



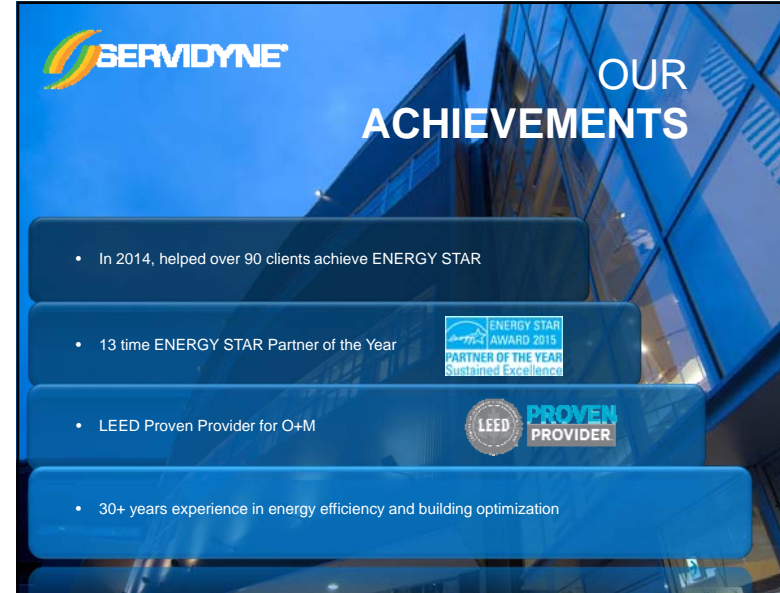
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SERVIDYNE
WWW.SERVIDYNE.COM



AEE Georgia
Building Certifications

April 27, 2015



SERVIDYNE

OUR ACHIEVEMENTS

- In 2014, helped over 90 clients achieve ENERGY STAR
- 13 time ENERGY STAR Partner of the Year 
- LEED Proven Provider for O+M 
- 30+ years experience in energy efficiency and building optimization

Building Certifications


- Overview of voluntary rating systems
 - Energy Only
 - Sustainability
- Focus on largest players in the market
 - Provide context for Georgia
- Discuss recent developments and future plans
- Q&A

Why Certify?


- Because they have to → local ordinances, mandates
- Retain/Increase property values
- Faster lease ups; lower vacancy rates
- Lower operating costs
- Tenants ask for it
- Ownership sustainability initiative
- Earn recognition for efforts to improve energy/sustainability
- Market differentiation

Building Certifications


Energy



ENERGY STAR



DOE Commercial Building Energy Asset Score



ASHRAE's Building Energy Quotient



Sustainability
(Energy + Water, Materials, IEQ, etc)

LEED

BD+C

ID+C



O+M

Residential


HOMES

ND





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Energy



ENERGY STAR



Commercial Building Energy Asset Score



Building Energy Quotient

Energy Efficiency Compared to Peers (O&M)

Energy Efficiency Compared to Own Potential (Assets)


Assets AND O&M Drive toward Net-Zero Energy

More detailed inputs

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ENERGY STAR Overview

- Portfolio Manager and Benchmarking
- Scale of 1-100 - percentile ranking compared to overall stock
- Score based on:
 - 12 months of utility data
 - Size and location
 - Occupancy details (space usage, population, hours)
- ENERGY STAR Certification Eligibility:
 - Score of 75 or higher (top 25%)
 - Annual Certification
 - Acceptable Indoor Environmental Conditions, verified by a PE/RA:
 - Indoor air quality / ventilation
 - Thermal comfort
 - Illumination



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ENERGY STAR

- Property types: office buildings, K-12 schools, hotels, retail stores, hospitals, data centers, multi-family residences
 - Not: college/university, enclosed mall, convention center, restaurant, fitness center, laboratory, medical offices, daycare, bar/nightclub, aquarium...
 - 25% of GSF maximum non-ratable space usage
 - Parking GSF < Building GSF
- Usage detail minimums:
 - 5,000 SF
 - 30 hr/week
 - 1 worker
 - Offices need 1 PC
 - Multifamily housing needs 20 units
- Utility data:
 - ALL fuel types for entire building – electricity, gas, oil, steam, PV generation
 - 12 full consecutive months of data for all meters and fuel types

ENERGY STAR Score (1-100)	
Current Score:	85
Baseline Score:	70
Weather-Normalized Source EUI (kBtu/ft ²)	
Current EUI:	169.0
(28.4% lower than median)	
Baseline EUI:	176.9
(5.6% lower than median)	

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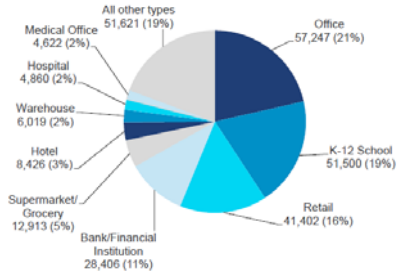
Benchmarking in Portfolio Manager

Buildings Benchmarking in Portfolio Manager

267,016 Properties
28.2 Billion ft²
40% Market Penetration

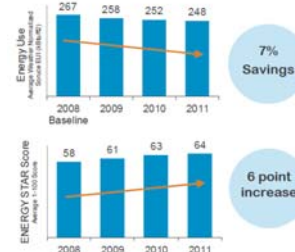
Benchmarking by Building Type

Number of Buildings

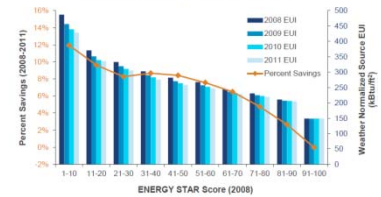


Benchmarking in Portfolio Manager

Energy Savings in Portfolio Manager



Savings Vary with ENERGY STAR Score

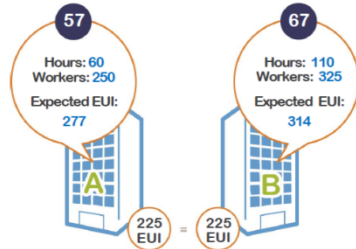
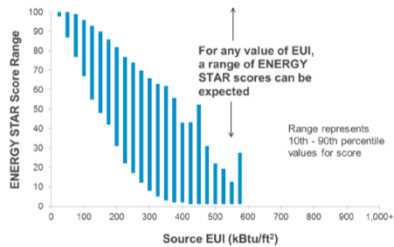


Benchmarking Offices

Offices Using Portfolio Manager

60,848 Properties
8.7 Billion ft²
63 Average ENERGY STAR Score

Score Range for Offices



Certified Properties Nationally

ENERGY STAR Certified Buildings

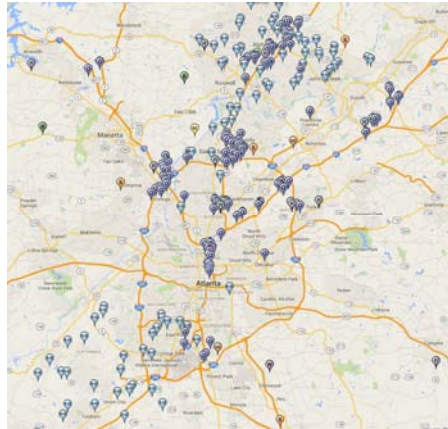
25,000 Properties
3.7 Billion ft²
35% Less Energy than Typical Buildings

Growth in Certifications

Cumulative Number of Buildings



Certified Properties in Georgia (2014)



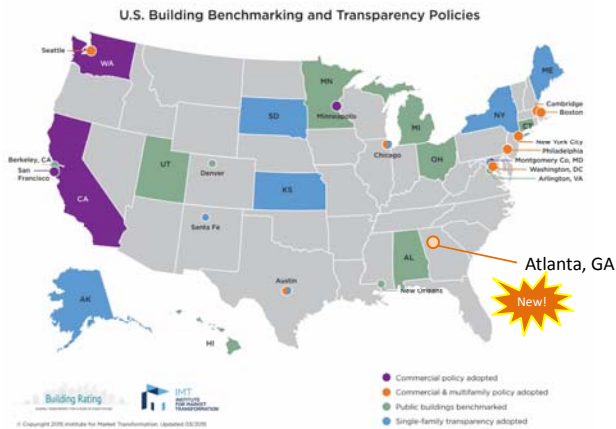
Certified Properties in Atlanta



2015 ENERGY STAR TOP CITIES		
1	Washington, DC • 480 ENERGY STAR Certified Buildings last year	
2	Los Angeles • 475	5 San Francisco • 292
3	Atlanta • 328	6 Chicago • 251
4	New York • 299	7 Dallas-Fort Worth • 248
		8 Houston • 235
		9 Denver • 195
		10 Boston • 176



Benchmarking & Disclosure Mandates



Atlanta Commercial Buildings Energy Efficiency Ordinance

Passed April 20, 2015

- Energy Benchmarking
 - City Properties >10,000 GSF in 2015
 - Non-City Properties
 - >50,000 GSF in 2015
 - >25,000 GSF in 2016
 - Benchmarking Disclosure
 - Energy Audits every 10 years
 - Retro-commissioning (optional)
- 2016
- Targets for 2030 (compared to 2013 levels):
 - 20% reduction in commercial energy consumption
 - 50% reduction in carbon emissions
 - Covers about 2,350 buildings

2015 = 90 days after Mayor signs ordinance!



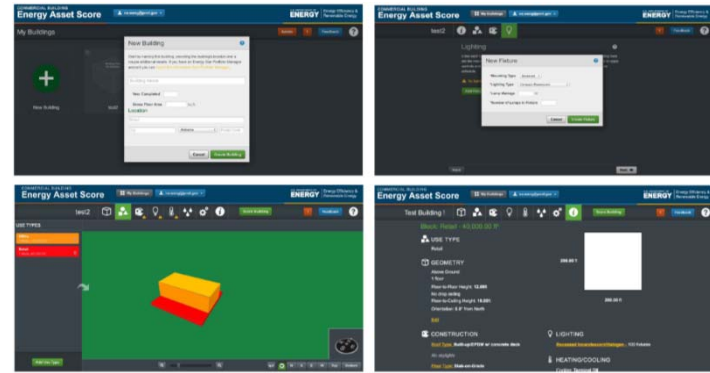
Updates and Focuses

- Spread of mandatory benchmarking programs
 - Emphasis on data quality
 - Ease of use of Portfolio Manager
- Data Checker’s error alerts
- Reporting
- Test Designation
- “N/A” reasons

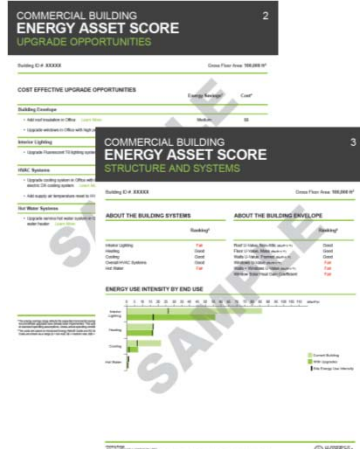
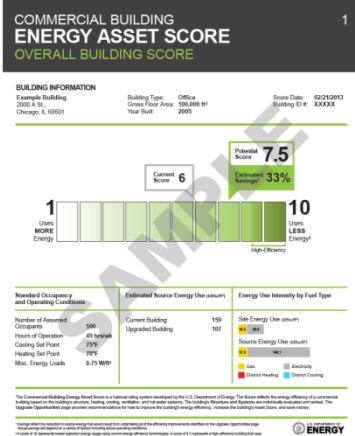


DOE Commercial Building Energy Asset Score (2015)

Simulation (EnergyPlus) to evaluate “physical and structural energy efficiency”

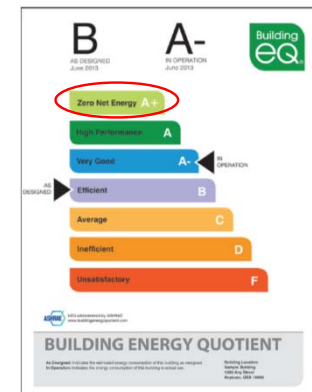


Energy Asset Score




ASHRAE’s Building Energy Quotient (2012)

- As Designed
 - Energy modeling
 - Independent of operational and occupancy variables
 - Licensed Professional
- In Operation
 - ASHRAE Level 1 Audit
 - Low/No Cost Measures
 - 12-18 months of operating data
 - Licensed Professional




Energy

- Tools for measuring, tracking, comparing
- Differences in inputs, level of effort, market uptake
- All trying to reduce the amount of energy used by buildings




<http://www.energystar.gov/buildings>



<https://buildingenergyscore.energy.gov/>

Commercial Building Energy Asset Score



<http://www.buildingenergyquotient.org/>

Building Energy Quotient

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Sustainability


Energy plus water, site, materials, IEQ...

LEED


BD+C

ID+C

O+M



LIVING BUILDING CHALLENGE



GREEN GLOBES

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LEED Rating Systems

BD+C

ID+C

O+M

ND

HOMES

Building Design and Construction

Interior Design and Construction

Building Operations and Maintenance

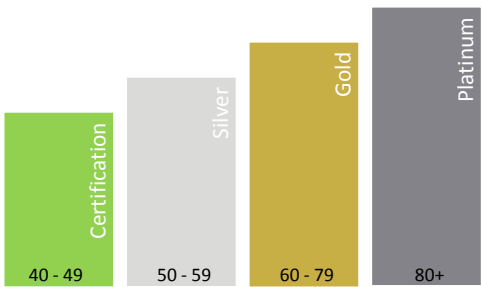
Neighborhood Development

Homes

Site
Water
Energy & Atmosphere
Materials & Resources
Indoor Environmental Quality

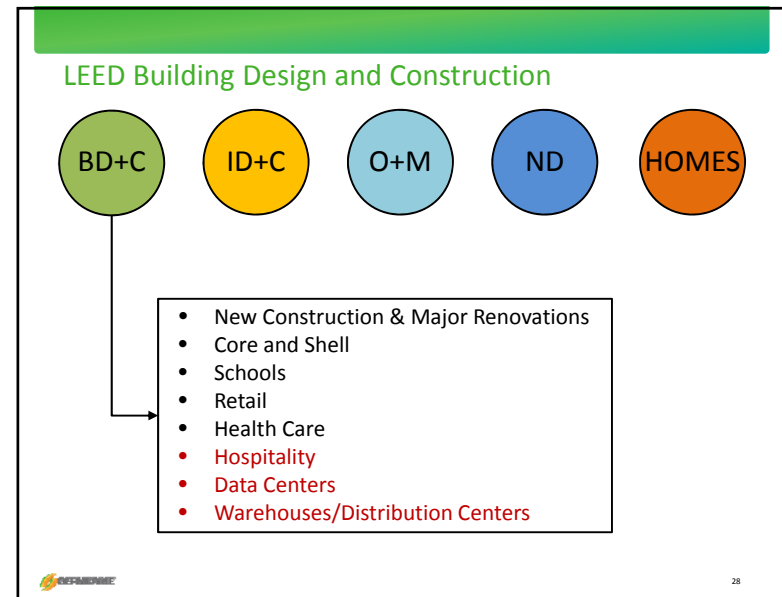
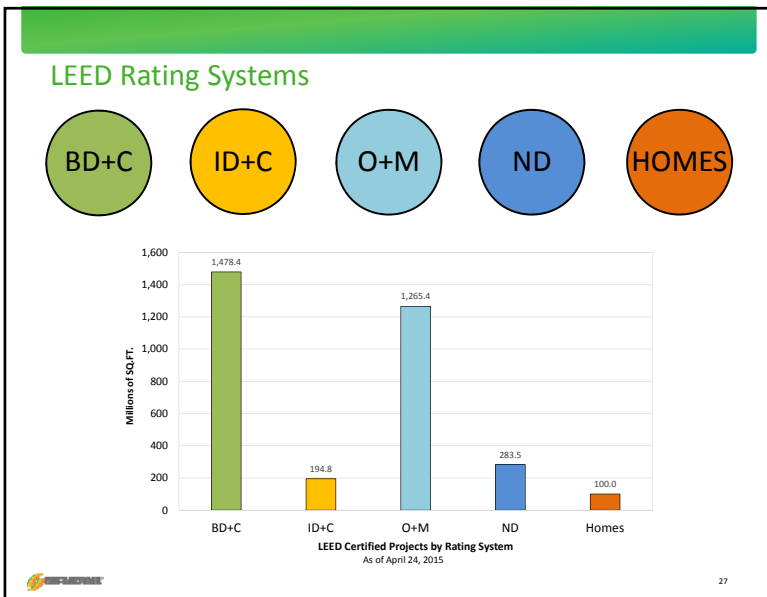
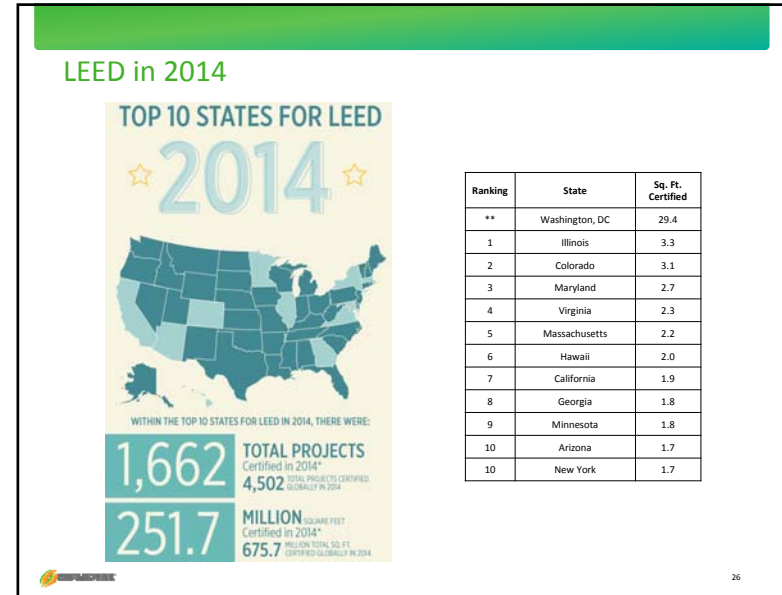
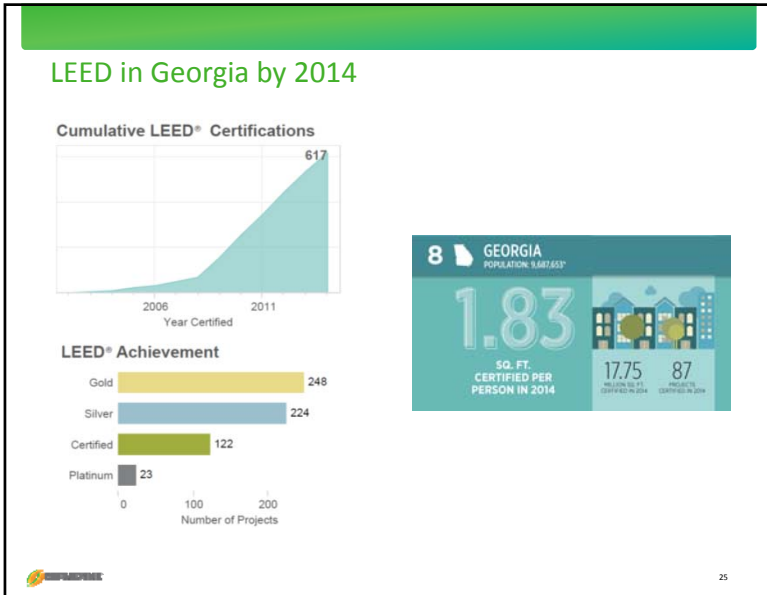
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LEED Certification Levels



- Must earn all prerequisites
- Mix and match credits to earn points

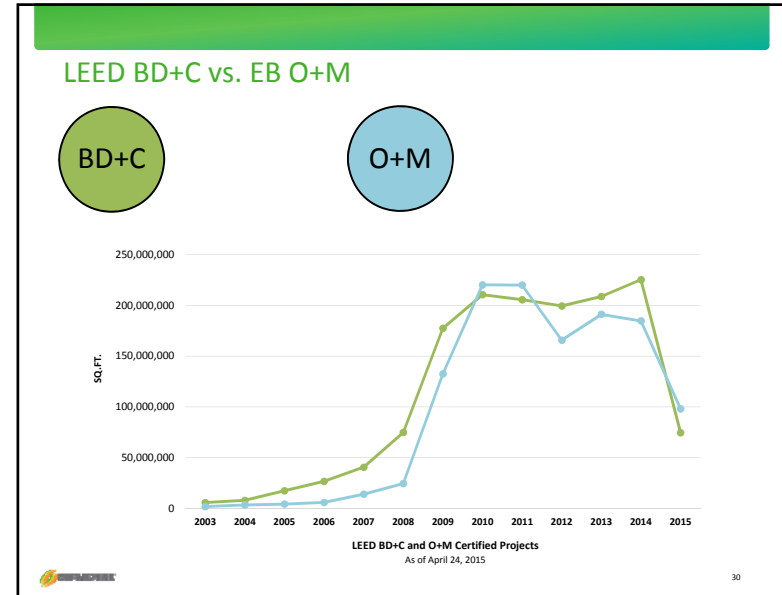
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LEED Operations and Maintenance

- BD+C
- ID+C
- O+M
 - Existing Buildings (EB)
 - Schools
 - Retail
 - Hospitality
 - Data Centers
 - Warehouses/Distribution Centers
- ND
- HOMES

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LEED v4

- Launched at Greenbuild , November 2013
- Raises the bar
 - References new standards
 - Increases thresholds
- Added new category: Location and transportation
- Reallocated points

- Major Prerequisite Changes
 - BD&C
 - WE: Whole-building metering; WaterSense labels; Minimum 30% landscape water use reduction
 - EA: ASHRAE 90.1-2010
 - IEQ: ASHRAE 62.1-2010; No smoking area in building interior except residential
 - O&M
 - SS: Site management policy
 - WE: Changed baseline year to 1995; whole-building metering
 - EA: Minimum ENERGY STAR score of 75
 - IEQ: ASHRAE 62.1-2010

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LEED O+M Categories

2009 Category	Pre-requisites	Points	v4 Category	Pre-requisites	Points
	-	-	Location & Transportation	0	15
Sustainable Sites	0	26	Sustainable Sites	1	10
Water Efficiency	1	14	Water Efficiency	2	12
Energy & Atmosphere	3	35	Energy & Atmosphere	4	38
Materials & Resources	2	10	Materials & Resources	2	8
Indoor Environmental Quality	3	15	Indoor Environmental Quality	3	17
Innovation	0	6	Innovation	0	6
Regional Priority	0	4	Regional Priority	0	4
Totals	9	110	Totals	12	110

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Older Versions: Sunset Dates & Updates

- **Sunset Dates**
 - NCv2.2/CSv2.0/Civ2.0/Schoolsv2007/EBOMv2008
 - Must submit by June 27, 2015
 - v2009
 - Registration to end October 31, 2016
 - Must submit by June 30, 2021
- **Ongoing Updates**
 - Make certain requirements more stringent → Raise the bar!
 - EBOM: Raise the minimum ENERGY STAR score requirement
 - BD&C: Reference a newer version of ASHRAE Standard 90.1



LEED Existing Buildings: Recertification

- Must recertify every 5 years
- Streamlined submittal for “Established” credit elements
- Provide latest 25% of recertification performance period for “Performance” related credit elements



LEED Dynamic Plaque

- Performance monitoring and scoring platform
 - Alternative method to achieve LEED Recertification
- Any previously LEED Certified project can use DP except for Homes and ND projects
- Simplifies inputs and standardizes all rating systems
- Earn LEED Certification annually
- Future of LEED



Other Sustainability Rating Systems



- Fix the damage: built environment can restore the natural environment
- Eight Certified Projects
- 945 Certified Projects
 - New Construction (275)
 - Existing Buildings (668)
 - Sustainable Interiors (2)
- Recommended third-party certification for the U.S. Government (incl. LEED)
- Includes a survey and third-party assessors
- Scoring is 4 Globes; 1000-points



Sustainability Trends Summary

- LEED
 - v4 is coming but the market isn't ready for it
 - Register under v2009 before Oct. 31, 2016
 - Recertification is due for many EBOM projects
 - Dynamic Plaque is the future of LEED but is just getting started
- Living Building Challenge
 - We strive for this but is nearly impossible to achieve
- Green Globes
 - Gaining popularity b/c of the less cumbersome process



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QUESTIONS?

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