



# **Green Building Rating System For Commercial Interiors**

**Updated Pilot Version**

**July 1, 2004**

**This is a draft document  
and is subject to change  
without notification**



## Introduction



The Leadership in Energy and Environmental Design Rating System for Commercial Interiors (LEED-CI™) represents the U.S. Green Building Council's effort to provide a national standard for what constitutes "green building" practices for tenant improvement projects. As a design guideline with third-party certification, it aims to improve occupant well-being, environmental performance and economic returns of projects using both established and innovative practices, standards and technologies.

This version of the LEED-CI Rating System was prepared during the pilot, and therefore is not a final, balloted product. That said, this version attempts to correct mistakes and omissions found in earlier versions. It also incorporates Credit Interpretation Rulings made by the LEED-CI Core Committee prior to its release on July 1, 2004. The final balloted version, anticipated to be available in the fall of 2004, most likely will differ.

Based on the time of registration and submittal for certification, your project may be required to demonstrate performance to requirements other than those provided in this version of the LEED-CI Rating System. Confirm your project's status by checking [www.usgbc.org](http://www.usgbc.org) or contacting the USGBC at (202) 828-7422, or via email at [leed-ci@usgbc.org](mailto:leed-ci@usgbc.org).

For projects that had been accepted into the LEED-CI Pilot by January 5, 2004, your certification requirements and submittals, in certain instances, may be based on the earlier version of the LEED-CI Rating System.

From the time of the posting of this version and the final balloting, additional CIRs may be posted that revise and clarify the credits and prerequisites.

This Rating System document states the basic intent, requirements and submittals criteria that are necessary to achieve each prerequisite and voluntary credit. All prerequisites must be achieved in order to qualify for certification. Projects earn one or more points toward certification by meeting or exceeding each credit's technical requirements. Points add up to a final score that relates to one of four possible levels of certification. See the LEED Checklist for a summary of credit topics and point values. A short description of technologies and strategies is included for each credit to briefly inform those who are unfamiliar with the particular topic.

The LEED Reference Guide for Version 2.1 and the LEED-CI Supplemental Reference Guide (10/15/2003) — the technical companions to this Rating System — provide further background, explanations and instructions. Consult [www.usgbc.org](http://www.usgbc.org) for availability.



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## Sustainable Sites

7 Possible Points

	SSc1	Site Selection	3 ...
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		Select a LEED Certified Building (3 points)	
		Or locate the tenant space in a build with following characteristics:	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		• Zero use of HCFC and CFCs (1/2 point)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		Non-polluting source-renewable energy technologies (1/2 point)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		Operable windows (1/2 point)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		Located on former Brownfield (1/2 point)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		• Green roof (1/2 point)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		• Light Pollution Reduction (1/2 point)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		• Shade, high-albedo materials, open-grid pavement (1/2 point)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		• High-efficiency irrigation, reduced potable water use (1/2 point)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		Reduced potable water for sewage conveyance (1/2 point)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		• 20% water reduction in entire building (1/2 point)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SSc2	Development Density	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SSc4.1	• Alternative Transportation, Public Transportation Access	1 •
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SSc4.2	• Alternative Transportation, Bicycle Storage & Changing Rooms	1 •
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SSc4.4	• Alternative Transportation, Parking Availability	1 •

## Water Efficiency

2 Possible Points

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	WEc3.1	• Water Use Reduction, 20% Reduction	1 •
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	WEc3.2	• Water Use Reduction, 30% Reduction	1 •

## Energy & Atmosphere

14 Possible Points

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	EAp1	• Fundamental Building Systems Commissioning	Required •
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	EAp2	• Minimum Energy Performance	Required •
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	EAp3	• CFC Reduction in HVAC&R Equipment	Required •
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	EAc1.1	• Optimize Energy Performance, Lighting Power	3 ••
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	EAc1.2	• Optimize Energy Performance, Lighting Controls	2 •
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	EAc1.3	• Optimize Energy Performance, HVAC	2 •
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	EAc1.4	• Optimize Energy Performance, Equipment & Appliances	3 ••
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	EAc3	• Additional Commissioning	1 •
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	EAc5.1	Measurement & Verification, Sub-Metering	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	EAc5.2	Measurement & Verification, Energy Costs Paid By Tenant	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	EAc6	Green Power	1

## Materials & Resources

14 Possible Points

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRp1 • Storage & Collection of Recyclables	Required •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc1.1 • Tenant Space Reuse, Long Term Lease	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc1.2 Building Reuse, Maintain 40% of Interior Non-Shell Systems	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc1.3 Building Reuse, Maintain 60% of Interior Non-Shell Systems	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc2.1 • Construction Waste Management, Divert 50% From Landfill	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc2.2 Construction Waste Management, Divert 75% From Landfill	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc3.1 <del>X</del> Resource Reuse, 5% (Post-consumer + 1/2 post-industrial)	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc3.2 Resource Reuse, 10% (Post-consumer + 1/2 post-industrial)	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc3.3 Resource Reuse, 30% Furniture and Furnishings	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc4.1 • Recycled Content, 10% (post-consumer + 1/2 post-industrial)	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc4.2 Recycled Content, 20% (post-consumer + 1/2 post-industrial)	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc5.1 • Regional Materials, 20% Manufactured Regionally	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc5.2 Regional Materials, 10% Extracted and Manufactured Regionally	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc6 Rapidly Renewable Materials	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MRc7 • Certified Wood	1 •

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## Indoor Environmental Quality

15 Possible Points

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQp1 • Minimum IAQ Performance	Required •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQp2 • Environmental Tobacco Smoke (ETS) Control	Required •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc1 • Carbon Dioxide (CO <sub>2</sub> ) Monitoring	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc2 • Ventilation Effectiveness	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc3.1 • Construction IAQ Management Plan, During Construction	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc3.2 • Construction IAQ Management Plan, After Construction/Before Occupancy	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc4.1 • Low-Emitting Materials, Adhesives and Sealants	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc4.2 • Low-Emitting Materials, Paints	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc4.3 • Low-Emitting Materials, Carpet	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc4.4 • Low-Emitting Materials, Composite Wood	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc4.5 • Low-Emitting Materials, Systems Furniture and Seating	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc5 Indoor Chemical & Pollutant Source Control	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc6 • Controllability of Systems	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc7.1 • Thermal Comfort, Compliance with ASHRAE 55-1992	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc7.2 • Thermal Comfort, Permanent Monitoring System	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc8.1 • Daylight and Views, Daylight 75% of Spaces	1 •
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EQc8.2 Daylight and Views, Views for 90% of Spaces	1

13

## Innovation & Design Process

5 Possible Points

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	IDc1.1	Innovation in Design	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	IDc1.2	Innovation in Design	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	IDc1.3	Innovation in Design	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	IDc1.4	Innovation in Design	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	IDc2	LEED Accredited Professional	1

## Project Totals

57 Possible Points

Certified	21 – 26 Points
Silver	27 – 31 Points •
Gold	32 – 41 Points •
Platinum	42 – 57 Points



# Sustainable Sites

## Site Selection

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### Intent

Encourage tenants to select buildings with best practices systems and employed green strategies.

### Requirements

- Select a LEED Certified Building

OR select for the tenant space a building that meets two or more of these requirements:

- ★ Zero use of HCFC and CFC-based refrigerants and halon fire suppression systems in the entire building. Or, owners of buildings with existing HCFC and CFC-based refrigerants and halon suppression systems must have a 5-year phase-out plan.
- Building employs the use of non-polluting source-renewable energy technologies for at least 5% of total energy load.
- Operable windows in at least 75% of regularly occupied spaces on a perimeter wall.
- Located on a site formerly classified as a Brownfield.
- Has a "green" vegetated roof for at least 50% of the roof area of the entire building, OR, has an Energy Star compliant roof with an emissivity of at least 0.9 for at least 75% of the roof area of the entire building..
- ★ The selected building meets criteria for light pollution reduction.
- The selected building provides shade (within 5 years) and/or uses light-colored/high-albedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30% of the site's non-roof impervious surfaces, including parking lots, walkways, plazas, etc.; OR place a minimum of 50% of parking spaces underground or covered by structured parking; OR use an open-grid pavement system (less than 50% impervious) for 50% of the parking lot area.
- ★ Building employs high-efficiency irrigation technology OR uses captured rain or recycled site water to reduce potable water consumption for irrigation by 50% over conventional means.
- Building reduces the use of municipally provided potable water for building sewage conveyance by a minimum of 50%, OR treats 100% of wastewater on site to tertiary standards.
- ★ Building meets the 20% reduction in water use requirement for the entire building and has an on-going plan to require future occupants to comply.

### Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer, building owner, engineer or other responsible party, declaring compliance with each claimed requirement based on the applicable standards as defined in applicable LEED Green Building Rating System.

SS	WE	EA	MR	EQ	ID
Credit 1					

3 points  
for  
LEED Certified  
Building  
or  
1 point  
for any two  
requirements  
up to a  
maximum of  
3 points

SS	WE	EA	MR	EQ	ID
<b>Credit 1</b>					

## Potential Technologies & Strategies

During the building selection process, give preference to those properties employing the highest and best green building strategies.

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LEED-CI CIR SScl (11/12/03 – 12/22/03)

12/22/2003 Ruling:

As an alternative to selecting a LEED Certified Building, applicants are encouraged to identify ways to earn up to three points on this credit. In addition to demonstrating that six of the requirements have been satisfied, an applicant may propose other LEED-NC credits for consideration; if a credit is accepted by way of a CIR, and the applicant demonstrates compliance at the time of certification review, they will receive a half point.

The applicant may also earn an additional half point for one of the recognized credits by demonstrating that the requirement has been significantly exceeded.

## Development Density

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SS	WE	EA	MR	EQ	ID
Credit 2					

### Intent

1 point

Channel development to urban areas with existing infrastructure, protect greenfields, and preserve habitat and natural resources.

### Requirements

Increase localized density to conform to existing or desired density goals by utilizing sites that are located within an existing minimum development density of 60,000 square feet per acre (two story downtown development).

### Submittals

Provide the LEED-CI Letter Template, signed by the civil engineer, architect or other responsible party, declaring that the project has achieved the required development densities. Provide density for the project and for the surrounding area. Provide an area plan with the project location highlighted.

### Potential Technologies & Strategies

During the site selection process, give preference to the urban sites.

1 point

**Intent**

Reduce pollution and land development impacts from automobile use.

**Requirements**

Tenant to select building within 1/2 mile of a commuter rail, light rail or subway station or 1/4 mile of two or more public or campus bus lines usable by tenant occupants.

**Submittals**

Provide the LEED-CI Letter Template, signed by an appropriate party, declaring that the building in which the project is located is located within required proximity to mass transit.

Provide an area drawing or transit map highlighting the building location, the fixed rail stations and bus lines, and indicate the distances between them. Include a scale bar for distance measurement.

**Potential Technologies & Strategies**

Perform a transportation survey of potential tenant occupants to identify transportation needs. Choose a building near mass transit.

## **Alternative Transportation**

### **Bicycle Storage & Changing Rooms**

SS	WE	EA	MR	EQ	ID
<b>Credit 4.2</b>					

#### **Intent**

1 point

Reduce pollution and land development impacts from automobile use.

#### **Requirements**

Provide secure bicycle storage, with convenient changing/shower facilities (within 200 yards of the building) for 5% or more of tenant occupants.

#### **Submittals**

Provide the LEED-CI Letter Template, signed by the architect, interior designer or responsible party, declaring the distance to the cycle storage and showers from the building entrance, showing the number of regular tenant occupants and demonstrating that more than 5% of occupants have provision.

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

Select a building with transportation amenities such as bicycle racks and showering / changing facilities or add them as part of the tenant fit-out.

## **Alternative Transportation**

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### **Parking Availability**

1 point

#### **Intent**

Reduce pollution and land development impacts from single occupancy vehicle use.

#### **Requirements**

- Parking spaces guaranteed to tenant shall not exceed minimum number required by local zoning regulations.
- OR
- No parking availability provided with tenant lease.
- OR<sup>1</sup>
- Add no new parking for single tenant building projects with existing parking facilities AND provide preferred parking for carpools or vanpools capable of serving 5% of the building occupants.

#### **Submittals**

Provide the LEED-CI Letter Template, signed by the architect, interior designer or responsible party, stating any relevant section of local zoning regulation defining parking requirements for tenant's occupancy group and zone.

Provide the LEED-CI Letter Template, signed by the architect, interior designer or responsible party, showing the section of tenant's lease that indicates parking guarantees.

<sup>2</sup>For single tenant building projects with existing parking facilities: provide the LEED-CI Letter Template, signed by the architect, interior designer or responsible party, declaring that no new parking capacity has been added. State the number of preferred parking spaces for carpools.

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

Select a building with minimized car parking capacity and include limited parking inclusions in the lease.

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<sup>1,2</sup>LEED-CI CIR SS4.4 (11/21/03 – 1/19/04)

# Water Efficiency

## Water Use Reduction

### 20% Reduction

SS	WE	EA	MR	EQ	ID
Credit 3.1					

#### Intent

1 point

Maximize water efficiency within tenant spaces to reduce the burden on municipal water supply and wastewater systems.

#### Requirements

For at least 50% of the tenant occupancy requirements<sup>1</sup> employ strategies that in aggregate use 20% less water than the water use baseline calculated for the tenant space (not including irrigation) after meeting Energy Policy Act of 1992 fixture performance requirements.

#### Submittals

Provide the LEED-CI Letter Template, signed by the MEP Engineer or other responsible party, declaring that the project uses 20% less water for at least 50% of the tenant occupancy requirements than the baseline fixture performance requirements of the Energy Policy Act of 1992.

Provide spreadsheet calculation demonstrating that the water-consuming fixtures specified for the stated occupancy and use of the tenant reduce occupancy-based potable water consumption for 50% of the occupants by 20% over baseline conditions.

#### Potential Technologies & Strategies

Estimate the potable and non-potable water needs for the tenant space. Use high efficiency fixtures, dry fixtures such as composting toilets and waterless urinals, and occupant sensors to reduce the potable water demand.

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<sup>1</sup>LEED-CI Administrative Ruling 3/11/03

1 point  
in addition to  
WE 3.1

### **Intent**

Maximize water efficiency within tenant spaces to reduce the burden on municipal water supply and wastewater systems.

### **Requirements**

For 100% of the tenant occupancy requirements employ strategies that in aggregate use 30% less water than the water use baseline calculated for the tenant space (not including irrigation) after meeting Energy Policy Act of 1992 fixture performance requirements.

### **Submittals**

Provide the LEED-CI Letter Template, signed by the MEP Engineer or other responsible party, declaring that project uses 30% less water for 100% of the tenant occupancy requirements than baseline fixture performance requirements of the Energy Policy Act of 1992.

Provide spreadsheet calculation demonstrating that the water consuming fixtures specified for the stated occupancy and use of the tenant reduce occupancy based potable water consumption for 100% of the occupants by 30% over baseline conditions.

### **Potential Technologies & Strategies**

Estimate the potable and non-potable water needs for the tenant space. Use high efficiency fixtures, dry fixtures such as composting toilets and waterless urinals, and occupant sensors to reduce the potable water demand.



# Energy & Atmosphere

## Fundamental Building Systems Commissioning

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SS	WE	<b>EA</b>	MR	EQ	ID
<b>Prerequisite 1</b>					

### Intent

Required

Verify and ensure that fundamental building elements and systems are designed, installed and calibrated to operate as intended for the tenant scope of work.

### Requirements

For the following fundamental best practices commissioning procedures, implement items 1 through 4 prior to submittal, and either implement or have a contract in place to implement items 5 through 7.

1. Engage a commissioning team that does not include individuals directly responsible for project design or construction management.
2. Review the design intent and the basis of design documentation.
3. Incorporate commissioning requirements into the construction documents
4. Develop and utilize a commissioning plan.
5. Verify and ensure that all active systems for which LEED-CI Credit is being sought in the tenant space are designed, constructed, and calibrated to operate as intended.
6. Determine if installed systems and controls meet occupant requirements and design intent. Identify to owner any unresolved deficiencies associated with installed systems.
7. Complete a commissioning report.

### Submittals

Provide the LEED-CI Letter Template, signed by the owner or commissioning agent, confirming that the fundamental commissioning requirements have been successfully executed or will be provided under existing contract(s).

### Potential Technologies & Strategies

Engage a commissioning authority and adopt a commissioning plan. Include commissioning requirements in bid documents and task the commissioning agent to produce a commissioning report once commissioning activities are complete.

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LEED-CI CIR EAp1 (6/28/04 - 6/28/04) revised the requirements and submittal criteria for this prerequisite.

Required

### Intent

Establish the minimum level of energy efficiency for the tenant space systems.

### Requirements

Design portions of the building as covered by the tenant's scope of work to comply with ASHRAE/IESNA Standard 90.1-1999 (without amendments) or the local energy code whichever is more stringent.

### Submittals

<sup>1</sup>Provide the LEED-CI Letter Template, signed by the licensed professional engineer, architect or responsible party, stating that the tenant space complies with ASHRAE/IESNA 90.1-1999 or local energy codes. If local energy codes other than California Title 24 were applied, demonstrate that the local energy code is equivalent to or more stringent than ASHRAE/IESNA 90.1-1999 (without amendments). Provide a narrative and diagrams indicating how the HVAC system works, what portions are shared with other tenants in the building, what was included in the project scope of work, and if improvements were made in conjunction with the project by others to any common building systems supplying the tenant area.

### Potential Technologies & Strategies

Design the systems impacted in the tenant's scope of work to maximize energy performance. Use a computer simulation model to assess the energy performance and identify the most cost effective energy measures. Quantify energy performance as compared to the baseline building.

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<sup>1</sup>LEED-CI CIR EAp2 (4/19/04 – 4/19/04) revised the submittal criteria concerning projects using California Title 24.

## CFC Reduction in HVAC&R Equipment

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SS	WE	EA	MR	EQ	ID
Prerequisite 3					

### Intent

Required

Reduce ozone depletion.

### Requirements

Zero use of CFC-based refrigerants in new tenant HVAC&R systems when within scope of work.

### Submittals

Provide the LEED-CI Letter Template, signed by the professional engineer or other responsible party, declaring that there are no CFC's in the HVAC&R systems for the Tenant.

### Potential Technologies & Strategies

When reusing existing HVAC systems, conduct an inventory to identify equipment the uses CFC refrigerants and adopt a replacement schedule for the refrigerants. For new installations, specify new HVAC equipment that uses no CFC refrigerants.

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LEED-CI CIR EAp3 (10/31/03 – 11/24/03)

11/24/2003 Ruling:

The LEED-CI Supplemental Reference Guide (10/15/03) is incorrect and will be revised to reflect the less inclusive requirement of EA Prerequisite 3 of "Zero use of CFC-based refrigerants in new tenant HVAC&R systems when within scope of work." No phase out of existing CFCs is required to satisfy the prerequisite.

Furthermore, the LEED-CI Supplemental Reference Guide (10/15/03) will be revised concerning the requirement in SScl concerning CFCs, HCFCs and Halon suppression systems within the entire building. If the phase out option of the requirement is followed, the period for CFCs, along with HCFCs and Halon systems, will be five years which starts at substantial completion of the tenant project. All systems within the building, including those within the tenant project, must be included in the requirement.

## **Optimize Energy Performance**

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### **Lighting Power**

1 - 3 points

#### **Intent**

Achieve increasing levels of energy consumption below the prerequisite standard to reduce environmental impacts associated with excessive energy use.

#### **Requirements**

Reduce connected lighting power density below that allowed by ASHRAE/IESNA Standard 90.1-1999 using either the space-by-space method or by applying the whole building lighting power allowance to the entire tenant space.

- Reduce lighting power density to 20% below the standard,

**OR**

- Reduce lighting power density to 30% below the standard,

**OR**

- Reduce lighting power density to 40% below the standard.

#### **Submittals**

Complete the Lighting Compliance Documentation provided in the ASHRAE/IESNA Standard 90.1-1999 User's Manual. Provide a separate calculation that shows the percentage reduction in lighting power.

**AND**

Provide the LEED-CI Letter Template, signed by the professional engineer or responsible party, stating that the lighting power density is reduced below ASHRAE requirements consistent with the level of credit being sought.

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

Design the connected lighting power to maximize energy performance. Use a computer simulation model to assess the performance and identify the most cost effective energy efficiency measures. Quantify energy performance as compared to a base building.

## Optimize Energy Performance

### Lighting Controls

SS	WE	EA	MR	EQ	ID
Credit 1.2					

#### Intent

1 - 2 points

Achieve increasing levels of energy conservation below the prerequisite standard to reduce environmental impacts associated with excessive energy use.

#### Requirements

1. Install automatic occupancy lighting controls. (1 point)

- Install occupancy sensors in all spaces that are not regularly occupied, such as restrooms, copy rooms, storage areas, laundry areas and other low occupancy support spaces.

AND

- Maintain all non-emergency lighting on a programmable timer that turns lighting off during non-business hours. Provide manual override capability for after hours use.

2. Install daylight responsive controls in all regularly occupied spaces within 15 ft of windows and under skylights. (1 point)

#### Submittals

Provide the LEED-CI Letter Template, signed by the professional engineer or responsible party, stating that lighting controls were installed consistent with the requirements of both parts of this credit.

AND

Provide a narrative describing the lighting controls that have been incorporated in the tenant space design to satisfy one or both parts of this credit. The narrative should provide justification for not automatically controlling areas without controls. Include a plan of lighting control zones showing each control device and lighting equipment controlled. Provide a schedule of lighting controls showing model, type, and other characteristics.

#### Potential Technologies & Strategies

Design the lighting controls to maximize energy performance. Use a variety of lighting control resources, i.e. daylight sensors, automatic dimming, occupancy sensors, individual occupancy controls, etc.

## Optimize Energy Performance

### HVAC

1 - 2 points

#### Intent

Achieve increasing levels of energy conservation below the prerequisite standard to reduce environmental impacts associated with excessive energy use.

#### Requirements

Reduce design energy cost compared to the energy cost budget for regulated energy components described in the requirements of ASHRAE/IESNA Standard 90.1-1999.

- Demonstrate that HVAC system component performance criteria used for tenant space are 15% better than a system that is in minimum compliance with ASHRAE/IESNA Standard 90.1-1999,

OR

- Demonstrate that HVAC system component performance criteria used for tenant space are 30% better than a system that is in minimum compliance with ASHRAE/IESNA Standard 90.1-1999.

#### Submittals

Provide the LEED-CI Letter Template, signed by the licensed professional engineer or architect, stating that the HVAC system energy consumption is 15% or 30% (depending on credit taken) lower than a base case system defined in ASHRAE/IESNA Standard 90.1-1999, Section 11. Provide a completed and signed copy of the Energy Cost Budget (ECB) Compliance Form. Provide a narrative description of the HVAC system serving the Tenant space as well as a description of the building level system. Plans and specifications should have an HVAC equipment schedule and plans showing the equipment within the space.

#### Potential Technologies & Strategies

Design the HVAC system components to maximize energy performance. Use a computer simulation model to assess the energy performance and identify the most cost effective energy efficiency measures. Quantify energy performance as compared to a baseline building.

## Optimize Energy Performance

### Equipment & Appliances

SS	WE	EA	MR	EQ	ID
Credit 1.4					

#### Intent

1 - 3 points

Achieve increasing levels of energy conservation beyond the prerequisite standard to reduce environmental impacts associated with excessive energy use.

#### Requirements

Reduce the power of equipment and appliances used in the Tenant space beyond the prerequisite level defined below.

- Demonstrate a connected equipment and appliance load lower than 1.25 W/sq.ft.  
OR
- Demonstrate a connected equipment and appliance load lower than 1.00 W/sq.ft.  
OR
- Demonstrate a connected equipment and appliance load lower than 0.75 W/sq.ft.

#### Submittals

Provide a narrative describing the new equipment that will be installed as part of the Tenant improvements. Provide a schedule of equipment with the adjusted power of each. Calculate the power density of the tenant space.

#### Potential Technologies & Strategies

Select equipment and appliances to minimize load. Network peripherals and install equipment as defined by Energy Star Program.

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During the LEED-CI Pilot, an alternative compliance has been proposed for this credit, evaluating office equipment power usage per occupant. It is found in the LEED-CI Letter Templates. Also, the Public Review version of this credit proposes yet another approach that might be accepted for use by pilot projects at some future date. Project teams should check the posted LEED-CI Pilot CIRs or confirm with the pilot administrator which variations of this credit may be used.

## **Additional Commissioning**

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1 point

### **Intent**

Verify and ensure that the tenant space is designed, constructed, and calibrated to operate as intended.

### **Requirements**

In addition to the Fundamental Building Commissioning prerequisite, implement or have a contract in place to implement the following additional commissioning tasks:

1. A commissioning authority independent of the design team shall conduct a review of the design prior to the construction documents phase.
2. An independent commissioning authority shall conduct a review of the construction documents near completion of the construction documents development and prior to issuing the contract documents for construction.
3. An independent commissioning authority shall review the contractor submittals relative to systems being commissioned.
4. Provide the tenant with a single manual that contains the information required for re-commissioning tenant systems.
5. Have a contract in place to review current systems operations with operational staff, including a plan for resolution of outstanding commissioning-related issues within one year after the construction completion date.

### **Submittals**

Provide the LEED-CI Letter Template, signed by the tenant or independent commissioning agent(s) as appropriate, confirming that the required additional commissioning tasks have been successfully executed or will be provided under existing contract(s).

### **Potential Technologies & Strategies**

Engage the Commissioning Authority early in the design phase. Task the commissioning agent to conduct project reviews before and after construction documents are complete. The Commissioning Agent must also create a re-commissioning manual for the tenant space and review the project at near-warranty end.



## Measurement & Verification

### Sub-Metering

SS	WE	EA	MR	EQ	ID
Credit 5.1					

#### Intent

1 point

Provide for the ongoing accountability and optimization of tenant energy and water consumption performance over time.

#### Requirements

<sup>1,2</sup>Install sub-metering equipment to measure and record energy uses within the tenant space.

#### Submittals

Provide the LEED-CI Letter Template, signed by a licensed engineer or other responsible party, describing the metering equipment installed for each end use.

#### Potential Technologies & Strategies

Tenant space is sub-metered.

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<sup>1</sup>LEED-CI CIR EAc5.1 (1/7/03 – 10/7/03)

10/7/2003 Ruling:

Sub-metering is not required for water used for occupancy convenience; these uses include rest rooms, water fountains and plumbing fixtures in break areas. When water use is connected with the manufacture of a product or service provided, such as within the kitchen of a restaurant, sub-metering is to be provided to meet the requirements of LEED-CI EA Credit 5.1.

When water consumption is limited to occupancy convenience uses, it does not need to be paid by the tenant outside of the base rent to fulfill the requirements of LEED-CI EA Credit 5.2. When there is water use connected with the manufacture of a product or service provided, such as within the kitchen of a restaurant, then the cost of water is to be considered the same as energy costs to fulfill the requirements of LEED-CI EA Credit 5.2.

<sup>2</sup>LEED-CI CIR EAc5.1 (5/20/03 – 10/7/03)

10/7/2003 Ruling:

When the occupancy of the project extends to the entire building, the applicant is not eligible to earn either LEED-CI EA Credit 5.1 or LEED-CI EA Credit 5.2, but by successfully satisfying the requirements of LEED-NC EA Credit 5 the applicant will earn the equivalent of both credits.

## Measurement & Verification

### Energy Costs Paid By Tenant

1 point

#### Intent

Provide for the ongoing accountability and optimization of tenant energy and water consumption performance over time.

#### Requirements

<sup>1, 2</sup>Negotiate a lease where energy costs are paid by the tenant and not included in the base rent.

#### Submittals

Provide the LEED-CI Letter Template, signed by the responsible party, indicating that energy costs are paid by the tenant and not included in the base rent. Provide a copy of the applicable portion of the lease.

#### Potential Technologies & Strategies

Tenant space is sub-metered and has a direct pay clause in their lease for energy actually used instead of on a square foot basis.

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<sup>1</sup>LEED-CI CIR EAc5.1 (1/7/03 – 10/7/03)

10/7/2003 Ruling:

Sub-metering is not required for water used for occupancy convenience; these uses include rest rooms, water fountains and plumbing fixtures in break areas. When water use is connected with the manufacture of a product or service provided, such as within the kitchen of a restaurant, sub-metering is to be provided to meet the requirements of LEED-CI EA Credit 5.1.

When water consumption is limited to occupancy convenience uses, it does not need to be paid by the tenant outside of the base rent to fulfill the requirements of LEED-CI EA Credit 5.2. When there is water use connected with the manufacture of a product or service provided, such as within the kitchen of a restaurant, then the cost of water is to be considered the same as energy costs to fulfill the requirements of LEED-CI EA Credit 5.2.

<sup>2</sup>LEED-CI CIR EAc5.1 (5/20/03 – 10/7/03)

10/7/2003 Ruling:

When the occupancy of the project extends to the entire building, the applicant is not eligible to earn either LEED-CI EA Credit 5.1 or LEED-CI EA Credit 5.2, but by successfully satisfying the requirements of LEED-NC EA Credit 5 the applicant will earn the equivalent of both credits.

## Green Power

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SS	WE	EA	MR	EQ	ID
Credit 6					

### Intent

1 point

Encourage the development and use of grid-source, renewable energy technologies on a net zero pollution basis.

### Requirements

Provide at least 50% of tenant's electricity from renewable sources by engaging in at least a two-year renewable energy contract. Renewable sources are as defined by the Center for Resource Solutions (CRS) Green-e products certification requirements. Green power may be procured from a Green-e certified power marketer, a Green-e accredited utility program, or through Green-e Tradable Renewable Certificates.

### Submittals

Provide the LEED-CI Letter Template, signed by the owner or other responsible party, documenting that the supplied power is equal to 50% of the project's energy consumption and the sources meet the Green-e definition of renewable energy. Provide a copy of the two-year electric utility purchase contract for power generated from renewable sources.

### Potential Technologies & Strategies

Estimate the energy needs of the tenant space and investigate opportunities to engage in a green power contract with the local utility. Green power is derived from solar, wind geothermal, biomass, or low-impact hydro sources. Green power may be procured from a Green-e certified power marketer, a Green-e accredited utility program, through Green-e certified Tradable Renewable Certificates, or from a supply that meets the Green-e renewable power definition. Visit [www.green-e.org](http://www.green-e.org) for details about the Green-e program.

## Materials & Resources

Required

### **Storage & Collection of Recyclables**

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#### **Intent**

Facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills.

#### **Requirements**

Provide an easily accessible dedicated area that serves the tenant space for the collection and storage of materials for recycling including (at a minimum) paper, corrugated cardboard, glass, plastics, and metals.

#### **Submittals**

Provide the LEED-CI Letter Template, signed by the architect or owner, declaring that the area dedicated to recycling is easily accessible and accommodates the Tenant's recycling needs. Provide a plan showing the area(s) dedicated to recycled material collection and storage.

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

Designate an area for recyclable collection and storage that is appropriately sized and located in a convenient area. Identify local waste handlers and buyers for glass, plastic, office paper, newspaper, card board and organic wastes. Instruct occupants on building recycling procedures. Instruct occupants on the recycling procedures. Consider employing cardboard balers, aluminum can crushers, recycling chutes, and other waste management technologies to further enhance the recycling program.

## **Building Reuse**

### **Long Term Lease**

---

SS	WE	EA	MR	EQ	ID
<b>Credit 1.1</b>					

#### **Intent**

1 point

Extend the life cycle 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**

Occupant elects to remain in existing location and renew lease for a term of not less than 10 years.

#### **Submittals**

Provide the LEED-CI Letter Template, signed by the building owner or other responsible party, declaring that the building occupant has signed a new lease for at least 10 years.

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

Suggest lease negotiations resulting in renewed and/or longer leases.

## Building Reuse

### Maintain 40% of Non-Shell Systems

1 point

#### Intent

Extend the life cycle 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

<sup>1</sup>Maintain at least 40% by area of the existing non-shell systems (walls, flooring, and ceilings).

#### Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer, owner or other responsible party, listing the retained elements and declaring that the credit requirements have been met.<sup>2</sup>

#### Potential Technologies & Strategies

Consider reuse of existing systems, including structure, shell, and non-shell elements. Remove elements that pose contamination risk to building occupants and upgrade

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<sup>1</sup>LEED-CI CIR MRc1.2, 1.3 (4/19/04 – 4/19/04)

4/19/2004 Administrative Ruling:

The threshold values on this credit have been reduced. The Requirement sections of these two credits will now read as follows:

MRc1.2 Building Reuse, Maintain 40% of Interior Non-Structural Components:

Maintain at least 40% by area of the existing non-shell, non-structure components (walls, doors, flooring, and ceilings).

MRc1.3 Building Reuse, Maintain 60% of Interior Non-Structural Components:

Maintain at least 60% by area of the existing non-shell, non-structure components (walls, doors, flooring, and ceiling systems).

<sup>2</sup>Review the LEED-CI Supplemental Reference Guide (10/15/03) and the Letter Templates for further detail on the calculation.

## Building Reuse

SS	WE	EA	MR	EQ	ID
Credit 1.3					

### Maintain 60% of Non-Shell Systems

---

#### Intent

Extend the life cycle 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.

1 point  
in addition to  
MR 1.2

#### Requirements

<sup>1</sup>Maintain at least 60% by area of the existing non-shell systems (walls, flooring, and ceiling systems).

#### Submittals

Provide LEED-CI Letter Template, signed by the architect, interior designer, owner or other responsible party, listing the retained elements and declaring that the credit requirements have been met.<sup>2</sup>

#### Potential Technologies & Strategies

Consider reuse of existing systems, including structure, shell, and non-shell elements. Remove elements that pose contamination risk to building occupants and upgrade outdated components such as plumbing fixtures. Quantify the extent of systems reuse.

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<sup>1</sup>LEED-CI CIR MRc1.2, 1.3 (4/19/04 – 4/19/04)

4/19/2004 Administrative Ruling:

The threshold values on this credit have been reduced. The Requirement sections of these two credits will now read as follows:

MRc1.2 Building Reuse, Maintain 40% of Interior Non-Structural Components:

Maintain at least 40% by area of the existing non-shell, non-structure components (walls, doors, flooring, and ceilings).

MRc1.3 Building Reuse, Maintain 60% of Interior Non-Structural Components:

Maintain at least 60% by area of the existing non-shell, non-structure components (walls, doors, flooring, and ceiling systems).

<sup>2</sup>Review the LEED-CI Supplemental Reference Guide (10/15/03) and the Letter Templates for further detail on the calculation.

## **Construction Waste Management**

### **Divert 50% From Landfill**

1 point

#### **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% of construction, demolition and packaging debris. Calculation may be done by weight or volume, but must be consistent throughout.

#### **Submittals**

Provide the LEED-CI Letter Template, signed by the architect, interior designer, owner, or other responsible party, tabulating the total waste material, quantities diverted and the means by which diverted, and declaring that the above requirements have been met.

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

Establish goals for landfill diversion and adopt a construction waste management plan to achieve these goals. Consider recycling cardboard, metal, brick, concrete, plastic, clean wood, glass, gypsum wallboard, carpet and insulation. Designate a specific area on the construction site for recycling and track recycling efforts throughout the construction process. Identify construction haulers and recyclers to handle the designated materials. Note that salvage may include donation of materials to charitable organizations such as Habitat for Humanity.



## Construction Waste Management

### Divert 75% From Landfill

SS	WE	EA	MR	EQ	ID
Credit 2.2					

#### 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.

1 point  
in addition to  
MR 2.1

#### Requirements

Develop and implement a waste management plan, quantifying material diversion goals. Recycle and/or salvage an additional 25% (75% total) of construction, demolition and packaging debris. Calculation may be done by weight or volume, but must be consistent throughout.

#### Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer, owner, or other responsible party, tabulating the total waste material, quantities diverted and the means by which diverted, and declaring that the above requirements have been met.

#### Potential Technologies & Strategies

Establish goals for landfill diversion and adopt a construction waste management plan to achieve these goals. Consider recycling cardboard, metal, brick, concrete, plastic, clean wood, glass, gypsum wallboard, carpet and insulation. Designate a specific area on the construction site for recycling and track recycling efforts throughout the construction process. Identify construction haulers and recyclers to handle the designated materials. Note that salvage may include donation of materials to charitable organizations such as Habitat for Humanity.

SS	WE	EA	MR	EQ	ID
<b>Credit 3.1</b>					

## Resource Reuse

5%

1 point

### Intent

Reuse building materials and products in order to reduce demand for virgin materials and to reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources.

### Requirements

Use salvaged, refurbished, or reused materials for at least 5% of building (construction) materials, excluding furniture and furnishings.

### Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer, owner, or other responsible party, declaring that the credit requirements have been met and listing each material or product used to meet the credit. Include details demonstrating that the project incorporates the required percentage of reused materials and products and showing their costs and the total cost of all materials for the project.

### Potential Technologies & Strategies

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

## Resource Reuse

10%

SS	WE	EA	MR	EQ	ID
Credit 3.2					

### Intent

Reuse building materials and products in order to reduce demand for virgin materials and to reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources.

1 point  
in addition to  
MR 3.1

### Requirements

Use salvaged, refurbished, or reused materials for at least 10% of building (construction) materials, excluding furniture and furnishings.

### Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer, owner, or other responsible party, declaring that the credit requirements have been met and listing each material or product used to meet the credit. Include details demonstrating that the project incorporates the required percentage of reused materials and products and showing their costs and the total cost of materials for the project.

### Potential Technologies & Strategies

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

SS	WE	EA	MR	EQ	ID
Credit 3.3					

## Resource Reuse

### 30% Furniture and Furnishings

1 point

#### Intent

Reuse building products and materials in order to reduce demand for virgin materials and reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources.

#### Requirements

Use salvaged, refurbished, or used furniture and furnishings for 30% of the total furniture and furnishings budget.

#### Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer, owner, or other responsible party, declaring that the credit requirements have been met. In addition, provide a listing of the reused furniture and furnishings with their replacement value and documentation for the value of the balance of new furniture and furnishings.

#### Potential Technologies & Strategies

Identify opportunities to salvage and reuse furniture into project design and research potential material suppliers. Consider salvaging and reusing systems furniture and furnishings such as case pieces, seating, filing systems, decorative lighting and accessories.

## Recycled Content

5% (post-consumer + 1/2 post-industrial)

SS	WE	EA	MR	EQ	ID
Credit 4.1					

### Intent

1 point

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

### Requirements

<sup>1</sup>Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least 5% 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.

Mechanical and electrical components shall not be included in this calculation. 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](http://www.ftc.gov/bcp/grnrule/guides980427.htm).

### Submittals

Provide the LEED-CI Letter Template, signed by the architect, owner or other responsible party, declaring that the above requirements have been met and listing the recycled content products used. Include details demonstrating that the project incorporates the required percentage of recycled content materials and products and showing their cost and percentage(s) of post-consumer and/or post-industrial content, and the total cost of all materials for the project.

### 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 and quantify the total percentage of recycled content materials installed.

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<sup>1</sup>LEED-CI CIR MRc5.1 (11/21/03 – 12/8/03) requires that when the material content of furniture and furnishings (defined as items included in Division 12 of the CSI Master Format) is used in earning any of the following credits, it must be used in the calculation of all of these credits: MR credits 4.1, 4.2, 5.1, 5.2, 6 and 7.

SS	WE	EA	MR	EQ	ID
Credit 4.2					

## Recycled Content

10% (post-consumer + 1/2 post-industrial)

1 point  
in addition to  
MR 4.1

### Intent

Increase demand for building products that have incorporated recycled content material, reducing the impacts resulting from extraction and processing of virgin materials.

### Requirements

<sup>1</sup>Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least 10% 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.

Mechanical and electrical components shall not be included in this calculation. 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](http://www.ftc.gov/bcp/grnrule/guides980427.htm).

### Submittals

Provide the LEED-CI Letter Template, signed by the architect, owner or other responsible party, declaring that the above requirements have been met and listing the recycled content products used. Include details demonstrating that the project incorporates the required percentage of recycled content materials and products and showing their cost and percentage(s) of post-consumer and/or post-industrial content, and the total cost of all materials for the project.

### 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 and quantify the total percentage of recycled content materials installed.

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<sup>1</sup>LEED-CI CIR MRc5.1 (11/21/03 – 12/8/03) requires that when the material content of furniture and furnishings (defined as items included in Division 12 of the CSI Master Format) is used in earning any of the following credits, it must be used in the calculation of all of these credits: MR credits 4.1, 4.2, 5.1, 5.2, 6 and 7.

## Regional Materials

### 20% Manufactured Regionally

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SS	WE	EA	MR	EQ	ID
Credit 5.1					

#### Intent

1 point

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

<sup>1</sup>Use a minimum of 20% of building 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 tradesmen. For example, if the hardware comes from Dallas, Texas, the lumber from Vancouver, British Columbia and the joist is assembled in Kent, Washington; then the location of the final assembly is Kent, Washington.

#### Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer, owner or responsible party, declaring that the credit requirements have been met. Include calculations demonstrating that the project incorporates the required percentage of regional materials/products and showing their cost, percentage of regional components, distance from project to manufacturer, and the total cost of all materials for the project.

#### 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.

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<sup>1</sup>LEED-CI CIR MRc5.1 (11/21/03 – 12/8/03) requires that when the material content of furniture and furnishings (defined as items included in Division 12 of the CSI Master Format) is used in earning any of the following credits, it must be used in the calculation of all of these credits: MR credits 4.1, 4.2, 5.1, 5.2, 6 and 7.

SS	WE	EA	MR	EQ	ID
<b>Credit 5.2</b>					

## Regional Materials

### 10% Extracted and Manufactured Regionally

1 point  
in addition to  
MR 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

<sup>1</sup>In addition to the requirements of MR credit 5.1, use a minimum of 10% of building materials and products extracted, harvested, or recovered, as well as manufactured, within 500 miles of the project.

#### Submittals

Provide the LEED Letter Template, signed by the architect, interior designer, owner or responsible party, declaring that the credit requirements have been met. Include calculations demonstrating that the project incorporates the required percentage of regionally extracted and manufactured materials/products and showing their cost, percentage of regional components, distance from project to the points of extraction and manufacture, and the total cost of all materials for the project.

#### 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.

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<sup>1</sup>LEED-CI CIR MRc5.1 (11/21/03 – 12/8/03) requires that when the material content of furniture and furnishings (defined as items included in Division 12 of the CSI Master Format) is used in earning any of the following credits, it must be used in the calculation of all of these credits: MR credits 4.1, 4.2, 5.1, 5.2, 6 and 7.



## Rapidly Renewable Materials

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SS	WE	EA	MR	EQ	ID
Credit 6					

### Intent

1 point

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

### Requirements

<sup>1</sup>Use rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year or shorter cycle) for 5% of the total value of all building materials and products used in the project.

### Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer, owner or other responsible party, declaring that the credit requirements have been met. Include calculations demonstrating that the project incorporates the required percentage of rapidly renewable products. Show their cost and percentage of rapidly renewable components, and the total cost of all materials for the project.

### Potential Technologies & Strategies

Establish a project goal for rapidly renewable materials and identify materials and suppliers that can achieve this goal. Consider materials such as bamboo flooring, wool carpets, straw board, cotton bat insulation, linoleum flooring, poplar OSB, sun flower seed board, and wheatgrass cabinetry and others. During construction, ensure that the specified rapidly renewable materials are installed.

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<sup>1</sup>LEED-CI CIR MRc5.1 (11/21/03 – 12/8/03) requires that when the material content of furniture and furnishings (defined as items included in Division 12 of the CSI Master Format) is used in earning any of the following credits, it must be used in the calculation of all of these credits: MR credits 4.1, 4.2, 5.1, 5.2, 6 and 7.

1 point

### Intent

Encourage environmentally responsible forest management.

### Requirements

<sup>1</sup>Use a minimum of 50% of new wood-based products and materials, certified in accordance with the Forest Stewardship Council's Principles and Criteria, for wood components including, but not limited to, structural framing and general dimensional framing, flooring, finishes, furnishings, and non-rented temporary construction applications such as bracing, concrete form work and pedestrian barriers.

### Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer, owner or other responsible party, declaring that the credit requirements have been met and listing the FSC-certified materials and products used. Include calculations demonstrating that the project incorporates the required percentage of FSC-certified materials/products and their cost together with the total cost of all materials for the project. For each material/product used to meet these requirements, provide the vendor's or manufacturer's Forest Stewardship Council chain-of-custody certificate number.

### 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.

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<sup>1</sup>LEED-CI CIR MRc5.1 (11/21/03 – 12/8/03) requires that when the material content of furniture and furnishings (defined as items included in Division 12 of the CSI Master Format) is used in earning any of the following credits, it must be used in the calculation of all of these credits: MR credits 4.1, 4.2, 5.1, 5.2, 6 and 7.

# Indoor Environmental Quality

## Minimum IAQ Performance

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SS	WE	EA	MR	EQ	ID
Prerequisite 1					

### Intent

Required

Establish minimum indoor air quality (IAQ) performance to prevent the development of indoor air quality problems in the tenant space, thus contributing to the comfort and well being of the occupants.

### Requirements

<sup>1</sup>Meet the minimum requirements of the voluntary consensus standard ASHRAE 62-2001, Ventilation for Acceptable Indoor Air Quality, and Addenda approved at the time the project HVAC equipment was permitted. Mechanical ventilation systems shall be designed using the Ventilation Rate Procedure.

Modify or maintain existing building outside-air (OA) ventilation distribution system to supply at least the outdoor air ventilation rate required by ASHRAE Standard 62-2001, including addenda published through 2003. If it can be demonstrated that physical constraints make modification of the existing ventilation system a hardship, then modify or maintain the system to supply at least 10 CFM/person.

### Submittals

<sup>2</sup>Provide the LEED-CI Letter Template, signed by responsible design professional, declaring that the project is fully compliant with Sections 4, 5, 6 and 7 of ASHRAE 62-2001 and all accepted Addenda. Provide a summary of calculations used to determine outdoor air ventilation rates, documenting all assumptions including occupancy type, occupant density, zone air distribution effectiveness, and ventilation system efficiency.

### Potential Technologies & Strategies

Design the HVAC system to meet the ventilation requirements of the reference standard. Identify potential IAQ problems on the site.

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<sup>1,2</sup> LEED-CI CIR EQp1 (11/21/03 – 4/19/04) revised the requirement and submittal criteria.

## **Environmental Tobacco Smoke (ETS) Control**

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Required

### **Intent**

Prevent or minimize exposure of tenant space occupants, indoor surfaces and systems to Environmental Tobacco Smoke (ETS).

### **Requirements**

Minimize exposure of non-smokers to ETS by

Locating tenant space in a building that prohibits smoking by all occupants and users and maintains any exterior designated smoking areas at least 25 feet away from entries, outdoor air intakes and operable windows,

OR

In buildings where smoking is permitted, confirming that smoking is prohibited in the portions of the tenant space not designated as a smoking space, and the common areas used by tenant's occupants, and that there is no migration of ETS by either mechanical or natural ventilation from other areas of the building.

AND

If the tenant's occupants are permitted to smoke, providing one or more designated smoking rooms designed to effectively contain, capture and remove ETS from the building. At a minimum, each smoking room must be directly exhausted to the outdoors with no recirculation of ETS-containing air to the nonsmoking area of a building, enclosed with impermeable deck-to-deck partitions and operated at a negative pressure compared to surrounding spaces of at least an average of 5 PA (0.02 inches of water gauge) and with a minimum of 1 PA (0.004 inches of water gauge) when the doors to the smoking room are closed.

Performance of the smoking rooms differential air pressure shall be verified by conducting 15 minutes of measurement, with a minimum of one measurement every 10 seconds, of the differential pressure in the smoking room with respect to each adjacent area and in each adjacent vertical chase with the doors to the smoking rooms closed. The testing will be conducted with each space configured for worst case conditions of transport of air from the smoking rooms to adjacent spaces.

OR

For multi-unit residential buildings, minimize uncontrolled pathways for ETS transfer between individual residential units by sealing penetrations in walls, ceilings, and floors in the residential units, and by sealing vertical chases adjacent to the units. In addition, all doors in the residential units leading to common hallways shall be weather-stripped to minimize air leakage into the hallway. Acceptable sealing of residential units shall be demonstrated by a blower door test conducted in accordance with ANSI/ASTM-779-99, Standard Test Method for Determining Air Leakage Rate By Fan Pressurization, AND use the progressive sampling methodology defined in Chapter 7 (Home Energy Rating Systems (HERS) Required Verification And Diagnostic Testing) of the California Low Rise Residential Alternative Calculation Method Approval Manual (<http://>

[www.energy.ca.gov/title24/residential\\_manual/res\\_manual\\_chapter4.PDF](http://www.energy.ca.gov/title24/residential_manual/res_manual_chapter4.PDF)  
[http://www.energy.ca.gov/title24\\_1998\\_standards/residential\\_acm/CHAPTER07.PDF](http://www.energy.ca.gov/title24_1998_standards/residential_acm/CHAPTER07.PDF)). Residential units must demonstrate less than 1.25 square inches leakage area per 100 square feet of enclosure area (i.e. sum of all wall, ceiling, and floor areas).

SS	WE	EA	MR	EQ	ID
<b>Prerequisite 2</b>					

## **Submittals**

Provide the LEED-CI Letter Template, signed by the tenant or responsible party, declaring that the building will be operated under a policy prohibiting smoking, and the exterior designated smoking areas are at least 25 feet away from entries and operable windows.

OR

Provide the LEED-CI Letter Template, signed by the tenant or responsible party, declaring and demonstrating that smoking is prohibited in that portion of the tenant space not designated as a smoking space and all other areas of the building serviced by the same HVAC system, plus common areas used by tenant occupants. If the tenant's occupants are permitted to smoke, declare and demonstrate that designated smoking rooms met the design criteria described in the credit requirements and performance has been verified using the method described in the credit requirements.

OR

Provide the LEED-CI Letter Template, signed by the tenant or responsible party, declaring and demonstrating that the credit requirements for ETS transfer between individual residential units have been satisfied.

## **Potential Technologies & Strategies**

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LEED-CI CIR EQp2 (6/28/04 - 6/28/04) revised the requirements and submittal criteria for this prerequisite.

SS	WE	EA	MR	EQ	ID
Credit 1					

## Carbon Dioxide (CO<sub>2</sub>) Monitoring

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1 point

### Intent

Provide capacity for indoor air quality (IAQ) monitoring to sustain long-term occupant comfort and well-being.

### Requirements

Install permanent carbon dioxide (CO<sub>2</sub>) monitoring system that provides feedback on space ventilation performance in a form that affords operational adjustments. Refer to the CO<sub>2</sub> differential for all types of occupancy in accordance with ASHRAE 62-2001, Appendix C.

### Submittals

Provide the LEED-CI Letter Template, signed by the mechanical engineer or responsible party, declaring and summarizing the installation, operational design and controls/zones for a carbon dioxide monitoring system. For mixed-use buildings, calculate CO<sub>2</sub> levels for each separate activity level and use.

### Potential Technologies & Strategies

Design the HVAC system with carbon dioxide monitoring sensors and integrate these sensors with the building automation system (BAS).

## Ventilation Effectiveness

SS	WE	EA	MR	EQ	ID
Credit 2					

### Intent

1 point

Provide for the effective delivery and mixing of fresh air to support the safety, comfort and well-being of the building occupants.

### Requirements

For mechanically ventilated buildings, design ventilation systems that result in an air change effectiveness ( $E_{ac}$ ) greater than or equal to 0.9 as determined by ASHRAE 129-1997. For naturally ventilated spaces demonstrate a distribution and laminar flow pattern that involves not less than 90% of the room or zone area in the direction of air flow for at least 95% of hours of occupancy.

### Submittals

For mechanically ventilated spaces: provide the LEED-CI Letter Template, signed by the mechanical engineer or responsible party, declaring that the design for the tenant space achieves an air change effectiveness ( $E_{ac}$ ) of 0.9 or greater in each ventilated zone. Include a table summarizing the  $E_{ac}$  achieved for each zone.

OR

For mechanically ventilated spaces: provide the LEED-CI Letter Template, signed by the mechanical engineer or responsible party, declaring that the design complies with the recommended design approaches in ASHRAE 2001 Fundamentals Handbook Chapter 32, Space Air Diffusion. Complete the table summarizing the air change effectiveness achieved for each zone (must be 0.9 or greater).

OR

For naturally ventilated spaces: provide the LEED-CI Letter Template, signed by the mechanical engineer or responsible party, declaring that the design provides effective ventilation in at least 90% of each room or zone area in the direction of airflow for at least 95% of hours of occupancy. Include a table summarizing the airflow simulation results for each zone. Include sketches indicating the airflow pattern for each zone.

### Potential Technologies & Strategies

Design the HVAC system and building envelope to optimize air change effectiveness. Air change effectiveness can be optimized using a variety of ventilation strategies including displacement ventilation, low-velocity ventilation, plug-flow ventilation such as under floor or near floor delivery, and operable windows. Test the air change effectiveness of the building after construction.

## Construction IAQ Management Plan During Construction

1 point

### Intent

Prevent indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants.

### Requirements

Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the tenant space as follows:

- During construction meet or exceed the recommended Design Approaches of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guideline for Occupied Buildings under Construction, 1995, Chapter 3.
- Protect stored on-site or installed absorptive materials from moisture damage.
- If air handlers must be used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 must be used at each return air grill, as determined by ASHRAE 5.2-1999.
- Replace all filtration media immediately prior to occupancy. Filtration media shall have a Minimum Efficiency Reporting Value (MERV) of 13, as determined by ASHRAE 52.2-1999 for media installed at the end of construction.<sup>1</sup>

### Submittals

Provide the LEED-CI Letter Template, signed by the general contractor or responsible party, declaring that a Construction IAQ Management Plan has been developed and implemented, and listing each air filter used during and at the end of construction. Include the MERV value, manufacturer name and model number.

AND EITHER

Provide 18 photographs—six photographs taken on three different occasions during construction—along with identification of the SMACNA approach featured by each photograph, in order to show consistent adherence to the credit requirements.

OR

Declares the five Design Approaches of SMACNA IAQ Guideline for Occupied Buildings under Construction, 1995, Chapter 3, which were used during building construction. Include a brief listing of some of the important design approaches employed.

### Potential Technologies & Strategies

Adopt an IAQ management plan to protect the HVAC system during construction, control pollutant sources and interrupt pathways. Sequence the installation of materials to avoid contamination of absorptive materials such as insulation, carpeting, ceiling tile, and gypsum wall board.



<sup>1</sup>LEED-CI CIR EQc3.1 (4/19/04 – 4/19/04)

4/19/2004 Administrative Ruling:

While it will remain a requirement to replace all filtration media immediately prior to occupancy, this credit will not require that the filtration media have a MERV 13. However, if a project intends also to earn EQ Credit 5, Indoor Chemical & Pollutant Source Control, it must demonstrate that the replacement filtration media has a Minimum Efficiency Reporting Value (MERV) of 13, as determined by ASHRAE 52.2-1999.

SS	WE	EA	MR	EQ	ID
Credit 3.1					

## Construction IAQ Management Plan

### After Construction/Before Occupancy

1 point

#### Intent

Prevent indoor air quality problems resulting from the construction/renovation process, to sustain long-term worker and occupant comfort and well-being.

#### Requirement

Develop and implement an Indoor Air Quality (IAQ) Management Plan for the pre-occupancy phases as follows:

- After construction ends, and preferably following the installation of all furniture and prior to occupancy conduct a minimum two-week flush-out with new filtration media at 100% outside air. After the flush-out, replace the filtration media with new media, except for filters solely processing outside air.<sup>1</sup>

OR

- After construction ends, and preferably following the installation of all furniture and prior to occupancy conduct a baseline indoor air quality testing procedure that demonstrates that the concentration levels for the chemical contaminants listed in Table 1 below are not exceeded. For each sampling point where the maximum concentration limits are exceeded conduct a partial building flush-out, for a minimum of two weeks, then retest the specific parameter(s) that were exceeded to indicate the requirements are achieved. Repeat procedure until all requirements have been met. Following this, replace the filtration media with media, except for filters solely processing outside air.<sup>3</sup>

**Table 1. Concentration Levels for Chemical Contaminates**

Chemical Contaminate	Maximum Concentration
Formaldehyde	0.05 parts per million
Particulates (PM 10)	20 micrograms per cubic meter above outside air condition
TVOC	500 micrograms / m <sup>3</sup>
4 - Phenylcyclohexene (4-PCH)	3.0 micrograms / m <sup>3</sup>
Carbon Monoxide (Co)	9 parts per million
Carbon Dioxide (CO <sub>2</sub> )	8,300 x MET Rate / Ventilation Rate <sup>2</sup>

<sup>2</sup>The testing for the maximum (CO<sub>2</sub>) concentration differential, measured in parts per billion, is required only if the building is regularly occupied during the testing. The ventilation rate is the outdoor air requirement per person, and the CO<sub>2</sub> measurement is the differential concentration between indoor and outdoor conditions based on occupancy type as defined by ASHRAE 62-2001. The MET Rate is defined in ASHRAE 55.

## Submittals

SS	WE	EA	MR	EQ	ID
Credit 3.2					

Provide the LEED-CI Letter Template, signed by the architect, interior designer, or engineer, describing flush out procedures including dates of tenant space flush out.  
OR

Provide a copy of the IAQ testing results indicating that the maximum chemical contaminant concentration requirements are not exceeded.

## Potential Technologies & Strategies

Prior to occupancy, perform two week flush-out or test for contaminate levels in the tenant space.

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<sup>1</sup>LEED-CI CIR EQc3.2 (4/19/04 – 4/19/04) requires that if a project intends also to earn EQ Credit 5, Indoor Chemical & Pollutant Source Control, it must demonstrate that the replacement filtration media has a Minimum Efficiency Reporting Value (MERV) of 13, as determined by ASHRAE 52.2-1999.

<sup>2</sup>found below Table 1.

<sup>3</sup>LEED-CI CIR EQc3.2 (6/28/04 - 6/28/04) revised the maximum concentration levels shown in Table 1 and confirmed the requirement that filter media must be replace prior to occupancy for all compliance paths offered in this credit. It also provides for the continued use of the U.S. EPA current *Protocol for Environmental Requirements, Baseline IAQ and Materials, for the Research Triangle Park Campus, Section 01445*. For information on this compliance path, consult the LEED-CI Supplemental Reference Guide (10/15/2003) or the LEED Reference Package for New Construction & Major Renovations (Second Edition, May 2003).

## **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 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 sealants used as fillers must meet or exceed the requirements of the Bay Area Air Quality Management District Regulation 8, Rule 51.

#### **Submittals**

Provide the LEED-CI Letter Template, signed by the architect, interior designer or responsible party, listing the adhesives and sealants used in the building and declaring that they meet the noted requirements.

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

Specify Low-VOC materials in construction documents. Ensure that VOC limits are clearly stated in each section where adhesives and sealants are addressed

## **Low-Emitting Materials**

### **Paints and Coatings**

SS	WE	EA	MR	EQ	ID
<b>Credit 4.2</b>					

#### **Intent**

1 point

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**

VOC emissions from paints and coatings must not exceed the VOC and chemical component limits of Green Seal's Standard GS-11 requirement.

#### **Submittals**

Provide the LEED-CI Letter Template, signed by the architect, interior designer or responsible party, listing all the paints and coatings used in the building that are addressed by Green Seal Standard GS-11 and stating that they comply with the current VOC and chemical component limits of the standard.

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

Specify Low-VOC paints and coatings in construction documents. Ensure that VOC limits are clearly stated in each section where paints and coatings are addressed.

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 Indoor Air Quality Test Program.

**Submittals**

Provide the LEED-CI Letter Template, signed by the architect, interior designer or responsible party, listing all the carpet systems used in the tenant space and stating that they comply with the current VOC limits of the Carpet and Rug Institute's Green Label Indoor Air Quality Test Program.

**Potential Technologies & Strategies**

Specify Low-VOC carpet products and systems in construction documents. Ensure that VOC limits are clearly stated where carpet systems are addressed.

## Low-Emitting Materials

### Composite Wood

SS	WE	EA	MR	EQ	ID
Credit 4.4					

#### Intent

1 point

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

Composite wood and agrifiber products must contain no added urea-formaldehyde resins.

#### Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer or responsible party, listing all the composite wood products used in the tenant space and stating that they contain no added urea-formaldehyde resins.

#### Potential Technologies & Strategies

Specify wood and agrifiber products that contain no added urea-formaldehyde resins.

## Low-Emitting Materials

### <sup>1</sup>Systems Furniture and Seating

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

All systems furniture and seating\* introduced into the project space that has a manufacturing date within one year of occupancy must meet one of the requirements below. For refurbished furniture, all new components and finishes added or applied within one year of occupancy must meet one of the requirements below.

- Greenguard Indoor Air Quality Certified

OR

Emission Limits Calculated indoor air concentrations that are less than or equal to those established in Table 1 for furniture systems and seating determined by a procedure based on the U.S. Environmental Protection Agency's Environmental Technology Verification (ETV) Large Chamber Test Protocol for Measuring Emissions of VOCs and Aldehydes (September 1999) testing protocol conducted in an independent air quality testing laboratory.

Table 1. Emission Limits

Chemical Contaminate	Emission Limits Furniture Systems	Emission Limits Office Seating
TVOC	0.5 mg/m <sup>3</sup>	0.25 mg/m <sup>3</sup>
Formaldehyde	0.05 parts per million	0.025 parts per million
Total Aldehydes	0.1 parts per million	0.050 parts per million
4 - Phenylcyclohexene (4-PCH)	0.0065 mg/m <sup>3</sup>	0.00325 mg/m <sup>3</sup>

\*Systems furniture is defined as either a panel-based workstation comprised of modular interconnecting panels, hang-on components and drawer/filing components or a freestanding grouping of furniture items and their components that have been designed to work in concert.

Seating is defined as task and guest chairs used with systems furniture.

Furniture other than as described above is defined as occasional furniture and is not included.

Salvaged and used furniture that is more than one year old at time of occupancy is excluded from credit requirements.



## Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer or responsible party, declaring that all systems furniture and seating covered by this credit is included in a listing that states the manufacturer and product line, item description, period of manufacture, form of compliance and either the period for which the item is Greenguard Air Quality Certified, or the date of the testing using the Environmental Technology Protocol for Emissions of VOCs and Aldehydes from Commercial Furniture.

For Greenguard Air Quality Certified systems furniture and seating, a copy of the product certification, complete with the start and end dates of certification. The period covered must have begun before and extend through the actual manufacturing dates of the product used on the project.

For systems furniture and seating tested using a procedure based on the USEPA ETV protocol, provide details of the procedure, and the emission factors from the large-chamber testing of the systems furniture, showing the calculations used in determining the emission limits, complete with the air exchange rate, demonstrating that emissions limits have not exceeded those shown in Table 1. Test results and supporting calculations must be dated and signed by an officer of the independent laboratory where the testing was conducted. Test results must represent the manufacturing practices employed for the product used on the project and must have been completed before the start of manufacturing but no earlier than 24 months prior to the last manufacturing date.

## Potential Technologies & Strategies

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<sup>1</sup>LEED-CI CIR EQc4.5 (6/28/04 - 6/28/04) revised the credit language to that shown here.

## Indoor Chemical & Pollutant Source Control

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1 point

### Intent

Avoid exposure of building occupants to potentially hazardous chemicals that adversely impact air quality.

### Requirements

Design to minimize pollutant cross-contamination of regularly occupied areas:

- Where chemical use occurs (including housekeeping areas and copying/printing rooms), provide segregated areas with deck to deck partitions with separate outside exhausting at a rate of at least 0.5 cubic feet per minute per square foot, no air recirculation and negative pressure of 7 PA (0.03 inches of water gauge).
- Provide drains plumbed for appropriate environmental disposal of liquid waste in spaces where water and chemical concentration mixing occurs.

### Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer or responsible party, declaring that:

- Chemical use areas and copy rooms have been physically separated with deck-to-deck partitions; independent exhaust ventilation has been installed at 0.5 cfm/square foot and as negative pressure differential of 7 Pa has been achieved.
- In spaces where water and chemical concentration mixing occurs, drains are plumbed for environmentally appropriate disposal of liquid waste.

### Potential Technologies & Strategies

Design separate exhaust and plumbing systems for rooms with contaminants to achieve physical isolation from the rest of the building. Where appropriate, install permanent architectural entryway systems such as grills or grates to prevent occupant-borne contaminants from entering the space.

## Controllability of Systems

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SS	WE	EA	MR	EQ	ID
Credit 6					

### Intent

1 point

Provide a high level of thermal, ventilation and lighting system control by individual occupants or specific groups in multi-occupant spaces (i.e. classrooms and conference areas) to promote the productivity, comfort and well-being of building occupants.

### Requirements

- Provide at least an average of one lighting control zone per 200 square feet for all occupied areas within 15 feet of the perimeter wall.

AND

- Provide controls for each individual for airflow, temperature and lighting for at least 50% of the occupants in non-perimeter, regularly occupied areas.

### Submittals

Provide the LEED-CI Letter Template, signed by the architect or responsible party, demonstrating and declaring that for regularly occupied perimeter areas of the tenant space a minimum of one lighting control zone is provided per 200 square feet on average, and that for non-perimeter regularly occupied areas controls for airflow, temperature and lighting are provided for at least 50% of the occupants.

### Potential Technologies & Strategies

Design the tenant space with occupant controls for airflow, temperature and lighting. Strategies to consider include lighting controls, task lighting and operable windows.

## Thermal Comfort

### Compliance with ASHRAE 55-1992

1 point

#### Intent

Provide a thermally comfortable environment that supports the productivity and well-being of tenant space occupants.

#### Requirements

Comply with ASHRAE Standard 55-1992, Addenda 1995 for thermal comfort standards including humidity control within established ranges per climate zone. For naturally ventilated buildings, utilize the adaptive comfort temperature boundaries, using the 90% acceptability limits as defined in the Collaborative for High Performance Schools (CHPS) Best Practices Manual, Appendix C - A Field Based Thermal Comfort Standard for Naturally Ventilated Buildings, Figure 2.

#### Submittals

For mechanically ventilated spaces: provide the LEED-CI Letter Template, signed by the engineer or responsible party, declaring that the project complies with ASHRAE Standard 55-1992, Addenda 1995. Include a table that identifies each thermally controlled zone, and that summarizes for each zone the temperature and humidity control ranges, and the method of control used.

OR

For naturally ventilated spaces: provide the LEED-CI Letter Template, signed by the engineer or responsible party, declaring that the project complies with the 90% acceptability limits of the adaptive comfort temperature boundaries in the Collaborative for High Performance Schools (CHPS) Best Practices Manual Appendix C – A Field Based Thermal Comfort Standard for Naturally Ventilated Buildings, Figure 2.

#### Potential Technologies & Strategies

Establish temperature and humidity comfort ranges and design the HVAC system to maintain these comfort ranges.

## **Thermal Comfort**

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### **Permanent Monitoring System**

SS	WE	EA	MR	EQ	ID
<b>Credit 7.2</b>					

#### **Intent**

Provide a thermally comfortable environment that supports the productivity and well-being of tenant space occupants.

1 point  
in addition to  
EQ 7.1

#### **Requirements**

Install a permanent temperature and humidity monitoring system configured to provide operators control over thermal comfort performance and the effectiveness of humidification and/or dehumidification systems in the space.

#### **Submittals**

Provide the LEED-CI Letter Template, signed by the engineer or responsible party, declaring that the temperature and humidity monitoring system will operate throughout all seasons to permit control of the tenant space zones within seasonal thermal comfort ranges defined in ASHRAE 55-1992, Addenda 1995. Confirm that the temperature and humidity controls were (or will be) tested as a part of the scope of work for Energy and Atmosphere Prerequisite 1, Fundamental Building Systems Commissioning. Include the document name and section number where the commissioning work is listed.

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

Establish temperature and humidity comfort ranges and design the HVAC system to maintain these comfort ranges. Install and maintain a temperature and humidity monitoring system in the tenant space to automatically adjust conditions as appropriate.

1 point

#### Intent

Provide for the occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the tenant space.

#### Requirements

Achieve a minimum Daylight Factor of 2% (excluding all direct sunlight penetration) in 75% of all space occupied for critical visual tasks. Spaces excluded from this requirement include copy rooms, storage areas, mechanical plant rooms, laundry, and other low occupancy support areas. Other exceptions for spaces where tasks would be hindered by the use of daylight will be considered on their merits.

#### Submittals

Provide the LEED-CI Letter Template, signed by the architect, interior designer or responsible party. Provide area calculations that define the daylight zone and provide prediction calculations or daylight simulation.

#### Potential Technologies & Strategies

Design the space to maximize interior daylighting and view opportunities. Strategies to consider include lower partition heights, interior shading devices, interior glazing, and photo-integrated light sensors. Model daylighting strategies with a physical or computer model to assess footcandle levels and daylight factors achieved.

## Daylight and Views

### Views for 90% of Spaces

SS	WE	EA	MR	EQ	ID
Credit 8.2					

#### Intent

1 point

Provide for the occupants a connection between indoor spaces and the outdoor environment through the introduction of daylight and views into the regularly occupied areas of the tenant space.

#### Requirements

Achieve direct line of sight to vision glazing for building occupants from 90% of all regularly occupied spaces. Examples of exceptions including copy rooms, storage areas, mechanical, laundry, and other low occupancy support areas. Other exceptions will be considered on their merits.

#### Submittals

Provide the LEED-CI Letter Template and calculations signed by the architect, interior designer, or responsible party describing, demonstrating and declaring that the building occupants in 90% of regularly occupied spaces will have direct lines of sight to perimeter glazing. Provide drawings highlighting direct line of sight zones.

#### Potential Technologies & Strategies

Design the space to maximize daylighting and view opportunities. Strategies to consider include lower partition heights, interior shading devices, interior glazing, and photo-integrated light sensors. Model daylighting strategies with a physical or computer model to assess footcandle levels and daylight factors achieved.

# Innovation & Design Process

SS	WE	EA	MR	EQ	ID
Credit 1					

## Innovation in Design

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1 - 4 points

### Intent

To provide design teams and projects the opportunity to be awarded points for exceptional performance above the requirements set by the LEED Green Building Rating System and/or innovative performance in Green Building categories not specifically addressed by the LEED Green Building Rating System.

### Requirements

- |                      |   |
|----------------------|---|
| Credit 1.1 (1 point) | Identify the <b>intent</b> of the proposed innovation credit, the proposed <b>requirements</b> for compliance, the proposed <b>submittals</b> to demonstrate compliance, and the <b>design approach</b> (strategies) that might be used to meet the requirements. |
| Credit 1.2 (1 point) | Same as Credit 1.1  |
| Credit 1.3 (1 point) | Same as Credit 1.1  |
| Credit 1.4 (1 point) | Same as Credit 1.1  |

### Submittals

Provide the proposal(s) within the LEED-CI Letter template (including intent, requirements, submittals and possible strategies) and relevant evidence of performance achieved.

### Potential Technologies & Strategies

Substantially exceed a LEED performance credit such as energy performance or water efficiency. Apply strategies or measures that are not covered by LEED such as acoustic performance, education of occupants, community development, or lifecycle analysis of material choices.



## LEED Accredited Professional

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SS	WE	EA	MR	EQ	ID
Credit 2					

### Intent

To support and encourage the design integration required by a LEED Green Building project and to streamline the application and certification process.

### Requirement

At least one principal participant of the project team that has successfully completed the LEED Accredited Professional exam.

### Submittals

Provide the LEED-CI Letter Template stating the LEED Accredited Professional's name, title, company and contact information. Include a copy of this person's LEED Accredited Professional Certificate.

### Potential Technologies & Strategies

Attending a LEED Accredited Professional Training Workshop is recommended but not required. Study the LEED Reference Guide. Successfully pass the LEED accreditation exam.