

# SUSTAINABILITY TRACK

## Session 8



Phoenix, AZ  
August 3-6, 2008



# LEED as a Framework for Greening Existing Buildings

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BuildingWise





# Today's Agenda

- Sustainability, Green Buildings and the LEED Rating System
- 7 Step Process
- Integrating Green into Long Term Goals
- Securing Stakeholder Participation
- Avoiding Interruption in Day-to-Day Tasks
- Importance of Planning



# Why Green?





# Why LEED EB??



Moss Landing Marine Lab, California,  
LEED EB GOLD



# Sustainable Sites

Yes	?	No			
0	0	0	<b>Sustainable Sites</b>		<b>12 Points</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	<b>LEED Certified Design and Construction</b>	<b>1</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2	<b>Building Exterior and Hardscape Management Plan</b>	<b>1</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3	<b>Integrated Pest Management, Erosion Control, and Landscape Management Plan</b>	<b>1</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4	<b>Alternative Commuting Transportation</b>	<b>4</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		10%	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		25%	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		50%	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		75% or greater	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5	<b>Reduced Site Disturbance - Protect or Restore Open Space</b>	<b>1</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6	<b>Stormwater Management</b>	<b>1</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 7	<b>Heat Island Reduction</b>	<b>2</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Non-Roof	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Roof	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 8	<b>Light Pollution Reduction</b>	<b>1</b>
0	0	0	<b>Water Efficiency</b>		<b>10 Points</b>
<input checked="" type="checkbox"/>			Prereq 1	<b>Minimum Indoor Plumbing Fixture and Fitting Efficiency</b>	<b>Required</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	<b>Water Performance Measurement</b>	<b>2</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Whole building metering	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Submetering	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2	<b>Additional Indoor Plumbing Fixture and Fitting Efficiency</b>	<b>3</b>



# Water Efficiency

Yes	?	No	Water Efficiency		10 Points
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 1	<b>Minimum Indoor Plumbing Fixture and Fitting Efficiency</b>	Required
			Credit 1	<b>Water Performance Measurement</b>	2
				Whole building metering	1
				Submetering	1
			Credit 2	<b>Additional Indoor Plumbing Fixture and Fitting Efficiency</b>	3
				10%	1
				20%	1
				30%	1
			Credit 3	<b>Water Efficient Landscaping</b>	3
				Reduce Potable Water Use by 50%	1
				Reduce Potable Water Use by 75%	1
				Reduce Potable Water Use by 100%	1
			Credit 4	<b>Cooling Tower Water Management</b>	2
				Chemical Management	1
				Non-Potable Water Source Use	1
Yes	?	No	Energy & Atmosphere		30 Points
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 1	<b>Energy Efficiency Best Management Practices - Planning, Documentation, and Opportunity Assessment</b>	Required
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 2	<b>Minimum Energy Efficiency Performance</b>	Required
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 3	<b>Refrigerant Management - Ozone Protection</b>	Required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 4	<b>Optimize Energy Efficiency Performance</b>	15



# Energy & Atmosphere

Yes	?	No	Energy & Atmosphere		30 Points
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 1	<b>Energy Efficiency Best Management Practices - Planning, Documentation, and Opportunity Assessment</b>	Required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 2	<b>Minimum Energy Efficiency Performance</b>	Required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 3	<b>Refrigerant Management - Ozone Protection</b>	Required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	<b>Optimize Energy Efficiency Performance</b>	15
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2	<b>Existing Building Commissioning</b>	6
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Investigation and Analysis	2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Implementation	2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ongoing Commissioning	2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3	<b>Performance Measurement</b>	3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Building Automation System	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		System-Level Metering, 40%	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		System-Level Metering, 80%	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4	<b>Renewable Energy</b>	4
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		On-site 3% / Off-site 25%	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		On-site 6% / Off-site 50%	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		On-site 9% / Off-site 75%	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		On-site 12% / Off-site 100%	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5	<b>Refrigerant Management</b>	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6	<b>Emissions Reduction Reporting</b>	1

Yes	?	No	Materials & Resources		14 Points
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			



# Materials & Resources

Yes	?	No	Materials & Resources		14 Points
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 1	<b>Sustainable Purchasing Policy</b>	Required
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 2	<b>Solid Waste Management Policy</b>	Required
			Credit 1	<b>Sustainable Purchasing</b>	<b>3</b>
				Ongoing Consumables, 40%	1
				Ongoing Consumables, 60%	1
				Ongoing Consumables, 80%	1
			Credit 2	<b>Sustainable Purchasing</b>	<b>2</b>
				Durable Goods, electric	1
				Durable Goods, furniture	1
			Credit 3	<b>Sustainable Purchasing - Facility Alterations and Additions</b>	<b>1</b>
			Credit 4	<b>Sustainable Purchasing</b>	<b>2</b>
				Reduced Mercury in Lamps, 90 pg/lum-hr	1
				Reduced Mercury in Lamps, 70 pg/lum-hr	1
			Credit 5	<b>Sustainable Purchasing - Food</b>	<b>1</b>
			Credit 6	<b>Solid Waste Management - Waste Stream Audit</b>	<b>1</b>
			Credit 7	<b>Solid Waste Management</b>	<b>2</b>
				Ongoing Consumables, 50%	1
				Ongoing Consumables, 70%	1
			Credit 8	<b>Solid Waste Management - Durable Goods</b>	<b>1</b>
			Credit 9	<b>Solid Waste Management - Facility Alterations and Additions</b>	<b>1</b>



# Indoor Environment

Yes	?	No		
0	0	0	<b>Indoor Environmental Quality</b>	<b>19 Points</b>
Y			Prereq 1 <b>Outdoor Air Introduction and Exhaust Systems</b>	Required
Y			Prereq 2 <b>Environmental Tobacco Smoke (ETS) Control</b>	Required
Y			Prereq 3 <b>Green Cleaning Policy</b>	Required
			Credit 1 <b>IAQ Best Management Practices</b>	<b>5</b>
			IAQ Management Program	1
			Outdoor Air Delivery Monitoring	1
			Increased Ventilation	1
			Reduce Particulates in Air Distribution	1
			IAQ Management for Facility Alterations and Additions	1
			Credit 2 <b>Occupant Comfort</b>	<b>5</b>
			Occupant Survey	1
			Occupant Controlled Lighting	1
			Thermal Comfort Monitoring	1
			Daylight and Views, 50% Daylight / 45% Views	1
			Daylight and Views, 75% Daylight / 90% Views	1
			Credit 3 <b>Green Cleaning</b>	<b>9</b>
			High Performance Cleaning Program	1
			Custodial Effectiveness Assessment, < 4	1
			Custodial Effectiveness Assessment, < 3	1
			Sustainable Cleaning Products and Materials, 30%	1
			Sustainable Cleaning Products and Materials, 60%	1
			Sustainable Cleaning Products and Materials, 90%	1
			Sustainable Cleaning Equipment	1
			Entryway Systems	1
			Indoor Integrated Pest Management	1



# Begin with a Single Step

- Gap Analysis
  - Current Practices
  - Stakeholders
  - Facility
  - Business practices
  - O&M Policies

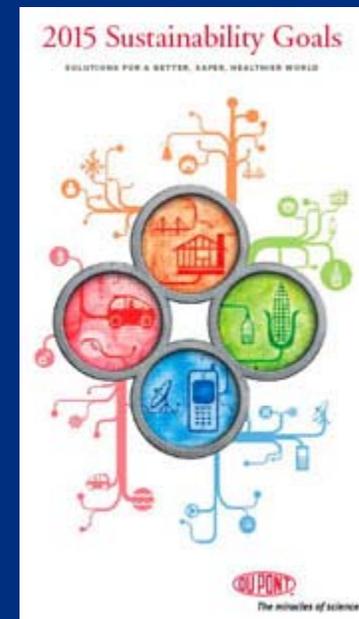


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# Mirror, Mirror

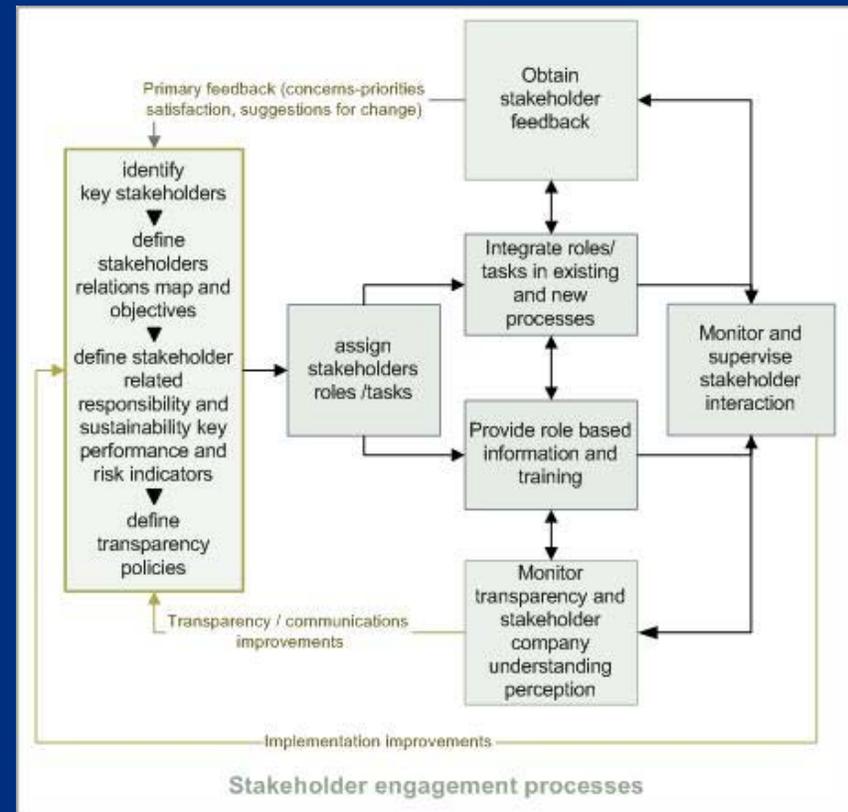
- Examine Commitment
  - Organizational commitment
  - Can't "green" you
  - Not just operations
  - Policy Review
  - Budget
  - Energy use





# Kumbaya

- Stakeholder's
  - Involvement is key
  - Don't exclude
  - Clear Mission & Vision
  - Solid commitment
  - Celebrate small wins

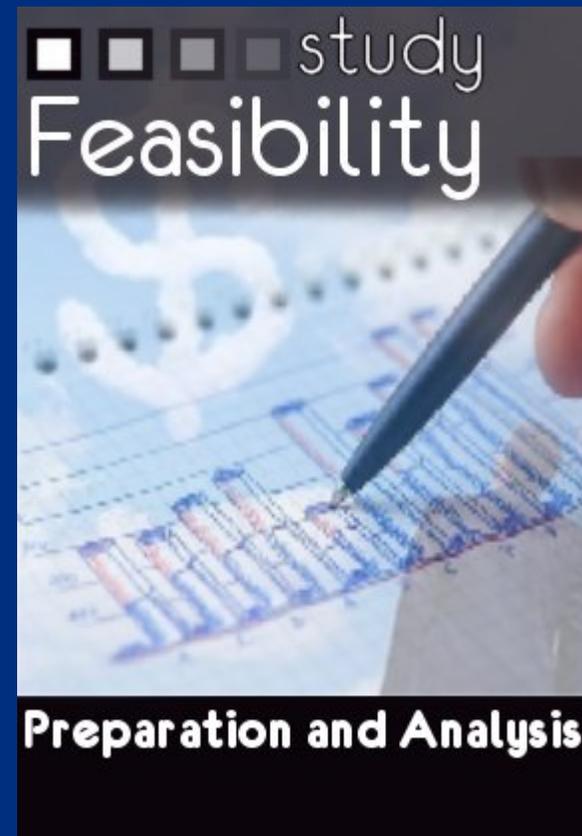


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# Show & Tell

- Deliver the Message
  - Gather stakeholders
  - Deliver findings
  - Preliminary task menu
  - Listing of quick wins
  - Touch all stakeholder interests





# Devil's in the Details

- Green means Go
  - Detailed audit
  - Quantify costs and savings
  - Examine financial alternatives for long term wins
  - Reaffirm stakeholder support



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# Face the Changes

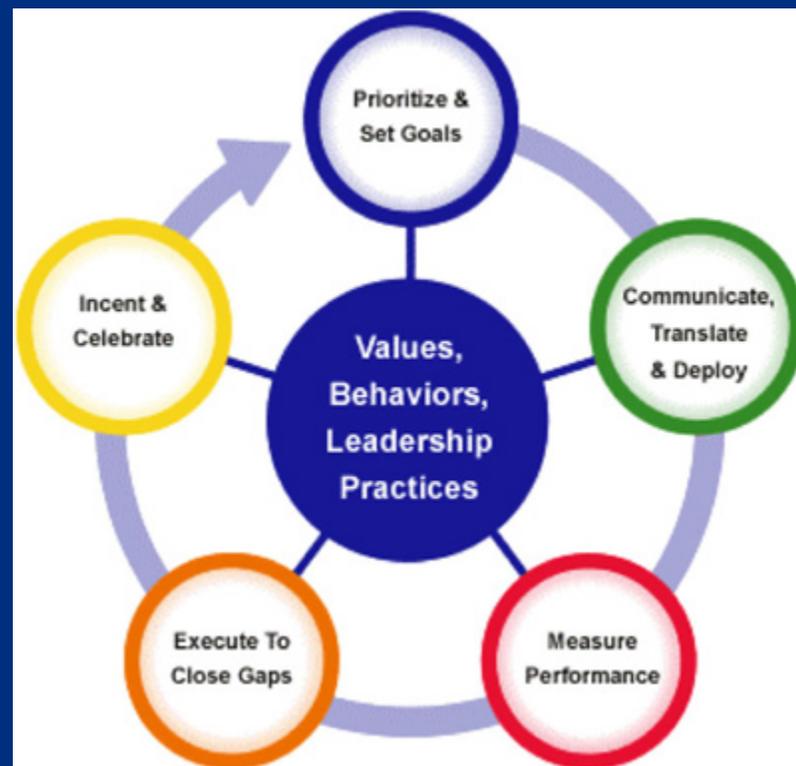
- Implement Change
  - Change management
  - Project installation
  - Policy adoption
  - Constant feedback
  - Visibility & transparency





# Take the Path Less Traveled

- You've done it!!
  - Or have you?
  - Keeping it going
  - Enforcement
  - Training
  - Constant improvement
  - Six Sigma approach to “building quality”



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# Change Up

- Rating System doesn't always line up very well with the reality of Facility Management
- Where's energy in all this?
- Let's Look At Another Approach
- Functional division.
  - Introducing Tia Heneghan



## For More Information

- Would you like to know more about this session?
- Barry Giles
- BuildingWise
- [barry@buildingwise.net](mailto:barry@buildingwise.net)

Don't forget to fill out and drop off your session evaluations!