IFMA-SD Feb 2011 Luncheon
What Does it Take to Become LEED Accredited?

What is a Building?
What do we want from buildings?

- Shelter
- Comfort
- Aesthetics
- Infrastructure
- Function
- Economic Return

Comfort and Performance from Buildings?

- I can't hear myself think.
- It's really hard to type with your mittens on.
- Turn down the #@$! heat.
- It's too quiet in here.
- Another day working in the dark, literally.
- Another day at the sweat shop.
- Turn up the #$%^ heat.
- You could fly a kite in this breeze.
- Our new task force on cubicle comfort has been very effective. They've eliminated any trace of it.
- I don't think this air moved since '97.
- I can still smell Wally's chill.
Since 1994:

- Average Office Worker DECREASE from 90 to 75 SF in 2010
- Senior Office Worker DECREASE from 115 to 96 SF in 2010
- Executive Management INCREASE from 250 to ~275 SF in 2010

Source: CNN, quoting International Facility Management Association

Function and Economic Return?

Negative Impacts?

- 12% water use
- 39% CO₂ emissions
- 65% waste output
- 71% electricity consumption
How is a Green Building different?

OVERVIEW

The Triple Bottom Line.
Reduced Environmental Impact.
Peak Efficiency.
Improved Capitalization Rates.
Increased Marketability.
Higher Lease Rates.
Improved Productivity.
Reduced Absenteeism.
Build Green. Everyone Profits.
What Is Green Building?

Green Buildings Can Reduce...

- **Energy Use**: 24%*-50%**
- **CO₂ Emissions**: 33%***-39%**
- **Water Use**: 40%**
- **Solid Waste**: 70%**

Green Building Occupants Are Healthier & More Productive

- In the U.S., people spend, on average, 90% or more of their time indoors*
- Green buildings typically have better indoor air quality and lighting


PERCEIVED BUSINESS BENEFITS TO GREEN

8-9%* operating cost decreases
7.5%* building value increases
6.6%* return on investment improves
3.5%* occupancy ratio increases
3%** rent ratio increases

# Expanded definitions of Comfort, Health and Performance in Existing Buildings

## Comfort and Health

<table>
<thead>
<tr>
<th>Personal Satisfaction</th>
<th>LEED Related</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office Layout</td>
<td>Thermal comfort</td>
</tr>
<tr>
<td>Office Furnishing</td>
<td>Air Quality</td>
</tr>
<tr>
<td>Thermal Comfort</td>
<td>Daylight &amp; views</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Controllability of systems</td>
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<tr>
<td>Lighting</td>
<td></td>
</tr>
<tr>
<td>Acoustics</td>
<td>Acoustical Performance</td>
</tr>
<tr>
<td>Cleaning &amp; Maint.</td>
<td></td>
</tr>
<tr>
<td>Gen. Bldg &amp; Workspace</td>
<td>Hazardous Materials</td>
</tr>
</tbody>
</table>

## Performance

<table>
<thead>
<tr>
<th>LEED Related</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Consumption</td>
</tr>
<tr>
<td>Water Consumption</td>
</tr>
<tr>
<td>Waste Stream</td>
</tr>
</tbody>
</table>

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**SAN DIEGO GREEN BUILDING COUNCIL**

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**The USGBC**
MISSION
Buildings and communities will regenerate and sustain the health and vitality of all life within a generation.

VISION
To transform 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.

SAN DIEGO
GREEN BUILDING COUNCIL

USGBC COMMUNITY
ENGINEERS  NON PROFIT LEADERS  INTERIOR DESIGNERS  CODE OFFICIALS
PRODUCT MANUFACTURERS  ARCHITECTS  FINANCIAL PLANNERS  FEDERAL, LOCAL, AND STATE GOVERNMENT
PROPERTY MANAGERS  FEDERAL, LOCAL, AND STATE GOVERNMENT
GROUNDSKEEPERS  CAPITAL PLANNING STAFF  GR
LANDSCAPE ARCHITECTS  UTILITY MANAGERS  PLANNERS  BUILDING TENANTS
BUILDING OWNERS  INTERIOR DESIGNERS

© USGBC Green Building Council 2008
Leadership in Energy and Environmental Design

<table>
<thead>
<tr>
<th>HOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEIGHBORHOOD DEVELOPMENT (IN PILOT)</td>
</tr>
<tr>
<td>COMMERCIAL INTERIORS</td>
</tr>
<tr>
<td>CORE &amp; SHELL</td>
</tr>
<tr>
<td>NEW CONSTRUCTION</td>
</tr>
<tr>
<td>Schools, Healthcare, Retail</td>
</tr>
<tr>
<td>EXISTING BUILDINGS: OPERATIONS &amp; MAINTENANCE</td>
</tr>
</tbody>
</table>

OFFERS tools and expertise
LEED ADDRESSES THE COMPLETE LIFECYCLE OF BUILDINGS

HOMES

NEIGHBORHOOD DEVELOPMENT (IN PILOT)

COMMERCIAL INTERIORS

CORE & SHELL

NEW CONSTRUCTION

Schools, Healthcare, Retail

EXISTING BUILDINGS: OPERATIONS & MAINTENANCE

LEED Is Consensus-Based

A look at LEED today

57,000 LEED Registered Project
14,200 Certified Projects
158,000 LEED APs
11,000 Green Associates

California is a Leader in Green Buildings

Using LEED as a benchmark:

4,800 LEED Registered Commercial Projects are in California representing 1/8 of projects in the US

California has more than 1000 LEED Certified Commercial Construction Projects, which is 1/6 of the total Certified Projects in the US
LEED in CA

A map of LEED Certified projects in CA shows that the economic benefits are statewide.

Data Source: USGBC Public List of LEED Projects

LEED Registered Projects in California

Data Source: USGBC Public List of LEED Projects
The San Diego Region. . .

... has the 9th highest number of LEED* Projects with approximately 3 percent of LEED buildings

... is 17th on the list of EnergyStar* buildings

*Both started here in San Diego!
LEED address the complete lifecycle of buildings:

- **HOMES**
- **NEIGHBORHOOD DEVELOPMENT** (in pilot)
- **COMMERCIAL INTERIORS**
- **CORE & SHELL**
- **NEW CONSTRUCTION**
- **SCHOOLS, HEALTHCARE, RETAIL**
- **EXISTING BUILDINGS OPERATIONS & MAINTENANCE**

LEED v3 EBOM

- Promote high-performance, healthful, durable, affordable, and environmentally sound practices in existing buildings
- Encourages owners and operators of existing buildings to implement sustainable practices and reduce the environmental impacts of their buildings over their functional life cycle.
Steps to LEED Certification

Certification Process

Identify Possibility/ Approach/ Responsibility

- Based on existing conditions
- Based on possible improvements

LEED Registration and Implementation

Performance Period

- Minimum 3 months for most credits, Minimum 1 year for energy performance & Maximum 2 years for all. All Performance Period credits must end within 30 days of each other
Certification Process (cont.)

LEED Documentation
• Generally within 60 days of Performance Period completion
• Always have a target date for completion

LEED Submission
• GBCI review and Comment (preliminary and final rounds)
• Up to 30 days for each review and review response

LEED Certification
• Comes after review and acceptance

Policies
• EBOM emphasizes improving operations to incorporate increased environmental performance, developing good policies is part of the story:
  Building Exterior and Hardscape Management
  Sustainable Purchasing
  Solid Waste Management
  Green Cleaning
  Indoor Pest Management
LEED EBOM Categories

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality
- Innovation in Operations
- Regional Priority

LEED EBOM Checklist: Sustainable Sites

<table>
<thead>
<tr>
<th>Sustainable Sites</th>
<th>Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit 1: LEED Certified Design and Construction</td>
<td>4</td>
</tr>
<tr>
<td>Credit 2: Building Exterior and Hardscape Management Plan</td>
<td>1</td>
</tr>
<tr>
<td>Credit 3: Integrated Pest Mgmt, Erosion Control, and Landscape Mgmt Plan</td>
<td>1</td>
</tr>
<tr>
<td>Credit 4: Alternative Commuting Transportation</td>
<td>3 to 15</td>
</tr>
<tr>
<td>Credit 5: Site Development—Protect or Restore Open Habitat</td>
<td>1</td>
</tr>
<tr>
<td>Credit 6: Stormwater Quantity Control</td>
<td>1</td>
</tr>
<tr>
<td>Credit 7.1: Heat Island Reduction—Non-Roof</td>
<td>1</td>
</tr>
<tr>
<td>Credit 7.2: Heat Island Reduction—Roof</td>
<td>1</td>
</tr>
<tr>
<td>Credit 8: Light Pollution Reduction</td>
<td>1</td>
</tr>
</tbody>
</table>
### LEED EBOM Checklist: Water Efficiency

<table>
<thead>
<tr>
<th>Water Efficiency</th>
<th>Possible Points: 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prereq 1</td>
<td>Minimum Indoor Plumbing Fixture and Fitting Efficiency</td>
</tr>
<tr>
<td>Credit 1</td>
<td>Water Performance Measurement</td>
</tr>
<tr>
<td>Credit 1</td>
<td>Additional Indoor Plumbing Fixture and Fitting Efficiency</td>
</tr>
<tr>
<td>Credit 1</td>
<td>Water Efficient Landscaping</td>
</tr>
<tr>
<td>Credit 1</td>
<td>Cooling Tower Water Management—Chemical Management</td>
</tr>
<tr>
<td>Credit 1</td>
<td>Cooling Tower Water Management—Non-Potable Water Source Use</td>
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</tbody>
</table>

### LEED EBOM Checklist: Energy & Atmosphere

<table>
<thead>
<tr>
<th>Energy and Atmosphere</th>
<th>Possible Points: 35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prereq 1</td>
<td>Energy Efficiency Best Management Practices</td>
</tr>
<tr>
<td>Prereq 2</td>
<td>Minimum Energy Efficiency Performance</td>
</tr>
<tr>
<td>Prereq 3</td>
<td>Fundamental Refrigerant Management</td>
</tr>
<tr>
<td>Credit 1</td>
<td>Optimize Energy Efficiency Performance</td>
</tr>
<tr>
<td>Credit 2.1</td>
<td>Existing Building Commissioning—Investigation and Analysis</td>
</tr>
<tr>
<td>Credit 2.2</td>
<td>Existing Building Commissioning—Implementation</td>
</tr>
<tr>
<td>Credit 2.3</td>
<td>Existing Building Commissioning—Ongoing Commissioning</td>
</tr>
<tr>
<td>Credit 3.1</td>
<td>Performance Measurement—Building Automation System</td>
</tr>
<tr>
<td>Credit 3.2</td>
<td>Performance Measurement—System-Level Metering</td>
</tr>
<tr>
<td>Credit 4</td>
<td>On-site and Off-site Renewable Energy</td>
</tr>
<tr>
<td>Credit 5</td>
<td>Enhanced Refrigerant Management</td>
</tr>
<tr>
<td>Credit 6</td>
<td>Emissions Reduction Reporting</td>
</tr>
</tbody>
</table>

**San Diego Green Building Council**
## LEED EBOM Checklist: Materials & Resources

<table>
<thead>
<tr>
<th>Credit</th>
<th>Description</th>
<th>Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Prereq 1 Sustainable Purchasing Policy</td>
<td>1</td>
</tr>
<tr>
<td>Y</td>
<td>Prereq 2 Solid Waste Management Policy</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Credit 1 Sustainable Purchasing—Ongoing Consumables</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Credit 2.1 Sustainable Purchasing—Electric</td>
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</tr>
<tr>
<td></td>
<td>Credit 2.2 Sustainable Purchasing—Furniture</td>
<td>1</td>
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<tr>
<td></td>
<td>Credit 3 Sustainable Purchasing—Facility Alterations and Additions</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Credit 4 Sustainable Purchasing—Reduced Mercury in Lamps</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Credit 5 Sustainable Purchasing—Food</td>
<td>1</td>
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<tr>
<td></td>
<td>Credit 6 Solid Waste Management—Waste Stream Audit</td>
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<tr>
<td></td>
<td>Credit 7 Solid Waste Management—Ongoing Consumables</td>
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<tr>
<td></td>
<td>Credit 8 Solid Waste Management—Durable Goods</td>
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<tr>
<td></td>
<td>Credit 9 Solid Waste Management—Facility Alterations and Additions</td>
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</table>

## LEED EBOM Checklist: Indoor Environmental Quality

<table>
<thead>
<tr>
<th>Credit</th>
<th>Description</th>
<th>Possible Points</th>
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</thead>
<tbody>
<tr>
<td>Y</td>
<td>Prereq 1 Minimum IAQ Performance</td>
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<tr>
<td>Y</td>
<td>Prereq 2 Environmental Tobacco Smoke (ETS) Control</td>
<td>1</td>
</tr>
<tr>
<td>Y</td>
<td>Prereq 3 Green Cleaning Policy</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Credit 1.1 IAQ Best Mgmt Practices—IAQ Management Program</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Credit 1.2 IAQ Best Mgmt Practices—Outdoor Air</td>
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</tr>
<tr>
<td></td>
<td>Credit 1.3 IAQ Best Mgmt Practices—Increased Ventilation</td>
<td>1</td>
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<tr>
<td></td>
<td>Credit 1.4 IAQ Best Mgmt Practices—Reduce Particulates in Air Distribution</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Credit 1.5 IAQ Mgmt Plan—IAQ Mgmt for Facility Alterations and Additions</td>
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<tr>
<td></td>
<td>Credit 2.1 Occupant Comfort—Occupant Survey</td>
<td>1</td>
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<td></td>
<td>Credit 2.2 Controllability of Systems—Lighting</td>
<td>1</td>
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<tr>
<td></td>
<td>Credit 2.3 Occupant Comfort—Thermal Comfort Monitoring</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Credit 2.4 Daylight and Views</td>
<td>1</td>
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<tr>
<td></td>
<td>Credit 3.1 Green Cleaning—High Performance Cleaning Program</td>
<td>1</td>
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<td></td>
<td>Credit 3.2 Green Cleaning—Custodial Effectiveness Assessment</td>
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</tr>
<tr>
<td></td>
<td>Credit 3.3 Green Cleaning—Sustainable Cleaning Products, Materials Purchases</td>
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<tr>
<td></td>
<td>Credit 3.4 Green Cleaning—Sustainable Cleaning Equipment</td>
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<td></td>
<td>Credit 3.5 Green Cleaning—Indoor Chemical and Pollutant Source Control</td>
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<tr>
<td></td>
<td>Credit 3.6 Green Cleaning—Indoor Integrated Pest Management</td>
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</table>
LEED EBOM Checklist: Bonus Points

### Innovation in Operations

<table>
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<tr>
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<th>Description</th>
<th>Points</th>
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<tbody>
<tr>
<td>1.1</td>
<td>Innovation in Operations: Specific Title</td>
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<tr>
<td>1.2</td>
<td>Innovation in Operations: Specific Title</td>
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</tr>
<tr>
<td>1.3</td>
<td>Innovation in Operations: Specific Title</td>
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<tr>
<td>1.4</td>
<td>Innovation in Operations: Specific Title</td>
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<tr>
<td>2</td>
<td>LEED Accredited Professional</td>
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<td>3</td>
<td>Documenting Sustainable Building Cost Impacts</td>
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Possible Points: 6

### Regional Priority Credits

<table>
<thead>
<tr>
<th>Credit</th>
<th>Description</th>
<th>Points</th>
</tr>
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<tbody>
<tr>
<td>1.1</td>
<td>Regional Priority: Specific Credit</td>
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</tr>
<tr>
<td>1.2</td>
<td>Regional Priority: Specific Credit</td>
<td>1</td>
</tr>
<tr>
<td>1.3</td>
<td>Regional Priority: Specific Credit</td>
<td>1</td>
</tr>
<tr>
<td>1.4</td>
<td>Regional Priority: Specific Credit</td>
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</tr>
</tbody>
</table>

Possible Points: 4

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LEED-EBOM Certification Levels

- **Platinum**: 80 – 110 points
- **Gold**: 60 – 79 points
- **Silver**: 50 – 59 points
- **Certified**: 40 – 49 points

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SAN DIEGO GREEN BUILDING COUNCIL
Becoming a LEED Accredited Professional

Two-Step Process

1. Green Associate

2. LEED Accredited Professional with Specialty

LEED AP BD+C  LEED AP ID+C  LEED AP Homes  LEED AP O+M  LEED AP ND
Exam Eligibility

One of three options:

LEED Project Experience. This can be provided by a screenshot of LEED Online with your name on it, or a Letter of Attestation stating the project name and the credits your worked on.

Employment with a company concerned with sustainability or green construction. Provide a description and proof of employment, along with a narrative relating how a LEED credential relates to your work.

Completion of a workshop or educational series dealing with sustainability. Certificate of completion will be accepted as proof.

Application Period

Your application to take any LEED credential exam will last for 1 year.

Within this year, you may register and take the exam a maximum of 3 times! You must receive a score of 170 (out of 200) to pass.

After the application period ends, applicants must wait 90 days to resubmit their application, and must submit their eligibility requirements again.
Exam Information – LEED Green Associate

- Computerized testing through Prometric
- 100 Multiple Choice Questions
- 2 hours 20 minutes to complete
- Optional 10 minute survey
- $50 application fee
- $150 registration fee
- Exam subject matter spans 7 project specifications. These sections are not equal in value in terms of your score. Questions dealing with LEED requirements and goals are weighted much higher than questions about stakeholder involvement, for example.

Becoming a LEED AP+

**ELIGIBILITY: LEED AP**

Candidates must have experience, within three years of application, with a project registered for or certified in one of the LEED Rating Systems. This experience must be documented in LEED Online® or in the form of a letter of attestation from a supervisor, client, or project manager and must describe your involvement on the LEED project as a consultant, public or private sector personnel who reviews projects pursuing LEED certification as part of an approval process, contracted worker, member of the Project Team, LEED for Homes Provider, LEED Renoasser, LEED for Homes Green Rater, or staff member of a Certifying Body (CB). If audited, the documentation will be reviewed based on these requirements:

- The letter must be on letterhead or provide other evidence of its authenticity.
- The body of the attestation should be limited to 1,500 words or less.
- The letter must be dated.
- The letter must be authored and signed by a supervisor, client, project manager, or someone else qualified to evaluate the applicant’s performance.
- The author’s title and relationship to the applicant should be demonstrated, i.e. through the author’s business card.
- The letter must summarize and confirm the applicant’s involvement with the LEED Project.
- The full name or Project ID for the LEED Project must be provided.
Becoming a LEED AP+

ELIGIBILITY: LEED AP

Candidates must have registered for or certified in one of the following:
- LEED Project Manager
- LEED Project Leader
- LEED Project Team Member
- LEED Project Administrator

LEED AP Project Experience
For the LEED AP credentials, to be personally involved with a project registered for LEED certification means that the candidate can show how they have contributed to the registered project through active participation in it and have ongoing responsibility through their participation. The candidate must show how they have been exposed to the LEED process and have knowledge of the project.

SAN DIEGO
GREEN BUILDING COUNCIL

A Local Project
Local Example

LEED EBOM Platinum The Aventine, La Jolla, CA

- ENERGY STAR Score of 100
- Reduced Over 800,000 Kilowatts of Energy Annually
- 575 (MtCO2e) Emissions Reduced Annually
- Reduced Total Utility Operating Costs by 34%
- Saved Over 1,000,000 Gallons of Water Annually
- Current Waste Diversion Rate at 61%

Get More Involved
February Lunch+LEED

Measurement & Verification: 7 Easy Steps

Thursday, February 10, 2011 at Noon hosted at the Design Institute of San Diego, 8555 Commerce Street

For more information
Send an email to:
info@usgbc-sd.org

February GreenMeet

Biomimicry and Architecture, in partnership with the San Diego Zoo

Wednesday, February 16, 2011 at 5:00 PM

For more information
Send an email to:
info@usgbc-sd.org
March GreenMeet

Community Based EBOM, in partnership with the WorldBeat Center

Wednesday, March 16, 2011 at 5:30 PM

For more information
Send an email to:
info@usgbc-sd.org

SAN DIEGO GREEN BUILDING COUNCIL

CRE: EBOM Committee

We have a very active Commercial Real Estate Committee organized around the implementation of the EBOM Rating System

Friday, March 18, 2011 at 3:00 PM

At the San Diego USGBC office:
5010 Shoreham Place, SD, CA 92122

SAN DIEGO GREEN BUILDING COUNCIL
“Solving problems doesn’t change things, but changing things solves problems” – Paul Hawken

Thank You

Contact information:
Douglas Kot: doug@usgbc-sd.org

San Diego Green Building Council
www.usgbc-sd.org