



LEED™

LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

Green Building Rating System

**For New Construction &
Major Renovations**

(LEED-NC)

Version 2.1



November 2002

Revised 3/14/03



Introduction

The Leadership in Energy and Environmental Design (LEED™) Green Building Rating System represents the U.S. Green Building Council's effort to provide a national standard for what constitutes a "green building." Through its use as a design guideline and third-party certification tool, it aims to improve occupant well-being, environmental performance and economic returns of buildings using established and innovative practices, standards and technologies.

Consistent with USGBC policy for the continuous improvement of LEED, Version 2.1 is an administrative update of the LEED 2.0 Rating System for new commercial construction, major renovations and high-rise residential buildings. Its purpose is to address concerns raised by USGBC members and other LEED users by providing technical clarifications and streamlining the documentation requirements for LEED certification. These improvements are expected to simplify the documentation process for project teams and to reduce the costs of documenting LEED credits while retaining the stringency and integrity of the LEED Version 2.0 standards. An approval vote by USGBC membership is not required for Version 2.1 because performance levels have not been altered. Version 2.1 was created through the generous volunteer efforts of the LEED Technical Advisory Groups and with the guidance of the LEED Steering Committee. This document represents general consensus, not unanimous agreement. USGBC gratefully acknowledges the contributions of its committee members.

The new LEED Letter Template is a central component of the Version 2.1 improvements. It is a dynamic tracking and documentation tool that must be used by Version 2.1 project teams in preparing a complete LEED certification submittal. For each credit, the Letter Template prompts LEED practitioners for data, indicates when documentation requirements have been fulfilled adequately for submittal, and serves as a formatting template for the project's initial submittal. Additional support documents will be requested during the certification assessment's audit phase.

This Rating System document states the basic intent, requirements and documentation submittals that are necessary to achieve each prerequisite and voluntary "credit." Projects earn one or more points toward certification by meeting or exceeding each credit's technical requirements. All prerequisites must be achieved in order to qualify for certification. 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—the technical companion to the Rating System and Letter Template—provides further background, explanations and instructions.



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Table of Contents



Project Checklist	v
Sustainable Sites	1
Prerequisite 1 Erosion & Sedimentation Control	1
Credit 1 Site Selection	2
Credit 2 Development Density	3
Credit 3 Brownfield Redevelopment	4
Credit 4 Alternative Transportation	5
Credit 5 Reduced Site Disturbance	9
Credit 6 Stormwater Management	11
Credit 7 Heat Island Effect	13
Credit 8 Light Pollution Reduction	15
Water Efficiency	16
Credit 1 Water Efficient Landscaping	16
Credit 2 Innovative Wastewater Technologies	18
Credit 3 Water Use Reduction	19
Energy & Atmosphere	21
Prerequisite 1 Fundamental Building Systems Commissioning	21
Prerequisite 2 Minimum Energy Performance	22
Prerequisite 3 CFC Reduction in HVAC&R Equipment	23
Credit 1 Optimize Energy Performance	24
Credit 2 Renewable Energy	26
Credit 3 Additional Commissioning	29
Credit 4 Ozone Depletion	30
Credit 5 Measurement & Verification	31
Credit 6 Green Power	32



Materials & Resources	33
Prerequisite 1 Storage & Collection of Recyclables	33
Credit 1 Building Reuse	34
Credit 2 Construction Waste Management	37
Credit 3 Resource Reuse	39
Credit 4 Recycled Content	41
Credit 5 Local/Regional Materials	43
Credit 6 Rapidly Renewable Materials	45
Credit 7 Certified Wood	46
Indoor Environmental Quality	47
Prerequisite 1 Minimum IAQ Performance	47
Prerequisite 2 Environmental Tobacco Smoke (ETS) Control	48
Credit 1 Carbon Dioxide (CO ₂) Monitoring	50
Credit 2 Ventilation Effectiveness	51
Credit 3 Construction IAQ Management Plan	52
Credit 4 Low-Emitting Materials	55
Credit 5 Indoor Chemical & Pollutant Source Control	59
Credit 6 Controllability of Systems	60
Credit 7 Thermal Comfort	62
Credit 8 Daylight & Views	64
Innovation & Design Process	66
Credit 1 Innovation in Design	66
Credit 2 LEED Accredited Professional	67

Project Checklist

Sustainable Sites

14 Possible Points

<input checked="" type="checkbox"/>	Prereq 1	Erosion & Sedimentation Control	Required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.4
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5.1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5.2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6.1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6.2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 7.1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 7.2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 8

Water Efficiency

5 Possible Points

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3.1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3.2

Energy & Atmosphere

17 Possible Points

<input checked="" type="checkbox"/>	Prereq 1	Fundamental Building Systems Commissioning	Required
<input checked="" type="checkbox"/>	Prereq 2	Minimum Energy Performance	Required
<input checked="" type="checkbox"/>	Prereq 3	CFC Reduction in HVAC&R Equipment	Required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6



Materials & Resources

13 Possible Points

<input checked="" type="checkbox"/>	Prereq 1	Storage & Collection of Recyclables	Required
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 1.1	Building Reuse , Maintain 75% of Existing Shell	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 1.2	Building Reuse , Maintain 100% of Shell	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 1.3	Building Reuse , Maintain 100% Shell & 50% Non-Shell	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 2.1	Construction Waste Management , Divert 50%	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 2.2	Construction Waste Management , Divert 75%	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 3.1	Resource Reuse , Specify 5%	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 3.2	Resource Reuse , Specify 10%	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 4.1	Recycled Content , Specify 5% (p.c. + 1/2 p.i.)	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 4.2	Recycled Content , Specify 10% (p.c. + 1/2 p.i.)	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 5.1	Local/Regional Materials , 20% Manufactured Locally	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 5.2	Local/Regional Materials , of 20% in MRc5.1, 50% Harvested Locally	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 6	Rapidly Renewable Materials	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 7	Certified Wood	1

Indoor Environmental Quality

15 Possible Points

<input checked="" type="checkbox"/>	Prereq 1	Minimum IAQ Performance	Required
<input checked="" type="checkbox"/>	Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 1	Carbon Dioxide (CO₂) Monitoring	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 2	Ventilation Effectiveness	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 3.1	Construction IAQ Management Plan , During Construction	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 3.2	Construction IAQ Management Plan , Before Occupancy	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 4.1	Low-Emitting Materials , Adhesives & Sealants	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 4.2	Low-Emitting Materials , Paints	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 4.3	Low-Emitting Materials , Carpet	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 4.4	Low-Emitting Materials , Composite Wood	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 5	Indoor Chemical & Pollutant Source Control	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 6.1	Controllability of Systems , Perimeter	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 6.2	Controllability of Systems , Non-Perimeter	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 7.1	Thermal Comfort , Comply with ASHRAE 55-1992	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 7.2	Thermal Comfort , Permanent Monitoring System	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 8.1	Daylight & Views , Daylight 75% of Spaces	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 8.2	Daylight & Views , Views for 90% of Spaces	1

Innovation & Design Process

5 Possible Points

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 1.1	Innovation in Design	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 1.2	Innovation in Design	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 1.3	Innovation in Design	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 1.4	Innovation in Design	1
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Credit 2	LEED™ Accredited Professional	1

Project Totals

69 Possible Points

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Certified 26-32 points	Silver 33-38 points	Gold 39-51 points	Platinum 52-69 points
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Sustainable Sites

SS	WE	EA	MR	EQ	ID
Prerequisite 1					

Erosion & Sedimentation Control

Required

Intent

Control erosion to reduce negative impacts on water and air quality.

Requirements

Design a sediment and erosion control plan, specific to the site, that conforms to United States Environmental Protection Agency (EPA) Document No. EPA 832/R-92-005 (September 1992), Storm Water Management for Construction Activities, Chapter 3, OR local erosion and sedimentation control standards and codes, whichever is more stringent. The plan shall meet the following objectives:

- Prevent loss of soil during construction by stormwater runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.
- Prevent sedimentation of storm sewer or receiving streams.
- Prevent polluting the air with dust and particulate matter.

Submittals

- ❑ Provide the LEED Letter Template, signed by the civil engineer or responsible party, declaring whether the project follows local erosion and sedimentation control standards or the referenced EPA standard. Provide a brief list of the measures implemented. If local standards and codes are followed, describe how they meet or exceed the referenced EPA standard.

Potential Technologies & Strategies

Adopt an erosion and sediment control plan for the project site during construction. Consider employing strategies such as temporary and permanent seeding, mulching, earth dikes, silt fencing, sediment traps and sediment basins.

SS	WE	EA	MR	EQ	ID
Credit 1					

1 Point

Site Selection

Intent

Avoid development of inappropriate sites and reduce the environmental impact from the location of a building on a site.

Requirements

Do not develop buildings, roads or parking areas on portions of sites that meet any one of the following criteria:

- Prime farmland as defined by the United States Department of Agriculture in the United States Code of Federal Regulations, Title 7, Volume 6, Parts 400 to 699, Section 657.5 (citation 7CFR657.5).
- Land whose elevation is lower than 5 feet above the elevation of the 100-year flood as defined by the Federal Emergency Management Agency (FEMA).
- Land which is specifically identified as habitat for any species on Federal or State threatened or endangered lists.
- Within 100 feet of any water including wetlands as defined by United States Code of Federal Regulations 40 CFR, Parts 230-233 and Part 22, and isolated wetlands or areas of special concern identified by state or local rule, OR greater than distances given in state or local regulations as defined by local or state rule or law, whichever is more stringent.
- Land which prior to acquisition for the project was public parkland, unless land of equal or greater value as parkland is accepted in trade by the public landowner (Park Authority projects are exempt).

Submittals

- Provide the LEED Letter Template, signed by the civil engineer or responsible party, declaring that the project site meets the credit requirements.

Potential Technologies & Strategies

During the site selection process, give preference to those sites that do not include sensitive site elements and restrictive land types. Select a suitable building location and design the building with the minimal footprint to minimize site disruption. Strategies include stacking the building program, tuck-under parking, and sharing facilities with neighbors.

SS	WE	EA	MR	EQ	ID
Credit 2					

Development Density

1 Point

Intent

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 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 urban sites.

SS	WE	EA	MR	EQ	ID
Credit 3					

1 Point

Brownfield Redevelopment

Intent

Rehabilitate damaged sites where development is complicated by real or perceived environmental contamination, reducing pressure on undeveloped land.

Requirements

Develop on a site documented as contaminated (by means of an ASTM E1903-97 Phase II Environmental Site Assessment) OR on a site classified as a brownfield by a local, state or federal government agency. Effectively remediate site contamination.

Submittals

- Provide a copy of the pertinent sections of the ASTM E1903-97 Phase II Environmental Site Assessment documenting the site contamination OR provide a letter from a local, state or federal regulatory agency confirming that the site is classified as a brownfield by that agency.
- Provide the LEED Letter Template, signed by the civil engineer or responsible party, declaring the type of damage that existed on the site and describing the remediation performed.

Potential Technologies & Strategies

During the site selection process, give preference to brownfield sites. Identify tax incentives and property cost savings. Develop and implement a site remediation plan using strategies such as pump-and-treat, bioreactors, land farming and in-situ remediation.

SS	WE	EA	MR	EQ	ID
Credit 4.1					

Alternative Transportation: Public Transportation Access

1 Point

Intent

Reduce pollution and land development impacts from automobile use.

Requirements

Locate project 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 building occupants.

Submittals

- Provide the LEED Letter Template, signed by an appropriate party, declaring that the project building(s) are located within required proximity to mass transit.

- Provide an area drawing or transit map highlighting the building location and 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 future building occupants to identify transportation needs. Site the building near mass transit.

SS	WE	EA	MR	EQ	ID
Credit 4.2					

1 Point

Alternative Transportation: Bicycle Storage & Changing Rooms

Intent

Reduce pollution and land development impacts from automobile use.

Requirements

For commercial or institutional buildings, provide secure bicycle storage with convenient changing/shower facilities (within 200 yards of the building) for 5% or more of regular building occupants. For residential buildings, provide covered storage facilities for securing bicycles for 15% or more of building occupants in lieu of changing/shower facilities.

Submittals

- For commercial projects: provide the LEED Letter Template, signed by the Architect or responsible party, declaring the distance to bicycle storage and showers from the building entrance and demonstrating that these facilities can accommodate at least 5% of building occupants.

OR

- For residential projects: provide the LEED Letter Template, signed by the architect or responsible party, declaring the design occupancy for the buildings, number of covered bicycle storage facilities for securing bicycles, and demonstrating that these facilities can accommodate at least 15% of building occupants.

Potential Technologies & Strategies

Design the building with transportation amenities such as bicycle racks and showering/changing facilities.

Alternative Transportation: Alternative Fuel Vehicles

1 Point

Intent

Reduce pollution and land development impacts from automobile use.

Requirements

Provide alternative fuel vehicles for 3% of building occupants AND provide preferred parking for these vehicles, OR install alternative-fuel refueling stations for 3% of the total vehicle parking capacity of the site. Liquid or gaseous fueling facilities must be separately ventilated or located outdoors.

Submittals

- Provide the LEED Letter Template and proof of ownership of, or 2 year lease agreement for, alternative fuel vehicles and calculations indicating that alternative fuel vehicles will serve 3% of building occupants. Provide site drawings or parking plan highlighting preferred parking for alternative fuel vehicles.

OR

- Provide the LEED Letter Template with specifications and site drawings highlighting alternative-fuel refueling stations. Provide calculations demonstrating that these facilities accommodate 3% or more of the total vehicle parking capacity.

Potential Technologies & Strategies

Provide transportation amenities such as alternative fuel refueling stations and carpool/vanpool programs. Consider sharing the costs and benefits of refueling stations with neighbors.

SS	WE	EA	MR	EQ	ID
Credit 4.4					

1 Point

Alternative Transportation: Parking Capacity

Intent

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

Requirements

Size parking capacity to meet, but not exceed, minimum local zoning requirements AND provide preferred parking for carpools or vanpools capable of serving 5% of the building occupants; OR add no new parking for rehabilitation projects AND provide preferred parking for carpools or vanpools capable of serving 5% of the building occupants.

Submittals

- For new projects: provide the LEED Letter Template, signed by the civil engineer or responsible party, stating any relevant minimum zoning requirements and declaring that parking capacity is sized to meet, but not exceed them. State the number of preferred parking spaces for carpools.

OR

- For rehabilitation projects: provide the LEED Letter Template, signed by the civil engineer or responsible party, declaring that no new parking capacity has been added. State the number of preferred parking spaces for carpools.

Potential Technologies & Strategies

Minimize parking lot/garage size. Consider sharing parking facilities with adjacent buildings.

Reduced Site Disturbance: Protect or Restore Open Space

1 Point

Intent

Conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.

Requirements

On greenfield sites, limit site disturbance including earthwork and clearing of vegetation to 40 feet beyond the building perimeter, 5 feet beyond primary roadway curbs, walkways and main utility branch trenches, and 25 feet beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater detention facilities and playing fields) that require additional staging areas in order to limit compaction in the constructed area; OR, on previously developed sites, restore a minimum of 50% of the site area (excluding the building footprint) by replacing impervious surfaces with native or adapted vegetation.

Submittals

- ❑ For greenfield sites: provide the LEED Letter Template, signed by the civil engineer or responsible party, demonstrating and declaring that site disturbance (including earthwork and clearing of vegetation) has been limited to 40 feet beyond the building perimeter, 5 feet beyond primary roadway curbs, walk ways and main utility branch trenches, and 25 feet beyond constructed areas with permeable surfaces. Provide site drawings and specifications highlighting limits of construction disturbance.

OR

- ❑ For previously developed sites: provide a LEED Letter Template, signed by the civil engineer or responsible party, declaring and describing restoration of degraded habitat areas. Include highlighted site drawings with area calculations demonstrating that 50% of the site area that does not fall within the building footprint has been restored.

Potential Technologies & Strategies

Perform a site survey to identify site elements and adopt a master plan for development of the project site. Select a suitable building location and design the building with a minimal footprint to minimize site disruption. Strategies include stacking the building program, tuck-under parking and sharing facilities with neighbors. Establish clearly marked construction boundaries to minimize disturbance of the existing site and restore previously degraded areas to their natural state.

SS	WE	EA	MR	EQ	ID
Credit 5.2					

1 Point

Reduced Site Disturbance: Development Footprint

Intent

Conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.

Requirements

Reduce the development footprint (defined as entire building footprint, access roads and parking) to exceed the local zoning's open space requirement for the site by 25%. For areas with no local zoning requirements (e.g., some university campuses and military bases), designate open space area adjacent to the building that is equal to the development footprint.

Submittals

- Provide a copy of the local zoning requirements highlighting the criteria for open space. Provide the LEED Letter Template, signed by the civil engineer or responsible party, demonstrating and declaring that the open space exceeds the local zoning open space requirement for the site by 25%.

OR

- For areas with no local zoning requirements (e.g., some university campuses and military bases), designate open space area adjacent to the building that is equal to the development footprint. Provide a letter from the property owner stating that the open space will be conserved for the life of the building.

Potential Technologies & Strategies

Perform a site survey to identify site elements and adopt a master plan for development of the project site. Select a suitable building location and design the building with a minimal footprint to minimize site disruption. Strategies include stacking the building program, tuck-under parking and sharing facilities with neighbors. Establish clearly marked construction boundaries to minimize disturbance of existing and restore previously degraded areas to their natural state.

Stormwater Management: Rate and Quantity

1 Point

Intent

Limit disruption and pollution of natural water flows by managing stormwater runoff.

Requirements

If existing imperviousness is less than or equal to 50%, implement a stormwater management plan that prevents the post-development 1.5 year, 24 hour peak discharge rate from exceeding the pre-development 1.5 year, 24 hour peak discharge rate.

OR

If existing imperviousness is greater than 50%, implement a stormwater management plan that results in a 25% decrease in the rate and quantity of stormwater runoff.

Submittals

- Provide the LEED Letter Template, signed by the civil engineer or responsible party, declaring that the post-development 1.5 year, 24 hour peak discharge rate does not exceed the pre-development 1.5 year 24 hour peak discharge rate. Include calculations demonstrating that existing site imperviousness is less than or equal to 50%.

OR

- Provide the LEED Letter Template, signed by the civil engineer or responsible party, declaring and demonstrating that the stormwater management strategies result in at least a 25% decrease in the rate and quantity of stormwater runoff. Include calculations demonstrating that existing site imperviousness exceeds 50%.

Potential Technologies & Strategies

Design the project site to maintain natural stormwater flows by promoting infiltration. Specify garden roofs and pervious paving to minimize impervious surfaces. Reuse stormwater volumes generated for non-potable uses such as landscape irrigation, toilet and urinal flushing and custodial uses.

SS	WE	EA	MR	EQ	ID
Credit 6.2					

1 Point

Stormwater Management: Treatment

Intent

Limit disruption of natural water flows by eliminating stormwater runoff, increasing on-site infiltration and eliminating contaminants.

Requirements

Construct site stormwater treatment systems designed to remove 80% of the average annual post-development total suspended solids (TSS) and 40% of the average annual post-development total phosphorous (TP) based on the average annual loadings from all storms less than or equal to the 2-year/24-hour storm. Do so by implementing Best Management Practices (BMPs) outlined in Chapter 4, Part 2 (Urban Runoff), of the United States Environmental Protection Agency's (EPA's) *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*, January 1993 (Document No. EPA-840-B-92-002) or the local government's BMP document (whichever is more stringent).

Submittals

- Provide the LEED Letter Template, signed by the civil engineer or responsible party, declaring that the design complies with or exceeds EPA or local government Best Management Practices (whichever set is more stringent) for removal of total suspended solids and total phosphorous.

Potential Technologies & Strategies

Design mechanical or natural treatment systems such as constructed wetlands, vegetated filter strips and bioswales to treat the site's stormwater.

Heat Island Effect: Non-Roof

1 Point

Intent

Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.

Requirements

Provide shade (within 5 years) and/or use 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 a minimum of 50% of the parking lot area.

Submittals

- ❑ Provide the LEED Letter Template, signed by the civil engineer or responsible party, referencing the site plan to demonstrate areas of paving, landscaping (list species) and building footprint, and declaring that:
 - ❑ A minimum of 30% of non-roof impervious surfaces areas are constructed with high-albedo materials and/or open grid pavement and/or will be shaded within five years
 - ❑ OR a minimum of 50% of parking spaces have been placed underground or are covered by structured parking
 - ❑ OR an open-grid pavement system (less than 50% impervious) has been used for a minimum of 50% of the parking lot area.

Potential Technologies & Strategies

Shade constructed surfaces on the site with landscape features and minimize the overall building footprint. Consider replacing constructed surfaces (i.e. roof, roads, sidewalks, etc.) with vegetated surfaces such as garden roofs and open grid paving or specify high-albedo materials to reduce the heat absorption.

SS	WE	EA	MR	EQ	ID
Credit 7.2					

1 Point

Heat Island Effect: Roof

Intent

Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.

Requirements

Use ENERGY STAR® compliant (highly reflective) AND high emissivity roofing (emissivity of at least 0.9 when tested in accordance with ASTM 408) for a minimum of 75% of the roof surface; OR install a “green” (vegetated) roof for at least 50% of the roof area. Combinations of high albedo and vegetated roof can be used providing they collectively cover 75% of the roof area.

Submittals

- Provide the LEED Letter Template, signed by the architect, civil engineer or responsible party, referencing the building plan and declaring that the roofing materials comply with the ENERGY STAR® Label requirements and have a minimum emissivity of 0.9. Demonstrate that high-albedo and vegetated roof areas combined constitute at least 75% of the total roof area.

OR

- Provide the LEED Letter Template, signed by the architect, civil engineer or responsible party, referencing the building plan and demonstrating that vegetated roof areas constitute at least 50% of the total roof area.

Potential Technologies & Strategies

Visit the ENERGY STAR® Web site, www.energystar.gov, to look for compliant products. Consider installing high-albedo and vegetated roofs to reduce heat absorption.

Light Pollution Reduction

1 Point

Intent

Eliminate light trespass from the building and site, improve night sky access and reduce development impact on nocturnal environments.

Requirements

Meet or provide lower light levels and uniformity ratios than those recommended by the Illuminating Engineering Society of North America (IESNA) *Recommended Practice Manual: Lighting for Exterior Environments* (RP-33-99). Design exterior lighting such that all exterior luminaires with more than 1000 initial lamp lumens are shielded and all luminaires with more than 3500 initial lamp lumens meet the Full Cutoff IESNA Classification. The maximum candela value of all interior lighting shall fall within the building (not out through windows) and the maximum candela value of all exterior lighting shall fall within the property. Any luminaire within a distance of 2.5 times its mounting height from the property boundary shall have shielding such that no light from that luminaire crosses the property boundary.

Submittals

- Provide the LEED Letter Template, signed by an appropriate party, declaring that the credit requirements have been met.

Potential Technologies & Strategies

Adopt site lighting criteria to maintain safe light levels while avoiding off-site lighting and night sky pollution. Minimize site lighting where possible and model the site lighting using a computer model. Technologies to reduce light pollution include full cutoff luminaires, low-reflectance surfaces and low-angle spotlights.

SS	WE	EA	MR	EQ	ID
Credit 1.1					

Water Efficiency

1 Point

Water Efficient Landscaping: Reduce by 50%

Intent

Limit or eliminate the use of potable water for landscape irrigation.

Requirements

Use high-efficiency irrigation technology OR use captured rain or recycled site water to reduce potable water consumption for irrigation by 50% over conventional means.

Submittals

- Provide the LEED Letter Template, signed by the architect, engineer or responsible party, declaring that potable water consumption for site irrigation has been reduced by 50%. Include a brief narrative of the equipment used and/or the use of drought-tolerant or native plants.

Potential Technologies & Strategies

Perform a soil/climate analysis to determine appropriate landscape types and design the landscape with indigenous plants to reduce or eliminate irrigation requirements. Use high-efficiency irrigation systems and consider using stormwater and/or greywater for irrigation.

SS	WE	EA	MR	EQ	ID
Credit 1.2					

Water Efficient Landscaping: No Potable Use or No Irrigation

1 Point
in addition to
WE 1.1

Intent

Limit or eliminate the use of potable water for landscape irrigation.

Requirements

Use only captured rain or recycled site water to eliminate all potable water use for site irrigation (except for initial watering to establish plants), OR do not install permanent landscape irrigation systems.

Submittals

- Provide the LEED Letter Template, signed by the responsible architect and/or engineer, declaring that the project site will not use potable water for irrigation. Include a narrative describing the captured rain system, the recycled site water system, and their holding capacity. List all the plant species used. Include calculations demonstrating that irrigation requirements can be met from captured rain or recycled site water.

OR

- Provide the LEED Letter Template, signed by the landscape architect or responsible party, declaring that the project site does not have a permanent landscape irrigation system. Include a narrative describing how the landscape design allows for this.

Potential Technologies & Strategies

Perform a soil/climate analysis to determine appropriate landscape types and design the landscape with indigenous plants to reduce or eliminate irrigation requirements. Consider using stormwater and/or greywater for irrigation.

SS	WE	EA	MR	EQ	ID
Credit 2					

1 Point

Innovative Wastewater Technologies

Intent

Reduce generation of wastewater and potable water demand, while increasing the local aquifer recharge.

Requirements

Reduce the use of municipally provided potable water for building sewage conveyance by a minimum of 50%, OR treat 100% of wastewater on site to tertiary standards.

Submittals

Provide the LEED Letter Template, signed by the architect, MEP engineer or responsible party, declaring that water for building sewage conveyance will be reduced by at least 50%. Include the spreadsheet calculation and a narrative demonstrating the measures used to reduce wastewater by at least 50% from baseline conditions.

OR

Provide the LEED Letter Template, signed by the civil engineer or responsible party, declaring that 100% of wastewater will be treated to tertiary standards on site. Include a narrative describing the on-site wastewater treatment system.

Potential Technologies & Strategies

Specify high-efficiency fixtures and dry fixtures such as composting toilets and waterless urinals to reduce wastewater volumes. Consider reusing stormwater or greywater for sewage conveyance or on-site wastewater treatment systems (mechanical and/or natural).

SS	WE	EA	MR	EQ	ID
Credit 3.1					

Water Use Reduction: 20% Reduction

1 Point

Intent

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

Requirements

Employ strategies that in aggregate use 20% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements.

Submittals

- Provide the LEED Letter Template, signed by the MEP engineer or responsible party, declaring that the project uses 20% less water than the baseline fixture performance requirements of the Energy Policy Act of 1992.
- Provide the spreadsheet calculation demonstrating that water-consuming fixtures specified for the stated occupancy and use of the building reduce occupancy-based potable water consumption by 20% compared to baseline conditions.

Potential Technologies & Strategies

Estimate the potable and non-potable water needs for the building. Use high-efficiency fixtures, dry fixtures such as composting toilets and waterless urinals, and occupant sensors to reduce the potable water demand. Consider reuse of stormwater and greywater for non-potable applications such as toilet and urinal flushing, mechanical systems and custodial uses.

SS	WE	EA	MR	EQ	ID
Credit 3.2					

1 Point
in addition to
WE 3.1

Water Use Reduction: 30% Reduction

Intent

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

Requirements

Employ strategies that in aggregate use 30% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements.

Submittals

- Provide the LEED Letter Template, signed by the MEP engineer or responsible party, declaring that the project uses 30% less water than the baseline fixture performance requirements of the Energy Policy Act of 1992.
- Provide the spreadsheet calculation demonstrating that water-consuming fixtures specified for the stated occupancy and use of the building reduce occupancy-based potable water consumption by 30% compared to baseline conditions.

Potential Technologies & Strategies

Estimate the potable and non-potable water needs for the building. Use high-efficiency fixtures, dry fixtures such as composting toilets and waterless urinals, and occupant sensors to reduce the potable water demand. Consider reuse of stormwater and greywater for non-potable applications such as toilet and urinal flushing, mechanical systems and custodial uses.

Energy & Atmosphere

SS	WE	EA	MR	EQ	ID
Prerequisite 1					

Fundamental Building Systems Commissioning

Required

Intent

Verify and ensure that fundamental building elements and systems are designed, installed and calibrated to operate as intended.

Requirements

Implement or have a contract in place to implement the following fundamental best practice commissioning procedures.

- Engage a commissioning team that does not include individuals directly responsible for project design or construction management.
- Review the design intent and the basis of design documentation.
- Incorporate commissioning requirements into the construction documents.
- Develop and utilize a commissioning plan.
- Verify installation, functional performance, training and operation and maintenance documentation.
- Complete a commissioning report.

Submittals

- ❑ Provide the LEED Letter Template, signed by the owner or commissioning agent(s), 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 completed.

SS	WE	EA	MR	EQ	ID
Prerequisite 2					

Required

Minimum Energy Performance

Intent

Establish the minimum level of energy efficiency for the base building and systems.

Requirements

Design the building to comply with ASHRAE/IESNA Standard 90.1-1999 (without amendments) or the local energy code, whichever is more stringent.

Submittals

- Provide a LEED Letter Template, signed by a licensed professional engineer or architect, stating that the building complies with ASHRAE/IESNA 90.1-1999 or local energy codes. If local energy codes were applied, demonstrate that the local code is equivalent to, or more stringent than, ASHRAE/IESNA 90.1-1999 (without amendments).

Potential Technologies & Strategies:

Design the building envelope and systems 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 compared to the baseline building.

SS	WE	EA	MR	EQ	ID
Prerequisite 3					

CFC Reduction in HVAC&R Equipment

Required

Intent

Reduce ozone depletion.

Requirements

Zero use of CFC-based refrigerants in new base building HVAC&R systems. When reusing existing base building HVAC equipment, complete a comprehensive CFC phase-out conversion.

Submittals

- Provide a LEED Letter Template, signed by a licensed professional engineer or architect, declaring that the building's HVAC&R systems do not use CFC-based refrigerants.

Potential Technologies & Strategies:

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

1–10 Points

Optimize Energy Performance

Intent

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

Requirements

Reduce design energy cost compared to the energy cost budget for energy systems regulated by ASHRAE/IESNA Standard 90.1-1999 (without amendments), as demonstrated by a whole building simulation using the Energy Cost Budget Method described in Section 11 of the Standard.

New Bldgs.	Existing Bldgs.	Points
15%	5%	1
20%	10%	2
25%	15%	3
30%	20%	4
35%	25%	5
40%	30%	6
45%	35%	7
50%	40%	8
55%	45%	9
60%	50%	10

Regulated energy systems include HVAC (heating, cooling, fans and pumps), service hot water and interior lighting. Non-regulated systems include plug loads, exterior lighting, garage ventilation and elevators (vertical transportation). Two methods may be used to separate energy consumption for regulated systems. The energy consumption for each fuel may be prorated according to the fraction of energy used by regulated and non-regulated energy. Alternatively, separate meters (accounting) may be created in the energy simulation program for regulated and non-regulated energy uses.

If an analysis has been made comparing the proposed design to local energy standards and a defensible equivalency (at minimum) to ASHRAE/IESNA Standard 90.1-1999 has been established, then the comparison against the local code may be used in lieu of the ASHRAE Standard.

Project teams are encouraged to apply for innovation credits if the energy consumption of non-regulated systems is also reduced.

SS	WE	EA	MR	EQ	ID
Credit 1					

Optimize Energy Performance

1–10 Points

(continued)

Submittals

- ❑ Complete the LEED Letter Template incorporating a quantitative summary table showing the energy saving strategies incorporated in the building design.
- ❑ Demonstrate via summary printout from energy simulation software that the design energy cost is less than the energy cost budget as defined in ASHRAE/IESNA 90.1-1999, Section 11.

Potential Technologies & Strategies

Design the building envelope and building systems 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.

SS	WE	EA	MR	EQ	ID
Credit 2.1					

1 Point

Renewable Energy: 5%

Intent

Encourage and recognize increasing levels of on-site renewable energy self-supply in order to reduce environmental impacts associated with fossil fuel energy use.

Requirements

Supply at least 5% of the building's total energy use (as expressed as a fraction of annual energy cost) through the use of on-site renewable energy systems.

Submittals

- Provide the LEED Letter Template, signed by the architect, owner or responsible party, declaring that at least 5% of the building's energy is provided by on-site renewable energy. Include a narrative describing on-site renewable energy systems installed in the building and calculations demonstrating that at least 5% of total energy costs are supplied by the renewable energy system(s).

Potential Technologies & Strategies

Assess the project for non-polluting and renewable energy potential including solar, wind, geothermal, low-impact hydro, biomass and bio-gas strategies. When applying these strategies, take advantage of net metering with the local utility.

SS	WE	EA	MR	EQ	ID
Credit 2.2					

Renewable Energy: 10%

1 Point
in addition to
EA 2.1

Intent

Encourage and recognize increasing levels of self-supply through renewable technologies to reduce environmental impacts associated with fossil fuel energy use.

Requirements

Supply at least 10% of the building's total energy use (as expressed as a fraction of annual energy cost) through the use of on-site renewable energy systems.

Submittals

- Provide the LEED Letter Template, signed by the architect, owner or responsible party, declaring that at least 10% of the building's energy is provided by on-site renewable energy. Include a narrative describing on-site renewable energy systems installed in the building and calculations demonstrating that at least 10% of total energy costs are supplied by the renewable energy system(s).

Potential Technologies & Strategies

Assess the project for non-polluting renewable energy potential including solar, wind, geothermal, low-impact hydro, biomass and bio-gas strategies. When applying these strategies, take advantage of net metering with the local utility.

SS	WE	EA	MR	EQ	ID
Credit 2.3					

1 Point
in addition to
EA 2.1 and 2.2

Renewable Energy: 20%

Intent

Encourage and recognize increasing levels of self-supply through renewable technologies to reduce environmental impacts associated with fossil fuel energy use.

Requirements

Supply at least 20% of the building's total energy use (as expressed as a fraction of annual energy cost) through the use of on-site renewable energy systems.

Submittals

- Provide the LEED Letter Template, signed by the architect, owner or responsible party, declaring that at least 20% of the building's energy is provided by on-site renewable energy. Include a narrative describing on-site renewable energy systems installed in the building and calculations demonstrating that at least 20% of total energy costs are supplied by the renewable energy system(s).

Potential Technologies & Strategies

Assess the project for non-polluting and renewable energy potential including solar, wind, geothermal, low-impact hydro, biomass and bio-gas strategies. When applying these strategies, take advantage of net metering with the local utility.

SS	WE	EA	MR	EQ	ID
Credit 3					

Additional Commissioning

1 Point

Intent

Verify and ensure that the entire building 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 document 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 owner with a single manual that contains the information required for re-commissioning building systems.
5. Have a contract in place to review building operation with O&M staff, including a plan for resolution of outstanding commissioning-related issues within one year after construction completion date.

Submittals

- Provide the LEED Letter Template, signed by the owner 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 phases.

SS	WE	EA	MR	EQ	ID
Credit 4					

1 Point

Ozone Protection

Intent

Reduce ozone depletion and support early compliance with the Montreal Protocol.

Requirements

Install base building level HVAC and refrigeration equipment and fire suppression systems that do not contain HCFCs or Halons.

Submittals

- Provide the LEED Letter Template, signed by the architect or engineer, stating that HVAC&R systems as-built are free of HCFCs and Halons.

Potential Technologies & Strategies

When reusing buildings, inventory existing building systems using refrigerants and fire suppression chemicals and replace those that contain HCFCs or Halons. For new buildings, specify refrigeration and fire suppression systems that use no HCFCs or Halons.

SS	WE	EA	MR	EQ	ID
Credit 5					

Measurement and Verification

1 Point

Intent

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

Requirements

Install continuous metering equipment for the following end-uses:

- Lighting systems and controls
- Constant and variable motor loads
- Variable frequency drive (VFD) operation
- Chiller efficiency at variable loads (kW/ton)
- Cooling load
- Air and water economizer and heat recovery cycles
- Air distribution static pressures and ventilation air volumes
- Boiler efficiencies
- Building-related process energy systems and equipment
- Indoor water risers and outdoor irrigation systems

Develop a Measurement and Verification plan that incorporates the monitoring information from the above end-uses and is consistent with Option B, C or D of the 2001 *International Performance Measurement & Verification Protocol (IPMVP) Volume I: Concepts and Options for Determining Energy and Water Savings*.

Submittals

- Provide the LEED Letter Template, signed by the licensed engineer or other responsible party, indicating that metering equipment has been installed for each end-use and declaring the option to be followed under IPMVP version 2001.
- Provide a copy of the M&V plan following IPMVP, 2001 version, including an executive summary.

Potential Technologies & Strategies

Model the energy and water systems to predict savings. Design the building with equipment to measure energy and water performance. Draft a Measurement & Verification Plan to apply during building operation that compares predicted savings to those actually achieved in the field.

SS	WE	EA	MR	EQ	ID
Credit 6					

1 Point

Green Power

Intent

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

Requirements

Provide at least 50% of the building'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.

Submittals

- Provide the LEED Letter Template, signed by the owner or other responsible party, documenting that the supplied renewable 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

Determine the energy needs of the building 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 for details about the Green-e program.

Materials & Resources

SS	WE	EA	MR	EQ	ID
Prerequisite 1					

Storage & Collection of Recyclables

Required

Intent

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

Requirements

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

Submittals

- Provide the LEED Letter Template, signed by the architect or owner, declaring that the area dedicated to recycling is easily accessible and accommodates the building'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, cardboard and organic wastes. Instruct occupants on building recycling procedures. Consider employing cardboard balers, aluminum can crushers, recycling chutes and other waste management technologies to further enhance the recycling program.

SS	WE	EA	MR	EQ	ID
Credit 1.1					

1 Point

Building Reuse:

Maintain 75% of Existing Walls, Floors and Roof

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

Maintain at least 75% of existing building structure and shell (exterior skin and framing, excluding window assemblies and non-structural roofing material).

Submittals

- Provide the LEED Letter Template, signed by the architect, owner or other responsible party, listing the retained elements and declaring that the credit requirements have been met.

Potential Technologies & Strategies

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

SS	WE	EA	MR	EQ	ID
Credit 1.2					

Building Reuse:

Maintain 100% of Existing Walls, Floors and Roof

1 Point
in addition to
MR 1.1

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

Maintain an additional 25% (100% total) of existing building structure and shell (exterior skin and framing, excluding window assemblies and non-structural roofing material).

Submittals

- Provide the LEED Letter Template, signed by the architect, owner or other responsible party, demonstrating the retained elements and declaring that the credit requirements have been met.

Potential Technologies & Strategies

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

SS	WE	EA	MR	EQ	ID
Credit 1.3					

1 Point
in addition to
MR 1.1 and 1.2

Building Reuse: Maintain 100% of Shell/Structure and 50% of Non-Shell/Non-Structure

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

Maintain 100% of existing building structure and shell (exterior skin and framing, excluding window assemblies and non-structural roofing material) AND at least 50% of non-shell areas (interior walls, doors, floor coverings and ceiling systems).

Submittals

- Provide the LEED Letter Template, signed by the architect, owner or other responsible party, demonstrating the retained elements and declaring that the credit requirements have been met.

Potential Technologies & Strategies

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

SS	WE	EA	MR	EQ	ID
Credit 2.1					

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 land clearing waste. Calculations can be done by weight or volume, but must be consistent throughout.

Submittals

- Provide the LEED Letter Template, signed by the architect, owner or other responsible party, tabulating the total waste material, quantities diverted and the means by which diverted, and declaring that the credit 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 land clearing debris, 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
Credit 2.2					

1 Point
in addition to
MR 2.1

**Construction Waste Management:
Divert 75% From Landfill**

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 an additional 25% (75% total) of construction, demolition and land clearing waste. Calculations can be done by weight or volume, but must be consistent throughout.

Submittals

- ❑ Provide the LEED Letter Template, signed by the architect, owner or other responsible party, tabulating the total waste material, quantities diverted and the means by which diverted, and declaring that the credit 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 land clearing debris, 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
Credit 3.1					

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, products and furnishings for at least 5% of building materials.

Submittals

- Provide the LEED Letter Template, signed by the architect, 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 salvaged materials into building design and research potential material suppliers. Consider salvaged materials such as beams and posts, flooring, paneling, doors and frames, cabinetry and furniture, brick and decorative items.

SS	WE	EA	MR	EQ	ID
Credit 3.2					

1 Point
in addition to
MR 3.1

Resource Reuse: 10%

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, products and furnishings for at least 10% of building materials.

Submittals

- Provide the LEED Letter Template, signed by the architect, 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 salvaged materials into building design and research potential material suppliers. Consider salvaged materials such as beams and posts, flooring, paneling, doors and frames, cabinetry and furniture, brick and decorative items.

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

1 Point

Intent

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

Requirements

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.

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.

Submittals

- ❑ Provide the LEED Letter Template, signed by the architect, owner or other responsible party, declaring that the credit 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.

SS	WE	EA	MR	EQ	ID
Credit 4.2					

1 Point
in addition to
MR 4.1

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

Intent

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

Requirements

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.

Submittals

- ❑ Provide the LEED Letter Template, signed by the architect, owner or other responsible party, declaring that the credit 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.

SS	WE	EA	MR	EQ	ID
Credit 5.1					

Regional Materials: 20% manufactured regionally

1 Point

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

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 Letter Template, signed by the architect 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.

SS	WE	EA	MR	EQ	ID
Credit 5.2					

1 Point
in addition to
MR 5.1

Regional Materials: 50% extracted regionally

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

Of the regionally manufactured materials documented for MR Credit 5.1, use a minimum of 50% of building materials and products that are extracted, harvested or recovered (as well as manufactured) within 500 miles of the project site.

Submittals

- Provide the LEED Letter Template, signed by the architect 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.

SS	WE	EA	MR	EQ	ID
Credit 6					

Rapidly Renewable Materials

1 Point

Intent

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

Requirements

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

Submittals

- ❑ Provide the LEED Letter Template, signed by the architect or 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 batt insulation, linoleum flooring, poplar OSB, sunflower seed board, wheatgrass cabinetry and others. During construction, ensure that the specified rapidly renewable materials are installed.

SS	WE	EA	MR	EQ	ID
Credit 7					

1 Point

Certified Wood

Intent

Encourage environmentally responsible forest management.

Requirements

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

Submittals

- Provide the LEED Letter Template, signed by the architect, owner or 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.

Indoor Environmental Quality

SS	WE	EA	MR	EQ	ID
Prerequisite 1					

Minimum IAQ Performance

Required

Intent

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

Requirements

Meet the minimum requirements of voluntary consensus standard ASHRAE 62-1999, Ventilation for Acceptable Indoor Air Quality, and approved Addenda (see ASHRAE 62-2001, Appendix H, for a complete compilation of Addenda) using the Ventilation Rate Procedure.

Submittals

- Provide the LEED Letter Template, signed by the mechanical engineer or responsible party, declaring that the project is fully compliant with ASHRAE 62-1999 and all published Addenda and describing the procedure employed in the IAQ analysis (Ventilation Rate Procedure).

Potential Technologies & Strategies

Design the HVAC system to meet the ventilation requirements of the referenced standard. Identify potential IAQ problems on the site and locate air intakes away from contaminant sources.

SS	WE	EA	MR	EQ	ID
Prerequisite 2					

Required

Environmental Tobacco Smoke (ETS) Control

Intent

Prevent exposure of building occupants and systems to Environmental Tobacco Smoke (ETS).

Requirements

Zero exposure of non-smokers to ETS by EITHER:

- prohibiting smoking in the building and locating any exterior designated smoking areas away from entries and operable windows;

OR

- providing a designated smoking room designed to effectively contain, capture and remove ETS from the building. At a minimum, the smoking room must be directly exhausted to the outdoors with no recirculation of ETS-containing air to the non-smoking area of the building, enclosed with impermeable deck-to-deck partitions and operated at a negative pressure compared with the surrounding spaces of at least 7 PA (0.03 inches of water gauge).
- Performance of the smoking rooms shall be verified by using tracer gas testing methods as described in the ASHRAE Standard 129-1997. Acceptable exposure in non-smoking areas is defined as less than 1% of the tracer gas concentration in the smoking room detectable in the adjoining non-smoking areas. Smoking room testing as described in ASHRAE Standard 129-1997 is required in the contract documents and critical smoking facility systems testing results must be included in the building commissioning plan and report or as a separate document.

Submittals

- Provide the LEED Letter Template, signed by the building owner or responsible party, declaring that the building will be operated under a policy prohibiting smoking.

OR

- Provide the LEED Letter Template, signed by the mechanical engineer or responsible party, declaring and demonstrating that designated smoking rooms are exhausted to the outdoors with no recirculation of ETS-containing air to the non-smoking area of the building, enclosed with impermeable deck-to-deck partitions, operated at a negative pressure compared with the surrounding spaces of at least 7 PA (0.03 inches of water gauge), and performance has been verified using the method described in the credit requirements.

SS	WE	EA	MR	EQ	ID
Prerequisite 2					

Environmental Tobacco Smoke (ETS) Control

Required

(continued)

Potential Technologies & Strategies

Prohibit smoking in the building or provide separate smoking rooms with isolated ventilation systems.

SS	WE	EA	MR	EQ	ID
Credit 1					

1 Point

Carbon Dioxide (CO₂) Monitoring

Intent

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

Requirements

Install a permanent carbon dioxide (CO₂) monitoring system that provides feedback on space ventilation performance in a form that affords operational adjustments. Refer to the CO₂ differential for all types of occupancy in accordance with ASHRAE 62-2001, Appendix D.

Submittals

- Provide the LEED Letter Template, signed by the mechanical engineer or responsible party, declaring and summarizing the installation, operational design and controls/zones for the carbon dioxide monitoring system. For mixed-use buildings, calculate CO₂ 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

1 Point

Intent

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

Requirements

For mechanically ventilated buildings, design ventilation systems that result in an air change effectiveness (Eac) 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 Letter Template, signed by the mechanical engineer or responsible party, declaring that the design achieves an air change effectiveness (Eac) of 0.9 or greater in each ventilated zone. Complete the table summarizing the air change effectiveness achieved for each zone.

OR

- For mechanically ventilated spaces: provide the LEED Letter Template, signed by the mechanical engineer or responsible party, declaring that the design complies with the recommended design approaches in ASHRAE 2001 Fundamentals Chapter 32, Space Air Diffusion.

OR

- For naturally ventilated spaces: provide the LEED 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.

SS	WE	EA	MR	EQ	ID
Credit 3.1					

1 Point

Construction IAQ Management Plan: During Construction

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 building 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 52.2-1999.
- 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.

Submittals

- Provide the LEED 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 construction and at the end of construction. Include the MERV value, manufacturer name and model number.

ANDEITHER

- 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

- Declare 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 description of some of the important design approaches employed.

SS	WE	EA	MR	EQ	ID
Credit 3.1					

Construction IAQ Management Plan: During Construction

(continued)

1 Point

Potential Technologies & Strategies

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

SS	WE	EA	MR	EQ	ID
Credit 3.2					

1 Point

Construction IAQ Management Plan: Before Occupancy

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 pre-occupancy phase as follows:

- After construction ends and prior to occupancy conduct a minimum two-week building flush-out with new Minimum Efficiency Reporting Value (MERV) 13 filtration media at 100% outside air. After the flush-out, replace the filtration media with new MERV 13 filtration media, except the filters solely processing outside air.

OR

- Conduct a baseline indoor air quality testing procedure consistent with the United States Environmental Protection Agency's current *Protocol for Environmental Requirements, Baseline IAQ and Materials, for the Research Triangle Park Campus, Section 01445*.

Submittals

- Provide the LEED Letter Template, signed by the architect, general contractor or responsible party, describing the building flush-out procedures and dates.

OR

- Provide the LEED Letter Template, signed by the architect or responsible party, declaring that the referenced standard's IAQ testing protocol has been followed. Include a copy of the testing results.

Potential Technologies & Strategies

Prior to occupancy, perform a two week building flush-out or test the contaminant levels in the building.

SS	WE	EA	MR	EQ	ID
Credit 4.1					

Low-Emitting Materials: Adhesives & 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 Letter Template, signed by the architect 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.

SS	WE	EA	MR	EQ	ID
Credit 4.2					

1 Point

Low-Emitting Materials: Paints and Coatings

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

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

Submittals

- Provide the LEED Letter Template, signed by the architect or responsible party, listing all the interior 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 are addressed.

SS	WE	EA	MR	EQ	ID
Credit 4.3					

Low-Emitting Materials: Carpet

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 Letter Template, signed by the architect or responsible party, listing all the carpet systems used in the building 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.

SS	WE	EA	MR	EQ	ID
Credit 4.4					

1 Point

Low-Emitting Materials: Composite Wood

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

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

Submittals

- Provide the LEED Letter Template, signed by the architect or responsible party, listing all the composite wood products used in the building 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.

Indoor Chemical & Pollutant Source Control

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:

- Employ permanent entryway systems (grills, grates, etc.) to capture dirt, particulates, etc. from entering the building at all high volume entryways.
- Where chemical use occurs (including housekeeping areas and copying/printing rooms), provide segregated areas with deck to deck partitions with separate outside exhaust at a rate of at least 0.50 cubic feet per minute per square foot, no air re-circulation and maintaining a negative pressure of at least 7 PA (0.03 inches of water gauge).
- Provide drains plumbed for appropriate disposal of liquid waste in spaces where water and chemical concentrate mixing occurs.

Submittals

- ❑ Provide the LEED Letter Template, signed by the architect or responsible party, declaring that:
 - Permanent entryway systems (grilles, grates, etc.) to capture dirt, particulates, etc. are provided at all high volume entryways.
 - Chemical use areas and copy rooms have been physically separated with deck-to-deck partitions; independent exhaust ventilation has been installed at 0.50 cfm/square foot and that a negative pressure differential of 7 PA has been achieved.
 - In spaces where water and chemical concentrate 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. Install permanent architectural entryway systems such as grills or grates to prevent occupant-borne contaminants from entering the building.

SS	WE	EA	MR	EQ	ID
Credit 6.1					

1 Point

Controllability of Systems: Perimeter Spaces

Intent

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

Requirements

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

Submittals

- Provide the LEED Letter Template, signed by the architect or responsible party, demonstrating and declaring that for regularly occupied perimeter areas of the building a minimum of one operable window and one lighting control zone are provided per 200 square feet on average.

Potential Technologies & Strategies

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

SS	WE	EA	MR	EQ	ID
Credit 6.2					

Controllability of Systems: Non-Perimeter Spaces

1 Point

Intent

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

Requirements

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 Letter Template, signed by the architect or responsible party, demonstrating and declaring that controls for individual airflow, temperature and lighting are provided for at least 50% of the occupants in non-perimeter, regularly occupied areas.

Potential Technologies & Strategies

Design the building with occupant controls for airflow, temperature and lighting. Strategies to consider include task lighting and underfloor HVAC systems with individual diffusers.

SS	WE	EA	MR	EQ	ID
Credit 7.1					

1 Point

Thermal Comfort: Compliance with ASHRAE 55-1992

Intent

Provide a thermally comfortable environment that supports the productivity and well-being of building 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 California 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 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 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 California 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 building envelope and HVAC system to maintain these comfort ranges.

SS	WE	EA	MR	EQ	ID
Credit 7.2					

Thermal Comfort: Permanent Monitoring System

1 Point
in addition to
EQ 7.1

Intent

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

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 building.

Submittals

- ❑ Provide the LEED Letter Template, signed by the engineer or responsible party, declaring that a permanent temperature and humidity monitoring system will operate throughout all seasons to permit control of the building zones within the seasonal thermal comfort ranges defined in ASHRAE 55-1992, Addenda 1995. Confirm that the temperature and humidity controls were (or will be) tested as 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 building envelope and HVAC system to maintain these comfort ranges. Install and maintain a temperature and humidity monitoring system in the building to automatically adjust building conditions as appropriate.

SS	WE	EA	MR	EQ	ID
Credit 8.1					

1 Point

Daylight and Views: Daylight 75% of Spaces

Intent

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

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 Letter Template signed by the architect or responsible party. Provide area calculations that define the daylight zone and provide prediction calculations or daylight simulation.

Potential Technologies & Strategies

Design the building to maximize interior daylighting. Strategies to consider include building orientation, shallow floor plates, increased building perimeter, exterior and interior permanent shading devices, high performance glazing and photo-integrated light sensors. Predict daylighting via calculations or model daylighting strategies with a physical or computer model to assess footcandle levels and daylight factors achieved.

SS	WE	EA	MR	EQ	ID
Credit 8.2					

Daylight and Views: Views for 90% of Spaces

1 Point

Intent

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

Requirements

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

Submittals

- Provide the LEED Letter Template and calculations 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 the direct line of sight zones.

Potential Technologies & Strategies

Design the building to maximize view opportunities.

SS	WE	EA	MR	EQ	ID
Credit 1					

Innovation & Design Process

1-4 Points

Innovation in Design

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) In writing, identify the **intent** of the proposed innovation credit, the proposed **requirement** for compliance, the proposed **submittals** to demonstrate compliance, and the **design approach** (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 Letter Template (including intent, requirement, 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.

SS	WE	EA	MR	EQ	ID
Credit 2.1					

LEED Accredited Professional

1 Point

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 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.