in a responsible manner.

POTENTIAL TECHNOLOGIES & STRATEGIES

Raw material extraction has a direct environmental impact on karst ecosystems. For example, conventional logging is the largest source of deforestation in Latin America and subtropical Asia, accounting for more than 70% of resource depletion; mining operations clear another 18% of the world's forests. Unmanaged extraction practices can cause not only deforestation but also degradation of water sources, habitat loss, threats to rare and endangered species, releases of toxic chemicals, and the infringement of indigenous peoples' rights.

SOURCING OF RAW MATERIALS

REQUIREMENTS

Responsible Sourcing of Raw Materials (1-2 points) Use products sourced from at least three different manufacturers that meet at least one of the responsible sourcing and extraction criteria below for at least 15%, by cost, of the total value of permanently installed building products in the project (1 point). Use products sourced from at least five different manufacturers that meet at least one of the responsible sourcing and extraction criteria below for at least 30%, by cost, of the total value of permanently installed building products in the project (2 points). 182 U.S. Green Building Council)

IMPLEMENTATION

REQUIRED DOCUMENTATION

Documentation	Option 1	Option 2
MR building product disclosure and optimization calculator or equivalent tracking tool	X	X
Corporate sustainability reports for 100% of products contributing toward credit	X	
Documentation of product claims for credit requirements or other USGBC-approved program		X

MR- CR(2) - CONSTRUCTION

INTENT

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products for which the chemical ingredients in the product are inventoried using an accepted methodology and for selecting products verified to minimize the use and generation of harmful substances. To reward raw material manufacturers who produce products verified to have improved life-cycle impacts.

POTENTIAL TECHNOLOGIES & STRATEGIES

☐ This credit aims to support manufacturers that disclose information about the ingredients in their products, allowing project teams to make better-informed decisions. The programs described below use hazard assessment approaches that evaluate multiple human and environmental health endpoints at a level of detail that goes beyond the scope of most life-cycle assessments. Project teams may demonstrate responsible product selection by providing manufacturers' reports or by ensuring the absence of materials of concern, using specified programs.

MATERIAL INGREDIENTS

REQUIREMENTS

Use at least 20 different permanently installed products from at least five different manufacturers that use any of the following programs to demonstrate the chemical inventory of the product to at least 0.1% (1,000 ppm). (10 different permanently installed products from at least three different manufacturers for CS and Warehouses & Distribution Centers) 186 U.S. Green Building Council

IMPLEMENTATION

REQUIRED DOCUMENTATION

Documentation	Option 1	Option 2	Option 3
MR building product disclosure and substantiation statement or equivalent verification	X	X	
Documentation of chemical inventory through hazard assessment programs, which include verification using manufacturer's list of ingredients and verification of ingredient sources (e.g., GreenScreen or a USGBC-approved program if applicable)	X		
Inclusion of material safety data sheets (MSDS) or equivalent verification documents (e.g., GreenScreen or a USGBC-approved program if applicable)		X	
Documentation of supply chain optimization			X

MR- CR(2)- CONSTRUCTION

INTENT

To reduce construction and demolition waste disposed of in landfills and incineration facilities through waste prevention and by reusing, recovering, and recycling materials, and conserving resources for future generations. To delay the need for new landfill facilities that are often located in frontline communities and create green jobs and materials markets for building construction services.

POTENTIAL TECHNOLOGIES & STRATEGIES

☐ Both planning and implementation are critical to reducing construction waste. This credit rewards project teams that implement the plan created in MR Prerequisite Construction and Demolition Waste Management Planning. It encourages the diversion of a greater quantity and diversity of materials across multiple material streams by setting thresholds for both an overall diversion percentage and a minimum number of material streams. With an option that rewards waste reduction, the credit also offers an alternative to diversion. For more on the benefits of diverting construction and demolition waste, please refer to the prerequisite.

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

REQUIREMENTS

Develop and implement a construction and demolition waste management plan and achieve points through waste prevention and/or diversion.
Waste Management Plan and Report:
All projects must develop and implement a construction and demolition waste management plan.
☐ Identify strategies to reduce the generation of waste during project design and construction.
☐ Establish waste diversion goals for the project by identifying the materials (both structural and nonstructural) targeted for diversion.
☐ Describe the diversion strategies planned for the project. Describe where materials will be taken including expected diversion rates for each material.

IMPLEMENTATION

REQUIRED DOCUMENTATION

Documentation	Option 1	Option 2
MR Construction and Demolition Waste Management calculator or equivalent tool, tracking total and diverted waste amounts and material streams	X	
Documentation of recycling rates for commingled facilities (if applicable)	X	
Justification narrative for use of waste-to-energy strategy (if applicable)	X	
Documentation of waste-to-energy facilities adhering to relevant EN standards (if applicable)	X	
Total waste per area		X