

Introduction to LEED & Stormwater Management

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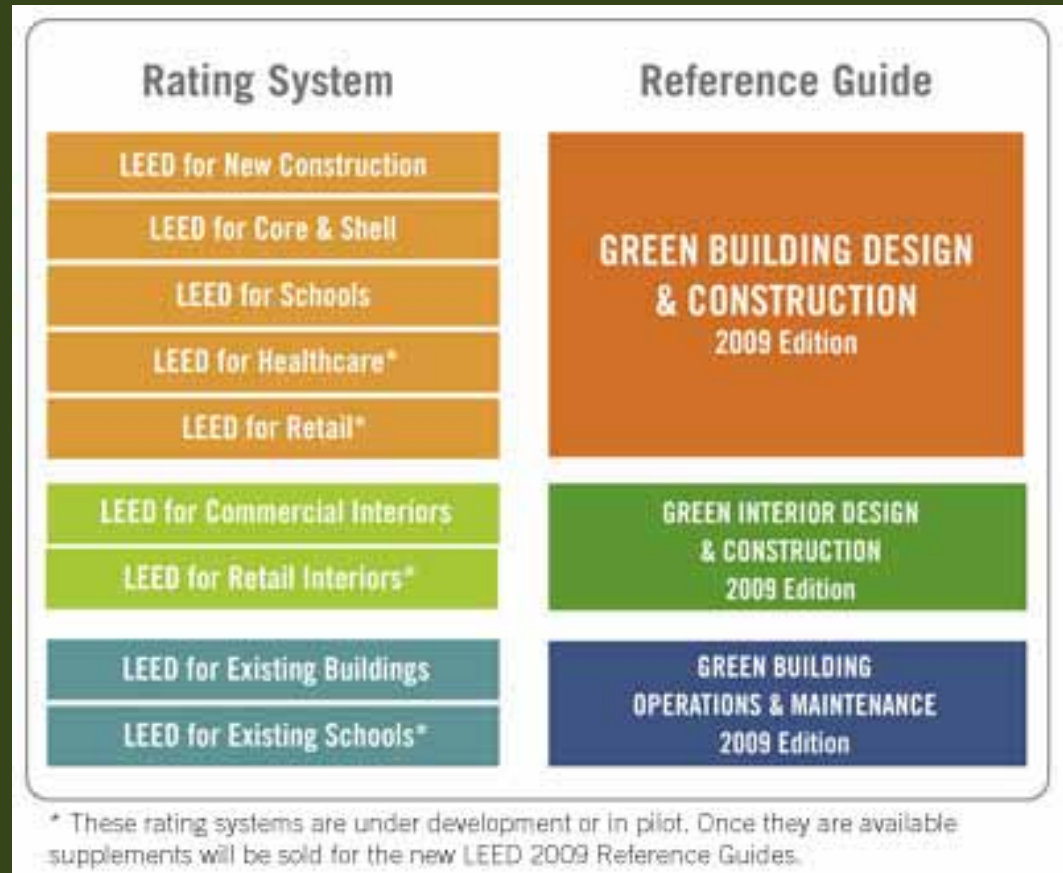
City of San Jose – Environmental Services – Office of Sustainability

June 17, 2009 SCVRUPPP Annual Meeting

What is LEED™?

Developed by the U.S. Green Building Council (USGBC) beginning in 1995, LEED provides building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions. For more information:

www.usgbc.org



LEED™
LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

What is LEED™?

- 3rd party green building rating system
- Based on existing, proven technologies
- Evaluates and recognizes performance in accepted green design categories
- Promotes a whole-building integrated approach to design
- Performance-based, not prescriptive
- Flexible



What is LEED™ v3?

- More points possible related to stormwater management.
- Streamlined web-based building certification process.
- New certification model to respond to significant increases in projects seeking LEED™ Certification.



CREDENTIAL MAINTENANCE & IMPLEMENTATION SUPPORT

400 Level



Webinars

The LEED Implementation Process

300 Level
Implementation
LEED AP

200 Level
Understanding
LEED Green Associate

100 Level
Awareness

Exam Prep Resources

Reference Guide

Green
Neighborhood
Planning &
Development

Exam Prep Resources

Reference Guide

Green Home
Design &
Construction

Exam Prep Resources

Reference Guide

Green Building
Operations &
Maintenance

Exam Prep Resources

Reference Guide

Green Interior
Design &
Construction

Exam Prep Resources

LEED Core
Concepts &
Strategies

Exam Prep Resources

Reference Guide

Green Building
Design &
Construction

Green Building
Basics & LEED

“Aren’t there only 2 LEED Credits for Stormwater?”

Sustainable Sites (SS)

- SS Prerequisite 1 – Construction Activity Pollution Prevention (Required)
- SS c6.1 – Stormwater Management, Quantity Control (Points 1)
- SS c6.2 – Stormwater Management, Quality Control (Points 2)

LEED & Stormwater Management

“Successful water-efficient landscaping depends on **site location** and design. It is advantageous to couple landscaping improvements with **water use reduction** strategies. The use of native or adapted plants can reduce site maintenance needs. Landscape plantings can **mitigate climate conditions** and **reduce building energy consumption**, for example by shading south facing windows. Vegetation can **aid passive solar design**, serve as a windbreak, provide pleasant views for building occupants, and muffle off-site noise. Native plants can **restore habitat** for wildlife. In addition to reducing potable water consumption, rainwater capture systems can be used to **manage rainwater runoff**. Using graywater for irrigation **reduces the amount of wastewater delivered to water treatment facilities.**”

From Water Efficiency Credit 1.2, Synergies and Tradeoffs

Broad Consideration of Stormwater Management Impacts on LEED™ Certification



Roosevelt Community Center (RCC)*		Points Possible		Pts. Attempted
Sustainable Sites		v2.2	v3.0	RCC
Prereq 1	Construction Activity Pollution Prevention	0	0	0
Credit 1	Site Selection	1	1	1
Credit 2	Development Density and Community Connectivity	1	5	1
Credit 3	Brownfield Redevelopment	1	1	1
Credit 4.1	Alternative Transportation - Public Transportation Access	1	6	1
Credit 4.2	Alternative Transportation - Bicycle Storage and Changing Rooms	1	1	1
Credit 4.3	Alternative Transportation - Low-Emitting and Fuel-Efficient Vehicles	1	3	1
Credit 4.4	Alternative Transportation - Parking Capacity	1	2	1
Credit 5.1	Site Development - Protect or Restore Habitat	1	1	1
Credit 5.2	Site Development - Maximize Open Space	1	1	0
Credit 6.1	Stormwater Design - Quantity Control	1	1	0
Credit 6.2	Stormwater Design - Quality Control	1	1	1
Credit 7.1	Heat Island Effect - Pavement	1	1	0
Credit 7.2	Heat Island Effect - Roof	1	1	1
Credit 8	Light Pollution Reduction	1	1	0
Total Sustainable Sites Points		14	26	9
Water Efficiency		v2.2	v3.0	RCC
Prereq 1	Water Use Reduction	-	0	-
Credit 1	Water Efficient Landscaping	-	-	-
	Reduce by 40% (Credit 1.1 in v2.2)	1	2	1
	No Irrigable Use or No Irrigation (Credit 1.2 in v2.2)	1	2	0
Credit 2	Innovative Wastewater Technologies	1	2	0
Credit 3	Water Use Reduction	-	-	-
	Reduce by 20%	1	1	1
	Reduce by 30%	-	-	-
	Reduce by 35% (new in v3)	-	1	-
	Reduce by 40% (new in v3)	-	2	-
Total Water Efficiency Points		5	10	3
Energy & Atmosphere		v2.2	v3.0	RCC
Prereq 1	Fundamental Commissioning of Building Energy Systems	0	0	0
Prereq 2	Minimum Energy Performance	0	0	0
Prereq 3	Fundamental Refrigerant Management	0	0	0
Credit 1	Optimize Energy Performance	-	-	-
	Improve by 10.5% (v2.2)	1	-	1
	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	1	1	1
	Improve by 16% for New Buildings or 12% for Existing Building Renovations	-	1	-
	Improve by 17.5% (v2.2)	1	-	1
	Improve by 18% for New Buildings or 14% for Existing Building Renovations	-	1	-
	Improve by 20% for New Buildings or 16% for Existing Building Renovations	-	1	-
	Improve by 21% (v2.2)	1	-	1
	Improve by 22% for New Buildings or 18% for Existing Building Renovations	-	1	-
	Improve by 24% for New Buildings or 20% for Existing Building Renovations	-	1	-
	Improve by 24.5% (v2.2)	1	-	1
	Improve by 26% for New Buildings or 22% for Existing Building Renovations	-	1	-
	Improve by 28% for New Buildings or 24% for Existing Building Renovations	1	1	1
	Improve by 30% for New Buildings or 26% for Existing Building Renovations	-	1	-
	Improve by 31.5% (v2.2)	1	-	1
	Improve by 32% for New Buildings or 28% for Existing Building Renovations	-	1	-
	Improve by 34% for New Buildings or 30% for Existing Building Renovations	-	1	-
	Improve by 35% (v2.2)	1	-	1
	Improve by 36% for New Buildings or 32% for Existing Building Renovations	-	1	-
	Improve by 38.5% (v2.2)	1	-	1
	Improve by 38% for New Buildings or 34% for Existing Building Renovations	-	1	-
	Improve by 40% for New Buildings or 36% for Existing Building Renovations	-	1	-
	Improve by 42% for New Buildings or 38% for Existing Building Renovations	1	1	1
	Improve by 44% for New Buildings or 40% for Existing Building Renovations	-	1	-
	Improve by 46% for New Buildings or 42% for Existing Building Renovations	-	1	-
	Improve by 48% for New Buildings or 44% for Existing Building Renovations	-	1	-
Credit 2	On-Site Renewable Energy	-	-	-
	1% Renewable Energy	-	1	-
	3% Renewable Energy	2.60%	1	0
	5% Renewable Energy	-	1	-
	7% Renewable Energy	-	1	-
	9% Renewable Energy	7.50%	1	0
	11% Renewable Energy	-	1	-
	13% Renewable Energy	12.60%	1	0
Credit 3	Enhanced Commissioning	1	2	1
Credit 4	Enhanced Refrigerant Management	1	2	1
Credit 5	Measurement and Verification	1	3	0
Credit 6	Green Power	1	2	0
Total Energy & Atmosphere Points		17	35	12

Broad Consideration of Stormwater Management Impacts on LEED™ Certification

Levels of LEED Rating	v2.2	v3
Certified	26-32	40-49
Silver	33-38	50-59
Gold	39-51	60-79
Platinum	52-69	80
Total Possible Points	69	110



LEED™ New Construction Points Related to Stormwater Management

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Roosevelt Community Center

- Sustainable Site c1.0 – Site Selection (Water body/wetland buffer)
- Sustainable Site c4.4 – Alternative Transportation (reduced parking)
- Sustainable Site c6.2 – Stormwater Design (treatment/quality control)
- Sustainable Site c7.2 – Heat Island Effect (roof with high SRI)
- Water Efficiency c1.1 – Water Efficient Landscaping (reduce by 50%)
- Water Efficiency c3.0 – Water Use (reduce by 30%)
- Energy & Atmosphere c1.0 – Optimize Energy Performance (improve 42%)
- Materials & Resources c2 – Construction Waste Management (75% recycled)
- Indoor Environmental Quality c7.1 – Thermal Comfort
- Indoor Environmental Quality c8.1 – Daylight & Views (daylight, 50%)
- Indoor Environmental Quality c8.2 – Daylight & Views (views from 75%)
- Innovation in Design c1.1-Innovation, Public Art



Roosevelt Community Center



- Sustainable Site c4.4 – Alternative Transportation (reduced parking)
- Discharging roof runoff to landscaped areas.



Hewlett Foundation Headquarters LEED™ Gold

- Sustainable Site Credit 5.2 - Maximize Open Space
- Water Efficiency Credit 2.0 - 40% Water Use Reduction



Chartwell School LEED™ Platinum

- Water Efficiency Credit 2 - Innovative Water Technology
- Energy & Atmosphere Credit 2 - 1% Onsite Renewable Energy



Photos:
Michael David Rose

The Granary LEED™ Gold



Sustainable Site Credit 6.1 & 6.2
– Stormwater Treatment, Rate
& Quantity & Treatment



The Granary LEED™ Gold

- Energy & Atmosphere Credit 1 - Optimize Energy Performance
- Indoor Environmental Quality Credit 8.1 & 8.2 – Daylight to 75% and Views for 90% of spaces



The Future is Now: Title 24

Santa Clara University Learning Commons



The Future is Now: Greenroofs



- Provides open space
- Provides stormwater treatment
- Potential to reduce interior noise
- Reduces need for/use of AC
- Use of local/native plants

