



WORLD LEADER IN FLEXIBLE SPACE MANAGEMENT



OPERABLE  
GLASSWALL  
ACCORDION

PARTITIONS

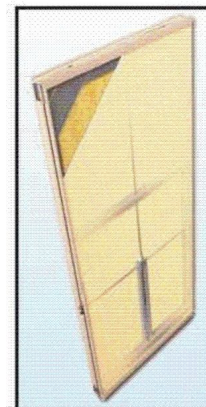
## LEED™ VERSION 3

### The Materials In Hufcor Products Can Contribute To The Achievement Of LEED Points



**O**n April 27, 2009, USGBC launched LEED v3. LEED is an internationally recognized certification system that measures how well a building or community performs across all the metrics that matter most: energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts. Developed by the U.S. Green Building Council (USGBC), LEED provides building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions. The ability to be flexible allows LEED to evolve, taking advantage of new technologies and advancements in building science while prioritizing energy efficiency and CO2 emissions reductions.

As a manufacturer, Hufcor also recognizes the importance of innovation in sustainable design. Hufcor Operable Partitions, Accordion Partitions and Moveable Glasswall Partitions are highly engineered products manufactured with raw materials such as Gypsum Dry Wall, Steel, Aluminum, Glass and Wood. Specified percentages of these materials can contribute to the achievement of LEED points in the Materials and Resources Category of the LEED rating system. The materials in Hufcor products can also contribute to the achievement of LEED points in the Indoor Environmental Quality Category of the LEED rating system.



**Following is a brief description of the possible applicable credits from the Project Scorecard checklist for LEED 2009 for New Construction and Major Project Renovation.**

#### **MR Credit 1.2: Building Reuse-Maintain interior nonstructural elements 1 point**

##### **Intent**

To extend the lifecycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.

##### **Requirements**

Use existing interior nonstructural elements (e.g., interior walls, doors, floor coverings and ceiling systems) in at least 50% (by area) of the completed building, including additions. If the project includes an addition with square footage more than 2 times the square footage of the existing building, this credit is not applicable.

##### **Potential Technologies & Strategies**

Consider reusing existing building structures, envelopes and interior nonstructural elements. Remove elements that pose a contamination risk to building occupants, and upgrade components that would improve energy and water efficiency such as mechanical systems and plumbing fixtures. Quantify the extent of building reuse.

#### **MR Credit 3: Materials Reuse 1-2 points**

##### **Intent**

To reuse building materials and products to reduce demand for virgin materials and reduce waste, thereby lessening impacts associated with

the extraction and processing of virgin resources.

##### **Requirements**

Use salvaged, refurbished or reused materials, the sum of which constitutes at least 5% or 10%, based on cost, of the total value of materials on the project. The minimum percentage materials reused for each point threshold is as follows:

##### **Reused Materials Points**

5% - 1  
10% - 2

Mechanical, electrical and plumbing components and specialty items such as elevators and equipment cannot be included in this calculation. Include only materials permanently installed in the project. Furniture may be included if it is included consistently in MR Credit 3: Materials Reuse through MR Credit 7: Certified Wood.



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## Potential Technologies & Strategies

Identify opportunities to incorporate salvaged materials into the building design, and research potential material suppliers. Consider salvaged materials such as beams and posts, flooring, paneling, doors and frames, cabinetry and furniture, brick, and decorative items.

### MR Credit 4: Recycled Content 1-2 points

#### Intent

To increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

#### Requirements

Use materials with recycled content such that the sum of post-consumer recycled content plus 1/2 of the pre-consumer content constitutes at least 10% or 20%, based on cost, of the total value of the materials in the project.

The minimum percentage materials recycled for each point threshold is as follows:

#### Recycled Content Points

10% - 1  
20% - 2

The recycled content value of a material assembly is determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

Mechanical, electrical and plumbing components and specialty items such as elevators cannot be included in this calculation. Include only materials permanently installed in the project. Furniture may be included if it is included consistently in MR Credit 3: Materials Reuse through MR Credit 7: Certified Wood.

## Potential Technologies & Strategies

Establish a project goal for recycled content materials, and identify material suppliers that can achieve this goal. During construction, ensure that the specified recycled content materials are installed. Consider a range of environmental, economic and performance attributes when selecting products and materials.

*To receive a breakdown of recycled product content and recyclable product percentages please contact your local Hufcor distributor or visit our web site at [www.hufcor.com](http://www.hufcor.com).*

### MR Credit 5: Regional Materials 1-2 points

#### Intent

To increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

#### Requirements

Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% or 20%, based on cost, of the total materials value. If only a fraction of a product or material is extracted, harvested, or recovered and manufactured locally, then only that percentage (by weight) can contribute to the regional value. The minimum percentage regional materials for each point threshold is as follows:

#### Regional Materials Points

10% - 1  
20% - 2

Mechanical, electrical and plumbing components and specialty items such as elevators and equipment must not be included in this calculation. Include only materials permanently installed in the project. Furniture may be included if it is included consistently in MR Credit 3: Materials Reuse through MR Credit 7: Certified Wood.

## Potential Technologies & Strategies

Establish a project goal for locally sourced materials, and identify materials and material suppliers that can achieve this goal. During

construction, ensure that the specified local materials are installed, and quantify the total percentage of local materials installed. Consider a range of environmental, economic and performance attributes when selecting products and materials.

*Hufcor operable and accordion partitions and moveable glasswall panels are manufactured in Janesville, WI USA. Select paired and omni partitions are manufactured by Cortlex, the authorized Hufcor licensee in Quebec, Canada.*

### MR Credit 6: Rapidly Renewable Materials 1 point

#### Intent

To 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 for 2.5% of the total value of all building materials and products used in the project, based on cost. Rapidly renewable building materials and products are made from plants that are typically harvested within a 10-year or shorter cycle.

## Potential Technologies & Strategies

Establish a project goal for rapidly renewable materials, and identify products and suppliers that can support achievement of this goal. Consider materials such as bamboo, wool, cotton insulation, agrifiber, linoleum, wheatboard, strawboard and cork. During construction, ensure that the specified renewable materials are installed.

*Hufcor products can be customized to incorporate Rapidly Renewable Materials.*

### MR Credit 7: Certified Wood 1 point

#### Intent

To encourage environmentally responsible forest management.

#### Requirements

Use a minimum of 50% (based on cost) of wood-based materials and products that are certified in accordance with the Forest Stewardship Council's principles and criteria, for wood building components. These components include at a minimum, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes.

Include only materials permanently installed in the project. Wood products purchased for temporary use on the project (e.g., formwork, bracing, scaffolding, sidewalk protection, and guard rails) may be included in the calculation at the project team's discretion. If any such materials are included, all such materials must be included in the calculation. If such materials are purchased for use on multiple projects, the applicant may include these materials for only one project, at its discretion. Furniture may be included if it is included consistently in MR Credits 3, Materials Reuse, through MR Credit 7, Certified Wood.

## Potential Technologies & Strategies

Establish a project goal for FSC-certified wood products and identify suppliers that can achieve this goal. During construction, ensure that the FSC-certified wood products are installed and quantify the total percentage of FSC-certified wood products installed.

## INDOOR ENVIRONMENTAL QUALITY

### IEQ Credit 4.1: Low-Emitting Materials-Adhesives And Sealants 1 Point

#### Intent

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

#### Requirements

All adhesives and sealants used on the interior of the building (i.e., inside of the weatherproofing system and applied on-site) must comply with the following requirements as applicable to the project scope:



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- Adhesives, Sealants and Sealant Primers must comply with South Coast Air Quality Management District (SCAQMD) Rule #1168. Volatile organic compound (VOC) limits listed in the table below correspond to an effective date of July 1, 2005 and rule amendment date of January 7, 2005.

Architectural Applications	VOC Limit (g/L less water)	Specialty Applications	VOC Limit (g/L less water)
Indoor carpet adhesives	50	PVC welding	510
Carpet pad adhesives	50	CPVC welding	490
Wood flooring adhesives	100	ABS welding	325
Rubber floor adhesives	60	Plastic cement welding	250
Subfloor adhesives	50	Adhesive primer for plastic	550
Ceramic tile adhesives	65	Contact adhesive	80
VCT and asphalt adhesives	50	Special purpose contact adhesive	250
Drywall and panel adhesives	50	Structural wood member adhesive	140
Cove base adhesives	50	Sheet applied rubber lining operations	850
Multipurpose construction adhesives	70	Top and trim adhesive	250
Structural glazing adhesives	100		
Substrate Specific Applications	VOC Limit (g/L less water)	Sealants	VOC Limit (g/L less water)
Metal to metal	30	Architectural	250
Plastic foams	50	Nonmembrane roof	300
Porous material (except wood)	50	Roadway	250
Wood	30	Single-ply roof membrane	450
Fiberglass	80	Other	420
Sealant Primers	VOC Limit (g/L less water)		
Architectural, nonporous	250		
Architectural, porous	775		
Other	750		

- Aerosol Adhesives must comply with Green Seal Standard for Commercial Adhesives GS-36 requirements in effect on October 19, 2000.

## Aerosol Adhesives

## VOC Limit

General purpose mist spray	65% VOCs by weight
General purpose web spray	55% VOCs by weight
Special purpose aerosol adhesives (all types)	70% VOCs by weight

## Potential technologies & Strategies

Specify low-VOC materials in construction documents. Ensure that VOC limits are clearly stated in each section of the specifications where adhesives and sealants are addressed. Common products to evaluate include general construction adhesives, flooring adhesives, fire-stopping sealants, caulking, duct sealants, plumbing adhesives and cove base adhesives. Review product cut sheets, material safety data (MSD) sheets, signed attestations or other official literature from the manufacturer clearly identifying the VOC contents or compliance with referenced standards.

## IEQ Credit 4.4: Low-Emitting Materials-Composite Wood And Agrifiber Products 1 point

### Intent

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

### Requirements

Composite wood and agrifiber products used on the interior of the building (i.e., inside the weatherproofing system) must contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies must not contain added urea-formaldehyde resins.

Composite wood and agrifiber products are defined as particleboard,

medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates and door cores. Materials considered fixtures, furniture and equipment (FF&E) are not considered base building elements and are not included.

## Potential Technologies & Strategies

Specify wood and agrifiber products that contain no added urea-formaldehyde resins. Specify laminating adhesives for field and shop-applied assemblies that contain no added urea-formaldehyde resins. Review product cut sheets, material safety data (MSD) sheets, signed attestations or other official literature from the manufacturer.

## IEQ Credit 8.2: Daylight and Views-Views 1 point

### Intent

To provide building occupants a connection to the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.



### Requirements

Achieve a direct line of sight to the outdoor environment via vision glazing between 30 inches and 90 inches above the finish floor for building occupants in 90% of all regularly occupied areas. Determine the area with a direct line of sight by totaling the regularly occupied square footage that meets the following criteria:

- In plan view, the area is within sight lines drawn from perimeter vision glazing.
- In section view, a direct sight line can be drawn from the area to perimeter vision glazing.

The line of sight may be drawn through interior glazing. For private offices, the entire square footage of the office may be counted if 75% or more of the area has a direct line of sight to perimeter vision glazing. For multi-occupant spaces, the actual square footage with a direct line of sight to perimeter vision glazing is counted.

## Potential Technologies & Strategies

Design the space to maximize daylighting and view opportunities. Strategies to consider include lower partitions, interior shading devices, interior glazing and automatic photocell-based controls.

## Summary of Prerequisites and credits in the LEED 2009 for New Construction and Major Renovations:

- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy and Atmosphere (EA)
- Materials and Resources (MR)
- Indoor Environmental Quality (IEQ)
- Innovation in Design (ID)
- Regional Priority (RP)

## LEED 2009 for New Construction and Major Renovations certifications are awarded according to the following scale:

Certified 40-49 points  
Silver 50-59 points  
Gold 60-79 points  
Platinum 80 points and above



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**Hufcor continues to be a leader in developing new and innovative products, and maintains a strong conviction to building a better, more sustainable future.**

Hufcor is committed to being an industry leader when it comes to protecting the environment, by reducing pollutants and minimizing our environmental impact on air, water and land. For more than a decade, Hufcor has utilized a "Green" approach to manufacturing and energy consumption and has increased the percentage of materials that we recycle, reuse, repair, restock, or return for salvage. Conversely, during the same period, we have decreased energy consumption and harmful emissions.

Hufcor scrap reduction and recycling programs focus on the following materials:

- Aluminum Extrusions, and Cutting Scrap
- Cardboard
- Carpet, Vinyl, Fabric, Covering Materials
- Containers, Shipping Materials
- Newsprint/Magazines
- Plastics
- Steel, Stock and Coil
- Wood

**Hufcor Green manufacturing practices and product benefits include:**

Loose face construction:

- Reduces the use of adhesives that others use to adhere their faces to their frames
- Allows for faster, more efficient disassemble for material recovery after the product life cycle
- Repair in the field is easy and does not require tear downs

Product shipments utilize reusable panel racks thus reducing installation waste

Hufcor sources raw materials locally, reducing energy drain of raw materials-to-install.

Hufcor glasswall products are nearly 90% recyclable.

Hufcor glasswall manufacturing process plan calls for using the same container for shipping from the supplier, during assembly and shipping to the job site reducing packaging waste.

Low VOC adhesives

**Hufcor Earns Environmental Stewardship Award From Orion Energy Systems**

December, 2003: Hufcor receives Orion Energy Systems of

Plymouth, Wisconsin, Environmental Stewardship Award for the Hufcor energy-efficient lighting project in its 310,000 square foot manufacturing facilities. Hufcor is saving 383,000 kilowatts hours (kWh) annually and 7.66 million kWh over the sustainable lifetime of the lighting fixtures.

**Specific Green methods employed at Hufcor manufacturing locations include:**

- Increased insulation in the manufacturing area
- Eliminating and/or repairing air and water leaks
- More efficient heating and makeup air units
- Selecting less toxic materials with reduced emissions of VOC's
- Use of setback thermostats
- All four-color marketing literature is printed on recyclable papers using soy-based inks
- Energy efficient office and facility lighting
- Marketing plans call for more online, digital assets vs. printing.
- Hufcor continues to be a leader in developing new and innovative products, and maintains a strong conviction to building a better, more sustainable future.



**Hufcor is a member of the USGBC.**

**Hufcor supplies job specific LEED submittals upon request.**

**Hufcor operable partitions, accordion partitions and moveable glasswall partitions are customizable to incorporate green components.**



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