LEED Green Associate

Appendix

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  - » CxA Qualifications
- » Credit Charts
  - » Referenced Standards
  - » Credit Interactions

Green Resources

Websites

Please report broken links to studio4: *rookwood@msn.com*

» **USGBC Home Page** *www.usgbc.org/*

- » Green Building Research *www.usgbc.org/DisplayPage.aspx?CMSPageID=1718*
- » LEED resources *www.usgbc.org/DisplayPage.aspx?CMSPageID=75*
- » LEED rating systems *http://www.usgbc.org/DisplayPage.aspx?CMSPageID=222*
- » USGBC green building education *http://www.greenbuild365.org/*
- » USGBC education and training courses *www.usgbc.org/DisplayPage.aspx?CMSPageID=283*
- » USGBC Green Building resource links *http://www.usgbc.org/DisplayPage.aspx?CMSPageID=76&*
- » USGBC Trademark and Logo Guidelines *http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1835*
- » USGBC Technical Advisory Groups (TAG) *http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1795*
- » LEED MPRs *http://www.usgbc.org/DisplayPage.aspx?CMSPageID=2102*
- » LEED sample credit forms *www.usgbc.org/DisplayPage.aspx?CMSPageID=1447*

» **GBCI Home Page** *www.gbci.org/*

- » GBCI Green Associate Candidate Handbook (required primary and ancillary resource links) *http://www.gbci.org/main-nav/professional-credentials/resources/candidate-handbooks.aspx*
- » Credentialing resources *http://www.gbci.org/main-nav/professional-credentials/resources.aspx*
- » GBCI Glossary *http://www.gbci.org/glossary.aspx*
- » LEED CIRs *http://www.gbci.org/Certification/Resources/cirs.aspx*
- » LEED Sustainable Building Design Technical Manual, Part II *http://www.gbci.org/Libraries/Credential_Exam_References/Sustainable-Building-Technical-Manual-Part-II.sflb.ashx*
- » LEED The Treatment by LEED on the Environmental Impact of Refrigerants *http://www.gbci.org/Libraries/Credential_Exam_References/The-Treatment-by-LEED-of-the-Environmental-Impact-of-HVAC-Refrigerants.sflb.ashx*
- » Guide to Purchasing Green Power *http://www.gbci.org/Libraries/Credential_Exam_References/Guide-to-Purchasing-Green-Power.sflb.ashx*
- » Cost of Green Revisited *http://www.gbci.org/Libraries/Credential_Exam_References/Cost-of-Green-Revisited.sflb.ashx*

» **USGBC Regional Chapters**

- » Find a Chapter *http://www.usgbc.org/FindaChapter/ChapList.aspx/*
- » Colorado Regional Chapter *http://usgbccolorado.org//*
- » Cincinnati Regional Chapter *http://www.usgbc-cincinnati.org/*

» **CaGBC (Canada Green Building Council) Home Page** *http://www.cagbc.org//*

» **Miscellaneous Resource Websites**

- » Environmental Protection Agency (EPA) *www.epa.gov/*
- » The International Association of Plumbing and Mechanical Officials (IAPMO); Uniform Plumbing Code *http://www.iapmo.org/Pages/splash.aspx*
- » The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) *http://www.ashrae.org/*

- International Code Council (ICC); Internation Plumbing Code *http://www.iccsafe.org/Pages/default.aspx*
- Stormwater Glossary of Terms *www.stormwaterauthority.org/glossary.aspx*
- ENERGY STAR *http://www.energystar.gov*
- Brownfields and Land Revitalization *http://www.epa.gov/brownfields/*
- Code of Federal Regulations (Definitions of prime agricultural land and wetlands) *http://www.gpoaccess.gov/cfr/index.html*
- FEMA (Definition of 100 year flood) *http://www.fema.gov/*
- U.S. Fish & Wildlife Service (Endangered Species Program) *http://www.fws.gov/endangered/*
- NOAA Office of Protected Resources (Endangered Species Act) *http://www.nmfs.noaa.gov/pr/species/esa/*
- Harvard Green Building Resource *www.green.harvard.edu/theresource/*
- LEEDuser *www.leeduser.com/*
- Real Life LEED *http://www.reallifeleed.com/*
- McGraw-Hill green website *www.greensource.construction.com/Default.asp*
- HOK green website *http://hoklife.com/category/archives/sustainable-design/*
- Sustainable Connections resource website *www.sustainableconnections.org/*
- Inhabitat sustainable website *www.inhabitat.com*
- Studio4 sustainable website *www.studio4llc.com*

Publications

- Environmental magazine lists
  - *http://www.deb.uminho.pt/Fontes/enviroinfo/publications/*
  - *http://local444.caw.ca/docs/enviromaglist-may2008.pdf*
  - *http://www.city.stratford.on.ca/naturally/envmag.asp*
- Environmental Design + Construction *www.edcmag.com/*
- Green Builder *www.greenbuildermag.com/*

Blogs

- Green blog directory *www.bestgreenblogs.com//*

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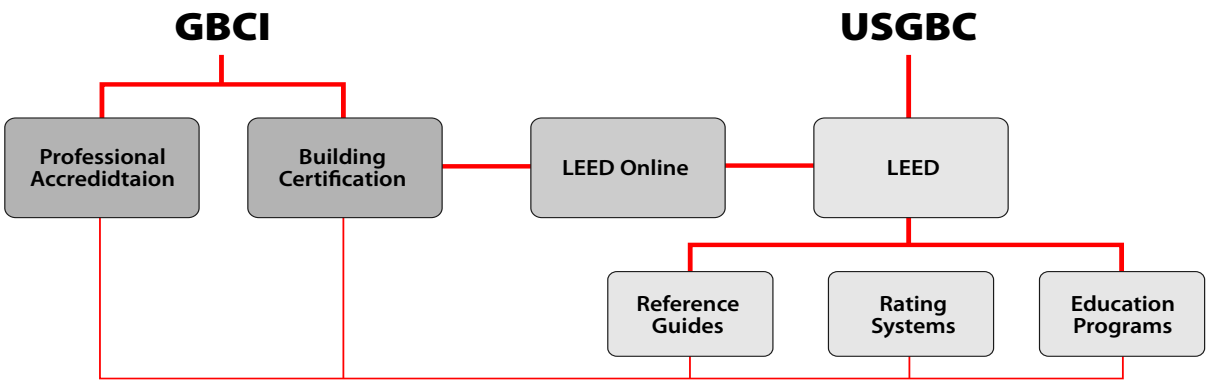
USGBC & GBCI Organizational Chart



Professional Accreditation:
Tier I:
LEED Green Associate
Tier II:
LEED AP (BD+C): Building Design + Construction
LEED AP (ID+C): Interior Design + Construction
LEED AP (O+M): Operations + Maintenance
LEED AP Homes
LEED AP (ND): Neighborhood Development
Tier III:
LEED Fellow

Building Certification:
LEED for New Construction
LEED for Schools
LEED for Core & Shell
LEED for Existing Buildings
LEED for Commercial Interiors
LEED for Homes

Reference Guides:
Green Building Design and Construction Reference Guide
Green Interior Design and Construction Reference Guide
Green Building Operations and Maintenance Reference Guide
Green Building and LEED Core Concepts Guide

Rating Systems:
New Construction and Major Renovations
Existing Buildings: Operations & Maintenance
Commercial Interiors
Core & Shell
Schools
Retail*
Healthcare*
Homes
Neighborhood Development*
* : Pilot Program

Education Programs:
100 Level: Awareness
200 Level: Understanding
300 Level: Application & Implementation

GBCI

Organization: The Green Building Certification Institute (GBCI) was established in January 2008 to provide third party certification and professional credentials for recognition of excellence in green building practice and performance

Mission: To support a high level of competence in building methods for environmental efficiency through the development and administration of a formal program of certification and recertification

Primary Functions:
• Provides third party LEED project certification
• Provides third party LEED professional credentials

USGBC

Organization: The The U.S. Green Building Council (USGBC) is a 501(c)(3) nonprofit entity composed of leaders from every sector or the building industry working to promote buildings and communities that are environmentally responsible, profitable and healthy places to live and work

Mission: To transorm the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy and prosperous environment that improves the quality of life

Primary Functions:
• Developed the LEED (Leadership in Energy and Environmental Design) Green Building Rating System. The LEED Green Building Rating Sustem is the nationally accepted benchmark for the design, construction and operation of high performance green buildings
• Provides and develops LEED based education and research programs

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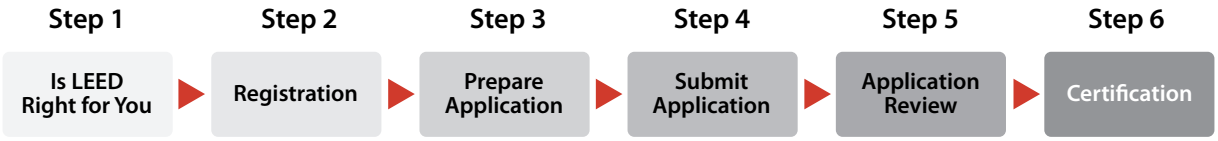
Six Steps to Certification

LEED 2009: New Construction & Major Renovations, Schools and Core&Shell



Step 1: Determine appropriateness of LEED
Form a charrette and gather information to determine if, and at what level, LEED is appropriate

Step 2: Registration via LEED OnLine
www.gbci.org

Step 3: Prepare Application
Assign team members and prepare all documents required for prerequisites and credits being sought (minimum number of credits are required for Certification)

Step 4: Submit Application via LEED OnLine
Upload Credit Forms with all required documentation

Step 5: Application Review
Upon receipt of a completed submittal application, a formal review will be initiated

Step 6: Certification
Certification is the final step in the LEED Review Process. Once the final review is complete, the project team can either accept or appeal the final decision. If accepted, LEED Certified Projects:

- will receive a formal certificate of recognition
- will receive information on how to order plaques, certificates, photo submissions and marketing
- May be included in an online directory and US Dept. of Energy High Performance Bldgs. Database

NOTE: Project certification requires all Minimum Program Requirements (MPRs) and prerequisites in each sustainable category be met along with a minimum total number of credit points

For current Steps to Certification:

http://www.usgbc.org/DisplayPage.aspx?CMSPageID=64

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Project Certification Fees

LEED 2009: New Construction, Schools, Core and Shell

Project Certification Rates: Effective 11 January, 2010

Project Certification fees depend on USGBC membership status and the sf of the building
Project Registration fees not included

	< 50,000 sf	50,000 - 500,000 sf	> 500,000 sf	Appeals (if applicable)
LEED 2009: NC, CS &CI	Fixed Rate	Based on sf	Fixed Rate	Per Credit
Design Review				
USGBC Members	$2,000	$0.040	$20,000	$500
Non-Members	$2,250	$0.045	$22,500	$500
Expedited Fee	$5,000 regardless of sf			$500
Construction Review				
USGBC Members	$500	$0.010	$5,000	$500
Non-Members	$750	$0.015	$7,500	$500
Expedited Fee	$5,000 regardless of sf			$500
Combined Design & Construction Review				
USGBC Members	$2,250	$0.045	$22,500	$500
Non-Members	$2,750	$0.055	$27,500	$500
Expedited Fee	$10,000 regardless of sf			$500

LEED 2009: EB O&M	Fixed Rate	Based on SF	Fixed Rate	Per Credit
Initial Certification Review				
USGBC Members	$1,500	$0.030	$15,000	$500
Non-Members	$2,000	$0.040	$2,000	$500
Expedited Fee	$10,000 regardless of sf			$500
Recertification Review				
USGBC Members	$750	$0.015	$7,500	$500
Non-Members	$1,000	$0.020	$10,000	$500
Expedited Fee	$10,000 regardless of sf			$500

LEED 2009: Core & Shell	Fixed Rate	Per Credit
Precertification		
USGBC Members	$3,250	$500
Non-Members	$4,250	$500
Expedited Fee	$5,000 regardless of sf	$500
CIR's	for all rating systems	$220

For current Project Registration and Certification Fees:

http://www.gbci.org/Certification/Resources/Registration-fees.aspx
http://www.gbci.org/main-nav/building-certification/resources/fees/current.aspx

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www.studio4llc.com

LEED Rating Systems & Reference Guides

LEED for New Construction

Total Possible Points**	110*
Sustainable Sites	26
Water & Efficiency	10
Energy & Atmosphere	35
Materials & Resources	14
Indoor Environmental Quality	15

** Out of a possible 100 pts + 10 bonus pts*
*** Certified 40-49 pts; Silver 50-59 pts; Gold 60-79 pts; Platinum 80+ pts*

Innovation in Design	6
Regional Priority	4

LEED for Schools

Total Possible Points**	110*
Sustainable Sites	24
Water & Efficiency	11
Energy & Atmosphere	33
Materials & Resources	13
Indoor Environmental Quality	19

** Out of a possible 100 pts + 10 bonus pts*
*** Certified 40-49 pts; Silver 50-59 pts; Gold 60-79 pts; Platinum 80+ pts*

Innovation in Design	6
Regional Priority	4

LEED for Core & Shell

Total Possible Points**	110*
Sustainable Sites	28
Water & Efficiency	10
Energy & Atmosphere	37
Materials & Resources	13
Indoor Environmental Quality	12

** Out of a possible 100 pts + 10 bonus pts*
*** Certified 40-49 pts; Silver 50-59 pts; Gold 60-79 pts; Platinum 80+ pts*

Innovation in Design	6
Regional Priority	4

LEED for Healthcare

Under Development

LEED for Retail

Under Development

LEED for Commercial Interiors

Total Possible Points**	110*
Sustainable Sites	21
Water & Efficiency	11
Energy & Atmosphere	37
Materials & Resources	14
Indoor Environmental Quality	17

** Out of a possible 100 pts + 10 bonus pts*
*** Certified 40-49 pts; Silver 50-59 pts; Gold 60-79 pts; Platinum 80+ pts*

Innovation in Design	6
Regional Priority	4

LEED for Retail Interiors

Under Development

LEED for Existing Buildings

Total Possible Points**	110*
Sustainable Sites	26
Water & Efficiency	14
Energy & Atmosphere	35
Materials & Resources	10
Indoor Environmental Quality	15

** Out of a possible 100 pts + 10 bonus pts*
*** Certified 40-49 pts; Silver 50-59 pts; Gold 60-79 pts; Platinum 80+ pts*

Innovation in Operations	6
Regional Priority	4

LEED for Existing Schools

Under Development

ND for Neighborhood Development

Total Possible Points**	110*
Smart Location & Linkage	27
Neighborhood Pattern & Design	44
Green Infrastructure & Buildings	29

** Out of a possible 100 pts + 10 bonus pts*
*** Certified 40+ pts; Silver 50+ pts; Gold 60+ pts; Platinum 80+ pts*

Innovation & Design Process	6
Regional Priority	4

LEED for Homes

Total Possible Points**	136*
Innovation & Design Process	11
Location & Linkages	10
Sustainable Sites	22
Water & Efficiency	15
Energy & Atmosphere	38
Materials & Resources	16
Indoor Environmental Quality	21
Awareness & Education	3

** Out of a possible 136pts*
*** Certified 45-59 pts; Silver 60-74 pts; Gold 75-89 pts; Platinum 90+ pts*

Rating System	Reference Guide
LEED for New Construction & Major Renovations	The LEED 2009 Reference Guide for Green Building Design & Construction
LEED for Core & Shell	
LEED for Schools	
LEED for Healthcare*	
LEED for Retail*	
LEED for Commercial Interiors	The LEED 2009 Reference Guide for Green Interior Design & Construction
LEED for Retail Interiors*	
LEED for Existing Buildings Operations & Maintenance	The LEED 2009 Reference Guide for Green Building Operations & Maintenance
LEED for Existing Schools*	
LEED for Homes	The LEED for Homes Reference Guide
LEED for Neighborhood Development	The LEED 2009 Reference Guide for Neighborhood Development

* These rating systems are under development

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LEED Rating Systems Reference Guides

LEED Rating System	Applies To	Reference Guide
LEED for **New Construction (NC)**	•New Buildings and Major Renovations ••New Buildings: Offices, institutional buildings (libraries, museums, churches, etc.), hotels, and residential buildings of 4 or more habitable stories ••Major Renovations: Major HVAC replacement or modifications; Building core (major mechanical systems) & shell (building envelope and structural) renovation; ••*Project occupies greater than 50% of leasable space*	LEED 2009 Reference Guide for **Green Building Design and Construction**
LEED for **Core & Shell (CS)**	•Developer controls core (major mechanical systems) & shell (building envelope and structural) but not leasable tenant spaces •Commercial office buildings, medical office buildings, retail centers, warehouses, institutional buildings and laboratory facilities; ••*Project occupies 50% or less of leasable area*	
LEED for **Schools**	•Must be used for the construction or major renovation of an academic building on K–12 school grounds •Other projects on a school campus may qualify under 2 or more LEED rating system project scopes: ••Nonacademic buildings on a school campus, such as administrative offices, maintenance facilities or dormitories are eligible for either LEED for New Construction or LEED for Schools ••Projects involving postsecondary academic buildings or prekindergarten buildings may also choose to use either LEED for New Construction or LEED for Schools	
LEED for **Commercial Interiors (CI)**	•Tenant spaces primarily in office, retail, and institutional buildings: ••Tenant spaces that do not occupy the entire building ••Designed to work hand in hand with LEED Core & Shell projects	LEED 2009 Reference Guide for **Green Interior Design and Construction**
LEED for **Existing Buildings: Operations & Maintenance (EB O&M)**	•For the ongoing operations and maintenance of existing commercial and institutional buildings ••Also used for buildings certified under NC, Schools or C&S	LEED 2009 Reference Guide for **Green Building Operations & Maintenance**
LEED for **Homes**	•New Residences ••Single Family: Attached and Detached ••Multifamily: Low rise 1 to 3 stories and include 2 or more dwelling units ••Rehabilitation ••Manufactured and Modular ••Mixed Use if at least 50% of the floor area is residential	LEED 2009 Reference Guide for **Green Homes**

LEED 2009 for New Construction and Major Renovation

Project Checklist

Project Name

Date

Sustainable Sites — Possible Points: 26

Y	N	?			
Y			Prereq 1	Construction Activity Pollution Prevention	
			Credit 1	Site Selection	1
			Credit 2	Development Density and Community Connectivity	5
			Credit 3	Brownfield Redevelopment	1
			Credit 4.1	Alternative Transportation—Public Transportation Access	6
			Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
			Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
			Credit 4.4	Alternative Transportation—Parking Capacity	2
			Credit 5.1	Site Development—Protect or Restore Habitat	1
			Credit 5.2	Site Development—Maximize Open Space	1
			Credit 6.1	Stormwater Design—Quantity Control	1
			Credit 6.2	Stormwater Design—Quality Control	1
			Credit 7.1	Heat Island Effect—Non-roof	1
			Credit 7.2	Heat Island Effect—Roof	1
			Credit 8	Light Pollution Reduction	1

Water Efficiency — Possible Points: 10

Y	N	?			
Y			Prereq 1	Water Use Reduction—20% Reduction	
			Credit 1	Water Efficient Landscaping	2 to 4
			Credit 2	Innovative Wastewater Technologies	2
			Credit 3	Water Use Reduction	2 to 4

Energy and Atmosphere — Possible Points: 35

Y	N	?			
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
			Credit 1	Optimize Energy Performance	1 to 19
			Credit 2	On-Site Renewable Energy	1 to 7
			Credit 3	Enhanced Commissioning	2
			Credit 4	Enhanced Refrigerant Management	2
			Credit 5	Measurement and Verification	3
			Credit 6	Green Power	2

Materials and Resources — Possible Points: 14

Y	N	?			
Y			Prereq 1	Storage and Collection of Recyclables	
			Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
			Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
			Credit 2	Construction Waste Management	1 to 2
			Credit 3	Materials Reuse	1 to 2

Materials and Resources, Continued

Y	N	?			
			Credit 4	Recycled Content	1 to 2
			Credit 5	Regional Materials	1 to 2
			Credit 6	Rapidly Renewable Materials	1
			Credit 7	Certified Wood	1

Indoor Environmental Quality — Possible Points: 15

Y	N	?			
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
			Credit 1	Outdoor Air Delivery Monitoring	1
			Credit 2	Increased Ventilation	1
			Credit 3.1	Construction IAQ Management Plan—During Construction	1
			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
			Credit 5	Indoor Chemical and Pollutant Source Control	1
			Credit 6.1	Controllability of Systems—Lighting	1
			Credit 6.2	Controllability of Systems—Thermal Comfort	1
			Credit 7.1	Thermal Comfort—Design	1
			Credit 7.2	Thermal Comfort—Verification	1
			Credit 8.1	Daylight and Views—Daylight	1
			Credit 8.2	Daylight and Views—Views	1

Innovation and Design Process — Possible Points: 6

			Credit 1.1	Innovation in Design: Specific Title	1
			Credit 1.2	Innovation in Design: Specific Title	1
			Credit 1.3	Innovation in Design: Specific Title	1
			Credit 1.4	Innovation in Design: Specific Title	1
			Credit 1.5	Innovation in Design: Specific Title	1
			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

			Credit 1.1	Regional Priority: Specific Credit	1
			Credit 1.2	Regional Priority: Specific Credit	1
			Credit 1.3	Regional Priority: Specific Credit	1
			Credit 1.4	Regional Priority: Specific Credit	1

Total — Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

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Project Checklist Sample

Credit Form Sample
(v3 Credit Forms were not available at time of printing)

LEED-NC
LEED FOR NEW CONSTRUCTION

LEED-NC 2.2 Submittal Template
SS Prerequisite 1: Construction Activity Pollution Prevention

construction

(Responsible Individual) I, _____, from (Company Name) _____

verify that the information provided below is accurate, to the best of my knowledge.

CREDIT COMPLIANCE

Please select the appropriate compliance path

Option 1 : The Erosion and Sedimentation Control Plan (ESC) conforms to the 2003 EPA Construction General Permit, which outlines the provisions necessary to comply with Phase I and Phase II of the National Pollutant Discharge Elimination System (NPDES) program. ☐

– OR –

Option 2: The ESC Plan follows local erosion and sedimentation control standards and codes, which are more stringent than the NPDES program requirements. ☐

SUPPORTING DOCUMENTATION

TThe noted project drawing(s) have been uploaded. The drawing(s) shows the erosion and sedimentation control measures implemented on the site.

Sheet Description Log

Please include sheet name, sheet number and file name for each uploaded, referenced drawing (e.g. A-101, Site Plan, siteplan.pdf)

☐ I have provided the appropriate supporting documentation in the document upload section of LEED Online. Please refer to the above sheets.

Commissioning Process
Commissioning Authority

Party Acting as Commissioning Authority (CxA)	Fundamental Commissioning Prerequisite [2 4 5]		Enhanced Commissioning Credit [3 4 5]
	< 50,000 (sf)	>= 50,000 (sf)	
Employee or subcontractor of general contractor with construction responsibilities	Yes		
Employee or subcontractor, with construction responsibilities, of construction manager who holds construction contracts	Yes		
Employee or subcontractor, with project design responsibilities, of the architect or engineer of record	Yes		
Disinterested employee or subcontractor of general contractor or construction manager [1]	Yes	Yes	
Disinterested employee of architect or engineer [1]	Yes	Yes	
Disinterested subcontractor to architect or engineer [1]	Yes	Yes	Yes
Construction manager not holding construction contracts	Yes	Yes	Yes
Independent consultant contracted to Owner	Yes	Yes	Yes
Owner employee or staff	Yes	Yes	Yes

1 "Disinterested" means an employee or subcontractor who has no project responsibilities other than
2 EAp1 requirements

3 EAc3 requirements (the CxA must review the owner's project requirements (OPR), basis of design (BOD) and design documents prior to midconstruction documents phase and perform a back check)

4 The came CxA overseeing the enhanced commissioning tasks must also oversee the fundamental
5 Regardless of who employees the CxA, the CxA "shall have documented commissioning authority experience in at least two building projects" and ideally meet the minimum qualifications of having "a high level of experience in energy systems design, installation and operation, commissioning planning and process management, hands on field experience with energy systems performance, interaction, startup, balancing, testing, troubleshooting, operation and maintenance procedures and energy systems automation control

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Commissioning Process
Tasks and Responsibilities

Project Phases	Commissioning Tasks 1 - 12	Rating System	Fundamental	Enhanced
Predesign/Design Phase				
Request for proposal Architect and engineer	1 Designate commissioning authority (CxA)	EAp1, Task 1 EAc3, Task 1	Owner or Project Team	Owner or Project Team
Owner's project requirements (OPR); basis of design (BOD)	2 Document owner's project requirements (OPR); Develop basis of design (BOD)	EAp1, Task 2	Owner or CxA* Design Team	Owner or CxA* Design Team
Schematic design	3 Review owner's project requirements (OPR) and basis of design (BOD)	EAp1, Task 2 EAc3, Task 2	CxA**	CxA
Design development	4 Develop and implement commissioning plan	EAp1, Task 4	Project Team or CxA*	Project Team or CxA
Construction documents	5 Incorporate commissioning requirements into construction documents	EAp1, Task 3	Project Team or CxA*	Project Team or CxA
Construction documents	6 Conduct commissioning design review prior to midconstruction documents	EAc3, Task 2	N/A	CxA
Construction Phase				
Equipment procurement Equipment	7 Review contractor submittals applicable to systems being commissioned	EAc3, Task 3	N/A	CxA
Functional testing Test and balance Performance testing acceptance	8 Verify installation and performance of commissioned systems	EAp1, Task 5	CxA	CxA
Operations and Maintenance (O&M) manuals	9 Develop systems manual for commissioned systems	EAc3, Task 4	N/A	Project Team or CxA
O&M training	10 Verify that requirements for training are completed	EAc3, Task 5	N/A	Project Team or CxA
Substantial completion	11 Complete a summary commissioning report	EAp1, Task 6	CxA	CxA
Occupancy				
Systems monitoring	12 Review building operation within 10 months after substantial completion	EAc3, Task 6	N/A	CxA

* Although EAp1 does not require the CxA to be on the project team until just before the equipment installation phase, if brought in earlier the CxA can also help the owner develop the project requirements and
** Some commissioning tasks can be performed by the owner or other project team members. However, the review of the owner's project requirements (OPR) and basis of design (BOD) must be performed by the CxA. For EAp1, Fundamental Commissioning, this may be performed at any time before verification of equipment installation and acceptance.

RED indicates EAc3, Enhanced Commissioning, tasks only

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Referenced Standards

	SUSTAINABLE SITES (SS)
SSp1 Construction Activity Pollution Prevention	**2003 EPA Construction General Permit:** *A set of provisions construction operators must follow to comply with NPDES stormwater regulations* ***OR*** **Local Codes if more stringent**
SSp2 Environmental Site Assessment	**ASTM E1527-05 Phase I Environmental Assessment:** *A report prepared that identifies potential or existing environmental contamination liabilities but does not collect physical samples or chemical analysis* **ASTM E1903-97 Phase II Environmental Site Assessment:** *An investigation that collects samples of soil, groundwater or building materials to analyze for quantitative values of various contaminants*
SSc1 Site Selection	**U.S. Department of Agriculture, United States Code of Federal Regulations Title 7, Volume 6, Parts 400 to 699, Section 657.5:** *Standard that defines prime farmland* **Federal Emergency Management Agency (FEMA) Definition of 100 Year Flood:** *The flood elevation that has a 1% chance of being reached or exceeded each yea* **Endangered Species List (U.S. Fish and Wildlife Service, List of Threatened and Endangered Species):** *Addresses threatened and endangered wildlife and plants* **National Marine Fisheries Services, List of Endangered Marine Species:** *In addition to this federal list, state agencies provide state specific lists* **United States Code of Federal Regulations, 40 CFR, Parts 230 -233, and Part 22, Definition of Wetlands:** *Addresses wetlands and discharges of dredge or filled material into water regulated by states*
SSc2 Development Density and Community Connectivity	No Referenced Standards
SSc3 Brownfield Redevelopment	**U.S. EPA, Definition of Brownfields (EPA Sustainable Redevelopment of Brownfields Program)** **ASTM E1527-05 Phase I Environmental Site Assessment:** *A report prepared that identifies potential or existing environmental contamination liabilities but does not collect physical samples or chemical analysis* **ASTM E1903-97 Phase II Environmental Site Assessment:** *An investigation that collects samples of soil, groundwater or building materials to analyze for quantitative values of various contaminants*
SSc4.1 Alternative Transportation Public Transportation	No Referenced Standards
SSc4.2 Alternative Transportation Bicycle Storage & Changing Rooms	No Referenced Standards
SSc4.3 Alternative Transportation Low-Emitting & Fuel-Efficient Vehicles	No Referenced Standards

Referenced Standards

	SUSTAINABLE SITES (SS)
SSc4.4 Alternative Transportation Parking Capacity	**Institute of Transportation Engineers, Parking Generation Study, 2003:** *Database of studies for various types of parking demands*
SSc5.1 Site Development Protect or Restore Habitat	No Referenced Standards
SSc5.2 Site Development Maximize Open Space	No Referenced Standards
SSc6.1 Stormwater Design Quantity Control	No Referenced Standards
SSc6.2 Stormwater Design Quality Control	No Referenced Standards
SSc7.1 Heat Island Effect Nonroof	**ASTM E408-71(1996) e1, Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection Meter Techniques:** *Describes how to measure total normal Emittance of surfaces* **ASTM C1371-04a, Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers:** *Technique for determination of the emittance of typical materials* **ASTM E903-96, Standard Test Method for Solar Absorptance, Reflectance and Transmittance of Materials Using Integrating Spheres:** *Energy Star roofing standard for initial reflectance measurement* **ASTM E1918-97, Standard Test Method for Measuring Solar Reflectance of Horizontal and Low Sloped Surfaces in the Field:** *Measures solar reflectance in the field* **ASTM C1549-04, Standard Test Method for Determination of Solar Reflectance Near Ambient Temperatures Using a Portable Solar Reflectometer:** *Technique for determining the solar reflectance of flat, opaque materials*
SSc7.2 Heat Island Effect Roof	**ASTM E1980-01, Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low Sloped Opaque Surfaces:** *Describes how surface reflectivity and emissivity are combined to calculate solar reflectance index (SRI) for a roofing material or other surface* **ASTM E408-71(1996)e1, Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection Meter Techniques:** *Describes how to measure total normal Emittance of surfaces* **ASTM E903-96, Standard Test Method for Solar Absorptance, Reflectance and Transmittance of Materials Using Integrating Spheres:** *Energy Star roofing standard for initial reflectance measurement* **ASTM E1918-97, Standard Test Method for Measuring Solar Reflectance of Horizontal and Low Sloped Surfaces in the Field:** *Measures solar reflectance in the field* **ASTM C1371-04a, Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers:** *Technique for determination of the emittance of typical material* **ASTM C1549-04, Standard Test Method for Determination of Solar Reflectance Near Ambient Temperatures Using a Portable Solar Reflectometer:** *Technique for determining the solar reflectance of flat, opaque materials*

Referenced Standards

	SUSTAINABLE SITES (SS)
SSc8 Light Pollution Reduction	**ASHRAE/IESNA Standard 90.1-2007, Energy Standard for Buildings Except Low Rise Residential Lighting, Section 9 (without amendments):** *Establishes exterior lighting power densities (LPD) for buildings*
SSc9 Tenant Design & Construction Guidelines	No Referenced Standards
SSc9 Site Master Plan	No Referenced Standards
SSc10 Joint Use of Facilities	No Referenced Standards

	WATER EFFICIENCY (WE)
WEp1 Water Use Reduction	**The Energy Policy Act (EPAct) of 1992 (and as amended):** *Addresses energy and water use in commercial, institutional and residential facilities* **The Energy Policy Act (EPAct) of 2005:** *Statute that became U.S. law in August 2005* **International Association of Plumbing and Mechanical Officials Publication/American National Standards Institute IAPMO/ANSI UPC 1-2006, Uniform Plumbing Code 206, Section 402.0, Water Conserving Fixtures and Fittings:** *PC defines water conserving fixtures and fittings for water closets, urinals and metered faucets* **International Code Council, International Plumbing Code 2006, Section 604, Design of Building Water Distribution System:** *Defines maximum flow rates and consumption for plumbing fixtures and fittings, including public and private lavatories, showerheads, sink faucets, urinals and water closets*
WEc1 Water Efficient Landscaping	No Referenced Standards
WEc2 Innovative Wastewater Technologies	**The Energy Policy Act (EPAct) of 1992 (and as amended):** *Addresses energy and water use in commercial, institutional and residential facilities* **The Energy Policy Act (EPAct) of 2005:** *Statute that became U.S. law in August 200* **International Association of Plumbing and Mechanical Officials Publication/American National Standards Institute IAPMO/ANSI UPC 1-2006, Uniform Plumbing Code 206, Section 402.0, Water Conserving Fixtures and Fittings:** *UPC defines water conserving fixtures and fittings for water closets, urinals and metered faucets* **International Code Council, International Plumbing Code 2006, Section 604, Design of Building Water Distribution System:** *Defines maximum flow rates and consumption for plumbing fixtures and fittings, including public and private lavatories, showerheads, sink faucets, urinals and water closets*
WEc3 Water Use Reduction	
WEc4 Process Water Use Reduction	No Referenced Standards

Referenced Standards

	ENERGY & ATMOSPHERE (EA)
EAp1 Fundamental Commissioning of Building Energy Systems	No Referenced Standards
EAp2 Minimum Energy Performance	**ANSI/ASHRAE/IESNA Standard 90.1-2007: Energy Standard for Buildings Except Low Rise Residential:** *Establishes minimum requirements for the energy efficient design of buildings using mandatory provisions and additional prescriptive requirements* **California T-24-2005:** granted parallel equivalency to ANSI/ASHRAE/IESNA 90.1-2007 **ASHRAE Advanced Energy Design Guide for Small Office Buildings, 2004:** *Achieves advanced levels of energy savings without having to perform calculations or analysis for office buildings up to 20,000 sf* **ASHRAE Advanced Energy Design Guide for Small Warehouses and Self Storage Buildings, 2008:** *Achieves advanced levels of energy savings without having to perform calculations or analysis for warehouses up to 50,000 sf and self storage buildings that use unitary heating and air conditioning equipment* **ASHRAE Advanced Energy Guide for K-12 School Buildings:** *Achieves advanced levels of energy savings without having to perform calculations or analysis for elementary, middle and high school buildings* **New Building Institute, Advanced Buildings™ Core Performance Guide:** *Provides a predictable alternative to energy performance modeling and a simple set of criteria for increasing building energy performance* **Energy Star® Program, Target Finder Rating Tool:** *A government partnership managed by the EPA and DOE as an online tool that can establish energy performance goals for a project*
EAp3 Fundamental Refrigerant Management	**U.S. EPA Clean Air Act, Title VI, Section 608, Compliance with the Section 608 Refrigerant Recycling Rule:** *Regulations on using and recycling ozone depleting compounds*

Referenced Standards

	ENERGY & ATMOSPHERE (EA)
EAc1 Optimize Energy Performance	**ANSI/ASHRAE/IESNA Standard 90.1-2007: Energy Standard for Buildings Except Low Rise Residential:** *Establishes minimum requirements for the energy efficient design of buildings using mandatory provisions and additional prescriptive requirements* **California T-24-2005:** granted parallel equivalency to ANSI/ASHRAE/IESNA 90.1-2007 **ASHRAE Advanced Energy Design Guide for Small Office Buildings, 2004:** *Achieves advanced levels of energy savings without having to perform calculations or analysis for office buildings up to 20,000 sf* **ASHRAE Advanced Energy Design Guide for Small Warehouses and Self Storage Buildings, 2008:** *Achieves advanced levels of energy savings without having to perform calculations or analysis for warehouses up to 50,000 sf and self storage buildings that use unitary heating and air conditioning equipment* **ASHRAE Advanced Energy Guide for K-12 School Buildings:** *Achieves advanced levels of energy savings without having to perform calculations or analysis for elementary, middle and high school buildings* **New Building Institute, Advanced Buildings™ Core Performance Guide:** *Provides a predictable alternative to energy performance modeling and a simple set of criteria for increasing building energy performance*
EAc2 On-Site Renewable Energy	**ANSI/ASHRAE/IESNA Standard 90.1-2007: Energy Standard for Buildings Except Low Rise Residential:** *Establishes minimum requirements for the energy efficient design of buildings using mandatory provisions and additional prescriptive requirement* **California T-24-2005:** granted parallel equivalency to ANSI/ASHRAE/IESNA 90.1-2007
EAc3 Enhanced Commissioning	No Referenced Standards
EAc4 Enhanced Refrigerant Management	No Referenced Standards
EAc5 Measurement & Verification	**International Performance Measurement and Verification Protocol, Volume III, EVO 30000.1-2006, Concepts and Options for Determining Energy Savings in New Construction, effective January, 2006:** *IPMVP Volume III describes best practice techniques for verifying the energy performance of new construction projects*
EAc5.1 Measurement & Verification Base Building	**International Performance Measurement and Verification Protocol, Volume III, EVO 30000.1-2006, Concepts and Options for Determining Energy Savings in New Construction, effective January, 2006: IPMVP Volume III describes best practice techniques for verifying the energy performance of new construction projects**
EAc5.2 Measurement & Verification Tenant Submetering	**International Performance Measurement and Verification Protocol, Volume III, EVO 30000.1-2006, Concepts and Options for Determining Energy Savings in New Construction, effective January, 2006: IPMVP Volume III describes best practice techniques for verifying the energy performance of new construction projects**
EAc6 Green Power	**Center for Resource Solutions, Green-e Product Certification Requirements:** *Certifies products that meet environmental and consumer protection standards developed un conjunction with environmental, energy and policy organizations. Three types of renewable energy are eligible for Green-e certification: renewable energy certificates, utility green pricing programs and competitive electricity products*

Referenced Standards

	MATERIALS & RESOURCES (MR)
MRp1 Storage & Collection of Recyclables	No Referenced Standards
MRc1.1 Building Reuse Maintain Existing Walls, Floors and Roof	No Referenced Standards
MRc1 Building Reuse Maintain Existing Walls, Floors and Roof	No Referenced Standards
MRc1.2 Building Reuse Maintain Interior Nonstructural Elements	No Referenced Standards
MRc2 Construction Waste Management	No Referenced Standards
MRc3 Materials Reuse	No Referenced Standards
MRc4 Recycled Content	**International Standard ISO 14021-1999, Environmental Labels and Declarations - Self Declared Environmental Claims (Type II Environmental Labeling):** *Specifies requirements for self declared environmental claims including statements, symbols and graphics for products*
MRc5 Regional Materials	No Referenced Standards
MRc6 Rapidly Renewable Materials	No Referenced Standards
MRc7 Certified Wood	**Forest Stewardship Council Principles and Criteria:** *Seal of approval awarded to forest managers who adopt environmentally and socially responsible forest management practices and to companies that manufacture and sell products made from certified wood*
MRc6 Certified Wood	

	INDOOR ENVIRONMENTAL QUALITY (IEQ)
IEQp1 Minimum Indoor Air Quality Performance	**American National Standards Institute (ANSI)/ASHRAE Standard 62.1-2007: Ventilation for Acceptable Indoor Air Quality:** *Specifies minimum standard ventilation rates and IAQ levels*
IEQp2 Environmental Tobacco Smoke (ETS) Control	**American National Standards Institute (ANSI)/ASTM-E779-03, Standard Test Method for Determining Air Leakage Rate by Fan Pressurization:** *Standard for measuring air leakage rates through a building envelope under controlled pressurization and depressurization* **Residential Manual for Compliance with California's 2001 Energy Efficiency Standards (For Low Rise Residential Buildings),Chapter 4:** *Standard for the quality of design and construction of mechanical ventilation systems and air distribution systems*

Referenced Standards

	INDOOR ENVIRONMENTAL QUALITY (IEQ)
IEQp3 Minimum Acoustical Performance	**American National Standards Institute (ANSI)/ASHRAE Standard S12.60-2002, Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools:** *Standard for acoustical performance criteria and design requirements for classrooms and other learning spaces* **ASHRAE Handbook, Chapter 47, Sound and Vibration Control, 2003 HVAC Applications:** *Addresses sound and vibration from mechanical equipment*
IEQc1 Outdoor Air Delivery Monitoring	**American National Standards Institute (ANSI)/ASHRAE Standard 62.1-2007: Ventilation for Acceptable Indoor Air Quality:** *Specifies minimum standard ventilation rates and IAQ levels*
IEQc2 Increased Ventilation	**American National Standards Institute (ANSI)/ASHRAE Standard 62.1-2007: Ventilation for Acceptable Indoor Air Quality:** *Specifies minimum standard ventilation rates and IAQ levels* **Chartered Institute of Building Services Engineers (CIBSE) Application Manual 10-2005, Natural Ventilation in Non-Domestic Buildings:** *CIBSE Applications Manual 10-2005 provides guidance for implementing natural ventilation in nonresidential buildings*
IEQc3.1 Construction IAQ Management Plan During Construction	**Sheet Metal and Air Conditioning Contractors National Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd edition, Chapter 3, November 2007:** *Guidelines for maintaining healthful indoor air quality during demolitions, renovations and construction*
IEQc3 Construction IAQ Management Plan During Construction	**American National Standards Institute (ANSI)/ASHRAE Standard 52.2-1999: Method of Testing General Ventilation Air Cleaning Devices for Removal Efficiency by Particle Size:** *Standard for methods for testing air cleaners for 2 performance characteristics: the device's capacity for removing particles from the air stream and the device's resistance to airflow*
IEQc3.2 Construction IAQ Management Plan Before Occupancy	**U.S. Environmental Protection Agency (EPA) Compendium for the Determination of Air Pollutants in Indoor Air:** *Provides regional, state and local environmental regulatory agencies with step-by-step sampling and analysis procedures for the determination of selected pollutants in indoor air*
IEQc4.1 Low Emitting Materials Adhesives and Sealants	**South Coast Air Quality Management District (SCAQMD) Amendment to South Coast Rule 1168, VOC Limits, effective January 7, 2005:** *VOC limits for adhesives, sealants and sealant primers* **Green Seal Standard GC-36, effective October 19,2000:** *VOC limits for aerosol adhesives*
IEQc4.2 Low Emitting Materials Paints and Coatings	**South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings:** *VOC limits for paints and coatings* **Green Seal Standard GC-03:** *VOC limits for anti-corrosive and anti-rust paints* **Green Seal Standard GS-11:** *VOC limits for commercial flat and nonflat paints*

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Referenced Standards

	INDOOR ENVIRONMENTAL QUALITY (IEQ)
IEQc4.3 Low Emitting Materials Flooring Systems	**Carpet and Rug Institute (CRI) Green Label Plus and Green Label Testing Program:** *CRI is a trade organization representing the carpet and rug industry. Green Label Plus is an independent testing program that identifies carpet and carpet cushions with low VOC emissions. Green Label addresses carpet cushions* **South Coast Air Quality Management District (SCAQMD) Rule 1168, VOC Limits:** *VOC limits for adhesives* **South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings :** *VOC limits for paints and coatings* **FloorScore™ Program:** *Tests and certifies flooring products for compliance with indoor air quality emission requirements. Products include vinyl, linoleum, laminate flooring, wood flooring, ceramic flooring, rubber flooring and wall base* **California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small Scale Environmental Chambers, including 2004 Addenda:** *Testing practice that applies to any newly manufactured material generally used within an enclosed indoor environment. Excluded is testing of all products that cannot be tested whole or by representative sample in small scale environmental chambers* **State of California Standard 1350, Section 9, Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small Scale Environmental Chambers, Testing Criteria :** *Specifies testing criteria for carpet emissions that will satisfy the credit requirements*
IEQc4.4 Low Emitting Materials Composite Wood & Agrifiber Products	**FOR SCHOOLS:** **California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small Scale Environmental Chambers, including 2004 Addenda:** *Testing practice that applies to any newly manufactured material generally used within an enclosed indoor environment. Excluded is testing of all products that cannot be tested whole or by representative sample in small scale environmental chambers*
IEQc4.5 Low Emitting Materials Furniture and Furnishings	**American National Standards Institute (ANSI)/Business and Institutional Furniture Makers Association (BIFMA) X7.1-2007 Standard for Formaldehyde and TVOC Emissions of Low Emitting Office Furniture Systems and Seating:** *Standard for Formaldehyde and TVOC Emissions of Low Emitting Office Furniture and Seating* **BIFMA International:** *Defines the criteria for office furniture VOC emissions to be classified as low emitting products* **Environmental Technology Verification (ETV) Large Chamber Test Protocol for Measuring Emissions of VOCs and Aldehydes, effective September 1999:** *Protocol that requires the placement of the seating product or furniture assembly to be tested in a climatically controlled chamber* **Greenguard™ Certification Program:** *Performance based standards to define goods with low chemical emissions for use indoors, primarily for building materials; interior furnishings; furniture; electronics; and cleaning, maintenance and personal care products*

Referenced Standards

	INDOOR ENVIRONMENTAL QUALITY (IEQ)
IEQc4.6 Low Emitting Materials Ceiling and Wall Systems	**California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small Scale Environmental Chambers, including 2004 Addenda:** *Testing practice that applies to any newly manufactured material generally used within an enclosed indoor environment. Excluded is testing of all products that cannot be tested whole or by representative sample in small scale environmental chambers*
IEQc5 Indoor Chemical & Pollutant Source Control	**American National Standards Institute (ANSI)/ASHRAE Standard 52.2-1999: Method of Testing General Ventilation Air Cleaning Devices for Removal Efficiency by Particle Size:** *Standard for methods for testing air cleaners for 2 performance characteristics: the device's capacity for removing particles from the air stream and the device's resistance to airflow*
IEQc6.1 Controllability of Systems Lighting	No Referenced Standards
IEQc6.2 Controllability of Systems Thermal Comfort	**American National Standards Institute (ANSI)/ASHRAE Standard 62.1-2007: Ventilation Rate for Acceptable Indoor Air Quality:** *Standard providing minimum requirements for operable openings at 4% of the net habitable floor area* **American National Standards Institute (ANSI)/ASHRAE Standard 55-2004: Thermal Environmental Conditions for Human Occupancy:** *Identifies the factors of thermal comfort and the process for developing comfort criteria for a building space and its occupants. Indoor space environmental and personal factors that will produce thermal environmental conditions acceptable to 80% of the occupants within a space. The environmental factors addressed are: temperature, thermal radiation, humidity and air speed. The personal factors are: activity and clothing*
IEQc6 Controllability of Systems Thermal Comfort	
IEQc7.1 Thermal Comfort Design	**American National Standards Institute (ANSI)/ASHRAE Standard 55-2004: Thermal Environmental Conditions for Human Occupancy:** *Identifies the factors of thermal comfort and the process for developing comfort criteria for a building space and its occupants. Indoor space environmental and personal factors that will produce thermal environmental conditions acceptable to 80% of the occupants within a space. The environmental factors addressed are: temperature, thermal radiation, humidity and air speed. The personal factors are: activity and clothing* **Chartered Institute of Building Services Engineers (CIBSE) Application Manual 10-2005, Natural Ventilation in Non-Domestic Buildings:** *CIBSE Applications Manual 10-2005 provides guidance for implementing natural ventilation in nonresidential building* **SCHOOLS:** **ASHRAE HVAC Applications Handbook, 2003 edition, Chapter 4 (Places of Assembly), Typical Natatorium Design Conditions:** *ASHRAE handbook to help design engineers use equipment and systems*
IEQc7 Thermal Comfort Design	
IEQc7.2 Thermal Comfort Verification	**American National Standards Institute (ANSI)/ASHRAE Standard 55-2004: Thermal Environmental Conditions for Human Occupancy:** *Identifies the factors of thermal comfort and the process for developing comfort criteria for a building space and its occupants. Indoor space environmental and personal factors that will produce thermal environmental conditions acceptable to 80% of the occupants within a space. The environmental factors addressed are: temperature, thermal radiation, humidity and air speed. The personal factors are: activity and clothing*

Referenced Standards

	INDOOR ENVIRONMENTAL QUALITY (IEQ)
IEQc8.1 Daylight and Views Daylight	**ASTM D1003-07e1, Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics:** *Tests the specific light transmitting and wide angle light scattering properties of planer sections of materials*
IEQc8.2 Daylight and Views Views	No Referenced Standards
IEQc9 Enhanced Acoustical Performance	**American National Standards Institute (ANSI)/ASHRAE Standard S12.60-2002, Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools:** *Standard for acoustical performance criteria for classrooms and other learning spaces* **ASHRAE Handbook, Chapter 47, Sound and Vibration Control, 2003 HVAC Applications:** *Addresses sound and vibration from mechanical equipment*
IEQc10 Mold Prevention	**Building Air Quality: A Guide for Building Owners and Facility Managers, EPA Reference Number 402-F-91-102, effective December 1991:***Provides information on factors affecting IAQ and how to develop and manage an IAQ profile*

	INNOVATION in DESIGN (ID)
IDc1.1 Innovation in Design	No Referenced Standards
IDc1.2 Innovation in Design	No Referenced Standards
IDc1.3 Innovation in Design	No Referenced Standards
IDc1.4 Innovation in Design	No Referenced Standards
IDc1.5 Innovation in Design	No Referenced Standards
IDc2 LEED® Accredited Professional	No Referenced Standards
IDc3 The School as a Teaching Tool	No Referenced Standards

	REGIONAL PRIORITY (RP)
RPc1.1 Regional Priority	Refer project zip code applicable Regional Priority credits
RPc1.2 Regional Priority	Refer project zip code applicable Regional Priority credits
RPc1.3 Regional Priority	Refer project zip code applicable Regional Priority credits
RPc1.4 Regional Priority	Refer project zip code applicable Regional Priority credits

Referenced Standards

REFERENCED STANDARD	ADDRESSES	CREDITS
ASHRAE Standard **52.2-1999**	ventilation air filters; **MERV**	IEQc3.1; IEQc5
ASHRAE Standard **55-2004**	**thermal comfort** (air temperature, radiant temperature, air speed and humidity)	IEQc6; IEQc6.2; IEQc7.1; IEQc7.2
ASHRAE Standard **62.1-2007**	minimum standards for **ventilation rates**	IEQc1; IEQc2; IEQc6
ASHRAE Standard 62.1-2007 **Sections 4 - 7**	**mechanical ventilation**	IEQp1
ASHRAE Standard 62.1-2007 **Paragraph 5.1**	**natural ventilation**	IEQp1; IEQc6.2
ANSI/ASHRAE/IESNA Standard **90.1-2007**	minimum requirements for energy efficient design in buildings: Section 5: **Building envelope** Section 6: **HVAC** Section 7: **Service water heating** Section 8: **Power** Section 9: **Lighting** Section 10: **Other equipment**	
ANSI/ASHRAE/IESNA Standard 90.1-2007 **Appendix G**	NC Schools & CS: uses **energy modeling** per Appendix G performance rating method to calculate baseline energy	EAp2; EAc1; EAc2
ANSI/ASHRAE/IESNA Standard 90.1-2007 **California T-24-2005**	granted parallel equivalency to baseline energy standard of ASHRAE Standard 90.1-2007	EAp2; EAc1; EAc2
ANSI/ASHRAE/IESNA Standard 90.1-2007, **Section 9** (w/o amendments)	Section 9 establishes allowable **lighting power densities**	SSc8
ASHRAE Handbook, Chapter 47, Sound and Vibration Control, 2003 HVAC Applications	sound and vibration from mechanical equipment	IEQp3
American National Standards Institute (ANSI)/ASHRAE Standard **S12.60-2002**, Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools	standard for acoustical performance criteria and design requirements for classrooms and other learning spaces	IEQp3
ASHRAE HVAC Applications Handbook, 2003 edition, Chapter 4 (Places of Assembly), Typical Natatorium Design Conditions	handbook to help design engineers use equipment and systems	IEQc7; IEQc7.1
ASHRAE Advanced Energy Design Guide for **Small Office Buildings 2004**	NC & CS: less than **20,000 sf**; prescriptive compliance path providing advanced levels of energy savings w/o detailed analysis	EAp2; EAc1
ASHRAE Advanced Energy Design Guide for **Small Retail Buildings 2006**	NC & CS: less than **20,000 sf**; prescriptive compliance path providing advanced levels of energy savings w/o detailed analysis	EAp2; EAc1
ASHRAE Advanced Energy Design Guide for **Small Warehouses and Self-Storage Buildings 2008**	NC & CS: less than **50,000 sf;** prescriptive compliance path providing advanced levels of energy savings w/o detailed analysis	EAp2; EAc1
ASHRAE Advanced Energy Design Guide for **K-12 School Buildings**	Schools: prescriptive compliance path providing advanced levels of energy savings w/o detailed analysis	EAp2; EAc1
New Building Institute, Advanced Buildings Core Performance Guide	NC, Schools & CS: less than **100,000 sf**; prescriptive compliance path for exceeding energy performance requirements of ASHRAE 90.1-2004 w/o energy modeling	EAp2; EAc1
ENERGY STAR Program, Target Finder Rating Tool	online tool for establishing project **energy performance goals**	EAp2

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Referenced Standards

REFERENCED STANDARD	ADDRESSES	CREDITS
U.S. EPA Clean Air Act, Title VI, Section 608, Compliance with Section 608 Refrigerant Recycling Rule	regulations on the use and recycling of **ozone depleting** compounds	EAp3
International Performance Measurement for Verification Protocol, Volume III, EVO 30000.1-2006, Concepts and Options for Determining Energy Savings in New Construction	IPMVP Volume III provides best practice techniques for verifying energy performance in new construction; **Option D**: Calibrated Simulation and **Option B**: Energy Conservation Measure Isolation are the only 2 of the 4 available options permitted to be used	EAc5
Center for Research Solutions, **Green-e** Product Verification Requirements	third party certification of sustainable green power **renewable energy providers**	EAc6
International Standard ISO 14021-1999, Environmental Labels and Declarations - Self Declared Environmental Claims (Type II Environmental Labeling)	requirements for self declared environmental claims including statements, symbols and graphics for products	MRc4
ASTM E1527-05 *Phase I* Environmental Site Assessment	environmental investigation to identify existing or potential **site contamination**	SSp2; SSc3
ASTM E1903-97 *Phase II* Environmental Site Assessment	environmental investigation including subsurface discovery and collecting building, water and soil samples	SSp2; SSc3
ASTM E408-71(1996)e1, Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection Meter Techniques	test for determining the total normal **emittance** of surfaces	SSc7.1; SSc7.2
ASTM E903-96, Standard Test Method for Solar Absorptance, Reflectance and Transmittance of Materials Using Integrating Spheres	test for determining solar **absorptance, reflectance** and **transmittance** of materials	SSc7.1; SSc7.2
ASTM C1371-04a, Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers	test for determining **emittance** of materials at room temperature	SSc7.1; SSc7.2
ASTM C1549-04, Standard Test Method for Determination of Solar Reflectance Near Ambient Temperatures Using a Portable Solar Reflectometer	test for determining solar **reflectance** near ambient temperature	SSc7.1; SSc7.2
ASTM E1918-97, Standard Test Method for Measuring Solar Reflectance of Horizontal and Low Sloped Surfaces in the Field	test for determining solar **reflectance** of horizontal and low sloped surfaces	SSc7.1; SSc7.2
ASTM E1980-01, Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low Sloped Opaque Surfaces	test for determining solar **reflectance index** of horizontal and low sloped opaque surfaces	SSc7.2
American National Standards Institute (ANSI)/ASTM-**E779-03**, Standard Test Method for Determining Air Leakage Rate by Fan Pressurization	**blower door** tests	IEQp2
ASTM D1003-07e1, Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics	**haze** and **luminous transmittance** of transparent plastics	IEQc8.1
2003 EPA **Construction General Permit**	provisions mandated by the National Pollutant Discharge Elimination System (**NPDES**) to reduce construction related soil erosion, waterway sedimentation and dust generation	SSp1
U.S. Fish and Wildlife Service, List of Threatened and Endangered Species	threatened or endangered wildlife and plants	SSc1

Referenced Standards

REFERENCED STANDARD	ADDRESSES	CREDITS
Federal Emergency Management Agency (FEMA) Definition of 100 year flood	the flood elevation that has a 1% chance of being reached or exceeded each year	SSc1
U.S. Department of Agriculture (USDA), Code of Federal Regulations, Title 7, Volume 6, Parts 400 to 699, Section 657.5, Definition of Prime Agricultural Land	definition of prime farmland	SSc1
United States Code of Federal Regulations, 40 CFR, Parts 230-233, and Part 22, Definition of Wetlands	wetlands and discharges of dredged or filled materials into waters regulated by states	SSc1
National Marine Fisheries Service, List of Endangered Marine Species	endangered marine species	SSc1
U.S. EPA, Definition of Brownfields	definition of sustainable redevelopment of Brownfield sites	SSc3
Institute of Transportation Engineers, Parking Generation study, 2003	provides parking demand data	SSc4.4
The Energy Policy Act (**EPAct**) of 1992	**energy** and **water use** in commercial, institutional and residential facilities	WEp1; WEc2; WEc3
The Energy Policy Act (EPAct) of 2005	date when the statute became law	WEp1; WEc2; WEc3
International Association of Plumbing and Mechanical Officials, Publication IAPMO/ANSI UPC 1-2006, Uniform Plumbing Code 2006, Section 402.0, Water Conserving Fixtures and Fittings (**UPC**)	defines water conserving fixtures and fittings for water closets, urinals and metered faucets	WEc2
International Code Council, International Plumbing Code 2006, Section 604, Design of Building Water Distribution System (**IPC**)	defines maximum flow rates and consumption for plumbing fixtures and fittings, including public and private lavatories, showerheads, sink faucets, urinals and water closets	WEc2
Residential Manual for Compliance with California's 2001 Energy Efficiency Standards (For Low Rise Residential Buildings),Chapter 4	standard for the quality of design and construction of mechanical ventilation systems and air distribution systems	IEQp2
Chartered Institute of Building Services Engineers (**CIBSE**) Application Manual 10-2005, Natural Ventilation in Non-Domestic Buildings	guidance for implementing **natural ventilation** in nonresidential buildings	IEQc2; IEQc7; IEQc7.1
Sheet Metal and Air Conditioning Contractors National Association (**SMACNA**) IAQ Guidelines for Occupied Buildings under Construction, 2nd edition, Chapter 3, November 2007	guidelines for maintaining healthful **indoor air quality** during demolitions, renovations and construction	IEQc3; IEQc3.1
U.S. Environmental Protection Agency (EPA) Compendium for the Determination of Air Pollutants in Indoor Air	provides regional, state and local environmental regulatory agencies with step-by-step sampling and analysis procedures for the determination of selected pollutants in indoor air	IEQc3.2
South Coast Air Quality Management District (SCAQMD) Rule **1168**, VOC Limits	VOC limits for **adhesives** and **sealants**	IEQc4.1; IEQc4.3
Green Seal Standard 36 (**GS-36**)	VOC limits for **aerosol adhesives**	IEQc4.1
South Coast Air Quality Management District (SCAQMD) Rule **1113**, Architectural Coatings	OVC limits for **clear wood finishes**, **floor coatings**, **stains**, **primers** and **shellacs**	IEQc4.2; IEQc4.3
Green Seal Standard (**GC-03**), Anti-Corrosive Paints	VOC limits for **anti-corrosive** and **anti-rust** paints	IEQc4.2
Green Seal Standard (**GS-11**), Paints	VOC limits for **paints, coatings** and **primers**	IEQc4.2
Carpet and Rug Institute (CRI) **Green Label Plus** Testing Program	VOC limits for **carpets**	IEQc4.3

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Referenced Standards

REFERENCED STANDARD	ADDRESSES	CREDITS
Carpet and Rug Institute (CRI) **Green Label** Testing Program	VOC limits for **carpet cushions**	IEQc4.3
FloorScore Program	VOC limits for all **non-carpet** finished flooring	IEQc4.3
State of California Standard 1350, Section 9	specifies testing criteria for carpet emissions that will satisfy the credit requirements and not exceed CRI Green Label target emissions and CRI Green Label Plus testing protocol	IEQc4.3
California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources	Schools: testing of all newly manufactured materials used within an enclosed indoor environment	IEQc4.3; IEQc4.4
Building Air Quality: A Guide for Building Owners and Facility Managers, EPA Reference Number 402-F-91-102, effective December 1991	provides information on factors affecting IAQ and how to develop and manage an IAQ profile	IEQc10
International Standard ISO 14021-1999, Environmental Labels and Declarations - Self Declared Environmental Claims (Type II Environmental Labeling)	requirements for self declared environmental claims including statements, symbols and graphics for products	MRc4
Forest Stewardship Council Principles and Criteria (**FSC**)	seal of approval awarded to forest managers who adopt environmentally and socially **responsible forest management** practices and to companies that manufacture and sell products made from certified wood	MRc6; MRc7

Credit Interactions

	SUSTAINABLE SITES (SS)	
SSp1	**Construction Activity Pollution Prevention** *Minimizing site disturbance and preventing soil and erosion assists SSc5.1 & SSc5.2* *Limiting disturbance of natural hydrology assists SSc6. & SSc6.2*	**SSc5.1**: Site Development - Protect or Restore Habitat **SSc5.2:** Site Development - Maximize Open Space **SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Design - Quality Control
Ssp2	**Environmental Site Assessment** *Projects conducting environmental site assessments are eligible to achieve SSc3*	**SSc3:** Brownfield Redevelopment
SSc1	**Site Selection** *Previously developed sites are likely to public transportation and connectivity and have an opportunity to remediate a contaminated site SSc2, SSc3 & SSc4.1* *Limiting development footprint protects sensitive areas, SSc5.1 & SSc5.2* *Credit SSc1 can assist stormwater design SSc6.1 & SSc6.2*	**SSc2:** Development Density and Community Connectivity **SSc3:** Brownfield Redevelopment **SSc4.1:** Alternative Transportation - Public Transportation Access **SSc5.1:** Site Development - Protect or Restore Habitat **SSc5.2:** Site Development - Maximize Open Space **SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Design - Quality Control
SSc2	**Development Density and Community Connectivity** *Channeling development toward urban areas increases the likelihood of locating on a previously developed site, SSc1, and near public transportation SSc4.1*	**SSc1:** Site Selection **SSc4.1:** Alternative Transportation - Public Transportation Access
SSc3	**Brownfield Redevelopment** *Projects developing on Brownfield sites are likely to qualify for SSc1*	**SSc1:** Site Selection
SSc4.1	**Alt. Transportation - Public Transportation Access** *Sites located near public transportation are likely to be previously developed sites, SSc1, and near urban areas SSc2*	**SSc1:** Site Selection **SSc2:** Development Density and Community Connectivity
SSc4.2	**Alt. Transportation - Bicycle Storage and Changing Rooms** *Paving materials added for paving bicycle lanes can affect stormwater design SSc6.1 & SSc6.2 and alter heat island effects, SSc7.1*	**SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Design - Quality Control **SSc7.1:** Heat Island Effect - Nonroof
SSc4.3	**Alt. Transportation - Low-Emitting and Fuel-Efficient Vehicles** *Projects that provide preferred parking without increasing the parking capacity may be eligible for SSc4.4*	**SSc4.4:** Alternative Transportation - Parking Capacity
SSc4.4	**Alt. Transportation - Parking Capacity** *Minimizing surface parking can enhance the qualities of open space, SSc5.1 & SSc5.2* *Change the stormwater design, SSc6.1 & SSc6.2* *Reduce heat island effects, SSc7.1*	**SSc5.1:** Site Development - Protect or Restore Habitat **SSc5.2:** Site Development - Maximize Open Space **SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Design - Quality Control **SSc7.1:** Heat Island Effect - Nonroof
SSc5.1	**Site Development - Protect or Restore Habitat** *Protecting or restoring habitat provides open space, SSc5.2* *Reduces impervious areas, thereby reducing the quantity and increasing the quality of stormwater, SSc6.1 & SSc6.2* *Reduces heat island effects, SSc7.1 & SSc7.2* *Allows for the use of native vegetation to reduce landscaping irrigation requirements, WEc1*	**SSc5.2:** Site Development - Maximize Open Space **SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Design - Quality Control **SSc7.1:** Heat Island Effect - Nonroof **SSc7.2:** Heat Island Effect - Roof **WEc1:** Water Efficient Landscaping
SSc5.2	**Site Development - Maximize Open Space** *Maximizing open spaces may improve stormwater quantities and qualities, SSc6.1 & SSc6.2* *Increasing the amount of open space can reduce heat island effects, SSC7.1 & SSc7.2*	**SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Design - Quality Control **SSc7.1:** Heat Island Effect - Nonroof **SSc7.2:** Heat Island Effect - Roof
SSc6.1	**Stormwater Design - Quantity Control** *Reducing the rate and quantity of stormwater reduces filtration requirements, SSc6.2* *Reducing impervious surfaces by using pervious surfaces, vegetated roofs and vegetated open spaces can contribute to SSc5.1, SSC5.2, SSc7.1 & SSc7.2* *Harvesting rainwater reduces stormwater runoff and can be reused for irrigation,* *WEc1, and nonpotable needs inside the building, WEc3* *Projects in dense urban areas that earn SSc2 may have difficulty achieving credit SSc6.1*	**SSc6.2:** Stormwater Design - Quality Control **SSc5.1:** Site Development - Protect or Restore Habitat **SSc5.2:** Site Development - Maximize Open Space **SSc7.1:** Heat Island Effect - Nonroof **SSc7.2:** Heat Island Effect - Roof **WEc1:** Water Efficient Landscaping **WEc3:** Water Use Reduction **SSc2:** Development Density and Community Connectivity

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Credit Interactions

	SUSTAINABLE SITES (SS)	
SSc6.2	**Stormwater Design - Quality Control** *Projects using best management practices (BMP) to capture and treat runoff reducing the runoff volume, affects the stormwater quanity, SSc6.1* *Reducing impervious surfaces by using pervious surfaces, vegetated roofs and vegetated open spaces can contribute to SSc5.1, SSC5.2, SSc7.1 & SSc7.2* *Using BMPs for rain gardens, vegetated swales, rainwater harvesting, etc. can assist with earning WEc1*	**SSc6.1:** Stormwater Design - Quantity Control **SSc5.1:** Site Development - Protect or Restore Habitat **SSc5.2:** Site Development - Maximize Open Space **SSc7.1:** Heat Island Effect - Nonroof **SSc7.2:** Heat Island Effect: Roof **WEc1:** Water Efficient Landscaping
SSc7.1	**SSc7.1: Heat Island Effect - Nonroof** *Locating parking structures underground will assist with SSc5.2 The use of open grid pavements to capture and treat stormwater runoff can contribute to SSc6.1 & SSc6.2* *Vegetation used to shade hardscapes can also help reduce landscaping irrigation requirements, WEc1*	**SSc5.2:** Site Development - Maximize Open Space **SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Design - Quality Control **WEc1:** Water Efficient Landscaping
SSc7.2	**Heat Island Effect - Roof** *Vegetated roofs help capture and treat stormwater, SSc6.1 & SSc6.2* *Using highly reflective roofing materials can reduce cooling loads, EAc1* *Vegetated roofs can also reduce the amount of rainwater harvesting that can be used for nonpotable purposes, thereby making it more challenging to achieve WEc3*	**SSc5.1:** Site Development - Protect or Restore Habitat **SSc5.2:** Site Development - Maximize Open Space **SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Control - Quality Control **EAc1:** Optimize Energy Performance **WEc3:** Water Use Reduction
SSc8	**Light Pollution Reduction** *Energy savings beyond the baseline lighting power density (LPD) established by ASHRAE 90.1 may contribute to EAc1* *Automatic occupancy controls to shut off interior perimeter lighting assists IEQc6.1*	**EAc1:** Optimize energy Performance **IEQc6.1:** Controllability of Systems - Lighting
SSc9	**Tenant Design and Construction Guidelines** *Credit SSc9 is related to all these LEED Core & Shell credits the project pursues*	**WEc3:** Water Use Reduction **EAc1:** Optimize Energy Performance **EAc3:** Enhanced Commissioning **EAc5:** Measurement and Verification **IEQp2:** Environmental Tobacco Smoke Control **IEQc2:** Increased Ventilation **IEQc3:** Construction IAQ Management Plan **IEQc5:** Indoor Chemical and Pollutant Source Control **IEQc6:** Controllability of Systems **IEQc7:** Thermal Comfort **IEQc8:** Daylighting and Views
SSc9	**Site Master Plan** *LEED for Schools requires the achievement and recalculation of (4) of these (7) credits for compliance: SSc1, 5.1, 5.2,6.1,6.2, 7.1 and 8.1* *Possible community partnerships may result from pursuit of this credit, SSc10*	**SSc1:** Site Selection **SSc5.1:** Site Development - Protect or Restore Habitat **SSc5.2:** Site Development - Maximize Open Space **SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Design - Quality Control **SSc7.1:** Heat Island Effect - Nonroof **SSc8:** Light Pollution Reduction **SSc10:** Joint Use of Facilities
SSc10	**Joint Use of Facilities** *This credit likely will place the project in the proximity of the school to services and institutions within the neighborhood, SSc2*	**SSc2:** Development Density and Community Connectivity

Credit Interactions

	WATER EFFICIENCY (WE)	
WEp1	**Water Use Reduction** *Efforts to increase rainwater harvesting, increase greywater use and decrease in demand on local water aquifers may support SSc6.1, SSc6.2, WEc1, WEc2, WEc3 and WEc4* *Additional energy use may be needed for certain reuse strategies requiring EAp1, EAc3 and EAc5*	**SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Design - Quality Control **WEc1:** Water Efficient Landscaping **WEc2:** Innovative Wastewater Technologies **WEc3:** Water Use Reduction **WEc4:** Process Water Use Reduction (Schools) **EAp1:** Fundamental Commissioning of Building Energy Systems **EAc3:** Enhanced Commissioning **EAc5:** Measurement and Verification
WEc1	**Water Efficient Landscaping** *Using native or adaptive vegetation can assist with SSc5.1, SSc5.2 and SSc7.2* *Rainwater capturing can help managing stormwater runoff, SSc6.1 and SSc6.2* *Landscaping can mitigate climate conditions and reduce building energy consumption by shading hardscapes and south facing windows and aiding passive solar design, contributing to SSc7.1, EAp2 and EAc1*	**SSc5.1:** Site Development - Protect or Restore **SSc5.2:** Site Development - Maximize Open Space **SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Design - Quality Control **SSc7.1:** Heat Island Effect - Nonroof **SSc7.2:** Heat Island Effect - Roof **EAp2:** Minimum Energy Performance **EAc1:** Optimize Energy Performance
WEc2	**Innovative Wastewater Technologies** *Efforts to increase rainwater harvesting, increase greywater use and decrease in demand on local water aquifers may support SSc6.1, SSc6.2, WEp1, WEc1, WEc2, WEc3 and WEc4* *Additional energy use may be needed for certain reuse strategies requiring EAp1, EAc3 and EAc5*	**SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Design - Quality Control **WEp1:** Water Use Reduction **WEc1:** Water Efficient Landscaping **WEc3:** Water Use Reduction **WEc4:** Process Water Use Reduction (Schools) **EAp1:** Fundamental Commissioning of Building Energy Systems **EAc3:** Enhanced Commissioning **EAc5:** Measurement and Verification
WEc3	**Water Use Reduction** *Efforts to increase rainwater harvesting, increase greywater use and decrease in demand on local water aquifers may support SSc6.1, SSc6.2, WEc1, WEc2, WEc3 and WEc4* *Additional energy use may be needed for certain reuse strategies possibly requiring credits EAp1, EAc3 and EAc5*	**SSc6.1:** Stormwater Design - Quantity Control **SSc6.2:** Stormwater Design - Quality Control **WEc1:** Water Efficient Landscaping **WEc2:** Innovative Wastewater Technologies **WEc4:** Process Water Use Reduction (Schools) **EAp1:** Fundamental Commissioning of Building Energy Systems **EAc3:** Enhanced Commissioning **EAc5:** Measurement and Verification
WEc4	**Process Water Use Reduction** *Some water saving technologies affect energy performance and may require commissioning and measurement/verification, EAp1 and EAc5*	**EAp1:** Fundamental Commissioning of Building Energy Systems **EAc5:** Measurement and Verification

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Credit Interactions

	ENERGY AND ATMOSPHERE (EA)	
EAp1	**Fundamental Commissioning of Building Energy Systems** *LEED encourages the commissioning of energy using systems in these credits: SSc8, WEc1, WEc2, WEc3, EAc1, EAc2, EAc5, IEQp1, IEQc1, IEQc2, IEQc5, IEQc6 and IEQc7* *EAp1 establishes the minimum threshold for commissioning that is used for enhanced commissioning, EAc3*	**SSc8:** Light Pollution Reduction **WEc1:** Water Efficient Landscaping **WEc2:** Innovative Wastewater Technologies **WEc3:** Water Use Reduction **EAc1:** Optimize Energy Performance **EAc2:** On-site Renewable Energy **EAc5:** Measurement and Verification **IEQp1:** Minimum Indoor Air Quality Performance **IEQc1:** Outdoor Air Delivery Monitoring **IEQc2:** Increased Ventilation **IEQc5:** Indoor Chemical and Pollutant Source Control **IEQc6:** Controllability of Systems **IEQc7**: Thermal Comfort **EAc3:** Enhanced Commissioning
EAp2	**Minimum Energy Performance** *LEED for NC, Schools and CS address building energy efficiency in 2 places:EAp2 and EAc1* *Energy consumption can be reduced by ensuring the project exceeds building code requirements for the envelope, lighting and HVAC systems, EAc1, using climatically appropriate roofing materials, SSc7.2, and optimizing exterior lighting, SSc8* *Energy use can be mitigated by using renewable energy, EAc3 and EAc6* *Building energy performance and indoor environmental issues such as increased ventilation, occupant controllability and the amount of daylight must be carefully coordinated. Increased ventilation may require additional energy use, which in turn can cause air and water pollution. The additional need for energy may be mitigated by considering these strategies: IEQp1, IEQc1, IEQc2, IEQc6, IEQc7 and IEQc8* *Because water use, especially domestic hot water, requires significant energy use, water use reductions can lead to energy savings, WEc3 and WEc4*	**EAc1:** Optimize Energy Performance **SSc7.2:** Heat Island Effect - Roof **SSc8:** Light Pollution Reduction **EAc2:** On-site Renewable Energy **EAc6:** Green Power **IEQp1:** Minimum Indoor Air Quality Performance **IEQc1:** Outdoor Air Delivery Monitoring **IEQc2:** Increased Ventilation **IEQc6:** Controllability of Systems **IEQc7:** Thermal Comfort **IEQc8**: Daylight and Views **WEc3:** Water Use Reduction **WEc4:** Process Water Use Reduction (Schools)
EAp3	**Fundamental Refrigerant Management** *EAp3 establishes minimum thresholds for refrigerant selection while greater environmental benefits can be achieved by using environmentally preferable or no refrigerants, EAc4*	**EAc4:** Enhanced Refrigerant Management
EAc1	**Optimize Energy Performance** *LEED for NC, Schools and CS address building energy efficiency in 2 places: EAp2 and EAc1* *Energy consumption can be reduced by ensuring the project exceeds building code requirements for the envelope, lighting and HVAC systems, EAc1using climatically appropriate roofing materials, SSc7.2, and optimizing exterior lighting, SSc8* *Energy use can be mitigated by using renewable energy, EAc3 and EAc6* *Building energy performance and indoor environmental issues such as increased ventilation, occupant controllability and the amount of daylight must be carefully coordinated. Increased ventilation may require additional energy use, which in turn can cause air and water pollution. The additional need for energy may be mitigated by considering these strategies: IEQp1, IEQc1, IEQc2, IEQc6, IEQc7 and IEQc8* *Because water use, especially domestic hot water, requires significant energy use, water use reductions can lead to energy savings, WEc3 and WEc4*	**EAp2:** Minimize Energy Performance **SSc7.2:** Heat Island Effect - Roof **SSc8:** Light Pollution Reduction **EAc2:** On-site Renewable Energy **EAc6:** Green Power **IEQp1:** Minimum Indoor Air Quality Performance **IEQc1:** Outdoor Air Delivery Monitoring **IEQc2:** Increased Ventilation **IEQc6:** Controllability of Systems **IEQc7:** Thermal Comfort **IEQc8:** Daylight and Views **WEc3:** Water Use Reduction **WEc4:** Process Water Use Reduction (LEED for Schools only)
EAc2	**On-Site Renewable Energy** *The installation of renewable energy equipment usually has only a small effect on the achievement of other credits but does require commissioning, EAp1, and measurement and verification, EAc5* *The achievement of on-site renewable energy, EAc2, is a percentage of the building's energy use and tied to the building's energy performance, EAp2 and EAc1* *EAc2 reduces the amount of green power needed, EAc6*	**EAp1:** Fundamental Commissioning of Building Energy Systems **EAp2:** Minimum Energy Performance **EAc1:** Optimize Energy Performance **EAc5:** Measurement and Verification **EAc6:** Green Power

Credit Interactions

	ENERGY AND ATMOSPHERE (EA)	
EAc3	**Enhanced Commissioning** *LEED encourages the commissioning of energy using systems in these credits: SSc8, WEc1, WEc2, WEc3, EAc1, EAc2, EAc5, IEQp1, IEQc1, IEQc2, IEQc5, IEQc6 and IEQc7* *EAc3 goes beyond the minimum threshold established by EAp1*	**SSc8:** Light Pollution Reduction **WEc1:** Water Efficient Landscaping **WEc2:** Innovative Wastewater Technologies **WEc3:** Water Use Reduction **EAc1:** Optimize Energy Performance **EAc2:** On-site Renewable Energy **EAc5:** Measurement and Verification **IEQp1:** Minimum Indoor Air Quality Performance **IEQc1:** Outdoor Air Delivery Monitoring **IEQc2:** Increased Ventilation **IEQc5:** Indoor Chemical and Pollutant Source Control **IEQc6:** Controllability of Systems **IEQc7:** Thermal Comfort **EAp1:** Fundamental Commissioning of the Building Energy Systems
EAc4	**Enhanced Refrigerant Management** *EAc4 encourages the use of no refrigerants or environmentally preferable refrigerants and goes beyond the baseline prerequisite EAp3 Since building cooling equipment consumes a large part of the energy use, HVAC&R equipment plays a significant role in the building's energy performance, EAp2 & EAc1* *Systems addressed by EAc4 can help meet the thermal comfort needs of the building occupants, IEQc7, IEQc7.1 and IEQc7.2*	**EAp3:** Fundamental Refrigerant Management **EAp2:** Minimum Energy Performance **EAc1:** Optimize Energy Performance **IEQc7.1:** (CS IEQc7): Thermal Comfort - Design **IEQc7.2:** Thermal Comfort - Verification
EAc5	**Measurement and Verification** *Implementation of a measurement & verification (M&V) plan can contribute to realizing optimal energy performance, EAp2 & EAc1* *On-site renewable energy generation systems are considered within an M&V plan* *Commissioning uses measurement devices and often tracks building performance and can serve as a basis for a M&V plan, EAp1 & EAc3*	**EAp2:** Minimum Energy Performance **EAc1:** Optimize Energy Performance **EAc2:** On-site Renewable Energy **EAp1:** Fundamental Commissioning of the Building Energy Systems **EAc3:** Enhanced Commissioning
EAc5.1	**Measurement and Verification - Base Building**	refer **EAc5**
EAc5.2	**Measurement and Verification - Tenant Submetering**	refer **EAc5**
EAc6	**Green Power** *Replacing conventional energy sources with renewable energy sources works synergistically with efforts to reduce energy costs, EAc1* *Replacing roofing materials with roof mounted renewable energy sources reduces heat island effect, SSc7.2* *Renewable energy sources should be commissioned, EAp1 & EAc3*	**EAc1**: Optimize Energy Performance **SSc7.2**: Heat Island Effect - Roof **EAp1:** Fundamental Commissioning of the Building Energy Systems **EAc3:** Enhanced Commissioning

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Credit Interactions

	MATERIALS AND RESOURCES (MR)	
MRp1	**Storage and Collection of Recyclables** *Projects can seek ID credit for educational outreach* *CS projects should address recycling within tenant guidelines, SSc9*	**IDc1:** Innovation in Design **SSc9:** Tenant Design and Construction Guidelines
MRc1.1	**Building Reuse - Maintain Existing Walls, Floors and Roof** *Develop a comprehensive reuse management plan on an adaptive reuse project* *If reuse is not enough to meet the requirements of MRc1, these materials may be applied to MRc2 or MRc3, but not both*	**MRc2:** Construction Waste Management **MRc3:** Materials Reuse
MRc1	**Building Reuse - Maintain Existing Walls, Floors and Roof**	refer **MRc1.1**
MRc1.2	**Building Reuse - Maintain Interior - Nonstructural Elements**	refer **MRc1.1**
MRc2	**Construction Waste Management** *Projects that reuse existing buildings but do not meet the threshold requirements for MRc1 may apply the reused portions toward achievement of MRc2* *If the building is found to contain contaminated substances, these materials should be remediated per EPA, SSc3*	**MRc1:** Building Reuse **SSc3:** Brownfield Redevelopment
MRc3	**Materials Reuse** *Develop a comprehensive reuse management plan to evaluate materials meeting the requirements for MRc1 & MRc2* *Remanufactured materials are not considered a reuse of the material but can contribute toward MRc2 & MRc4* *The project material costs used for MRc3 must be consistent with those costs used in MRc4, MRc5 & MRc6*	**MRc1**: Building Reuse **MRc2:** Construction Waste Management **MRc4:** Recycled Materials **MRc5:** Regional Materials **MRc6:** Rapidly Renewable Materials
MRc4	**Recycled Content** *Coordinate recycled procurement with a waste management plan to make use of salvaged deconstruction and demolition waste, MRc2 & MRc3* *Purchasing new recycled content materials using local waste products that are remanufactured locally can take advantage of synergies with MRc5* *The project material costs used for MRc4 must be consistent with those costs used in MRc3, MRc5 & MRc6* *Recycled content materials may contain high VOCs, IEQc4*	**MRc2:** Construction Waste Management **MRc3:** Materials Reuse **MRc5:** Regional Materials **MRc6:** Rapidly Renewable Materials **IEQc4:** Low-Emitting Materials
MRc5	**Regional Materials** *The project material costs used for MRc5 must be consistent with those costs used in MRc3, MRc4 & MRc6* *Using regional materials may affect the levels of achievement of MRc3, MRc4 & MRc5*	**MRc3:** Materials Reuse **MRc4:** Recycled Materials **MRc6:** Rapidly Renewable Materials
MRc6	**Rapidly Renewable Materials** *The project material costs used for MRc65 must be consistent with those costs used in MRc3, MRc4 & MRc5* *Using rapidly renewable materials may affect the levels of achievement of MRc3, MRc4 & MRc5* *Rapidly renewable materials may contain high VOCs, IEQc4*	**MRc3:** Materials Reuse **MRc4:** Recycled Materials **MRc5:** Regional Materials **IEQc4:** Low-Emitting Materials
MRc7	**Certified Wood** *Certified wood (FSC) may be sourced locally, MRc5* *Mixed certified wood products may contain urea-formaldehyde, IEQc4.4*	**MRc5:** Regional Materials **IEQc4.4:** Low-Emitting Materials - Composite Wood and Agrifiber
MRc6	**Certified Wood**	refer **MRc7**

Credit Interactions

	INDOOR ENVIRONMENTAL QUALITY (IEQ)	
IEQp1	**Minimum Indoor Air Quality Performance** *Commissioning and measurement & verification can improve IAQ while minimizing energy efficiency losses, EAp1, EAc3 & EAc5* *Specify materials and furnishings that do not release VOCs, IEQc4* *Occupant activities such as chemical handling and smoking can affect indoor air quality, IEQc5 & IEQp2* *Dense neighborhoods and heavy traffic can affect ventilation, SSc4, where sites could be contaminated, SSc3*	**EAp1:** Fundamental Commissioning of Building Energy Systems **EAc3:** Enhanced Commissioning **EAc5**: Measurement and Verification **IEQc4:** Low Emitting Materials **IEQc5:** Indoor Chemical and Pollution Source Control **IEQp2:** Environmental Tobacco Smoke (ETS) Control **SSc4:** Alternative Transportation **SSc3:** Brownfield Redevelopment
IEQp2	**Environmental Tobacco Smoke (ETS) Control** *Using separate ventilation systems to isolate smoking requires additional energy, commissioning and measurement & verification, EAp1, EAc1, EAc3 and EAc5* *Indoor and outdoor smoking affects the IAQ performance and is related to IEQp1, IEQc1 & IEQc2* *Project should address smoking related contaminants in conjunction with other sources of air pollutants, IEQc4 & IEQc5*	**EAp1:** Fundamental Commissioning of Building Energy Systems **EAc1:** Optimize Energy Performance **EAc3:** Enhanced Commissioning **EAc5:** Measurement and Verification **IEQp1:** Minimum Indoor Air Quality Performance **IEQc1:** Outdoor Air Delivery Monitoring **IEQc2**: Increased Ventilation **IEQc4:** Low Emitting Materials **IEQc5**: Indoor Chemical and Pollutant Source Control
IEQp3	**Minimum Acoustical Performance** *Additional strategies to achieve effective acoustical performance, IEQc9*	**IEQc9:** Enhanced Acoustical Performance
IEQc1	**Outdoor Air Delivery Monitoring** *Monitoring airflow can alert building operators of potential IAQ problems that requires increased ventilation, IEQc2 and help the commissioning process and enable measurement & verification, EAp1, EAc3 & EAc5* *Dense neighborhoods, heavy traffic and site contamination can raise CO2 levels where alternative transportation methods can help alleviate, SSc4*	**IEQc2:** Increased Ventilation **EAp1:** Fundamental Commissioning of Building Energy Systems **EAc3:** Enhanced Commissioning **EAc5:** Measurement and Verification **SSc4:** Alternative Transportation
IEQc2	**Increased Ventilation** *Ventilation strategies influence energy performance and requires commissioning as well as measurement & verification, EAp1, EAc3 & EAc5* *Increased mechanical ventilation increase energy consumption and affect EAp2 & EAc1 Installing ventilation monitoring can facilitate the achievement and maintenance of increased ventilation, IEQc1*	**EAp1:** Fundamental Commissioning of Building Energy Systems **EAp2:** Minimum Energy Performance **EAc1:** Optimize Energy Performance **EAc3:** Enhanced Commissioning **EAc5:** Measurement and Verification **IEQc1:** Outdoor Air Delivery Monitoring
IEQc3.1	**Construction Indoor Air Quality Management Plan During Construction** *Construction activities can affect a building after occupancy. Reduce levels of indoor contaminants by implementing a construction IAQ management plan, IEQc3.2, selecting low emitting finish materials and furnishings, IEQc4, and isolating indoor pollutant sources, IEQc5*	**IEQc3.2:** Construction IAQ Mgt Plan - Before Occupancy **IEQc4:** Low Emitting Materials **IEQc5:** Indoor Chemical and Pollutant Source Control
IEQc3	**Construction Indoor Air Quality Management Plan During Construction** *CS projects are eligible for exemplary performance under ID when an indoor IAQ management plan is enforced for 100% of the tenants* *There are a number of credit synergies between CS and CI offered as incentives for CS projects to pursue CI certification*	**IEQc3.1:** Construction IAQ Mgt Plan - During Construction **IEQc3.2:** Construction IAQ Mgt Plan - Before Occupancy **IEQc4**: Low Emitting Materials **IEQc5:** Indoor Chemical and Pollutant Source Control
IEQc3.2	**Construction Indoor Air Quality Management Plan Before Occupancy** *Comprehensive IAQ management plans consists of best practices both during construction and after construction prior to occupancy, IEQc3.1* *Materials specified and installed within the external moisture barrier, as well as filtration, can affect air quality and influence the results for air quality testing, IEQc4 & IEQc5* *Dilution of indoor air contaminants can be achieved by introducing outdoor air, IEQp1 & IEQc2*	**IEQc3.1:** Construction IAQ Mgt Plan - During Construction **IEQc4:** Low Emitting Materials **IEQc5:** Indoor Chemical and Pollutant Source Control **IEQp1:** Minimum Indoor Air Quality Performance **IEQc2:** Increased Ventilation

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Credit Interactions

	INDOOR ENVIRONMENTAL QUALITY (IEQ)	
IEQc4.1	**Low Emitting Materials - Adhesives and Sealants** *The credit intent is to reduce odorous, irritating or harmful indoor air contaminants, IEQc4.2, IEQc4.3, IEQc4.4, IEQc4.5 & IEQc4.6* *Indoor environmental quality also includes occupant's auditory comfort and well being, IEQp3 & IEQc9* *Scheduling strategies and the use and tracking of building materials are part of the contractor orientation training, IEQc3.1 & IEQc3.2* *Indoor air quality is affected by sources generated within the building IEQp2 & IEQc5*	**IEQc4.2:** Low Emitting Materials - Paints and Coatings **IEQc4.3:** Low Emitting Materials - Flooring Systems **IEQc4.4:** Low Emitting Materials - Composite Wood & Agrifiber **IEQc4.5:** Low Emitting Materials - Furniture & Furnishings (Schools) **IEQc4.6:** Low Emitting Materials - Ceiling and Wall Systems (Schools) **IEQp3:** Minimum Acoustical Performance (Schools) **IEQc9:** Enhanced Acoustical Performance (Schools) **IEQc3.1:** Construction IAQ Mgt Plan - During Construction **IEQc3.2:** Construction IAQ Mgt Plan - Before Occupancy **IEQp2:** Environmental Tobacco Smoke (ETS) Control **IEQc5:** Indoor Chemical and Pollutant Source Control
IEQc4.2	**Low Emitting Materials - Paints and Coatings** *The credit intent is to reduce odorous, irritating or harmful indoor air contaminants, IEQc4.1, IEQc4.3, IEQc4.4, IEQc4.5 & IEQc4.6* *Scheduling strategies and the use and tracking of building materials are part of the contractor orientation training, IEQc3.1 & IEQc3.2* *Indoor air quality is affected by sources generated within the building IEQp2 & IEQc5*	**IEQc4.1:** Low Emitting Materials - Adhesives and Sealants **IEQc4.3:** Low Emitting Materials - Flooring Systems **IEQc4.4:** Low Emitting Materials - Composite Wood & Agrifiber **IEQc4.5**: Low Emitting Materials - Furniture & Furnishings (Schools) **IEQc4.6:** Low Emitting Materials - Ceiling and Wall Systems (Schools) **IEQc3.1:** Construction IAQ Mgt Plan - During Construction **IEQc3.2:** Construction IAQ Mgt Plan - Before Occupancy **IEQp2:** Environmental Tobacco Smoke (ETS) Control **IEQc5:** Indoor Chemical and Pollutant Source Control
IEQc4.3	**Low Emitting Materials - Flooring Systems** *The credit intent is to reduce odorous, irritating or harmful indoor air contaminants, IEQc4.1, IEQc4.2, IEQc4.4, IEQc4.5 & IEQc4.6* *Scheduling strategies and the use and tracking of building materials are part of the contractor orientation training, IEQc3.1 & IEQc3.2* *Indoor air quality is affected by sources generated within the building IEQp2 & IEQc5*	**IEQc4.1:** Low Emitting Materials - Adhesives and Sealants **IEQc4.2:** Low Emitting Materials - Paints and Coatings **IEQc4.4:** Low Emitting Materials - Composite Wood & Agrifiber **IEQc4.5:** Low Emitting Materials - Furniture & Furnishings (Schools) **IEQc4.6:** Low Emitting Materials - Ceiling and Wall Systems (Schools) **IEQc3.1:** Construction IAQ Mgt Plan - During Construction **IEQc3.2:** Construction IAQ Mgt Plan - Before Occupancy **IEQp2:** Environmental Tobacco Smoke (ETS) Control **IEQc5:** Indoor Chemical and Pollutant Source Control
IEQc4.4	**Low Emitting Materials - Composite Wood and Agrifiber Products** *The credit intent is to reduce odorous, irritating or harmful indoor air contaminants, IEQc4.1, IEQc4.2, IEQc4.3, IEQc4.5 & IEQc4.6* *Indoor environmental quality also includes occupant's auditory comfort and well being, IEQp3 & IEQc9* *Scheduling strategies and the use and tracking of building materials are part of the contractor orientation training, IEQc3.1 & IEQc3.2* *Indoor air quality is affected by sources generated within the building IEQp2 & IEQc5*	**IEQc4.1:** Low Emitting Materials - Sealants and Adhesives **IEQc4.2:** Low Emitting Materials - Paints and Coatings **IEQc4.3:** Low Emitting Materials - Flooring Systems **IEQc4.5:** Low Emitting Materials - Furniture & Furnishings (Schools) **IEQc4.6:** Low Emitting Materials - Ceiling and Wall Systems (Schools) **IEQp3:** Minimum Acoustical Performance (Schools) **IEQc9:** Enhanced Acoustical Performance (Schools) **IEQc3.1:** Construction IAQ Mgt Plan - During Construction **IEQc3.2:** Construction IAQ Mgt Plan - Before Occupancy **IEQp2:** Environmental Tobacco Smoke (ETS) Control **IEQc5:** Indoor Chemical and Pollutant Source Control

Credit Interactions

	INDOOR ENVIRONMENTAL QUALITY (IEQ)	
IEQc4.5	**Low Emitting Materials - Furniture and Furnishings** *The credit intent is to reduce odorous, irritating or harmful indoor air contaminants, IEQc4.1, IEQc4.2, IEQc4.3, IEQc4.4 & IEQc4.6* *Scheduling strategies and the use and tracking of building materials are part of the contractor orientation training, IEQc3.1 & IEQc3.2* *Indoor air quality is affected by sources generated within the building IEQp2 & IEQc5*	**IEQc4.1:** Low Emitting Materials - Adhesives and Sealants **IEQc4.2:** Low Emitting Materials - Paints and Coatings **IEQc4.3:** Low Emitting Materials - Flooring Systems **IEQc4.4:** Low Emitting Materials - Composite Wood & Agrifiber **IEQc4.6:** Low Emitting Materials - Ceiling and Wall Systems (Schools) **IEQc3.1:** Construction IAQ Mgt Plan - During Construction **IEQc3.2:** Construction IAQ Mgt Plan - Before Occupancy **IEQp2:** Environmental Tobacco Smoke (ETS) Control **IEQc5:** Indoor Chemical and Pollutant Source Control
IEQc4.6	**Low Emitting Materials - Ceiling and Wall Systems** *The credit intent is to reduce odorous, irritating or harmful indoor air contaminants, IEQc4.1, IEQc4.2, IEQc4.3, IEQc4.4 & IEQc4.5* *Indoor environmental quality also includes occupant's auditory comfort and well being, IEQp3 & IEQc9* *Scheduling strategies and the use and tracking of building materials are part of the contractor orientation training, IEQc3.1 & IEQc3.2* *Indoor air quality is affected by sources generated within the building IEQp2 & IEQc5*	**IEQc4.1:** Low Emitting Materials - Sealants and Adhesives **IEQc4.2:** Low Emitting Materials - Paints and Coatings **IEQc4.3:** Low Emitting Materials - Flooring Systems **IEQc4.4:** Low Emitting Materials - Composite Wood & Agrifiber **IEQc4.5:** Low Emitting Materials - Furniture & Furnishings (Schools) **IEQp3:** Minimum Acoustical Performance (Schools) **IEQc9:** Enhanced Acoustical Performance (Schools) **IEQc3.1:** Construction IAQ Mgt Plan - During Construction **IEQc3.2:** Construction IAQ Mgt Plan - Before Occupancy **IEQp2:** Environmental Tobacco Smoke (ETS) Control **IEQc5:** Indoor Chemical and Pollutant Source Control
IEQc5	**Indoor Chemical and Pollutant Source Control** *Filtration media can remove contaminants from the air during construction and during operation, IEQc3.1 & IEQc3.2* *Exhausting air can require additional fan energy and, therefore, commissioning, EAc1 & EAp2, EAp1 & EAc3* *Filtration systems must be capable of accommodating the filtration media, IEQp1 & IEQc1*	**IEQc3.1:** Construction IAQ Mgt Plan - During Construction **IEQc3.2:** Construction IAQ Mgt Plan - Before Occupancy **EAc1:** Optimize Energy Performance **EAp2:** Minimum Energy Performance **EAp1:** Fund. Commissioning of the Building Energy Systems **EAc3:** Enhanced Commissioning **IEQp1:** Minimum Indoor Air Quality Performance **IEQc1:** Outdoor Air Delivery Monitoring
IEQc6.1	**Controllability of Systems - Lighting** *Lighting systems are affected by window placement, glazing selection for daylight and views, IEQc8, and zoning strategies employed for thermal comfort controllability,IEQc6.2* *Lighting systems affect energy performance, EAp2 & EAc1and are required to be commissioned, EAp1 and EAc3*	**IEQc8:** Daylight and Views **IEQc6.2:** Controllability of Systems - Thermal Comfort **EAp2:** Minimum Energy Performance **EAc1:** Optimize Energy Performance **EAp1:** Fund. Commissioning of the Building Energy Systems **EAc3:** Enhanced Commissioning
IEQc6.2	**Controllability of Systems - Thermal Comfort** *The intent of this credit is to enable individuals and groups in multioccupant spaces to control their thermal comfort, systems and maintenance*	**EAp1:** Fund. Commissioning of the Building Energy Systems **EAp2:** Minimum Energy Performance **EAc1:** Optimize Energy Performance **EAc3:** Enhanced Commissioning **Eac5:** Measurement and Verification **IEQc5:** Indoor Chemical and Pollutant Source Control **IEQc6.1:** Controllability of Systems - Lighting (NC & Schools) **IEQc8:** Daylight and Views
IEQc6	**Controllability of Systems - Thermal Comfort**	refer **IEQc6.2**

STUDIO 4 SUSTAINABLE

Credit Interactions

	INDOOR ENVIRONMENTAL QUALITY (IEQ)	
IEQc7.1	**Thermal Comfort - Design** *Thermal comfort is affected by environmental conditions (air temperature, radiant temperature, relative humidity and air speed), personal factors (metabolic rate and clothing) and personal preferences. Thermal comfort can be controlled by active (HVAC) and passive (natural ventilation. Using both active and passive systems, the building's energy consumption can be reduced as well as optimizing comfort levels, EAp2, EAc1, EAc5* *Thermal comfort systems should be commissioned, EAp1 & EAc3* *Addressing and maintaining thermal comfort are also covered by IEQp1, IEQc2, IEQc6.2 & IEQc7.2*	**EAp2:** Minimum Energy Performance **EAc1:** Optimize Energy Performance **EAc5:** Measurement and Verification **EAp1:** Fund. Commissioning of the Building Energy Systems **EAc3:** Enhanced Commissioning **IEQp1:** Minimum Indoor Air Quality Performance **IEQc2:** Increased Ventilation **IEQc6.2:** Controllability of Systems - Thermal Comfort **IEQc7.2:** Thermal Comfort - Verification
IEQc7	**Thermal Comfort - Design**	refer **IEQc7.1**
IEQc7.2	**Thermal Comfort - Verification** *Thermal comfort is affected by environmental conditions (air temperature, radiant temperature, relative humidity and air speed), personal factors (metabolic rate and clothing) and personal preferences. Thermal comfort systems should be measured & verified, EAc5, monitored, IEQp1, and commissioned, EAp1 & EAc3* *Achieving thermal comfort by ventilation, IEQc2, and controlling, IEQc6.2 per system design parameters, IEQc7.1*	**EAc5:** Measurement and Verification **EAp1:** Fund. Commissioning of the Building Energy Systems **EAc3:** Enhanced Commissioning **IEQp1:** Minimum Indoor Air Quality Performance **IEQc2:** Increased Ventilation **IEQc6.2:** Controllability of Systems - Thermal Comfort **IEQc7.1:** Thermal Comfort - Design
IEQc8.1	**Daylight and Views - Daylight** *Increasing the area of vision glazing can increase access to views from the building, IEQc8.2* *Increased window-to-wall ration can alter energy performance, EAc1 & EAp2* *Daylighting controls can maximize energy savings, IEQc6.1*	**IEQc8.2:** Daylight and Views - Views **EAc1:** Optimize Energy Performance **EAp2:** Minimum Energy Performance **IEQc6.1:** Controllability of Systems - Lighting
IEQc8.2	**Daylight and Views - Views** *Increasing the area of vision glazing can increase access to views from the building, IEQc8.1* *Increased window-to-wall ration can alter energy performance, EAc1 & EAp2* *Daylighting controls can maximize energy savings, IEQc6.1*	**IEQc8.1:** Daylight and Views - Daylight **EAc1:** Optimize Energy Performance **EAp2:** Minimum Energy Performance **IEQc6.1:** Controllability of Systems - Lighting
IEQc9	**Enhanced Acoustical Performance** *This credit is directly related to strategies and measures to achieve effective acoustical performance, IEQp3*	**IEQp3:** Minimum Acoustical Performance (Schools)
IEQc10	**Mold Prevention** *Abating mold through preventative design and construction measures is treated in IEQc3.1, IEQc7.1 & IEQc7.2*	**IEQc3.1:** Construction IAQ Mgt Plan - During Construction **IEQc7.1:** Thermal Comfort - Design **IEQc7.2:** Thermal Comfort - Verification

	Innovation in Design (ID)	
IDc1.1	Innovation in Design	
IDc1.2	Innovation in Design	
IDc1.3	Innovation in Design	
IDc1.4	Innovation in Design	
IDc1.5	Innovation in Design	
IDc2	LEED® Accredited Professional	
IDc3	The School as a Teaching Tool	

	Regional Priority (RP)	
RPc1.1	Regional Priority	
RPc1.2	Regional Priority	
RPc1.3	Regional Priority	
RPc1.4	Regional Priority	