Sustainability and Asphalt: How Asphalt Can Help Green A Project

PAIKY

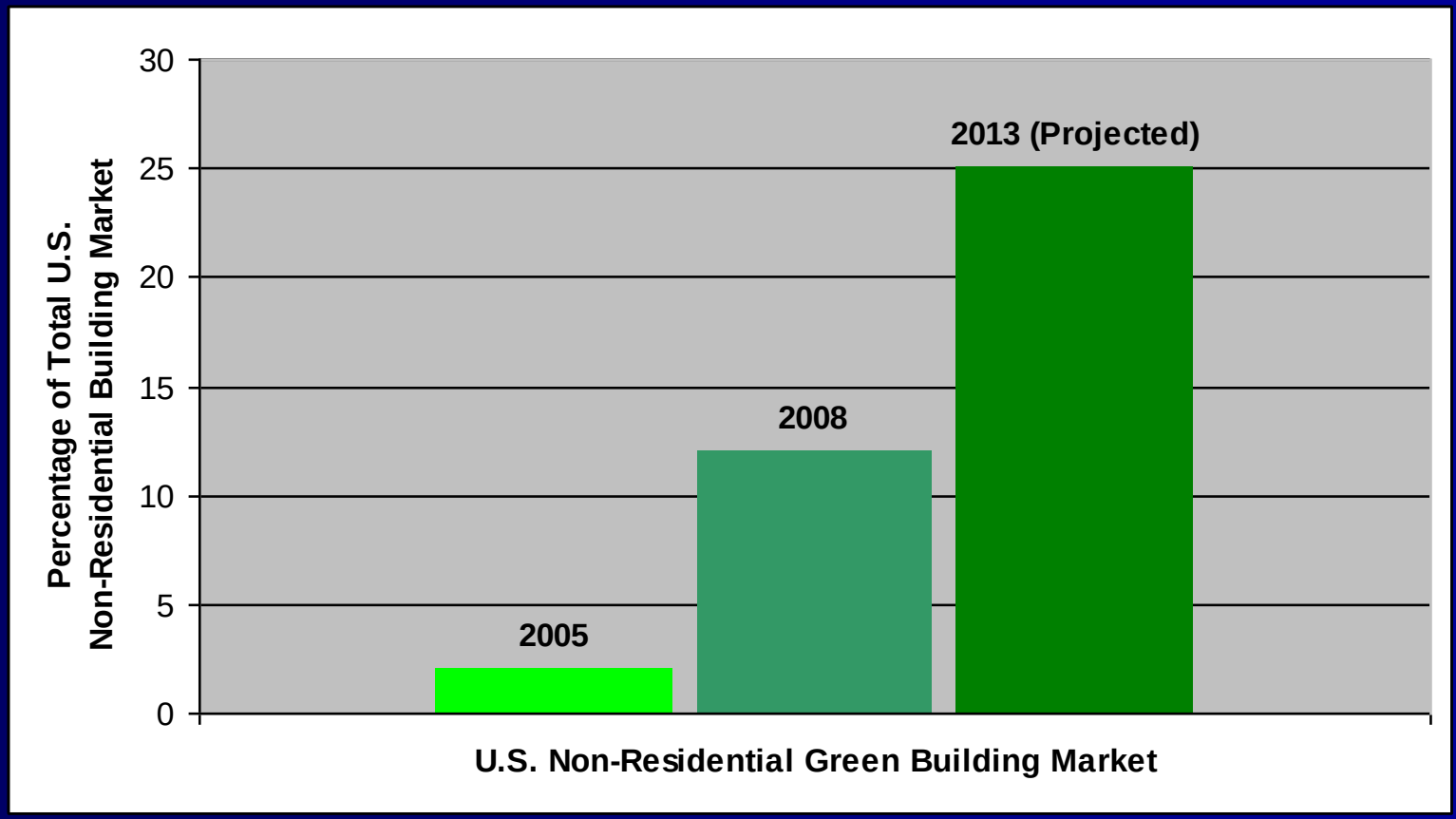
February 11, 2011

Louisville, Ky

Angela R. Stephens, LEED AP +BD&C, GA-CR®

Stites & Harbison, PLLC

Green Building on the Rise



Voluntary to Mandatory

- Found in 45 states
  - 206 localities
    - 142 cities,
    - 36 counties, and
    - 28 towns
  - 34 state governments,
  - 14 federal agencies or departments,
  - 17 public school jurisdictions and
  - 41 institutions of higher education
    http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1852

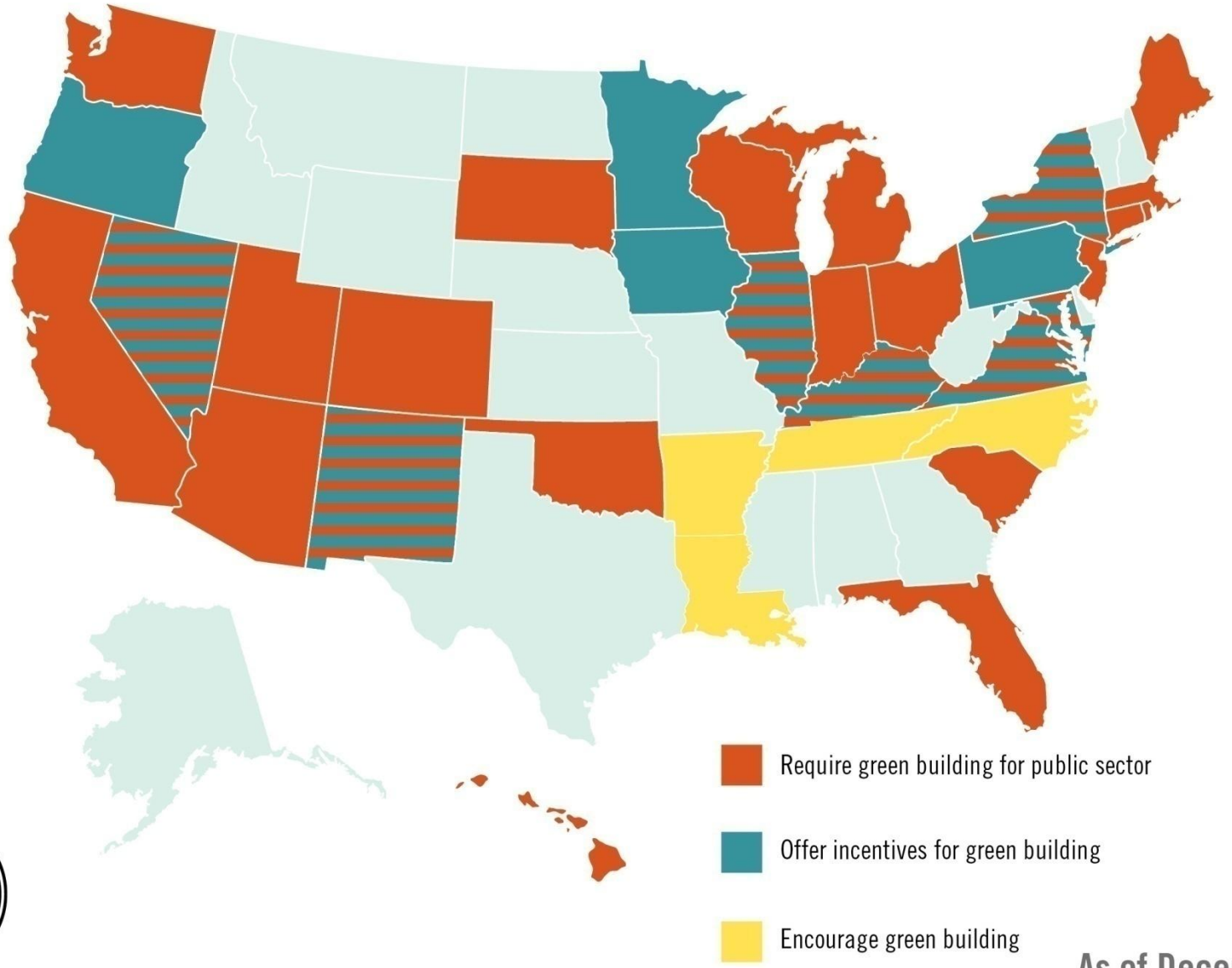
LEED Initiatives in Governments and Schools

- Boston – Zoning Code
  - LEED-NC Certification
  - public and private development projects over 50,000 SF.
- Chicago – Expedited Permitting
  - Green Construction
- Washington D.C.
  - 2009 –Green Features
    - Public and private
    - all new construction or major renovations
    - private, nonresidential buildings 50,000 SF or more must
  - 2012 – LEED Certification
    - nonresidential and post-secondary educational facilities
    - Bond

Federal Projects

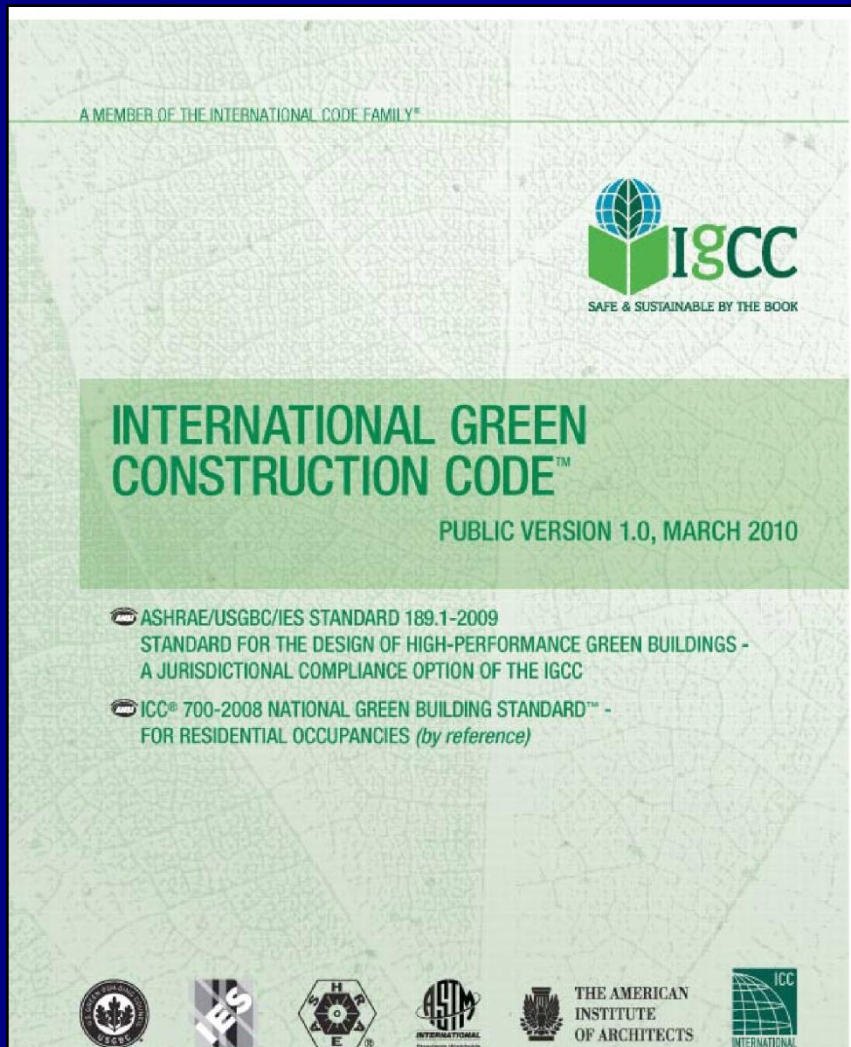
- GSA now requires LEED Gold certification
- Previously required LEED Silver level

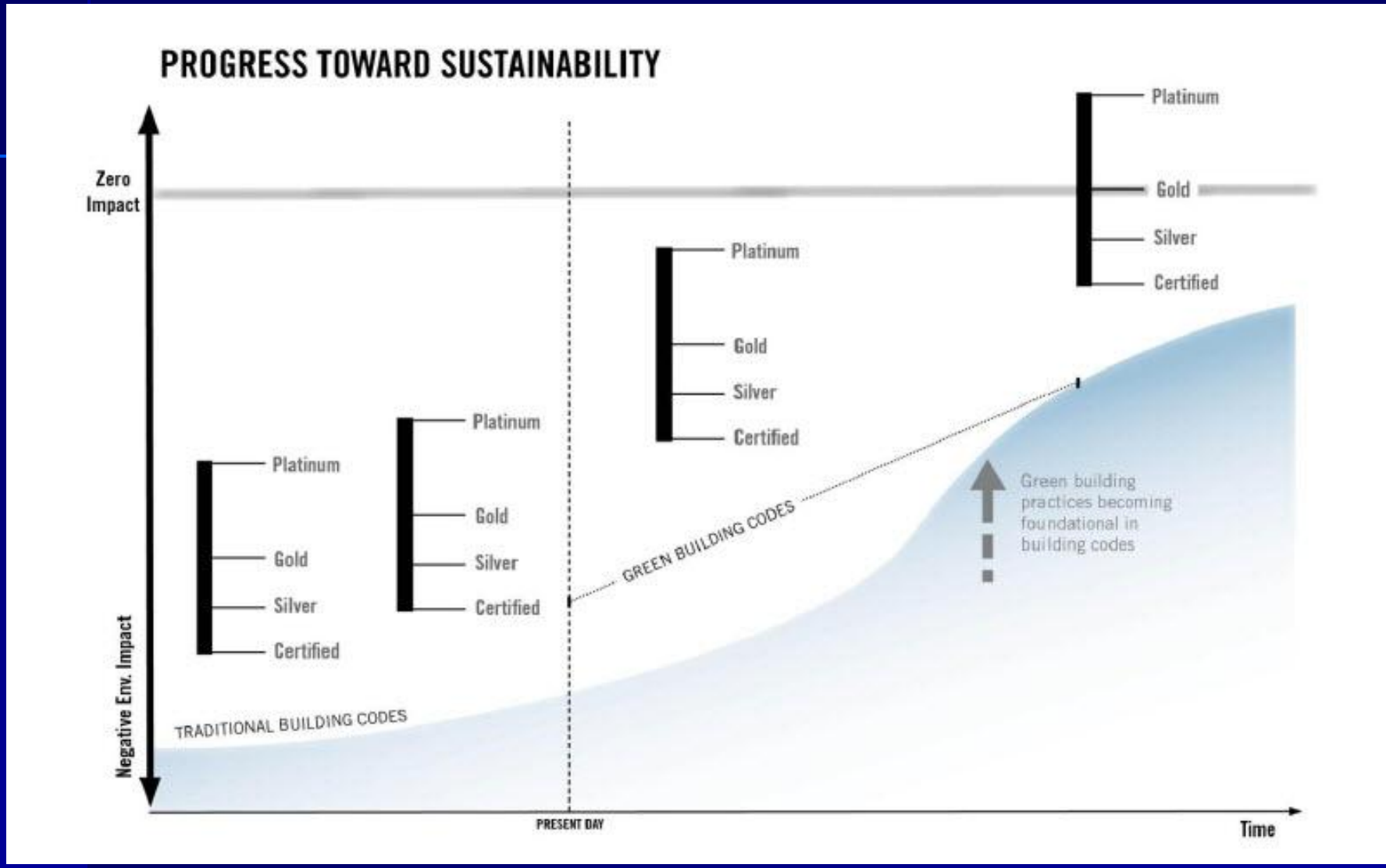
State Green Building Policies



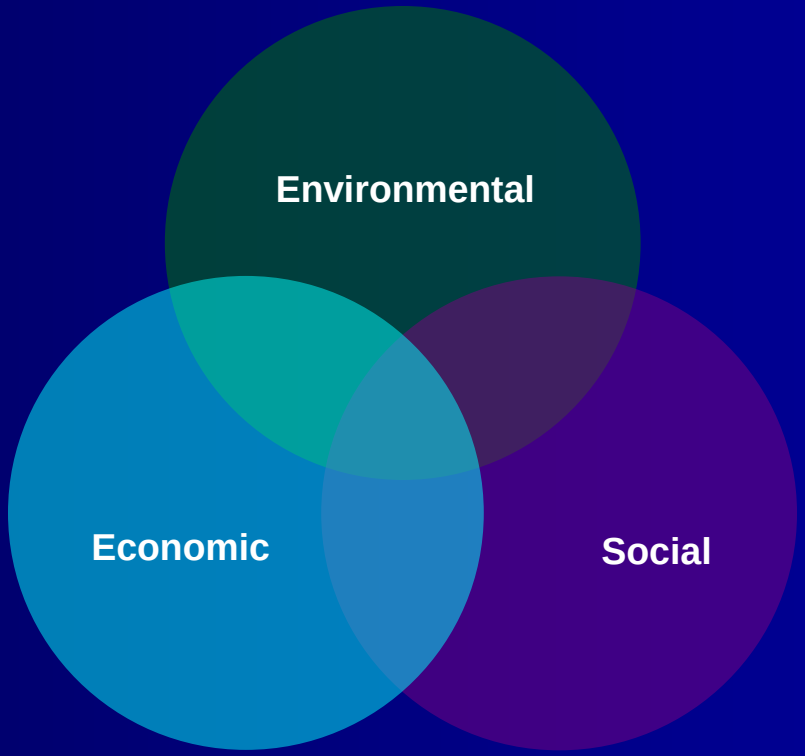
As of December 2009

New Standards Which May By Adopted by States




PROGRESS TOWARD SUSTAINABILITY
Zero Impact
Negative Env. Impact
Platinum
Gold
Silver
Certified
Platinum
Gold
Silver
Certified
Platinum
Gold
Silver
Certified
Platinum
Gold
Silver
Certified
GREEN BUILDING CODES
Green building practices becoming foundational in building codes
TRADITIONAL BUILDING CODES
PRESENT DAY
Time

Why Go Green?



WHY GO GREEN?

1) Energy/Operational Cost Savings
2) Tax Incentives
3) Financing
4) Healthier Workspace?
5) Increased Productivity?
6) Better for Environment
7) Positive Press

STITES & HARBISON PLLC
ATTORNEYS

Rating Systems

LEED 2009 FOR NEW CONSTRUCTION AND MAJOR RENOVATIONS

For Public Use and Display
LEED 2009 for New Construction and
Major Renovations Rating System
USGBC Member Approved November 2008

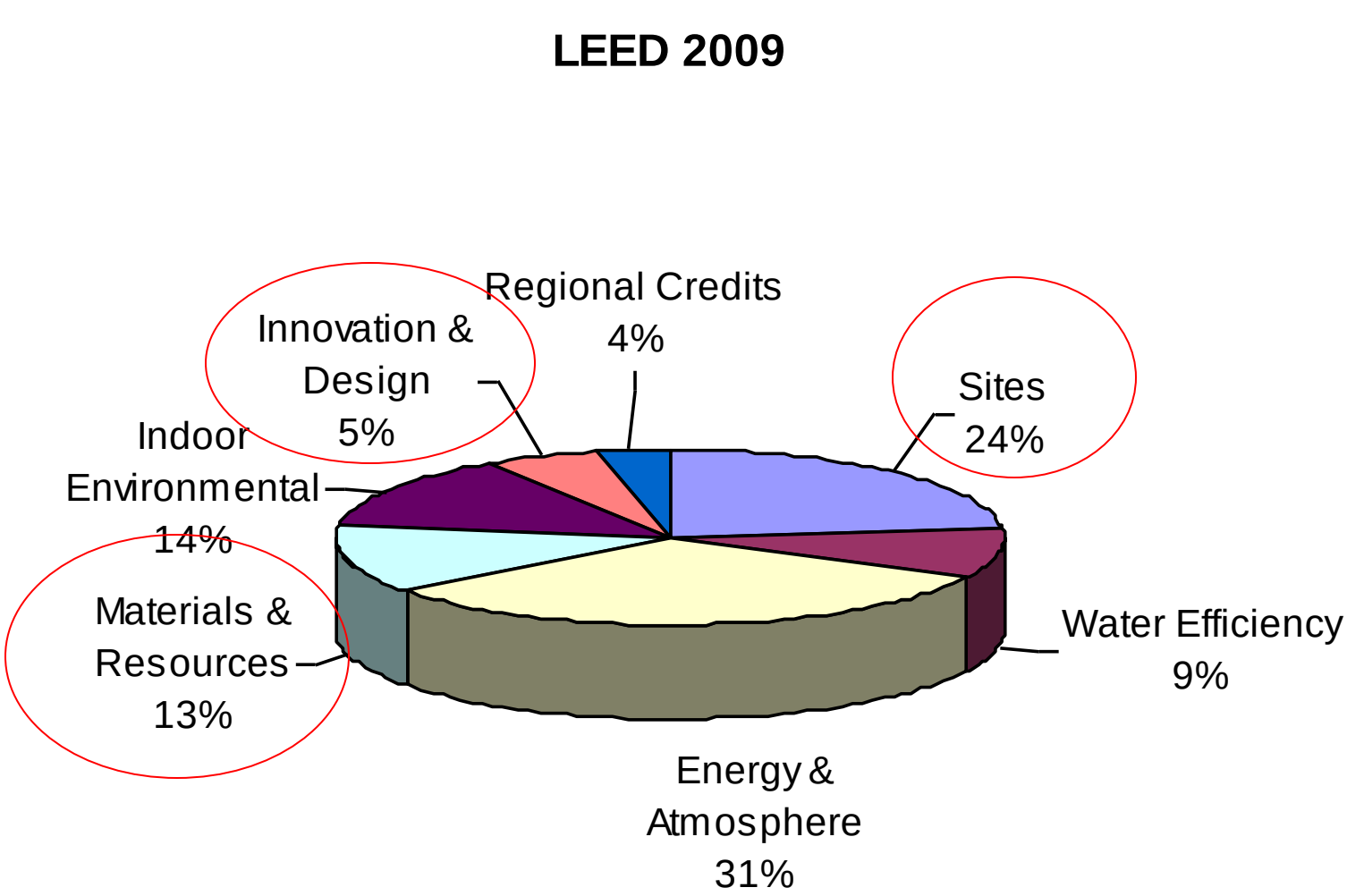
LEED® for New Construction & Major Renovations

Version 2.2
For Public Use and Display
October 2005

LEED Rating System Levels

USGBC has four levels of LEED:

Areas Asphalt Impacts



LEED Opportunities for Asphalt

	Sustainable Sites	**Possible Points:**	**26**
N			
	Prereq 1	Construction Activity Pollution Prevention	
	Credit 1	Site Selection	1
	Credit 2	Development Density and Community Connectivity	5
	Credit 3	Brownfield Redevelopment	1
	Credit 4.1	Alternative Transportation—Public Transportation Access	6
	Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
	Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
	Credit 4.4	Alternative Transportation—Parking Capacity	2
	Credit 5.1	Site Development—Protect or Restore Habitat	1
	Credit 5.2	Site Development—Maximize Open Space	1
	Credit 6.1	Stormwater Design—Quantity Control	1
	Credit 6.2	Stormwater Design—Quality Control	1
	Credit 7.1	Heat Island Effect—Non-roof	1
	Credit 7.2	Heat Island Effect—Roof	1
	Credit 8	Light Pollution Reduction	1

Stormwater Design – Quantity Control

- Reqs:
  - Undeveloped Sites – preserve conditions
  - Developed Sites – improve conditions

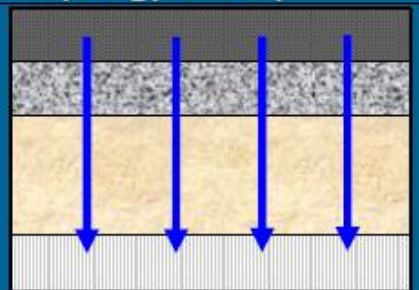
Figure 5. Porous asphalt parking lot one hour after being plowed. *Photo courtesy of the University of New Hampshire Stormwater Center*

Stormwater Design – Quality Control

- Reqs:
  - Impliment Stormwater Mgmt Plan that
    - promotes infiltration
    - Removes 80% of Total Suspended Solids

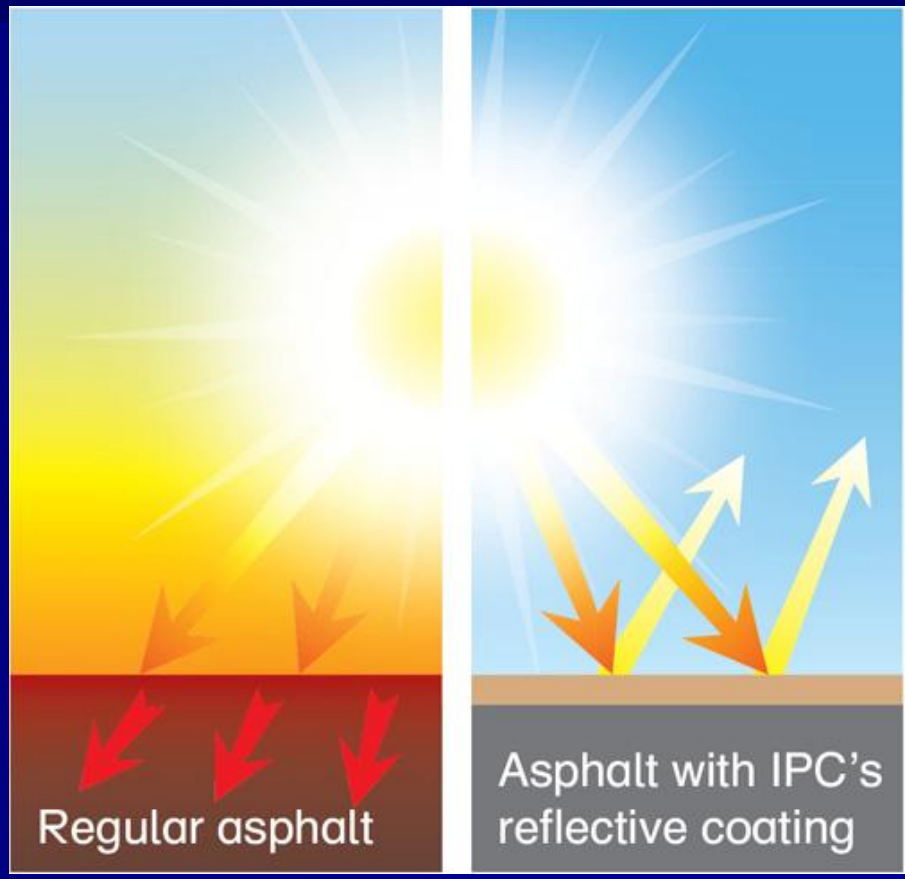
Porous Asphalt Pavement for Stormwater Management

The UNH Stormwater Center Web: www.unh.edu/erg/cstev/



Heat Island Effect – Non Roof

- 2 options:
  - 50% of hardscapes
    - Shaded
    - Paved w/ high SRI materials ≥ 29
    - Open grid paving
  - 50% of parking under cover



LEED Opportunities for Asphalt - MR

			Materials & Resources	14	Poin
Y			Prereq 1	**Storage & Collection of Recyclables**	Required
			Credit 1.1	**Building Reuse,** Maintain 75% of Existing Walls, Floors & Roof	2
			Credit 1.2	**Building Reuse,** Maintain 95% of Existing Walls, Floors & Roof	1
			Credit 1.3	**Building Reuse,** Maintain 50% of Interior Non-Structural Elements	1
			Credit 2.1	**Construction Waste Management**, Divert 50% from Disposal	1
			Credit 2.2	**Construction Waste Management**, Divert 75% from Disposal	1
			Credit 3.1	**Materials Reuse,** 5%	1
			Credit 3.2	**Materials Reuse,** 10%	1
			Credit 4.1	**Recycled Content,** 10% (post-consumer + ½ pre-consumer)	1
			Credit 4.2	**Recycled Content,** 20% (post-consumer + ½ pre-consumer)	1
			Credit 5.1	**Regional Materials,** 10% Extracted, Processed & Manufactured Regionally	1
			Credit 5.2	**Regional Materials,** 20% Extracted, Processed & Manufactured Regionally	1
			Credit 6	**Rapidly Renewable Materials**	1
			Credit 7	**Certified Wood**	1
Yes	?	No			

Construction Waste Management

- 1-3 points
- Divert 50% - 95% of Debris based on weight or volume
- Recycle, donate
  - Reclaimed Asphalt Pavement (RAP)

Materials Reuse

1-3 points

Use salvaged, refurbished, or reused materials for 5%, 10%, or 15% of bldg materials

- Reused - it was fixed on-site items and can't fill original purpose,
- Refurbished - it was a finish item that was refurbished,
- Salvaged - reused off-site items,
  - RAP

Recycled Content

Use recycled materials for 10%, 20%, or 30% (based on cost) of construction materials

MR Credit 4: Recycled Content

1–2 Points

Intent

To increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Requirements

Use materials with recycled content[1] such that the sum of postconsumer[2] recycled content plus 1/2 of the preconsumer[3] content constitutes at least 10% or 20%, based on cost, of the total value of the materials in the project. The minimum percentage materials recycled for each point threshold is as follows:

Recycled Content	Points
10%	1
20%	2

The recycled content value of a material assembly is determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

STITES & HARBISON PLLC
ATTORNEYS

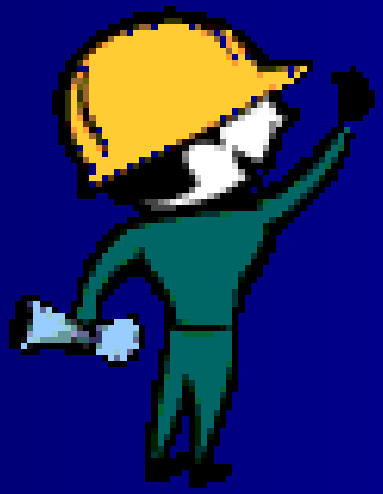
Regional Materials

LEED Opportunities for Asphalt - ID

Yes	?	No			
			Innovation & Design Process	6	Points
			Credit 1.1	**Innovation in Design:** Provide Specific Title	1
			Credit 1.2	**Innovation in Design:** Provide Specific Title	1
			Credit 1.3	**Innovation in Design:** Provide Specific Title	1
			Credit 1.4	**Innovation in Design:** Provide Specific Title	1
			Credit 1.5	**Innovation in Design:** Provide Specific Title	1
			Credit 2	**LEED® Accredited Professional**	1
			Regional Bonus Credits	4	Points
			Credit 1.1	**Region Specific Environmental Priority:** Region Defined	1
			Credit 1.2	**Region Specific Environmental Priority:** Region Defined	1
			Credit 1.3	**Region Specific Environmental Priority:** Region Defined	1
			Credit 1.4	**Region Specific Environmental Priority:** Region Defined	1

- Warm Mix Asphalt
- RAP

QUESTIONS??



ANGELA R. STEPHENS, LEED AP

- **Civil Engineering Degree from University of Louisville Speed Scientific School**
- ***Certifications***
  - LEED AP + BD&C
  - Green Advantage - CR
- Member:
  - KY Chapter U.S. Green Building Council, Education Chair, Board Member
  - National Association of Women in Construction
  - Society of American Military Engineers
  - ABA Forum on the Construction Industry

Stites & Harbison, PLLC
400 W. Market St., Suite 1800
Louisville, KY 40202

Office: (502) 681-0388
Fax: (502) 779-6027
Mobile: (502) 592-6564
astephens@stites.com