

# LEED Overview

**Kristy M. Walson, PE, LEED AP**  
TLC Engineering for Architecture



# What we'll cover today.



## Presentation topics...

- History of LEED
- LEED V3
- LEED Rating Systems
- The Seven Credit Categories
- LEED and Sustainability

# History of LEED



# What is LEED®?

Leadership in Energy and Environmental Design.



## LEED® ...

- Internationally recognized green building certification system
- Developed by the US Green Building Council (USGBC) - 1993
- Program standardizes requirements for Green Buildings
- LEED is dynamic
- USGBC & GBCI

LEED V3



# 2009 Updates

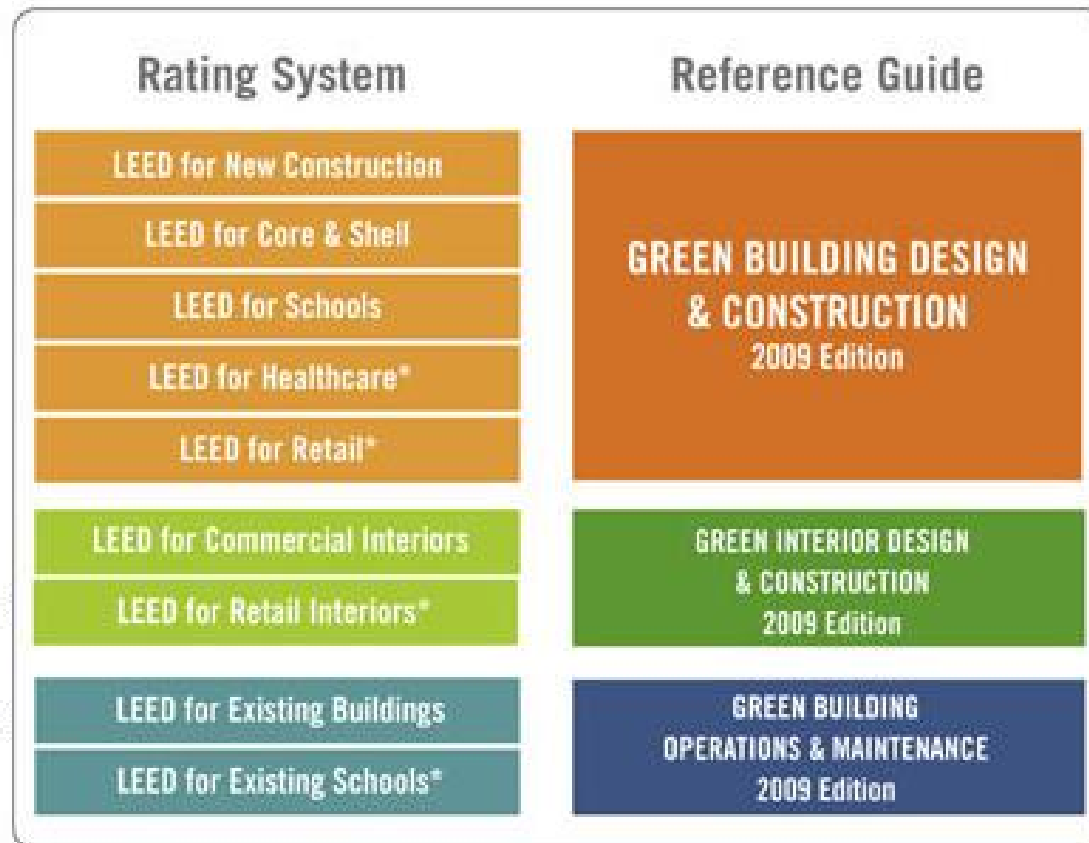
## The highlights...

- Certifications - 110 Points
- Professional Accreditation - Specialties
- LEED On-Line
- Regional Priority
- Minimum Program Requirements



# LEED Rating Systems





\* These rating systems are under development or in pilot. Once they are available supplements will be sold for the new LEED 2009 Reference Guides.

Also:

- LEED for Homes
- LEED for Neighborhood Development (in pilot)








# What are LEED® Points vs LEED® Credits?

**LEED® for Commercial Interiors**



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**Total Possible Points\*\* 110\***

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 Sustainable Sites	21
 Water Efficiency	11
 Energy & Atmosphere	37
 Materials & Resources	14
 Indoor Environmental Quality	17

*\* Out of a possible 100 points + 10 bonus points*  
*\*\* Certified 40+ points, Silver 50+ points, Gold 60+ points, Platinum 80+ points*

 Innovation in Design	6
 Regional Priority	4

## Seven Credit Categories

1. Sustainable Sites
2. Water Efficiency
3. Energy and Atmosphere
4. Materials and Resources
5. Indoor Environmental Quality
6. Innovation in Design
7. Regional Priority

## Sustainable Sites

Erosion and Sedimentation Control

Age of Building

Green Site and Building Exterior Management

High Development Density Building and Area Alternative Transportation

Reduced Site Disturbance

Stormwater Management

Heat Island Reduction

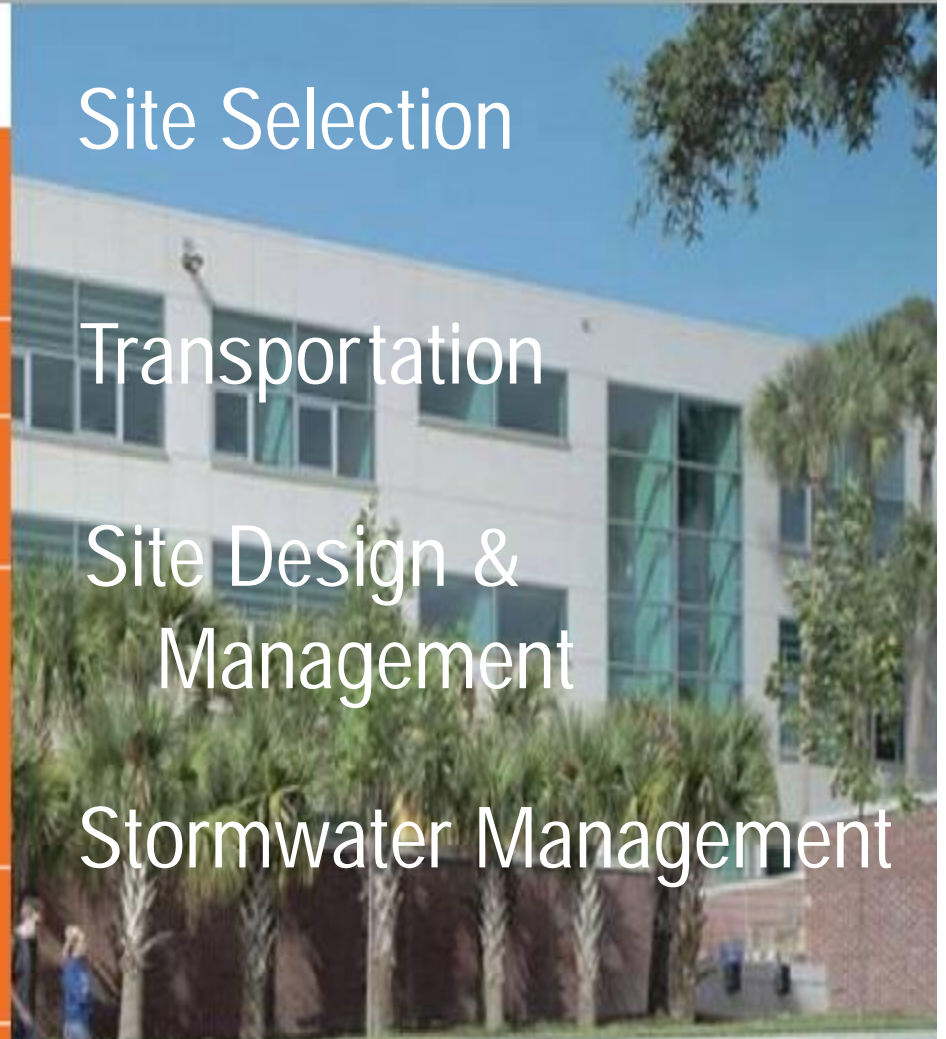
Light Pollution Reduction

Site Selection

Transportation

Site Design & Management

Stormwater Management



# SUSTAINABLE SITES

0 0 0 SUSTAINABLE SITES			26 Points
Y	Prereq 1	<b>Construction Activity Pollution Prevention</b>	<b>Required</b>
	Credit 1	<b>Site Selection</b>	<b>1</b>
	Credit 2	<b>Development Density and Community Connectivity</b>	<b>5</b>
	Credit 3	<b>Brownfield Redevelopment</b>	<b>1</b>
	Credit 4.1	<b>Alternative Transportation - Public Transportation Access</b>	<b>6</b>
	Credit 4.2	<b>Alternative Transportation - Bicycle Storage and Changing Rooms</b>	<b>1</b>
	Credit 4.3	<b>Alternative Transportation - Low-Emitting and Fuel-Efficient Vehicles</b>	<b>3</b>
	Credit 4.4	<b>Alternative Transportation - Parking Capacity</b>	<b>2</b>
	Credit 5.1	<b>Site Development - Protect or Restore Habitat</b>	<b>1</b>
	Credit 5.2	<b>Site Development - Maximize Open Space</b>	<b>1</b>
	Credit 6.1	<b>Stormwater Design - Quantity Control</b>	<b>1</b>
	Credit 6.2	<b>Stormwater Design - Quality Control</b>	<b>1</b>
	Credit 7.1	<b>Heat Island Effect - Nonroof</b>	<b>1</b>
	Credit 7.2	<b>Heat Island Effect - Roof</b>	<b>1</b>
	Credit 8	<b>Light Pollution Reduction</b>	<b>1</b>

## Sustainable Sites

### Efficient Water Use

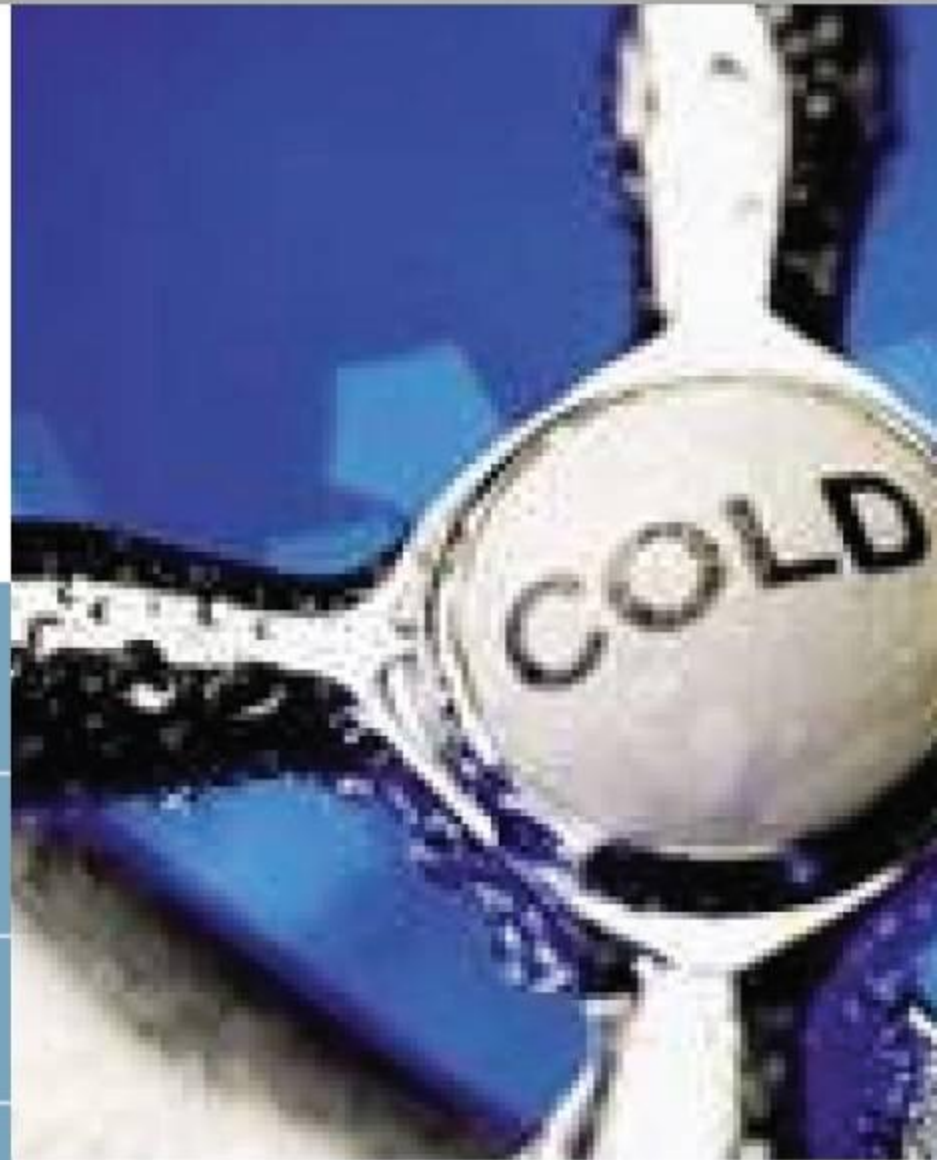
Minimum Water Efficiency

Discharge Water Compliance

Water Efficient Landscaping

Innovative Wastewater Technologies

Water Use Reduction



# WATER EFFICIENCY

0 0 0 WATER EFFICIENCY			10 Points
Y	Prereq 1	<b>Water Use Reduction (Reduce by 20%)</b>	4
	Credit 1	<b>Water Efficient Landscaping</b>	Required
		Reduce by 50%	2 to 4
		No Potable Water Use or Irrigation	2
	Credit 2	<b>Innovative Wastewater Technologies (Reduce by 50% for Sewage Conveance)</b>	4
	Credit 3	<b>Water Use Reduction</b>	2
		Reduce by 30%	2 to 4
		Reduce by 35%	2
		Reduce by 40%	3
			4

Sustainable Sites

Efficient Water Use

Energy & Atmosphere

Existing Building Commissioning

Minimum Energy Performance

Ozone Protection

Optimize Energy Performance

On/Off Site Renewable Energy

Building O&M

Additional Ozone Protection

Performance Measurement

Documenting Cost Impacts



Energy Demand  
Energy Efficiency  
Renewable Energy  
Ongoing Energy Performance















# ENERGY & ATMOSPHERE

0	0	0	ENERGY & ATMOSPHERE	35 Points
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Y	Prereq 1	<b>Fundamental Commissioning of Building Energy Systems</b>	Required
Y	Prereq 2	<b>Minimum Energy Performance</b> (Improve by 10%, compared to ASHRAE 90.1, 2007)	Required
Y	Prereq 3	<b>Fundamental Refrigerant Management</b>	Required
	Credit 1	<b>Optimize Energy Performance</b>	<b>1 to 19</b>
		Improve by 12% for New Buildings or 8% for Existing Building Renovations	1
		Improve by 14% for New Buildings or 10% for Existing Building Renovations	2
		Improve by 16% for New Buildings or 12% for Existing Building Renovations	3
		Improve by 18% for New Buildings or 14% for Existing Building Renovations	4
		Improve by 20% for New Buildings or 16% for Existing Building Renovations	5
		Improve by 22% for New Buildings or 18% for Existing Building Renovations	6
		Improve by 24% for New Buildings or 20% for Existing Building Renovations	7
		Improve by 26% for New Buildings or 22% for Existing Building Renovations	8
		Improve by 28% for New Buildings or 24% for Existing Building Renovations	9
		Improve by 30% for New Buildings or 26% for Existing Building Renovations	10
		Improve by 32% for New Buildings or 28% for Existing Building Renovations	11
		Improve by 34% for New Buildings or 30% for Existing Building Renovations	12
		Improve by 36% for New Buildings or 32% for Existing Building Renovations	13
		Improve by 38% for New Buildings or 34% for Existing Building Renovations	14
		Improve by 40% for New Buildings or 36% for Existing Building Renovations	15
		Improve by 42% for New Buildings or 38% for Existing Building Renovations	16
		Improve by 44% for New Buildings or 40% for Existing Building Renovations	17
		Improve by 46% for New Buildings or 42% for Existing Building Renovations	18
		Improve by 48%+ for New Buildings or 44%+ for Existing Building Renovations	19

# ENERGY & ATMOSPHERE (cont'd)

	Credit 2	<b>On-Site Renewable Energy</b>	<b>1 to 7</b>
		 1% Renewable Energy	1
		 3% Renewable Energy	2
		 5% Renewable Energy	3
		 7% Renewable Energy	4
		 9% Renewable Energy	5
		 11% Renewable Energy	6
		 13% Renewable Energy	7
	Credit 3	<b>Enhanced Commissioning</b>	2
	Credit 4	<b>Enhanced Refrigerant Management</b>	2
	Credit 5	<b>Measurement and Verification</b>	3
	Credit 6	<b>Green Power</b>	2





Sustainable Sites  
Efficient Water Use  
Energy & Atmosphere  
Materials & Resources



Source Reduction & Waste Management

Toxic Material Source Reduction

Construction Waste Management

Optimized Use of Alternative Materials

Optimized Use of IAQ Compliant Products

Sustainable Cleaning Products

Occupant Recycling

Additional Toxic Material Source Reduction

Recycled Content

Waste Management

Life Cycle Impacts



# MATERIALS & RESOURCES

0	0	0	MATERIALS & RESOURCES	14 Points	
Y			<b>Prereq 1</b>	<b>Storage and Collection of Recyclables</b>	<b>Required</b>
			<b>Credit 1.1</b>	<b>Building Reuse - Maintain Existing Walls, Floors and Roof</b>	<b>1 to 3</b>
				Reuse 55%	1
				Reuse 75%	2
				Reuse 95%	3
			<b>Credit 1.2</b>	<b>Building Reuse - Maintain 50% of Interior Nonstructural Elements</b>	<b>1</b>
			<b>Credit 2</b>	<b>Construction Waste Management</b>	<b>1 to 2</b>
				50% Recycled or Salvaged	1
				75% Recycled or Salvaged	2
			<b>Credit 3</b>	<b>Materials Reuse</b>	<b>1 to 2</b>
				Reuse 5%	1
				Reuse 10%	2
			<b>Credit 4</b>	<b>Recycled Content</b>	<b>1 to 2</b>
				10% of Content	1
				20% of Content	2
			<b>Credit 5</b>	<b>Regional Materials</b>	<b>1 to 2</b>
				10% of Materials	1
				20% of Materials	2
			<b>Credit 6</b>	<b>Rapidly Renewable Materials - 2.5%</b>	<b>1</b>
			<b>Credit 7</b>	<b>Certified Wood - 50% of permanently installed wood</b>	<b>1</b>

Sustainable Sites

Efficient Water Use

Energy & Atmosphere

Materials & Resources

**Indoor Environmental Quality**



Outside Air Exhaust

Tobacco Smoke Control

Asbestos/PCB Removal

Outdoor Air Delivery Monitoring

Increased Ventilation Construction

IAQ Management Plan

Documenting Productivity Impacts

Indoor Chemical & Pollutant Source Control

Controllability of Systems

Thermal Comfort

Daylighting & Views

Contemporary IAQ Practice

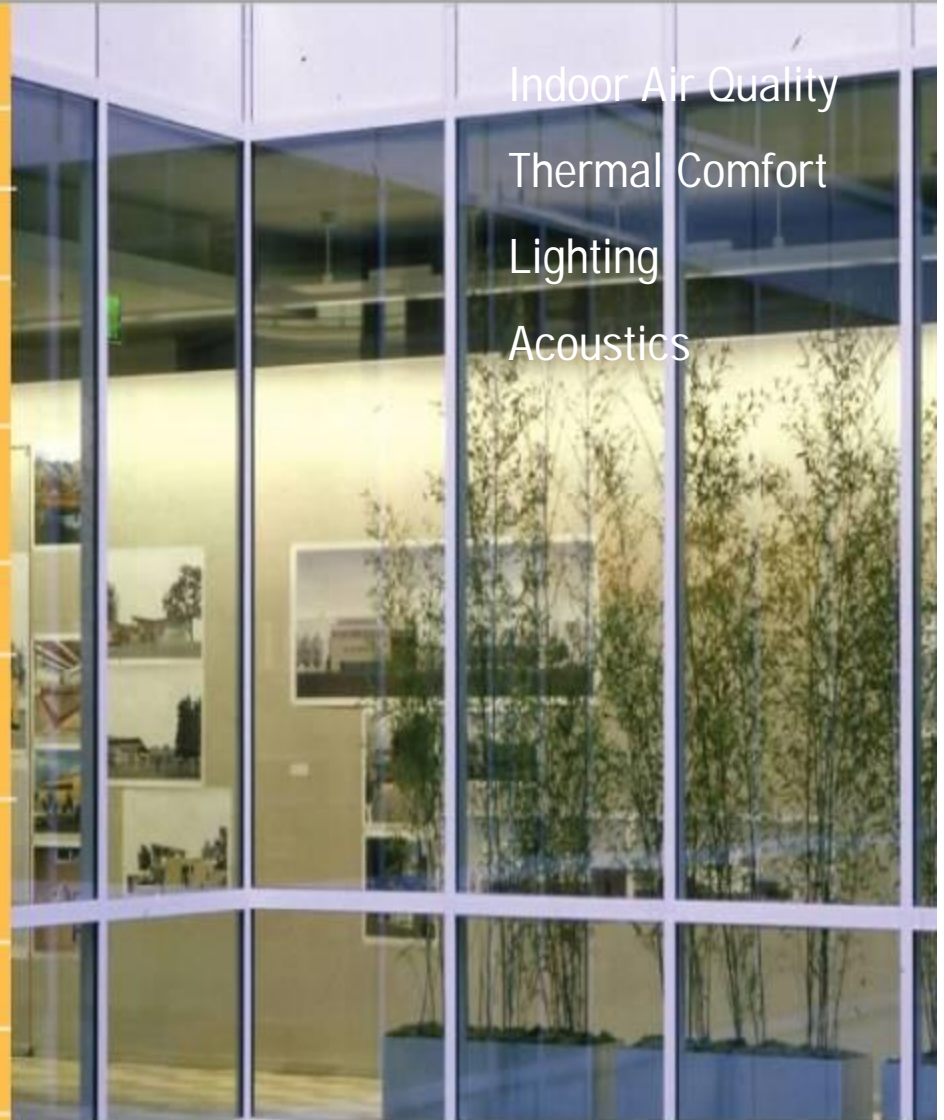
Green Cleaning

Indoor Air Quality

Thermal Comfort

Lighting

Acoustics



# ENVIRONMENTAL QUALITY

0   0   0			INDOOR ENVIRONMENTAL QUALITY	15 Points
Y			Prereq 1 <b>Minimum Indoor Air Quality Performance - ASHRAE 62.1, 2007</b>	<b>Required</b>
Y			Prereq 2 <b>Environmental Tobacco Smoke (ETS) Control</b>	<b>Required</b>
			Credit 1 <b>Outdoor Air Delivery Monitoring</b>	<b>1</b>
			Credit 2 <b>Increased Ventilation - Increase by 30% of ASHRAE 62.1, 2007</b>	<b>1</b>
			Credit 3.1 <b>Construction Indoor Air Quality Management Plan - During Construction</b>	<b>1</b>
			Credit 3.2 <b>Construction Indoor Air Quality Management Plan - Before Occupancy</b>	<b>1</b>
			Credit 4.1 <b>Low-Emitting Materials - Adhesives and Sealants</b>	<b>1</b>
			Credit 4.2 <b>Low-Emitting Materials - Paints and Coatings</b>	<b>1</b>
			Credit 4.3 <b>Low-Emitting Materials - Flooring Systems</b>	<b>1</b>
			Credit 4.4 <b>Low-Emitting Materials - Composite Wood and Agrifiber Products</b>	<b>1</b>
			Credit 5 <b>Indoor Chemical and Pollutant Source Control</b>	<b>1</b>
			Credit 6.1 <b>Controllability of Systems - Lighting (90% of occupants)</b>	<b>1</b>
			Credit 6.2 <b>Controllability of Systems - Thermal Comfort (50% of occupants)</b>	<b>1</b>
			Credit 7.1 <b>Thermal Comfort - Design</b>	<b>1</b>
			Credit 7.2 <b>Thermal Comfort - Verification</b>	<b>1</b>
			Credit 8.1 <b>Daylight and Views - Daylight for 75% of occupied spaces</b>	<b>1</b>
			Credit 8.2 <b>Daylight and Views - Views for 90% of occupied spaces</b>	<b>1</b>

# LEED and Sustainability



# Sustainability drivers

The tipping point has been reached. Businesses can't avoid being impacted by sustainability.

## Important drivers...

- Regulatory - Often based on LEED
- Consumer demand
- Down economy
- In company's DNA
- Supplier demand



# Cost Comparisons

## Environmentally Friendly Material

- Interior paint Low VOC \$29.95/gal.
- Resilient flooring Standard 2 1/2-mil linoleum: \$28.95/sq.yd.
- Carpet 100 percent recycled fiber: \$19.09/sq. yd.
- Wood flooring Clear, vertical-grain pine sustainably harvested, certified, unfinished, \$3.89/sq.ft.
- Toilet Dual flush allows both 0.8-gal. half-flush and 1.6-gal. regular flush: \$245.95 (w/seat)
- Decking Certified 1 1/4-in. ipe: \$2.89/lin.ft.

## Conventional Material

- Interior paint Designer latex: **\$24.94/gal.**
- Resilient flooring Designer vinyl: **\$27.81 sq. yd.**
- Carpet 100 percent nylon: **\$25.20/sq.yd.**
- Wood flooring Southern yellow pine, unfinished: about **\$6/sq.ft.**
- Toilet Good quality, with 1.6-gal. flush: **\$260.00** (with seat)
- Decking Standard 1 1/4-in. ipe: **\$3.50/lin.ft.** Or 2 in. x 6 in. select heart redwood: **\$3.50/lin.ft.**

# Where are you on the Sustainability Journey?





# Questions?



[www.usgbc-cf.org](http://www.usgbc-cf.org)

[www.usgbc.org](http://www.usgbc.org)

[www.gbci.org](http://www.gbci.org)

Your contact is...

Kristy M. Walson  
TLC Engineering

Office: 407-487-1118  
[kristy.walson@tlc-eng.com](mailto:kristy.walson@tlc-eng.com)

[kristy.walson@tlc-eng.com](mailto:kristy.walson@tlc-eng.com)

