



LEED v3.0 Transition Seminar

LEED-NC v2.2 to LEED BD+C v.3.0 (2009) ... and Beyond

By Dan Burgoyne

July 9, 2009 - California Department of General Services

Seminar Agenda

- LEED assessment
- California Gov't. Green Building Directives
- LEED version 3.0 Overview
- LEED Building Design + Construction (BD+C)
- Changes to LEED Online Documentation
- Role of U.S. Green Building Council (USGBC) & Green Building Certification Institute (GBCI)
- Changes in LEED Professional Accreditation
- Changes in LEED Exams

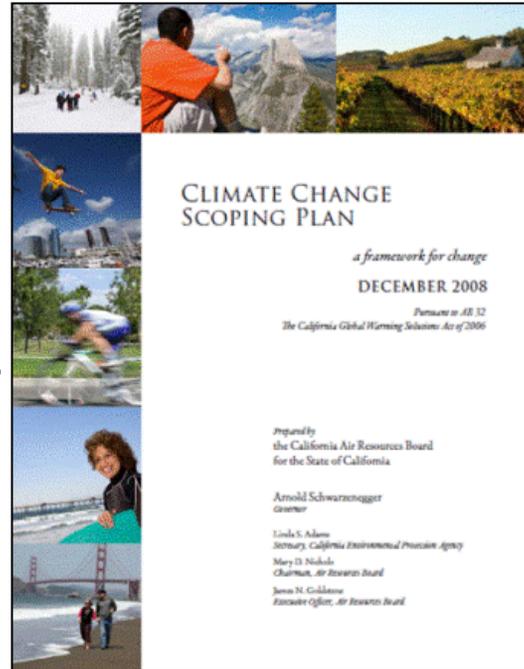
LEED Assessment

1. Any LEED accredited professionals?
(LEED AP's)
2. How many have worked on the LEED certification of a project?
3. How many are currently working on projects required to be LEED certified?
4. Any taken LEED training or workshop?

CA Gov't. Green Building Directives

1. California Executive Order S-20-04 & Green Building Action Plan

2. California Global Warming Solutions Act of 2006 AB-32



3. California Green Building Standards Code



Executive Order S-20-04

Signed December 14, 2004



CA Executive Order S-20-04

- Reduce energy use by 20% by 2015
- Retrofit, build and operate the most energy and resource efficient public buildings
- Design, construct and operate all State facilities as “**LEED Silver**” or higher
 - New & renovated buildings >10,000 sq. ft.
 - Existing buildings >50,000 sq. ft.
- “Building projects less than 10,000 sq. ft. shall use the same design standard, but certification is not required.”

California's AB 32

Global Warming Solutions Act of 2006

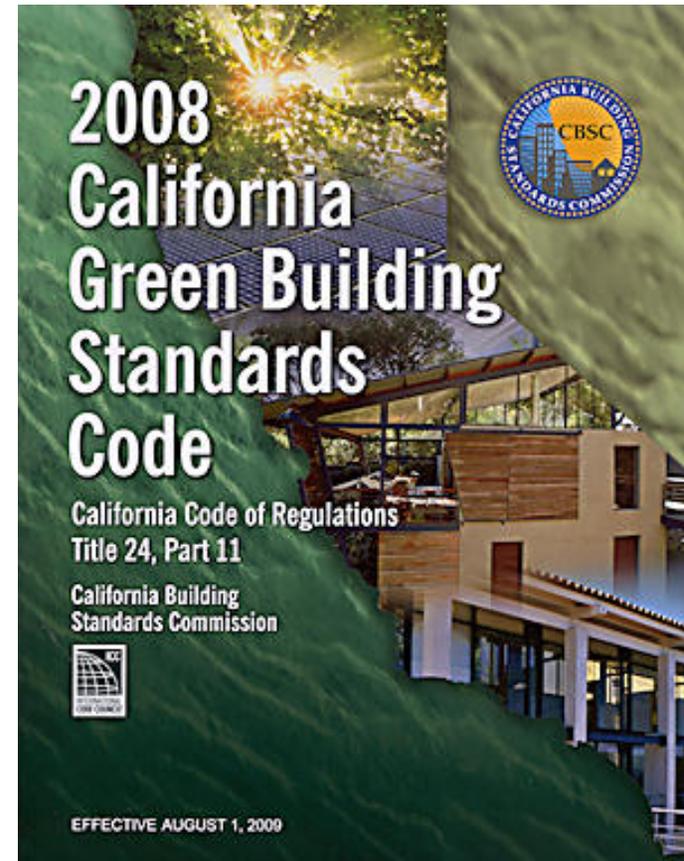
- California to reduce its greenhouse gas emissions to 1990 levels by 2020
- Scoping Plan adopted Jan. 2009
 - Zero Net Energy (ZNE) Homes by 2020
 - ZNE commercial bldgs. by 2030
 - State of CA buildings ZNE by 2025
 - LEED-NC Gold certification for State bldgs.



www.arb.ca.gov/cc/scopingplan/document/psp.pdf

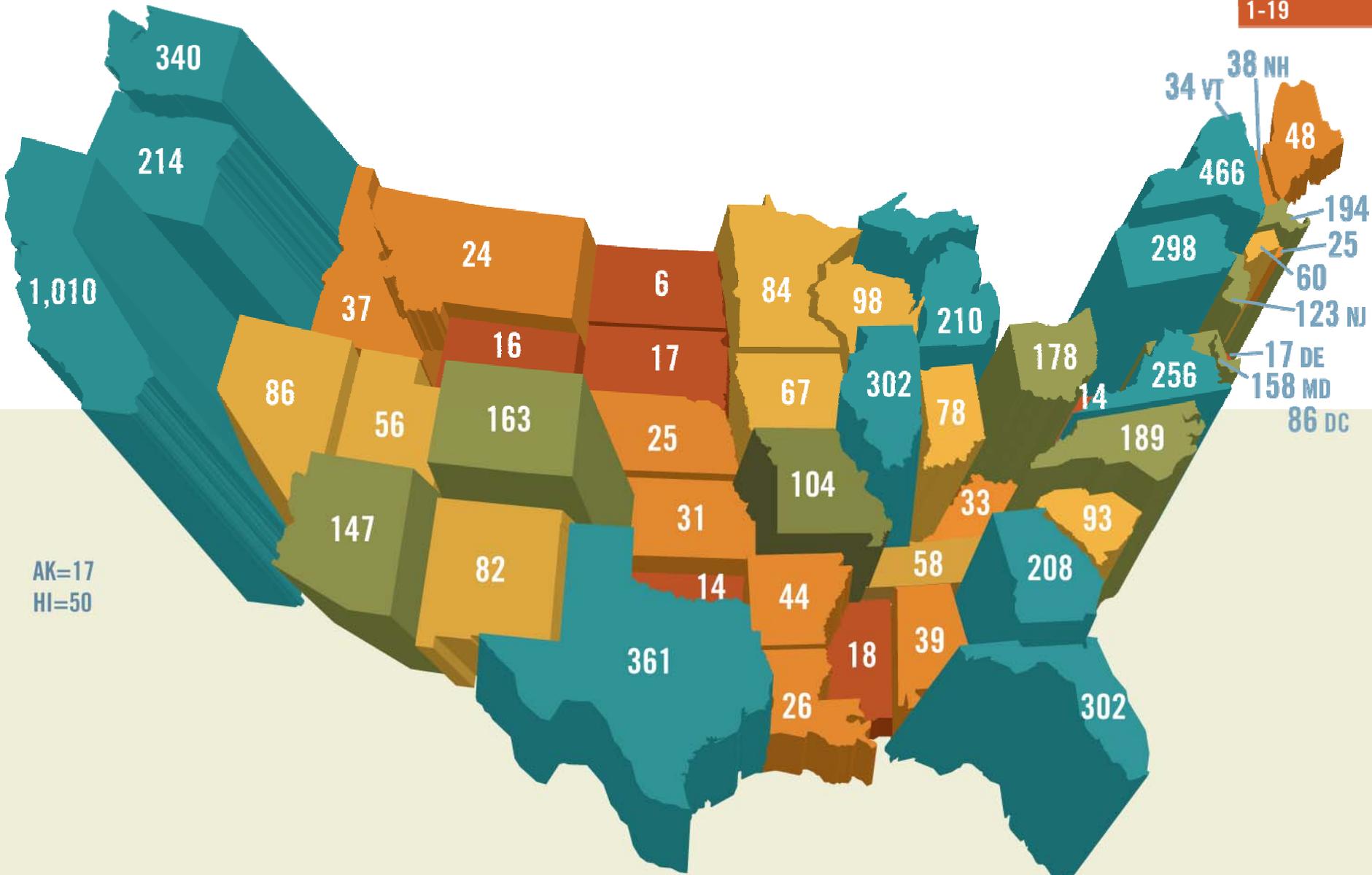
2008 California Green Building Standards Code

- CA Code of Regulations, Title 24, Part 11
- Takes effect August 1, 2009
- Mostly voluntary measures, some mandatory
- 2010 Code will include numerous mandatory measures
 - Will take effect in January 2011



LEED for new construction buildings as of 1/08

Distribution by geography



California Cities w/ LEED Adoptions

Alameda County

Albany

Anaheim

Burbank

Costa Mesa

Irvine

Long Beach

Los Altos

Los Angeles

Monterey

Oakland

Palo Alto

Pasadena

Pleasanton

Sacramento

San Bernadino

San Diego

San Francisco

San Jose

San Mateo

San Rafael

Santa Clara

Santa Clarita

Santa Cruz

Santa Monica

Santa Rosa

Stockton

Temecula

Ventura

West Hollywood

USGBC Gov't Policy Database:

www.usgbc.org/PublicPolicy/SearchPublicPolicies.aspx?PageID=1776

State of California's LEED-NC Buildings

- 16 buildings already LEED-NC certified
- 219 current buildings pursuing LEED certif.

79 building projects
(> 6.1 M sq. ft.)

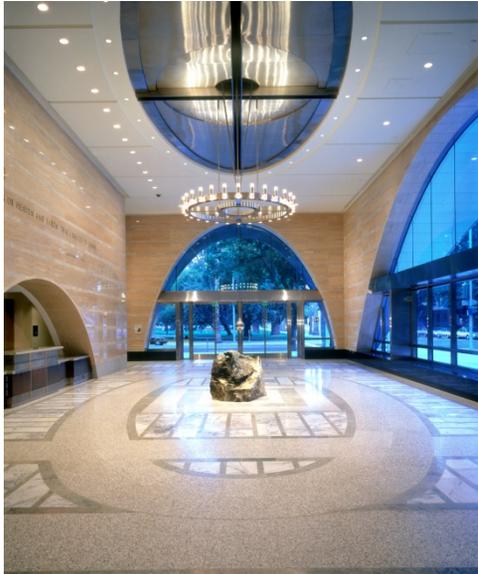
CalSTRS
Headquarters
West Sacramento





CA Requirements: LEED-EB

- Existing State Buildings >50,000 sq. ft.
- Status - 8 Buildings Certified
 - 57 buildings currently pursuing certification (12 M sq. ft.)
 - >200 buildings next 7 years



Dept. of Education
LEED-EB Platinum
(June 2006)



Dept. Public Health – 4 bldgs.
LEED-EB Gold (Feb 2008)



Cal EPA Headquarters
LEED-EB Platinum
(November 2003)

State of California Online Resources

Green Building Database

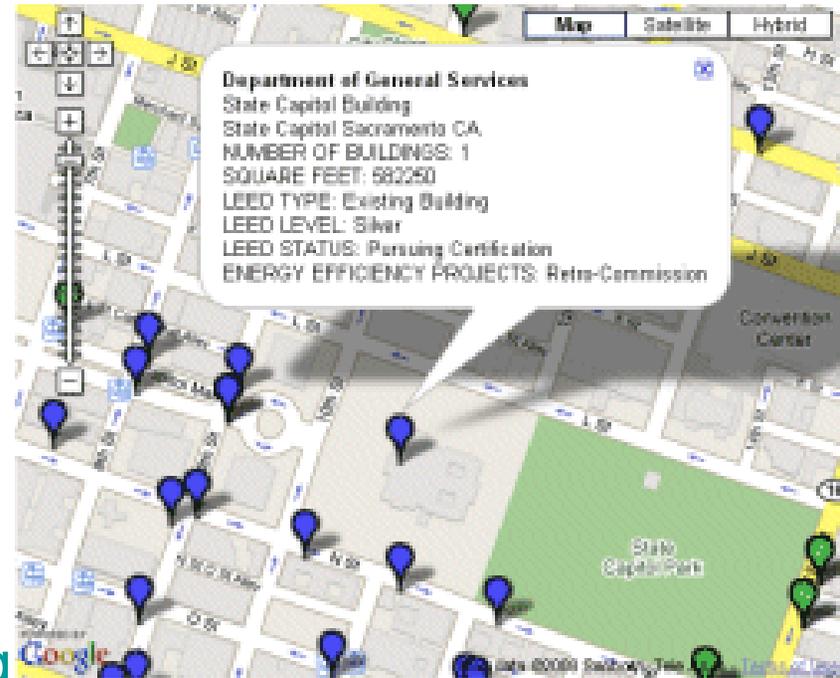
www.greenbuildings.dgs.ca.gov

- Interactive Map
- Spreadsheet

LEED Training Website

- Past state LEED Training Archives & Resources

www.dgs.ca.gov/LEEDtraining



Green California Website www.green.ca.gov

- Green Building Executive Order & Green Building Action Plan
- Commissioning Toolkit www.green.ca.gov/CxToolKit
- LCCA Model
- Green Building Action Plan info & many other programs

Architects

Building Owners

Federal, Local, and State Governments

Product Manufacturers

Planners

Contractors

USGBC

Engineers

Financial Reps

Utility Managers

Interior Designers

Building Tenants

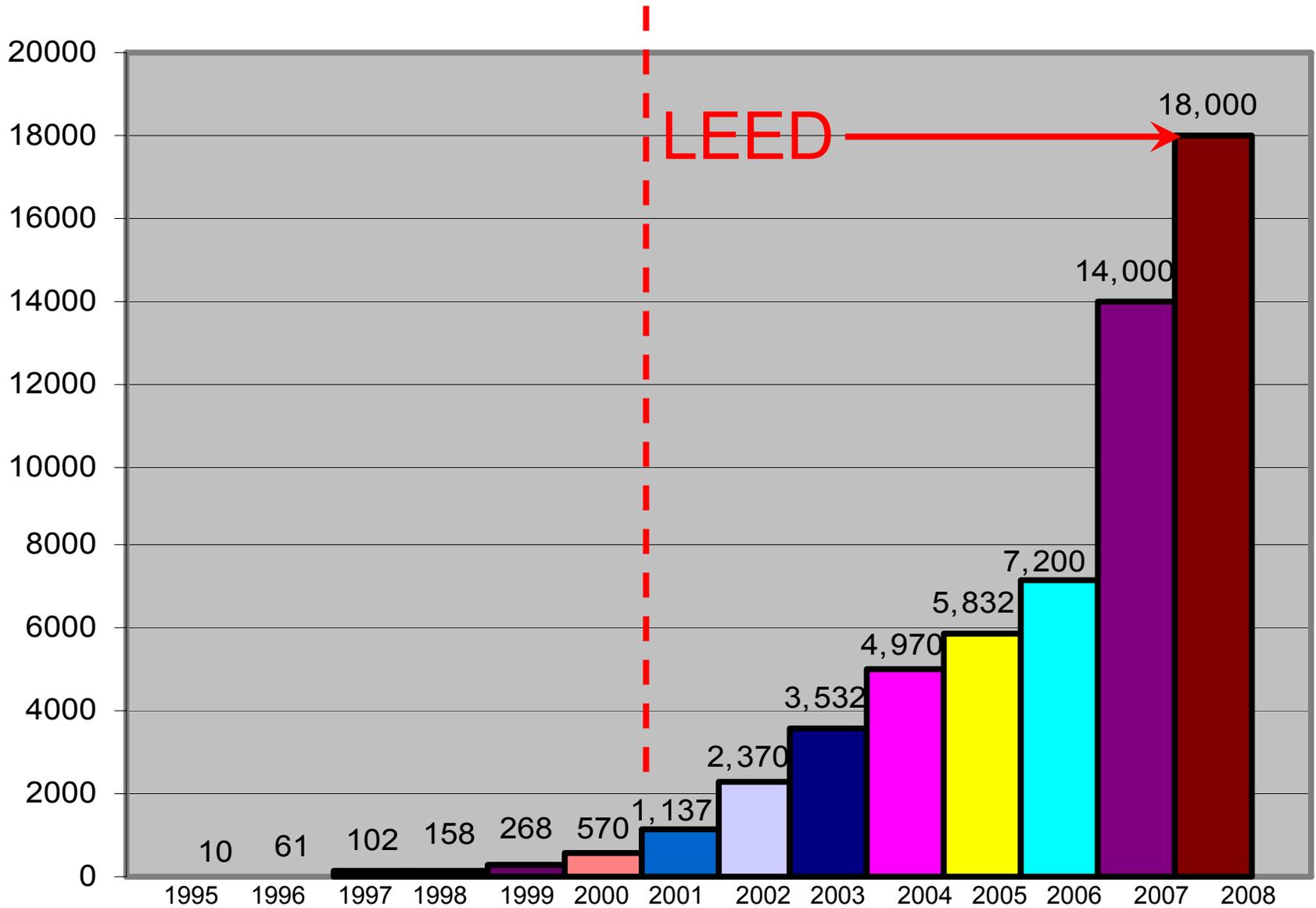
Landscape Architects

Property Managers

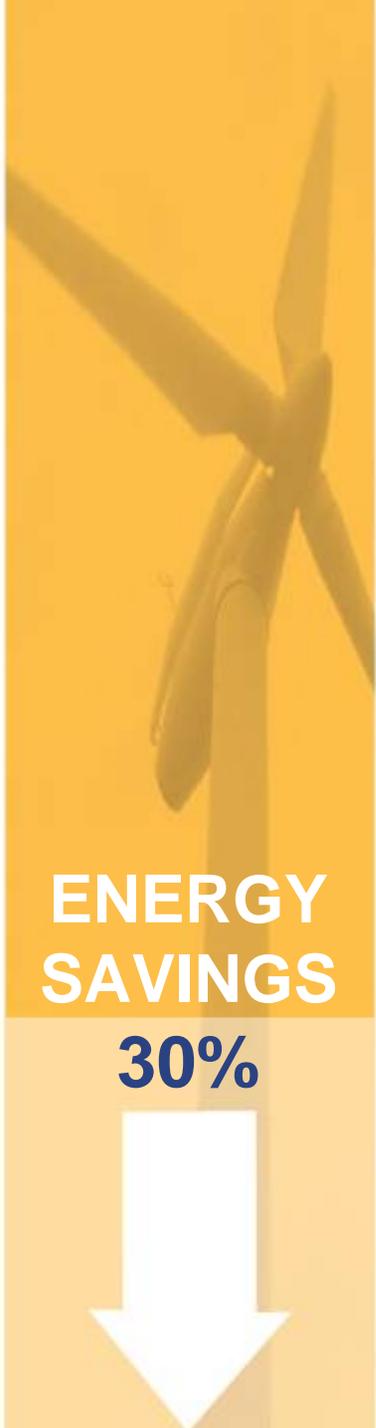
Code Officials



USGBC Membership Companies



Average Savings of Green Buildings



Source:
Capital E

v 3.0

LEED-NC New Construction

*LEED for Health Care
*LEED for Retail

LEED-S for Schools

LEED-CS Core & Shell

LEED-CI Commercial Interiors

*LEED for Retail Interiors

LEED-EB Existing Buildings

*LEED for Existing Schools

LEED-H for Homes

LEED-ND Neighborhood Development

LEED BD+C

Building Design & Construction

LEED ID+C

Interior Design & Construction

LEED O+M

Operations & Maintenance

LEED-H

for Homes

LEED-ND

Neighborhood Development

Rating System

LEED for New Construction

LEED for Core & Shell

LEED for Schools

LEED for Healthcare*

LEED for Retail*

LEED for Commercial Interiors

LEED for Retail Interiors*

LEED for Existing Buildings

LEED for Existing Schools*

Reference Guide

**GREEN BUILDING DESIGN
& CONSTRUCTION**
2009 Edition

**GREEN INTERIOR DESIGN
& CONSTRUCTION**
2009 Edition

**GREEN BUILDING
OPERATIONS & MAINTENANCE**
2009 Edition

Recommended References

LEED Building Design & Construction (BD&C) Reference Guide v3.0 (2009)

- Hard Copy \$150 ea. for USGBC members (\$185 nm)
 - Includes 1 month access to non-printable .pdf version that can be downloaded & saved
- E-Copy \$140 ea. For USGBC members (\$175 nm)
 - Includes 1 month access to .pdf version that can be downloaded, saved and printed (and shared)
- Order LEED BD&C Reference Guide(s) at
- www.usgbc.org/DisplayPage.aspx?CMSPageID=1970#2

Additional LEED 2009 References

LEED Green Building Rating System References

www.usgbc.org/DisplayPage.aspx?CMSPageID=1971

- Checklists
- Summaries of Rating Systems

Building Design & Construction

- **LEED-NC** for New Construction and Major Renovations
- **LEED-CS** for Core & Shell Development
- **LEED for Schools** for New Const. and Major Renov.

Operation & Maintenance

- Formerly LEED-EBOM for Existing Buildings: Operation & Maintenance

Interior Design & Construction

- Formerly LEED-CI for Commercial Interiors

There is no “S” in “LEED”

- Only buildings can become “LEED certified”
- Only people can become “LEED accredited”
- No products nor companies can *ever* become “LEED certified”
- Organizations can become USGBC members of national USGBC organization
 - \$1,000 annual membership for State agencies
- Individuals can become members of USGBC chapters
 - See www.usgbc-ncc.org for Northern CA events
 - \$75 for NCC if organization is national member
 - Non-members are welcome to attend events
 - For list of all USGBC Chapters, see:
www.usgbc.org/Chapters/ChapterList.aspx?CMSPageID=1751

LEED-NC / BD&C Evolution

Leadership in Energy & Environmental Design

- LEED-NC Version 2.0 published 2001
- LEED-NC Version 2.1 published 2002
- LEED-NC Version 2.2 published 2005
- LEED BD&C Version 3.0 published 2009
 - **April 27, 2009** – BD&C Launched
 - **June 26, 2009** – End of 60-day overlap period (new projects can register under LEED NC v2.2 or LEED BD&C v3.0 (2009))
 - **December 31, 2009** – Last day free migration period (currently registered projects can transition to v3.0 2009 without fee)

Future of LEED

- Updates likely every 3 years (2012 next)

LEED-NC/BD&C Comparison

	NC v2.2		BD&C (NC v2009)	
	Prereq.	Points	Prereq.	Points
Sustainable Sites	1	14	1	26
Water Efficiency		5	1	10
Energy & Atmosphere	3	17	3	35
		(incl. 2 req'd pts.)		
Materials & Resources	1	13	1	14
Indoor Environ. Quality	2	15	2	15
Innovation		5		6
Regional Points				4
Total Available Points	7	69	8	110
	Prereq.	Pts.	Prereq.	Pts.

LEED BD&C Rating System

	NC		Schools		CS	
	Pre.	Pts.	Pre.	Pts.	Pre.	Pts.
Sustainable Sites	1	26	2	24	1	28
Water Efficiency	1	10	1	10	1	10
Energy & Atmosphere	3	35	3	33	3	37
Materials & Resources	1	14	1	13	1	13
Indoor Environ. Quality	2	15	3	20	3	12
Innovation		6		6		6
Regional Points		4		4		4
Total Available Points	8	110	8	110	8	110
0	Pre.	Pts.	Pre.	Pts.	Pre.	Pts.

LEED BD&C - vs.- LEED-NC v2.2

Point System with 4 levels of certification:

	NC v2.2	BD&C v2009
1. LEED Certified	26-32 Points	40-49 Points
2. LEED Silver	33-38 Points	50-59 Points
3. LEED Gold	39-51 Points	60-79 Points
4. LEED Platinum	52-69 Points	80-110 Points



www.usgbc.org

www.gbci.org

Sustainable Sites

		v.2.2	NC	Schools	CS
		14 Pts	26 Pts.	24 Pts.	28 Pts.
Prereq 1	Construction Activity Pollution Prevention	Req'd	Req'd	Req'd	Req'd
Prereq 2	Environmental Site Assessment	NA	NA	Req'd	NA
Credit 1	Site Selection	1	1	1	1
Credit 2	Development Density & Community Connectivity	1	5	4	5
Credit 3	Brownfield Redevelopment	1	1	1	1
Credit 4.1	Alternative Transportation, Public Transp. Access	1	6	4	6
Credit 4.2	Alt. Transportation, Bike Storage & Changing Rms	1	1	1	2
Credit 4.3	Alt. Transportation, Low-Emitting & F.E. Vehicles	1	3	2	3
Credit 4.4	Alternative Transportation, Parking Capacity	1	2	2	2
Credit 5.1	Site Development, Protect or Restore Habitat	1	1	1	1
Credit 5.2	Site Development, Maximize Open Space	1	1	1	1
Credit 6.1	Stormwater Design, Quantity Control	1	1	1	1
Credit 6.2	Stormwater Design, Quality Control	1	1	1	1
Credit 7.1	Heat Island Effect, Non-Roof	1	1	1	1
Credit 7.2	Heat Island Effect, Roof	1	1	1	1
Credit 8	Light Pollution Reduction	1	1	1	1
Credit 9	Tenant Design & Construction Guidelines	NA	NA	NA	1
Credit 9	Site Masterplan	NA	NA	1	NA
Credit 10	Joint Use of Facilities	NA	NA	1	NA

SS P2: Environ. Site Assessment

1. Req'd. only for Schools

2. Intent

- Ensure site is assessed for environmental contamination
- If contaminated, remediate to protect children's health



3. Requirements

- a. Conduct Phase I Environmental Site Assessment (ESA)
- b. If contamination is suspected, conduct Phase II ESA
 - School sites contaminated as past landfill are ineligible
 - Contaminated sites must be remediated
 - Must meet local, state or federal standards & documented to prove safe.

SS Credit 2: Development Density & Community Connectivity

1. Credit for

- NC – 5 Points
- Schools – 4 Points
- CS – 5 Points

2. Design Phase Credit

- Aligns with LEED-O&M credit

3. Intent

- Channel development to urban areas w/ existing infrastructure
- Preserve natural habitats & greenfields



SS Credit 4.1: Public Transportation Access

1. Credit for

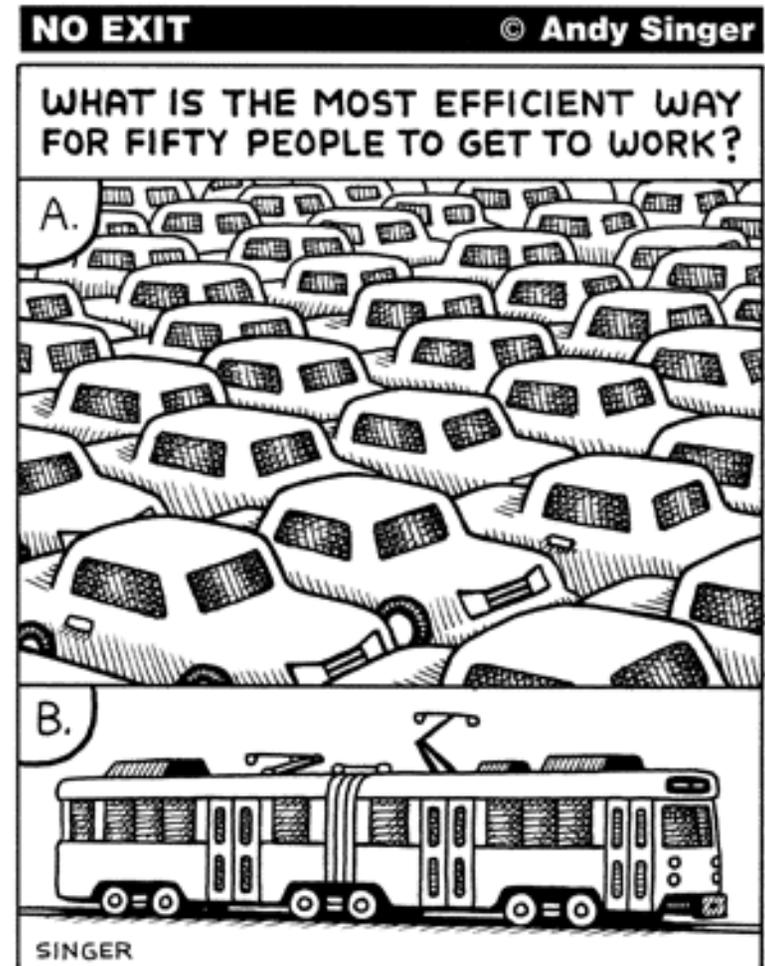
- NC – 6 Points
- Schools – 4 Points
- CS – 6 Points

2. Design Phase Credit

- Aligns with O&M credit

3. Intent

- Reduce pollution and land development impacts from automobile use.



SS Credit 4.1: Public Transportation Access

4. Requirements

- **Option 1: Rail Station Proximity**

- Locate project within $\frac{1}{2}$ mile walking distance of existing or planned and funded commuter rail, light rail or subway station.

– OR –

- **Option 2: Bus Stop Proximity**

- Locate project within $\frac{1}{4}$ mile walking distance of one or more stops for two or more public, campus or private bus lines usable by building occupants.
 - Schools can count school bus system as 1 line



SS Credit 4.1: Public Transportation Access

4. Requirements (cont.)

- **Option 3: Pedestrian Access for Schools**
- 80% of K-8 students within $\frac{3}{4}$ mile & 9-12 within 1 $\frac{1}{2}$ miles
- Provide dedicated walking or biking lanes from school building(s) to end of school property
 - In 2 or more directions

- **Exemplary Performance:**

1. Develop comprehensive Management Plan
2. Double transit ridership
 - 2 rails or 4 bus lines
 - (min. 200 total transit rides/day from stops)



SS Credit 4.2: Alternative Transportation Bicycle Storage & Changing Rooms

1. Credit for

- NC – 1 Point
- Schools – 1 Point
- CS – 2 Points



2. Design Phase Credit

3. Intent

- Reduce pollution and land development impacts from automobile use.

SS Credit 4.2: Alternative Transportation Bicycle Storage & Changing Rooms

4. Requirements: **CS**

- **Case 1** – Commercial or Inst. Projects $\leq 300,000$ s.f.
 - Secure bike racks and/or storage within 200 yds. of entrance for 3% of building users (annual calculated average) **–AND–**
 - Provide shower and changing facilities in bldg. or within 200 yds. for 0.5% of Full Time Equivalent (FTE) occupants.
- **Case 2** – Commercial or Inst. Projects $> 300,000$ s.f.
 - Secure bike racks and/or storage within 200 yds. of entrance for 3% of building users for first 300K s.f. of bldg. + for 0.5% of addtl. occupants over 300K s.f. **–AND–**
 - Provide shower and changing facilities in bldg. or within 200 yds. for 0.5% of Full Time Equivalent (FTE) occupants.

SS Credit 4.2: Alternative Transportation Bicycle Storage & Changing Rooms

4. Requirements: **Schools**

- Secure bike racks and/or storage within 200 yds. of entrance for 5% of building staff & students above 3rd grade (peak periods) – **AND** –
- Provide shower and changing facilities in bldg. or within 200 yds. for 0.5% of Full Time Equivalent (FTE) staff – **AND** –
- Provide dedicated bike lanes to end of school property in 2 or more directions without barriers



SS Credit 4.3: Alternative Transportation Low Emitting & Fuel Efficient Vehicles

1. Credit for

- NC – 3 Points
- Schools – 2 Points
- CS – 3 Points

2. Design Phase Credit

3. Intent

- Reduce pollution and land development impacts from automobile use.



SS Credit 4.3: Alternative Transportation Low Emitting & Fuel Efficient Vehicles

4. Requirements

- **Option 1: (for NC & CS)** – Provide preferred parking for low-emitting & fuel efficient (LE/FE) vehicles
 - For 5% of total site parking capacity
 - Also acceptable is discounted parking rates (min. 20% for all customers) for at least 2 yrs.
 - Schools also to provide 1 designated carpool drop-off area for LE/FE vehicles



**LOW-EMITTING
FUEL-EFFICIENT
VEHICLE PARKING ONLY**

SS Credit 4.3: Alternative Transportation Low Emitting & Fuel Efficient Vehicles

4. Requirements

- **Option 2: (for NC & CS)** – Install alternative-fuel refueling stations
 - For 3% of total site parking capacity
- **(for Schools)**
 - Implement plan for buses and maintenance vehicles to use 20% CNG, propane or biodiesel or to be LE/FE vehicles



SS Credit 4.4: Alternative Transportation Parking Capacity

1. Credit for **2 Points** for NC, Schools & CS
2. Design Phase Credit
3. Intent
 - Reduce pollution and land development impacts from automobile use.



SS Credit 9: Tenant Design & Construction Guidelines

1. Credit only for CS
2. Design Phase Credit
3. Intent
 - Educate tenants about implementing sustainable design and construction features in their tenant improvement build-out



SS Credit 9: Tenant Design & Construction Guidelines (CS)

4. Requirements/Documentation (for CS only)

- Publish an illustrated document that provides tenants with design & construction information:
 - Description of sustainable features in core & shell project & goals of project, including those for tenant spaces
 - Info on LEED for Interior Design & Construction (ID&C) & how the CS building contributes to achieving these credits
 - Recommendations, including examples, for sustainable strategies, materials, products & services
 - Info enabling tenants to coordinate space design & const. with core & shell bldg. systems & specific applicable ID&C credits:
 - Water use reduction
 - Optimize energy performance
 - Energy use & metering
 - Measurement & verification, etc., etc., etc.

SS Credit 9: Site Master Plan

1. Credit only for Schools

2. Design Phase Credit

3. Intent

- Ensure that the environmental site issues included in the initial development of site and project are continued throughout future development caused by changes in programs or demography.



SS Credit 9: Site Master Plan (Schools)

4. Requirements/Documentation (Schools only)

- Project must achieve at least 4 of 7 credits:
 1. SS-Credit 1: Site Selection
 2. SS Credit 5.1: Site Development – Protect or Restore Habitat
 3. SS Credit 5.2: Site Development – Maximize Open Space
 4. SS Credit 6.1: Stormwater Design – Quantity Control
 5. SS Credit 6.2: Stormwater Design – Quality Control
 6. SS Credit 7.1: Heat Island Effect – Nonroof
 7. SS Credit 8: Light Pollution Reduction
- Achieved credits req'd to be recalculated using masterplan
- Site Master Plan developed in collaboration w/ School Bd.
 - Previous sustainable measured should be considered in Plan
 - Must include current const. activity plus future construction that affects site.
 - Must also include parking, paving & utilities

SS Credit 10: Joint Use of Facilities (Schools)

1. Credit only for Schools

2. Design Phase Credit

3. Intent

- Make the school a more integrated part of the community by enabling the building and its playing fields to be used for non-school events and functions.



SS Credit 10: Joint Use of Facilities (Schools)

4. Requirements/Documentation

- **Option 1** – In collaboration w/ school board, ensure that at least 3 of the following spaces included in the school are accessible & available by the general public:
 - Auditorium
 - Gymnasium
 - Cafeteria/cafeterium
 - 1 or more classrooms
 - Playing fields
 - Joint parking

Provide separate entry for spaces intended for joint use

- Can be from a school lobby or corridor accessible after normal business hours & with toilets available

- OR -

SS Credit 10: Joint Use of Facilities (Schools)

4. Requirements/Documentation

- **Option 2** – In collaboration w/ school board, engage in a contract with community or other organizations to provide at least 2 dedicated-use spaces in the building:
 - Commercial office
 - Health clinic
 - Community service centers (state, city or county offices)
 - Police offices
 - Library or media center
 - Parking lot
 - One or more commercial sector businesses

Provide separate entry for spaces intended for joint use

- Can be from a school lobby or corridor accessible after normal business hours & with toilets available

- OR -

SS Credit 10: Joint Use of Facilities (Schools)

4. Requirements/Documentation

- **Option 3** – In collaboration w/ school board, ensure that at least 2 of the following 6 spaces that are owned by other organizations/agencies are accessible to students:
 - Auditorium
 - Gymnasium
 - Cafeteria/cafetorium
 - 1 or more classrooms
 - Playing fields
 - Joint parking
- Provide direct ped. access to these spaces from the school.
- Provide signed agreements w/ other organizations or agencies stipulating how spaces will be shared.

Water Efficiency

		v2.2	NC	Schools	CS
		5 Pts.	10 Pts.	10 Pts.	10 Pts.
Prereq 1	Water Use Reduction, 20% Reduction	1	Req'd	Req'd	Req'd
Credit 1.1	Water Effic. Landscaping, Reduce by 50%	1	2	2	2
Credit 1.2	Water Effic. Landsc., No Potable Use or No Irrig.*	1	2	2	2
Credit 2	Innovative Wastewater Technologies	1	2	2	2
Credit 3 .1	Water Use Reduction, 30%	1	2	2	2
Credit 3 .2	Water Use Reduction, 35%* (points cumulate)	NA	1	1	1
Credit 3 .3	Water Use Reduction, 40%* (points cumulate)	EP	1	1	1
Credit 4	Process Water Use Reduction, 20%	NA	NA	1	NA



Water Efficient Landscaping

1. **2-4 points available** for NC, Schools & CS
2. Design Phase Credit
3. Intent
 - Limit or eliminate the use of potable water, or other natural surface or subsurface water available on or near the project site for landscape irrigation.



Water Use Reduction

4. Requirements

- Employ strategies that combined use less water than calculated building baseline (excluding irrigation)



WE Prereq. 1	20% reduction	Required
WE Credit 3	30%	2 Points
	35%	3 Points
	40%	4 Points

* Exemplary Performance for 45% reduction

Water Use Reduction

Commercial Fixture	Baseline Water Use
Toilets	1.6 gallons per flush (gpf) Blow-out fixtures 3.5 gpf
Urinals	1.0 gpf
Lavatory faucets	2.2 gallons per min. (gpm) guest/patient rms. 0.5 gpm @ 60 psi – all others except private 0.25 gal./cycle for metering faucets
Prerinse (food service)	≤ 1.6 gpm

Referenced Standards

- Energy Policy Act (EPAAct) of 1992
- Energy Policy Act (EPAAct) of 2005
- IAPMO/ANSI UPC 1-2006, Section 402.0
- ICC, IPC 2006, Section 604

Water Use Reduction

4. Requirements (cont.)

Residential Fixture	Baseline Water Use
Toilets	1.6 gpf
Lavatory faucets	1.0 gpf
Lavatory faucets Kitchen faucets	2.2 gpm @ 60 psi
Showerheads	2.5 gpm @ 80 psi

Excluded fixtures & appliances

- Dishwashers (commercial & residential)
- Automatic commercial ice makers
- Clothes washers (commercial & residential)
- Commercial steam cookers
- Can be used for exemp. performance calcs for SS c3

Water Use Reduction

6. Documentation

- Can enter several fixture usage groups if different types of occupants use facilities
 - Example: Hotel may have 3 fixture use groups:
 1. Restaurant customers & staff
 2. Administration (back of house)
 3. Guest rooms (hotel guests)
- Can use default fixture use values for different occupancy types
 - See Reference Guide, page 171

$$\text{Water Savings} = \frac{\text{Design Case Water Use}}{\text{Baseline Water Use}}$$

WE Credit 2: Innovative Wastewater Technologies

1. Credit **worth 2 points** for NC, Schools & CS
2. Design Phase Credit
3. Intent
 - Reduce wastewater generation and potable water demand, while increasing the local aquifer recharge



WE Credit 4: Process Water Use Reduction

1. Credit worth **1 point only for Schools**
2. Design Phase Credit
3. Intent
 - Maximize water efficiency within buildings to reduce burden on municipal water supply and wastewater systems.



WE Credit 4: Process Water Use Reduction

3. Requirements – Buildings must have

- No refrigeration equipment using once-through cooling with potable water
- No garbage disposals
- At least 4 process items where water use is at or below levels shown in table (page 207)
 - Any equipment not shown must document a 20% reduction in water use from benchmark or industry standard

Equip. Type	Max. Water Use	Other Req'm'ts.
Clothes washers	7.5 gallons/cu. ft./cycle	(com. CEE Tier3a, res. CEE Tier 1)
Dishwashers w/ racks	1.0 gallons/rack	
Ice machines (CEE Tier 3)	>175 lb/day - 20 gal./100 lb <175 lb/day - 30 gal./100 lb	No water-cooled machines
Food Steamers	2 gallons/hour	Boilerless only
Prerinse spray valves	1.4 gallons per minute	

★ Innovation: 40% reduction in process water use

WE Credit 4: Process Water Use Reduction

4. Strategies & Implementation

- Addresses water use in equipment not included in other WE credits
 - Dishwashers
 - Clothes washers
 - Ice machines
 - Food steamers
 - Prerinse valves
 - Others achieving 20% reduction
- Garbage disposals & refrigeration equip. w/ once-through cooling w/ potable water cannot earn credit



WE Credit 4: Process Water Use Reduction

5. Documentation

- Submit documents showing:
 - Manufacturer
 - Model
 - Water consumption rates
- Assemble info on baseline water use (based on industry standard) or benchmarks for non-listed equipment



Energy & Atmosphere

	v2.2	NC	Schools	CS
	17 Pts	35 Pts	33 Pts.	37 Pts
Prereq 1 Fundam. Commissioning of the Bldg. Energy Syst.	Req'd	Req'd	Req'd	Req'd
Prereq 2 Min. Energy Performance: 10% (N) or 5% (E) Bldg.	Req'd	Req'd	Req'd	Req'd
Prereq 3 Fundamental Refrigerant Management	Req'd	Req'd	Req'd	Req'd
Credit 1 Optimize Energy Perf. 12-48% (N) Or 8-44% (E) Ren.	1-10	1 to 19	1 to 19	3 to 21
Credit 2 On-Site Renewable Energy 1-13% Renewable Energy	1-3	1 to 7	1 to 7	4
Credit 3 Enhanced Commissioning	1	2	2	2
Credit 4 Enhanced Refrigerant Management	1	2	1	2
Credit 5 Measurement & Verification	1	3	2	NA
Credit 5.1 Measurement & Verification, Base Building	NA	NA	NA	3
Credit 5.2 Measurement & Verification, Tenant Submetering	NA	NA	NA	3
Credit 6 Green Power	1	2	2	2



EA Prereq. 2: Min. Energy Performance

4. Requirements

- **Option 1: Whole Building Energy Simulation**
- 10% better for new buildings; 5% for existing bldg. renov's
 - Calculate baseline building performance rating from **ANSI/ASHRAE/IESNA Standard 90.1-2007 Appendix G**
 - Comply w/ mandatory provisions (5.4, 6.4, 7.4, 8.4, 9.4, 10.4)
 - Include all energy costs assoc. w/ building project
 - Default process energy cost is 25% of total energy cost
 - Process energy is from computers, elevators, equip., kitchen cooking & refrigeration, laundry, exempt lighting (medical)
 - Regulated (non-process) energy includes HVAC, all lighting (int./ext., parking lot & garage, grounds), water heating
 - Process loads must be identical for baseline & design loads
 - **In California, use Title 24-2005, Part 6**
- Schools must establish energy goal using EPA's Target Finder rating tool

EA Credit 1: Optimize Energy Performance

1. Credits for

- NC – 1-19 Points
- Schools – 1-19 Points
- CS – 3-21 Points

2. Design Phase Credit

- Aligns with LEED-EB credit

3. Intent

- Achieve increasing levels of energy performance beyond prerequisite standard to reduce environmental & economic impacts associated with excessive energy use.



EA Credit 1: Optimize Energy Performance

4. Requirements

- **Option 1: Whole Building Energy Simulation**
- Demonstrate % improvement over baseline building performance rating from
 - **ANSI/ASHRAE/IESNA Standard 90.1-2007 Appendix G**
 - Comply w/ mandatory provisions (5.4, 6.4, 7.4, 8.4, 9.4, 10.4)
 - Include all energy costs assoc. w/ building project
 - Default process energy cost is 25% of total energy cost
 - Process energy is from computers, elevators, equip., kitchen cooking & refrigeration, laundry, exempt lighting (medical)
 - Regulated (non-process) energy includes HVAC, all lighting (int./ext., parking lot & garage, grounds), water heating
 - Process loads must be identical for baseline & design loads
 - **In California, use Title 24-2005, Part 6**
- Schools must establish energy goal using EPA's Target Finder rating tool

New Bldgs	Exist. Bldg. Renov's	Pts. (NC & Schools)	Pts. (CS)
12%	8%	1	3
14%	10%	2	4
16%	12%	3	5
18%	14%	4	6
20%	16%	5	7
22%	18%	6	8
24%	20%	7	9
26%	22%	8	10
28%	24%	9	11
30%	26%	10	12
32%	28%	11	13
34%	30%	12	14
36%	32%	13	15
38%	34%	14	16
40%	36%	15	17
42%	38%	16	18
44%	40%	17	19
46%	42%	18	20
48%	44%	19	21
50%	46%	*Innovation Credit Available	

EA Credit 1: Optimize Energy Performance

4. Requirements

- **Option 2: Prescriptive Compliance Path (1 Point):**
(ASHRAE Advanced Energy Design Guide)
 - **PATH 1 - ASHRAE Advanced Energy Design Guide for Small Office Buildings 2004**
 - Office occupancies less than 20,000 sq. ft.
 - **PATH 2 - ASHRAE Advanced Energy Design Guide for Small Retail Buildings 2006**
 - Retail occupancies less than 20,000 sq. ft.
 - **PATH 3 - ASHRAE Advanced Energy Design Guide for Small Warehouses and Self Storage Buildings 2008**
 - Warehouse or self-storage occupancies less than 50,000 s.f.
 - **Schools: Advanced Energy Design Guide for K-12 School Bldgs.**
 - Comply w/criteria for climate zone
 - For projects less than 200,000 sq. ft.

EA Credit 1: Optimize Energy Performance

4. Requirements

- **Option 3: Prescriptive Compliance Path (1-3 Points):**

Advanced Buildings Core Performance Guide

- Only for buildings less than 100,000 sq. ft.
- Comply w/ Section 1: Design Process Strategies, & Section 2: Core Performance Requirements

1 Point - Office, school, public assembly and retail projects <100,000 sq. ft. must comply w/ Sections 1 & 2 of Core Performance Guide

- Other project types <100,000 sq. ft. implement basic reqm'ts of the Core Performance Guide
- Health care, warehouse and laboratory projects are ineligible

Up to 2 additional Points available implementing Section 3 strategies:

- Enhanced Performance (1 point available for every 3 strategies)
- Cannot include strategies addressed in other LEED credits:
 - 3.1 – Cool Roofs
 - 3.8 – Night Venting
 - 3.13 – Additional Commissioning

EA Prereq. 3: Fund. Refrigerant Mgmt.

5. Strategies & Implementation

- For new buildings:
 - Standard practice does not use CFC refrigerants for new HVAC&R equipment & fire suppressant systems in the base buildings
- When reusing existing HVAC systems, or served by existing central plant:
 - Replace or retrofit any CFC-based refrigerants in HVAC&R equipment & fire suppressant systems in the base buildings
 - If bldg. is connected to existing chilled water system, it must be CFC-free or have planned phase out within 5 years.
 - **Alt. compliance for bldgs connected to chilled water system, if economic analysis shows replacement or conversion not feasible**
 - **Not feasible if simple payback > 10 years (3-party)**
 - **Reduce annual leakage of CFC-based refrigerants to 5% or less (EPA Clean Air Act, Title VI, Rule 608)**
 - Choose refrigerants w/ short env. Lifetimes, small ozone-depleting potential & small global warming potential values
 - Details pp 253-254

EA Credit 4: Enhanced Refrigerant Management

1. Credits for

- NC – 2 Points
- Schools – 1 Point
- CS – 2 Points

2. Design Phase Credit

3. Intent

- Reduce ozone depletion and support early compliance with the Montreal Protocol while minimizing direct contributions to climate change.



EA Cr 2: On-Site Renewable Energy

3 Points Possible

1. Credits for

- NC – 1-7 Points
- Schools – 1-7 Points
- CS – 4 Points

2. Design Phase Credit

3. Intent

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



EA Cr 2: On-Site Renewable Energy Points Available

% Renewable Energy	Pts (NC & Schools)	Pts (CS)
1%	1	4
3%	2	NA
5%	3	Exemp. Perf.
7%	4	NA
9%	5	NA
11%	6	NA
13%	7	NA
15%	Exemp. Perf.	NA

EA Cr 2: On-Site Renewable Energy

5. Strategies & Implementation

- Assess the project for on-site renewable energy potential and consider:
 - Photovoltaic or Solar thermal
 - Geothermal heating or electric
 - Wind energy
 - Biofuel-based electric
 - Untreated wood waste, incl. mill residues
 - Agricultural crops or waste
 - Animal waste or other organic waste
 - Landfill gas
 - Low-impact hydroelectric power system
 - Wave & tidal power
- Take advantage of net metering with the local utility

EA Cr 2: On-Site Renewable Energy

5. Strategies & Implementation

- Does not include
 - Passive solar
 - Daylighting
 - Geo-exchange (ground-source heat pumps)
- Energy from bio-fuels are not eligible if:
 - Combustion of municipal solid waste
 - Forestry biomass waste other than mill residue
 - Wood coated w/ paints, plastics or formica
 - Treated woods containing hologens, chlorine or halide compounds, chromated copper arsenate or arsenic (1% max.)

EA Credit 3: Enhanced Commissioning (Cx) of the Building Energy Systems

1. Credit **worth 2 points** for NC, Schools & CS
2. Construction Phase Credit
3. Intent
 - Begin the commissioning process early in the design process and execute additional activities after systems performance verification is completed.



EA Cr 5: Measurement & Verification

1. Credits for

- NC – 3 Points
- Schools – 2 Point
- CS – 1 Point EA c5.1 +
3 Points EA c5.2

2. Construction Phase Credit

3. Intent

- Provide for the ongoing accountability of building energy consumption over time.



EA Credit 6 – Green Power

1. Credit **worth two points** for NC, Schools & CS
2. Construction Phase Credit
 - Aligns with LEED O&M credit
3. Intent
 - Encourage the development and use of grid-source, renewable energy technologies on a net zero pollution basis.



EA Credit 6 – Green Power

4. Requirements

- $\geq 35\%$ of the building's electricity from renewable sources
 - Min. 2-year renewable energy contract
 - As defined by the Center for Resource Solutions (CRS) Green-e or equivalent source
- School districts can purchase green power on centralized basis & allocate to a specific project
- CS building's elect. defined as use of CS sq. ft. defined by BOMA standards (min. 15%)
- Determine baseline electricity use
 - **Option 1: annual electricity use from EA Credit 1**
 - **Option 2: Green power, based on default elect. consumption** – see DOE Commercial Buildings Energy Consumption Survey (CBECS) database



* Exemplary performance avail. For 100% of elect.

Materials & Resources

		v2.2	NC	Schools	CS
		13 Pts	14 Pts	13 Pts.	13 Pts.
Prereq 1	Storage & Collection of Recyclables	Req'd	Req'd	Req'd	Req'd
Credit 1.1	Building Reuse, Maintain % (E) Walls, Floors & Roof	2	1 to 3	1 to 2	1 to 5
	<input type="checkbox"/> Bldg. Reuse, Maintain % (E) Walls, Floors & Roof	NA	1 - 55%	1 - 75%	1 - 25%
	<input type="checkbox"/> Bldg. Reuse, Maintain % (E) Walls, Floors & Roof	1	1 - 75%	1 - 95%	1 - 33%
	<input type="checkbox"/> Bldg. Reuse, Maintain % (E) Walls, Floors & Roof	1	1 - 95%	NA	1 - 42%
	<input type="checkbox"/> Bldg. Reuse, Maintain % (E) Walls, Floors & Roof	NA	NA	NA	1 - 50%
	<input type="checkbox"/> Bldg. Reuse, Maintain % (E) Walls, Floors & Roof	NA	NA	NA	1 - 75%
Credit 1.2	Bldg. Reuse, Maintain 50% of Int. Non-Struct. Elem.	1	1	1	NA
Credit 2.1	Construction Waste Mgmt., Divert 50% from Disp.	1	1	1	1
Credit 2.2	Construction Waste Mgmt., Divert 75% from Disp.	1	1	1	1
Credit 3.1	Materials Reuse, 5%	1	1	1	1
Credit 3.2	Materials Reuse, 10%	1	1	1	NA
Credit 4.1	Recyc. Content, 10% (post-consum + ½ pre-consum)	1	1	1	1
Credit 4.2	Recyc. Content, 20% (post-consum + ½ pre-consum)	1	1	1	1
Credit 5.1	Regional Matls., 10% Extracted, Proc'd. & Manuf,d.	1	1	1	1
Credit 5.2	Regional Matls., 20% Extracted, Proc'd. & Manuf'd.	1	1	1	1
Credit 6	Rapidly Renewable Materials, 2.5%	1	1	1	NA
Credit 6	Certified Wood, 50% (diff. credit # for Core & Shell)	NA	NA	NA	1
Credit 7	Certified Wood, 50%	1	1	1	NA

Materials & Resources

See LEED BD&C v2009 Reference Guide

- Pages 335-400
- MR Credit Metrics - Table 1 (page 337)

Material	MRc1 Building Reuse	MRc2: Construction Waste Mgmt.	MRc3: Materials Reuse	MRc4: Recycled Content	MRc5: Regional Materials	MRc6: Rapid Renew. Matls	MRc7: Certified Wood
CSI Divisions 3-10	Based on Area	Based on weight or volume, include construction & demolition waste	Based on replacement value (\$)	Based on cost of qualifying materials as a percent of overall materials cost for Divisions 3-10 (\$)			Based on cost of FSC wood as % of all new wood
Mechanical	Not available for these items		Not available for these items				
Electrical							
Plumbing							
Furniture & Furnishings (CSI Div. 12)		May be included with Divisions 3-10, if done consistently for credits 3-7					

Recycling Area Guidelines (recommended)

Commercial Building (sf)	Minimum Recycling Area (sf)
0 to 5,000	82
5,001 to 15,000	125
15,001 to 50,000	175
50,000 to 100,000	225
100,000 to 200,000	275
200,001 or greater	500



MR Cr 1: Building Reuse

MR c1.1 Maintain Exist. Walls, Floors & Roof

- NC – 1-3 Points
- Schools – 1-2 Points
- CS – 1-5 Points (MR c1)



MR c1.2 Maintain Int. Non-Struct. Elements

- NC – 1 Point
- Schools – 1 Point
- CS – Not Available

2. Const. Phase Credits

3. Intent

- Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.

MR Cr 1.1: Building Reuse: Maintain Existing Walls, Floors & Roof

4. Requirements - Credit MR Cr. 1.1

- Maintain the existing building structure
 - structural floor and roof decking
- And envelope
 - Exterior skin and framing
 - Excluding window assemblies
 - Excluding non-structural roofing material
 - Based on surface area
- Hazardous materials remediated as a part of project excluded from calculation of % maintained
- Not applicable for additions that are:
 - ≥ 2 times the existing building s.f. for NC & Schools
 - ≥ 6 times the existing building s.f. for Core & Shell



MR Cr 1.1: Building Reuse: Maintain Existing Walls, Floors & Roof

4. Requirements - Credit MR Cr. 1.1

Building Reuse			Points
NC	Schools	CS	
55%	75%	25%	1
75%	95%	33%	2
95%	NA	42%	3
NA	NA	50%	4
NA	NA	75%	5



* Exemplary Performance for CS reusing 95%

Indoor Environ. Quality

		v2.2	NC	Schools	CS
		15 Pts.	15 Pts.	20 Pts.	12 Pts.
Prereq 1	Minimum IAQ Performance	Req'd	Req'd	Req'd	Req'd
Prereq 2	Environmental Tobacco Smoke (ETS) Control	Req'd	Req'd	Req'd	Req'd
Prereq 3	Minimum Acoustical Performance	NA	NA	Req'd	NA
Credit 1	Outdoor Air Delivery Monitoring	1	1	1	1
Credit 2	Increased Ventilation	1	1	1	1
Credit 3.1	Construction IAQ Management Plan, During Construction	1	1	1	1
Credit 3.2	Construction IAQ Management Plan, Before Occupancy	1	1	1	NA
Credit 4	Low-Emitting Materials	1 to 4	1 to 4	4 max*	1 to 4
	<input type="checkbox"/> Credit 4.1: Low-Emit. Mat'ls, Adhesives & Sealants	1	1	1*	1
	<input type="checkbox"/> Credit 4.2: Low-Emit. Mat'ls, Paints & Coatings	1	1	1*	1
	<input type="checkbox"/> Credit 4.3: Low-Emit. Mat'ls, Flooring Systems	1	1	1*	1
	<input type="checkbox"/> Credit 4.4: Low-Emit. Mat'ls, Comp. Wd & Ag. Products	1	1	1*	1
	<input type="checkbox"/> Credit 4.5: Low-Emit. Mat'ls, Furniture and Furnishings	NA	NA	1*	NA
	<input type="checkbox"/> Credit 4.6: Low-Emit. Mat'ls., Ceiling and Wall Systems	NA	NA	1*	NA
Credit 5	Indoor Chemical & Pollutant Source Control	1	1	1	1
Credit 6.1	Controllability of Systems, Lighting	1	1	1	NA
Credit 6.2	Controllability of Systems, Thermal Comfort	1	1	1	1-C6
Credit 7.1	Thermal Comfort, Design	1	1	1	1-C7
Credit 7.2	Thermal Comfort, Verification	1	1	1	NA
Credit 8.1	Daylight & Views, Daylight 75% of Spaces	1	1	1 to 3	1
Credit 8.2	Daylight & Views, Views for 90% of Spaces	1	1	1	1
Credit 9	Enhanced Acoustical Performance	NA	NA	1	NA
Credit 10	Mold Prevention	NA	NA	1	NA

EA Prereq. 3: Min. Acoustical Performance

1. Required for Schools only
2. Design Phase Requirement
3. Intent
 - Provide classrooms that are quiet so that teachers can speak to the class without straining their voices and students can effectively communicate with each other and the teacher.



EA Prereq. 3: Min. Acoustical Performance

4. Requirements

- Design classrooms and other core learning spaces to include sufficient sound-absorptive finishes
 - For compliance with reverberation time requirements of ASI S12.60-2002
- Achieve a max. background noise level of 45 dBA from HVAC systems in classrooms & core learning spaces

– AND –



EA Prereq. 3: Min. Acoustical Performance

4. Requirements (cont.)

Case 1 – Classrooms & core learning spaces <20,000 sq. ft.

- **Option 1** – Confirm that 100% of ceiling areas in all classrooms & core learning spaces are finished with materials w/ Noise Reduction Coefficient (NRC) ≥ 0.70
 - Excluding lights, diffusers & grilles
- OR –
- **Option 2** - Confirm that total area of acoust. wall panels, clg. finishes and other sound absorbent finishes \geq clg. area
 - Finish with materials rated NRC ≥ 0.70

Case 2 – Classrooms & core learning spaces $\geq 20,000$ sq. ft.

- Confirm through ANSI S12.60-2002 calculations that all classrooms and core learning spaces $> 20,000$ cu. ft. are designed with a reverberation time of 1.5 seconds or less

EA Prereq. 3: Min. Acoustical Performance

5. Strategies & Implementation

- Reduce background noise
 - Don't install fans, compressors or other noisy HVAC equipment in or near classrooms, libraries & or other core learning spaces
 - Select quieter HVAC equipment
 - Isolate HVAC & other noise
 - Use acoustical liners in ductwork
 - Insulated windows, solid doors, gaskets
- Reduce reverberation
 - Reverberation time (RT) is the time to decay by 60 dB after a sound has stopped
 - Calculate using room volume, interior surface area (sq. ft.), sound absorption coefficient for each interior surface & Surface area of interior fixed elements (see table page 429)
 - Place absorptive materials opposite hard reflective surfaces (ceiling & high on walls)

EA Prereq. 3: Min. Acoustical Performance

6. Documentation

CASE 1 – NOISE REDUCTION COEF. & CLG. AREA

- If volume of core learning spaces <20,000 cu. ft.:
 - Document 100% of ceiling area meeting NRC of 0.70 or higher
 - Calculate total ceiling area (less lights, diffusers, etc.) and document that equiv. or greater ceiling & wall areas meet 0.70

CASE 2 – REVERBERATION TIME

- If volume of core learning spaces \geq 20,000 cu. ft.:
 - Calculate reverberation time (RT) to be less than 1.5 seconds
 - Calculate separately for 500, 1000 & 2,000 Hz frequencies
 - Determine sound absorption coefficient for each material in space @ the three frequencies (attach manuf. Data)
 - Table page 429 shows coefficients for common materials

EA Prereq. 3: Min. Acoustical Performance

6. Documentation

CASE 2 – REVERBERATION TIME (cont.)

Equation 1: Sound absorption for room

$$A = (a_1s_1 + a_2s_2 + a_3s_3 + \dots + a_ns_n)$$

a_1 = sound absorption coefficient for material @ 500, 1000 or 2000 Hz

s_1 = total surface area for material (sq. ft.)

- Include all finish surfaces in room
- Equation 1 must be calculated separately at each frequency

Equation 2: Reverberation time for room

$$RT = 0.049 \times V/A$$

V = room volume (cu. ft.)

A = total sound absorption in room @3 frequencies (Equation 1)

- All three reverberation times must meet specified RT (1.5 seconds)
- See example calcs pages 431-432

EQ Credit 3.1: Construction IAQ Management Plan: During Construction

5. Strategies & Implementation

- Adopt an IAQ mgmt. plan prior to start of construction & include as regular agenda item at const. meetings:
 - a) HVAC:
 - When possible, avoid use during demolition and construction to avoid contamination (try temp. ventilation)
 - Protect ductwork & HVAC openings from dust & moisture
 - Use MERV 8 filters, if air handlers used during construction & replace before occupancy.
 - b) Source Control:
 - Specify finish materials w/ low or no toxicity levels when possible
 - Specify control measures for materials containing VOC's
 - Isolate and ventilate containers w/ toxic materials
 - Avoid or exhaust fumes from vehicles and gas-fueled tools to exterior of building

EQ Credit 3.1: Construction IAQ Management Plan: During Construction

5. Strategies & Implem. – IAQ Mgmt. Plan (cont.)

c) Pathway Interruption:

- During const. isolate areas of work to prevent contamination, provide temporary barriers as applicable
- Weather permitting, ventilate 100% outside air during VOC emitting material installation
- Consider depressurizing work area to better contain dust

d) Housekeeping

- Institute cleaning activities to control contaminants in building space during construction
- Protect all porous materials from moisture and contamination
- Use vacuum cleaners with high-efficiency particulate filters, and wetting agents for dust

EQ Credit 3.1: Construction IAQ Management Plan: During Construction

5. Strategies & Implem. – IAQ Mgmt. Plan (cont.)

e) Scheduling:

- Coordinate const. activities to minimize or eliminate disruption from occupied portions of building
- Sequence activities to minimize impact on IAQ
- Plan adequate time to flush out
- Replace filtration media prior to occupancy

f) Core & Shell

- Coordinate IAQ management plans w/ tenant TI's & management plans when applicable
- Consider minimalizing cross contamination of existing tenant spaces by TI construction

EQ Credit 3.1: Construction IAQ Management Plan: During Construction

6. Documentation

- Contractor to upload IAQ Management Plan & initial that it was developed & implemented
 - Plan to address IAQ during construction & meet SMACNA IAQ guidelines
 - Plan includes control measures in at least these areas:
 - a) HVAC
 - b) Source control
 - c) Pathway interruption
 - d) Housekeeping
 - e) Scheduling

EQ Credit 3.2: Construction IAQ Management Plan: Before Occupancy

4. Requirements:

- **OPTION 2 – Air Testing:**

- Conduct baseline IAQ testing after construction, prior to occupancy using testing protocols per *EPA Compendium of Methods for the Determination of Air Pollutants in Indoor Air*.
- Demonstrate the contaminant maximum construction concentrations listed below are not exceeded:

CONTAMINANT	MAXIMUM CONCENTRATION
Formaldehyde	27 parts per billion (previously 50 ppb)
Particulates (PM10)	50 micrograms per cubic meter
Total VOC's (TVOC)	500 micrograms per cubic meter
* 4-Phenylcyclohexene (4-PCH)	6.5 micrograms per cubic meter, req'd when using carpets & fabrics w/ styrene butadiene rubber (SBR) latex backing
Carbon Monoxide (CO)	9 part per million and no greater than 2 parts per million above outdoor levels

EQ Credit 4: Low-Emitting Materials

Building Types	NC	Schools	CS
Points Available	1 to 4	4 max*	1 to 4
Cr. 4.1: Low-Emit. Mat'ls, Adhesives & Sealants	1	1*	1
Cr. 4.2: Low-Emit. Mat'ls, Paints & Coatings	1	1*	1
Cr. 4.3: Low-Emit. Mat'ls, Flooring Systems	1	1*	1
Cr. 4.4: Low-Emit. Mat'ls, Comp. Wd & Ag. Products	1	1*	1
Cr. 4.5: Low-Emit. Mat'ls, Furniture and Furnishings	NA	1*	NA
Cr. 4.6: Low-Emit. Mat'ls., Ceiling and Wall Systems	NA	1*	NA

Schools have two additional material categories from which to earn 4 points total

EQ Credit 4.3: Low-Emitting Materials: Flooring Systems

1. 1 point for NC, Schools & CS
2. Design Phase Credit
3. Intent
 - Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.



EQ Credit 4.3: Low-Emitting Materials: Flooring Systems

4. Requirements

- All carpet installed in the building interior shall meet the testing and product requirements of the Carpet and Rug Institute's **(CRI) Green Label Plus** program.
- All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.
- All carpet adhesive shall meet the requirements of EQ Credit 4.1: VOC limit of 50 g/L
- All hard surface flooring must be certified compliant with **FloorScore** (or more stringent) by ind. 3rd party
 - Vinyl, linoleum, laminate, wood, ceramic, rubber (& wall base)
 - Alt. compliance path: 100% non-carpet finished flooring
FloorScore certified & constituting 25% min. of total fin. floor area

EQ Credit 4.3: Low-Emitting Materials: Flooring Systems

4. Requirements

- Concrete, wood, bamboo and cork floor finishes such as sealer, stain and finish must meet requirements of SCAQMD Rule 113 (see EQ cr. 4.2)
- Tile setting adhesives and grout must meet SCAQMD Rule 1168 (see EQ cr. 4.1)
- School building flooring elements also required to meet CA DHS Standard Practice for Testing Volatile Organic Emissions (01350)



EQ Credit 4.3: Low-Emitting Materials: Flooring Systems

5. Strategies & Implementation

- Clearly specify requirements for product testing and/or certification in the construction documents.
- Select carpet products **Green Label Plus** certified, which also meet CA Section 01350 requirements
- All carpet purchased for State of California buildings must meet **California Gold Sustainable Carpet Standard**
 - Meets Green Label Plus, and other environmentally preferable criteria (incl. min. 10% post-consumer recycled content)
 - Can contribute toward innovation credit for EPP materials
 - See www.green.ca.gov/EPP/Standards
 - Transitioning to **ANSI/NSF 140-2007 Platinum** certif. (also meets criteria)

EQ Credit 4.3: Low-Emitting Materials: Flooring Systems

5. Strategies & Implementation

- Specify hard surface or resilient flooring that is **FloorScore** (or more stringent) certified by indep. 3rd party
- Specify any wood floor finishes to also comply with EQ cr. 4.2
- Specify any grout, adhesives or sealers to comply with EQ cr. 4.1
- Specify all school flooring finishes to comply with California 01350
 - Green Label Plus & FloorScore already meet 01350

EQ Credit 4.3: Low-Emitting Materials: Flooring Systems

6. Documentation

- Provide list of indoor flooring & carpet systems & document compliance
- Verify indoor carpet cushion compliance, if applicable
- Provide list of flooring adhesives & finishes & document compliance
- Upload cutsheets & supporting data for 20% of material items in each table
- Describe any special circumstances or alternative compliance path used



EQ Credit 4.5: Low-Emitting Materials: Furniture & Furnishings

1. 1 point for Schools only
2. Design Phase Credit
3. Intent
 - Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.



EQ Credit 4.5: Low-Emitting Materials: Furniture & Furnishings

4. Requirements

- Classroom furniture manufactured, refurbished or refinished within 1 year prior to occupancy must meet one option below:
 - Includes all student and teacher desks, tables and seats
- **OPTION 1** – Furniture or seating must be GREENGUARD Children and Schools certified

- OR -



- **OPTION 2** – Calculated indoor concentrations \leq Table 1 EPA Environmental Technology Verification (ETV) 1999

Chemical Contaminant	Classroom Furniture	Seating
Total VOC's	0.5 mg/cu. meter	0.25 mg/cu. meter
Formaldehyde	50 parts per billion	25 parts per billion
Total aldehydes	100 parts per billion	50 parts per billion
4-Phenylcyclohexene (4-PCH)	0.0065 mg/cu. meter	0.00325 mg/cu. meter

EQ Credit 4.5: Low-Emitting Materials: Furniture & Furnishings

4. Requirements (cont.)

- OR -

- **OPTION 3** – Calculated indoor air concentrations \leq those established in table 1 for furniture systems & seating determined by ANSI/BIFMA M7.1-2007 testing protocol conducted by independent 3rd party AQ testing lab.



EQ Credit 4.5: Low-Emitting Materials: Furniture & Furnishings

5. Strategies & Implementation

- Specify furniture & furnishings meeting one of three options or air concentration methods
- Salvaged furniture more than 1 year old is exempt

6. Documentation

- List each classroom furniture or furnishings item
 - Verify which option or method met
 - Verify certifier
- Upload documentation & cutsheets showing compliance
- Optional narrative for any special circumstances or alternate compliance approach

EQ Credit 4.6: Low-Emitting Materials: Ceiling and Wall Systems

1. 1 point for Schools only
2. Design Phase Credit
3. Intent
 - Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.



EQ Credit 4.6: Low-Emitting Materials: Ceiling and Wall Systems

4. Requirements

- All gypsum board, insulation, acoustical ceiling systems and wall coverings installed in building interior must meet CA DHS Standard Practice for Testing Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda
 - AKA California Section 01350

EQ Credit 4.6: Low-Emitting Materials: Ceiling and Wall Systems

5. Strategies & Implementation

- Specify gypsum board, insulation, acoustical ceiling systems and wall coverings installed in school building interior that meet CA 01350 standard.

6. Documentation

- List each applicable material in school interior
- Upload documentation & cut-sheets showing compliance
- Optional narrative for any special circumstances or alternate compliance approach

EQ Credit 5: Indoor Chemical & Pollutant Source Control

4. Requirements

a) Design to minimize and control entry of pollutants into buildings & later cross-contamination of regularly occupied areas through these strategies:

- Install permanent entryway systems \geq ten feet long in primary direction of travel to capture dirt at all regularly used entryways directly connected to the outdoors.
- Includes permanently installed grates, grilles, or slotted systems that allow for cleaning underneath.
- Roll-out mats acceptable only when maintained weekly by contracted service organization (or school maintenance staff)
- CS projects without entryway systems cannot earn this credit

EQ Credit 6.1: Controllability of Systems: Lighting

4. Requirements – Schools

CASE 1 – Administrative Offices and Other Regularly Occupied Spaces

- Provide individual lighting controls for 90% (minimum) of the building occupants to enable adjustments to suit individual task needs and preferences. - **AND** -
- Provide lighting system controls for all learning spaces including classrooms, chemistry labs, art rooms, shops, music rooms, gymnasiums and dance and exercise studios to enable adjustments that meet group needs and preferences

CASE 2 - Classrooms

- Provide a lighting system that operates at least 2 modes: general illumination and A/V.

EQ Credit 8.1: Daylight & Views: Daylight Schools

Classroom Spaces	Points
75%	1
90%	2
Also 95% of non-occupied spaces	Exemplary Performance

NC & CS

Regularly Occupied Spaces	Points
75%	1
95%	Exemplary Performance

EQ Credit 9: Enhanced Acoustical Performance

1. 1 Point for Schools only
2. Design Phase Credit
3. Intent
 - Provide classrooms that facilitate better teacher-to-student and student-to-student communications through effective acoustical design.

EQ Credit 9: Enhanced Acoustical Performance

4. Requirements

Sound Transmission

- Design building shell, classroom partitions and other core learning space partitions to meet the Sound Transmission Class (STC) requirements of ANSI Standard S12.60-2002, Acoustical Performance Criteria, Design Requirements and Guidelines for Schools, except windows, which must meet an STC rating of at least 35

- AND -

Background Noise

- Reduce background noise level to 40 dBA or less from HVAC systems in classrooms and other core learning spaces.

EQ Credit 9: Enhanced Acoustical Performance

5. Strategies & Implementation

- Consider exterior berms to reduce noise transmission from busy roads
- Select quieter HVAC systems, simple ducting and acoustical liners
- Use materials with higher STC ratings to reduce sound transmission
- Seal penetrations & weatherstrip windows & doors

EQ Credit 9: Enhanced Acoustical Performance

6. Documentation

- Maintain copies of project building plan denoting STC ratings for wall, ceiling and floor assemblies.
- Describe treatments used for sound control where ductwork or other passages connect classroom spaces
- Document means by which background noise level in classrooms and other primary spaces was kept below 45 dBA
 - Following ANSI S12-60 methodology or using software based on 2007 HVAQC Applications ASHRAE Handbook, Chapter 47: Sound and Vibration Control
- Optional narrative for any special circumstances or alternate compliance approach

EQ Credit 9: Enhanced Acoustical Performance

6. Documentation (cont.)

EXEMPLARY PERFORMANCE

- If project achieves:
 - a) Outdoor background noise level of 55dBA for playgrounds ~~–AND–~~
 - b) 60dBA for athletic fields or all other school grounds
 - c) Or an indoor noise level of 35 dBA

EQ Credit 10: Mold Prevention

1. 1 Point for Schools only
2. Design Phase Credit
3. Intent
 - Reduce the potential presence of mold in schools through preventive design and construction measures.

EQ Credit 10: Mold Prevention

4. Requirements

- Project teams must achieve the following credits:
- IEQ Credit 3.1: Construction Indoor Air Quality Management Plan – During Construction
- IEQ Credit 7.1: Thermal Comfort-Compliance
- IEQ Credit 7.2: Thermal Comfort-Verification

- AND -

- Provide HVAC systems and controls designed to limit space relative humidity to 60% or less during all load conditions, both occupied and unoccupied.
- Develop and implement IAQ management program for buildings based on EPA document, Building Air Quality: A Guide for Building Owners and Facility Managers (EPA ref. number 402-F-91-102 – Dec. 1991)

EQ Credit 10: Mold Prevention

5. Strategies & Implementation

- Eliminate potential for condensation
- Pay special attention to know generators of condensation
- Prevent mold during unoccupied periods
- Address floods and leaky or failed equipment
- Design for mold prevention

EQ Credit 10: Mold Prevention

6. Documentation

- Document method used to limit space relative humidity to 60% or less
- Maintain a written IAQ management plan addressing operation & maintenance issues
- Optional narrative for any special circumstances or alternate compliance approach
- Possible Exemplary Performance, but no prescribed threshold. Evaluated on case-by-case basis

Innovation in Design

	v2.2	NC	Schools	CS
	5 Pts.	6 Pts.	6 Pts.	6 Pts.
Credit 1.1 Innovation in Design: Innov. or Exemp. Performance	1	1	1	1
Credit 1.2 Innovation in Design: Innov. or Exemp. Performance	1	1	1	1
Credit 1.3 Innovation in Design: Innov. or Exemp. Performance	1	1	1	1
Credit 1.4 Innovation in Design: Innovation	1	1	1	1
Credit 1.5 Innovation in Design: Innovation	NA	1	NA	1
Credit 2 LEED® Accredited Professional	1	1	1	1
Credit 3 The School as a Teaching Tool	NA	NA	1	NA



ID Credit 1: Innovation in Design

1. Credits for

- NC – 1-5 Points
- Schools – 1-4 Points
- CS – 1-5 Points

2. Design or Construction Phase Credits

3. Intent

- To provide for exceptional performance above requirements set by other LEED credits (**3 max.**)

- AND/OR -

- Innovative performance in Green Building categories not addressed by LEED-BD&C



ID Credit 3: The School as a Teaching Tool

1. Credit **only available for Schools**
2. Design & Construction Phase Credit
3. Intent
 - Integrate the sustainable features of a school facility with the school's educational mission



ID Credit 3: The School as a Teaching Tool

4. Requirements

- Design a curriculum based on high-performance features of building
- Commit to implement curriculum within 10 months of LEED certification
 - Describe features as well as relationship between human ecology, natural ecology & building
 - Must meet local or state curriculum standards
 - Must be approved by school administrators
 - Must provide 10 or more hours of classroom instruction per year per full-time student



ID Credit 3: The School as a Teaching Tool

5. Strategies & Implementation

- Raises awareness through hands-on learning
- Students can interact with everyday functions of facility to raise awareness of energy conservation, resources, etc.

6. Documentation

- Document process project team has worked to develop or implement curriculum based on bldg. features
- Maintain confirmation that curriculum was reviewed Y approved & meets local or state standards

7. Examples

- Water gardens, constructed wetlands, green roof, open space into gardens, renewable energy, meters, etc.

Regional Priority Credits

v2.2	NC	Schools	CS
NA	*4 Pts max. out of 6		
NA	1*	1*	1*
NA	1*	1*	1*
NA	1*	1*	1*
NA	1*	1*	1*
NA	1*	1*	1*
NA	1*	1*	1*

- Credit 1.1 Regional Priority Credit: Defined by Zip Code
- Credit 1.2 Regional Priority Credit: Defined by Zip Code
- Credit 1.3 Regional Priority Credit: Defined by Zip Code
- Credit 1.4 Regional Priority Credit: Defined by Zip Code
- Credit 1.5 Regional Priority Credit: Defined by Zip Code
- Credit 1.6 Regional Priority Credit: Defined by Zip Code

<http://www.usgbc.org/ShowFile.aspx?DocumentID=5667>



Regional Priority Credits 1.1-1.6

1. 1-4 Credits max. out of 6 available for NC, Schools, CS
2. Design or Construction Phase Credits
3. Intent
 - Provide incentives for achievement of credits addressing geographically specific environmental priorities



Regional Priority Credits 1.1-1.6

4. Requirements

- Earn 1-4 of the regional priority credits identified by USGBC regional councils & chapters
 - Have environmental importance to project's region
 - 4 Points maximum allowable out of 6 total
 - Identified by state and zip code at:

<http://www.usgbc.org/ShowFile.aspx?DocumentID=5667>

5. Documentation

- Met by meeting credit requirements listed



Regional Priority Credits 1.1-1.6

6. Example A: Downtown Sacramento - 95814

- SS c4.1 – Alternative Transportation, Public Transp. Access
- SS c7.1 – Heat Island Effect, Non-Roof
- WE c2 – Innovative Wastewater Technologies
- WE c3 (40%) – Water Use Reduction 40%
- EA c2 (1%) – On-Site Renewable Energy 1%
- IEQ c8.1 – Daylight & views, Daylight 75% of Spaces

7. Example A: Downtown Los Angeles - 90004

- SS c5.2 – Maximize Open Space
- WE c2 – Innovative Wastewater Technologies
- WE c3 (40%) – Water Use Reduction 40%
- EA c2 (1%) – On-Site Renewable Energy 1%
- MR c1.1 (55%) – Building Reuse 55% of Exist. walls, floors, roof
- IEQ c8.1 – Daylight & views, Daylight 75% of Spaces

Eight Steps to LEED Certification

1. LEED On-line Registration www.gbci.org
2. Determine LEED credits sought
 - LEED charrette or preliminary LEED analysis
3. Set-up LEED-Online Project Teams & Assign Roles
4. LEED-Online Documentation
5. LEED Design Submittal
6. LEED Construction Submittal
7. Appeal Process – If any
8. Certification Awarded

LEED Certification Fees

For DGS related projects contact: daniel.burgoyne@dgs.ca.gov	USGBC Members	USGBC Non- Members
LEED Registration	\$450 Flat Fee	\$600 Flat Fee
LEED Design Submittal <50,000 or 100,000 s.f. >500,000 s.f.	\$0.025/s.f. \$1,250 min. \$12,500 max.	\$0.03/s.f. \$1,500 min. \$15,000 max.
LEED Construction Submittal <50,000 or 100,000 s.f. >500,000 s.f.	\$0.01/s.f. \$500 min. \$5,000 max.	\$0.015/s.f. \$750 min. \$7,500 max.
Total Fees <50,000 or 100,000 s.f. >500,000 s.f.	\$2,200 min. \$17,950 max.	\$2,200 min. \$23,100 max
Appeal – Per credit appealed (if any)	\$500	\$500

LEED Certification Time Lines

On-line Registration	Upon payment
Documentation – Online	During design/const.
Design Submittal – Initial	25 bus. days
– 2 nd Review	15 bus. days
Construction Submittal – Initial	25 bus. days
– 2 nd Review	15 bus. days
-or- Combined D/C Submittal – Initial	25 bus. days
– 2 nd Review	15 bus. days
Appeal Process	25 bus. days

Establishing USGBC Website User Profile

1. Go to website www.usgbc.org
2. Click on **Sign In** along the top bar
3. If you don't already have a User Profile, click on hyperlink **Create a Site User Account**
4. Enter personal information
5. For **Organization**, enter your agency: (e.g. - **California Department of General Services**)
6. Enter **Corporate ID** for your agency (if USGBC member) – contact your agency's primary contact for corporate ID and exact name for agency
7. Click **Submit your Registration** at the bottom of the form, and you should receive a password to go with your own email address when gaining access to member portions of the site.
8. Once your user profile is set up, then members can access templates and other member sections. LEED team members can gain access to LEED-Online projects, even if not members if invited to join team

USGBC Member Agencies

(& Primary Contacts)

CalSTRS – Contact tgonzales@calstrs.com

CDCR – Contact lindsey.rowell@cdcr.ca.gov

CEC – Contact ehebert@energy.state.ca.us

CIWMB – Contact gdick@ciwmb.ca.gov

CSU – Contact wjacobs@calstate.edu

DGS – Contact daniel.burgoyne@dgs.ca.gov

DMV – Contact mhaviland@dmv.ca.gov

DOT – Contact steve_schoff@dot.ca.gov

DPH – Contact leon.alevantis@cdph.ca.gov

DWR – Contact diaz@water.ca.gov

JCC – Contact pearl.freeman@jud.ca.gov

Parks – Contact jfeather@parks.ca.gov

UC – Contact matthew.stclaire@ucop.ca.gov

LEED On-Line Access

1. Go to:

www.leedonline.com for v3.0

<https://www.leedonline.usgbc.org/Login> for v2.2

2. Click on **LEED-Online** on right

3. Enter Login information on left of screen

4. Enter **Email Address** and **Password**
(same as user profile info)

5. Select project to access – click **Enter**

- Project access only available when invited by the project's LEED coordinator

LEED On-Line Demonstration

Invite Team Members to Join Project Access

- LEED-Online Project Team Administrator sends invitations to join project
- Assigns rolls/titles

Assigning LEED tasks

- Administrator assigns specific credits to team members (by roll)

Letter Templates

- On-line form required for every credit
- Access to letter templates
 - Registered projects have access to each template for credits sought
 - Sample letter templates on www.usgbc.org/DisplayPage.aspx?CMSPageID=1447
- Includes signature block for person responsible for credit
- Includes space for narrative for credit
- Can attach numerous types, formats and examples of documentation
 - Everything is electronic format

Credit Interpretation Rulings (CIR's)

- Questions and answers interpreting specific credits for special circumstances
- Past CIR's no longer available for viewing on v3.0 projects
 - Only applies to specific project (not transferable)
- If question not already addressed, can request new ruling on-line
 1. Describe challenge described by project
 2. Emphasize stated intent of credit
 3. Offer potential solutions to problem & solicit approval
 4. \$220 fee per individual credit requested
 5. 3-4 week wait

LEED Accreditation

Current LEED-AP designation did not need renewal

- Becomes “Legacy AP”,
- Option to test & obtain LEED AP+ can convert over to LEED AP+ within 2 yrs.

Accreditation structure changing to 3 levels of accreditation:

- 1. LEED Green Associate** – core accreditation (200 level)
 - Minimal educational units required (~10 hrs/2 yrs.)
 - Implemented ~ May 2009
- 2. LEED-AP + Specialty** one of 5 types of specialties (300 level)
 - LEED Operation & Maintenance (O&M) - May
 - Homes - June/July
 - Building Design & Construction (includes Core & Shell) - August
 - Interior Design & Construction - August
 - Neighborhood Development TBD
- 3. LEED Fellow** (yet to be determined)

Renewal fee (est. \$50 every 2 yrs)

Educational units will be required (~30 hrs/2 yrs.)

LEED Portfolio Program

- Currently in Pilot Phase
 - DGS in Pilot Program
- Applies to LEED O&M and LEED BD&C
- Prototype credits may apply
- Volume certification may be available
 - Up to 50% discounted certification fees
- May be available to large organizations in late 2009

LEED-AP+ Exam

Exam – see www.gbci.org

- 2 part exam – depending on where starting from
 1. LEED Associate Exam
 2. LEED AP+ Specialty Exam
- 2 hrs for each exam (4 hours if combined)
 - + 10 min. pre-test tutorial & 10 min. post-test survey
- Arrive early, bring 2 forms of ID
- Relax, but move quickly
 - Check off best guess, accept ones you are sure of
 - Revisit remaining questions & eliminate worst options

Register for Exam

- Set up free USGBC User Profile on www.usgbc.org or www.gbci.org
 - Instructions given in class #1 slides

LEED Exam Types & Fees

Exam		Eligibility	Applic Fee	Exam #1 LEED Associate	Exam #2 LEED AP+ Specialty
1	LEED Associate Only	a) LEED Project b) Education -or- c) Work related	\$50	\$150 member / \$200 nm	NA
2	LEED-AP+ Spec. First Time	LEED Project Experience Required	\$100	\$300 member / \$450 non-member	
3	Already LEED-AP Upgrading to LEED-AP + Spec.		\$100	NA	\$150 member / \$250 nm
	Exam format			2 hrs. - 100 questions	2 hrs. - 100 questions

LEED Green Associate Exam #1

Application - \$50 non-refundable fee (valid for 1 year)

- \$100 if combined for LEED-AP+ specialty exam #2

Eligibility - Submit letter from company on letterhead attesting to meeting eligibility requirement (3 options)

- 750 words max., dated & signed by supv, client, PM, teacher

1. LEED-registered project involvement

- Name project, dates & affirmation of involvement

2. Employment related to environ. or green building industry

- Explain company relationship, dates & affirmation of employment

3. Education in green building principals program

- Course title & description, confirm enrollment & date

- Agree to disciplinary policy & credential maintenance

- 15 cont. ed (CE) hours/2 years + \$50 renewal fee every 2 yrs.

Exam Registration Fees

- \$150 for USGBC members / \$200 for non-members
- 3 exam tries max. per 12 month applic. period

LEED Green Associate Exam #1 (cont.)

Questions – 100 multiple choice questions – 2 hours

- Plus 10 min. tutorial before start & 10 min. exit survey
- Grading Scores 125-200 (170 passes exam)

Exam Content

1. Synergistic opportunities & LEED application process
2. Project site factors
3. Water management
4. Project systems and energy impacts
5. Acquisition, install. & mgmt of project materials
6. Stakeholder involvement in innovation
7. Project surroundings and public outreach

Candidate Handbook

- 25 pages of process, study guide and sample questions
- www.gbci.org/ShowFile.aspx?DocumentID=3571

LEED AP+ BD&C Specialty Exam #2

Application - \$100 non-refundable fee (valid for 1 year)

- Same fee includes LEED Green Assoc., if combined

Eligibility - Submit letter 1,500 words max from company on letterhead attesting to meeting eligibility requirements

- Authored, dated & signed by supervisor, client, or PM (card)
1. LEED-registered project experience within 3 prior years
 - Name and/or project ID, dates & affirmation of involvement
 - Summarize & confirm applicants involvement
 - Agree to disciplinary policy & credential maintenance
 - 30 cont. ed (CE) hours/2 years + \$50 renewal fee every 2 yrs.

Exam Registration Fees

- \$300 for USGBC members / \$450 nm if first accreditation
- \$150 for members / \$250 nm if upgrading from LEED-AP
- 3 exam tries max. per 12 month application period

LEED AP+ BD&C Specialty Exam #2 (cont.)

Questions – 100 multiple choice questions – 2 hours

- Plus 10 min. tutorial before start & 10 min. exit survey
- Scored 125-200 (170 passes exam)

Exam Content

1. Synergistic opportunities & LEED application process
2. Project site factors
3. Water management
4. Project systems and energy impacts
5. Acquisition, install. & mgmt of project materials
6. Stakeholder involvement in innovation
7. Project surroundings and public outreach

Candidate Handbook

- 25 pages of process, study guide and sample questions
- www.gbci.org/ShowFile.aspx?DocumentID=3572

LEED Accreditations – www.gbci.org

1. LEED Green Associate

2. LEED AP+ Specialty

- LEED AP+ BD&C Specialty – Avail. Aug/Sep. 2009
- LEED AP+ ID&C Specialty – Avail. Aug/Sep. 2009
- LEED AP+ O&M Specialty – Avail. May 2009
- LEED AP+ Homes Specialty – Avail. June 2009
- LEED AP+ Neighborhood Development – Avail. 2010

3. LEED Fellow - TBD

Legacy LEED-AP

- LEED-AP's prior to July 1, 2009
- No renewal fee nor maintenance required
- Continues to earn ID credit 2 - LEED-AP
- Upgrade to Specialty is optional

LEED Exam Prep. Resources

Resources

- USGBC - www.usgbc.org/LEED
- www.gbci.org
 - LEED AP Candidate Handbooks
 - Download Exam Specifications & Sample Questions
 - Register to take LEED-AP+ BD+C Exam after late Summer 2009
- www.areforum.org/forums/forum12
 - Daily forum with immediate feedback & suggestions from those taking LEED-AP exam
 - Follows current LEED testing
- California Department of General Services
 - Free access to archived LEED BD&C Training classes
 - Includes slides, resources & sample quizzes & mock exam
 - www.dgs.ca.gov/LEEDtraining
- UC Davis Extension – LEED BD&C Online Course
 - http://extension.ucdavis.edu/unit/business_and_management/course/description/?type=A&unit=BM&SectionID=143620&prglist=CNM

LEED-AP Exam

LEED-NC v2.2 Exam – www.gbci.org

- Only available to those who registered prior to April 1st to take exam by June 30th

LEED AP+ BD&C Exam

- Available in late August 2009 (estimated)

For all Exam Info see www.gbci.org

QUESTIONS?

www.dgs.ca.gov/LEEDtraining

Daniel.burgoyne@dgs.ca.gov

To get on update list email joann.button@dgs.ca.gov