

# High-Performance Building Certification Systems Review

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*Project Overview*  
*5/16/2019*  
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# Overview

Purpose: To provide background and status of GSA's high-performance building certification systems review

Today's Topics:

- Statutory requirement
- Project background
- Current review process
- *Findings Report*
- Next Steps

## Definition

# What is a High-performance Building Certification System?

- A tool used to evaluate and measure achievements in sustainable design, construction and operations
- Certification systems cover various elements of sustainable design including siting, energy, water, materials, and indoor environmental quality.
- Rewards relative levels of compliance or building performance with specific efficiency as well as environmental goals and requirements

## Statutory Requirement

# Energy Independence and Security Act of 2007

- Sections 433 (a) and 436 (h) require GSA to conduct the review
  - GSA is required to identify high-performance building certification system(s) determined to be most likely to encourage a comprehensive and environmentally sound approach to certification of buildings in the Federal sector
  - GSA provides recommendation(s) to the Secretary of Energy
- DOE is required to formally identify high-performance building certification system(s)

# Background

## DOE Rule (2014)

- Systems\* **must** have:
  - Independent verification of system criteria;
  - A consensus-based development and revision process that provides an opportunity for public comment;
  - National recognition within the building industry;
  - Periodic evaluation and assessment of the environmental and energy benefits; and
  - Verification for post-occupancy assessment to demonstrate continued energy and water savings at least every four years after initial occupancy

*\* DOE Rule applies to systems that certify New Construction and Major Renovation projects above the Prospectus level only*

# Background

## GSA's Role

- To provide an objective, independent evaluation of certification systems based on statutory and other federal requirements, e.g. the Guiding Principles for Sustainable Federal Buildings.
- GSA screens for:
  - Availability
  - Whole building evaluation
  - 3rd party certification
  - Measures actual building performance

# Background

## Past Reviews (under EISA)

- 1<sup>st</sup> Review completed in 2008  
GSA recommended LEED as the most aligned system for use in the Federal sector
- 2<sup>nd</sup> Review completed in 2013  
GSA recommended both LEED and Green Globes as the most aligned systems for use in the Federal sector
- 3<sup>rd</sup> Review - To be completed 2019

## Background

# Review Process

- New methodology: engage the system owners in the review process
- A survey was sent directly to system owners
- An independent third party (Rocky Mountain Institute) reviewed completed surveys
- *Findings Report* documents information from system owners and 3rd party quality assurance review



# Systems Reviewed

## **New Construction and Major Renovation Building Certification Systems**

- LEED v4 for Building Design and Construction (LEED BD+C)
- Green Globes for New Construction (Green Globes NC)
- Living Building Challenge for New Construction (LBC NC)

## **Existing Building Certification Systems**

- LEED v4 for Building Operations and Maintenance (LEED O+M)
- Green Globes for Existing Buildings (Green Globes EB)
- Living Building Challenge for Existing Buildings (LBC EB)
- BREEAM USA In-Use (BREEAM)
- BOMA BEST Sustainable Buildings (BOMA)

## **Building Interior Certification Systems**

- LEED v4 for Interior Design and Construction (LEED ID+C)
- Green Globes for Sustainable Interiors (Green Globes Interiors)
- Living Building Challenge for Building Interiors (LBC Interiors)

# Findings

- No single system fully aligns with the specific federal requirements upon which they were evaluated
- Each of the building certification systems demonstrates alignment with the criteria in varying degrees
- General consistency among all systems on the aspects of building design, construction, operation, and maintenance that lead to high-performing buildings
- Each system recognizes the value and efficiency gained from taking a whole-building, integrated approach

# Findings

## *Development and Conformance Criteria Findings*

Criteria	Sub-criteria	LEED	Green Globes	LBC	BREEAM <sup>3</sup>	BOMA <sup>3</sup>
Process for Developing and Administering the Certification System	Consensus-based approach	✓	✓	✗	✗	✓
	Transparency	✓	✓	!	✓	✓
	Usability <sup>1</sup>	✓	✓	✓	✓	✓
	Maturity	✓	✓	✓	✓	✓
Conformity Assessment	Independence	✓	✓	✓	✓	✓
	Verification <sup>2</sup>	✓	✓	✓	✓	✓
	Post Occupancy evaluation	✓	!	✓	✓	✓

<sup>1</sup>See Appendix A for more information about the cost of each system

<sup>2</sup>Not included in DOE rule

<sup>3</sup>The DOE rule does not apply to systems certifying existing buildings

**Effectiveness Criteria Summary of Findings - Existing Building Certification Systems**

Criteria	Sub-criteria	Green				
		LEED O&M	Globes EB	LBC EB	BREEAM	BOMA
Healthy, Effective Environments	Ventilation and thermal control <sup>1</sup>	✓	⚡	⚡	⚡	⚡
	Daylighting and lighting controls <sup>2</sup>	✓	✓	⚡	✓	⚡
	Indoor air quality plans <sup>2</sup>	⚡	⚡	✓	⚡	✓
	Radon detection	✗	⚡	✗	✗	✓
	Moisture control <sup>1</sup>	✓	✗	✓	✗	✓
	Low-emitting materials <sup>1</sup>	✓	✗	✓	✓	✓
	Protecting IAQ during construction <sup>1</sup>	✓	⚡	⚡	⚡	⚡
	Environmental smoking control <sup>1</sup>	✓	✗	✓	✗	✗
	Integrated pest management	✓	✓	✗	✓	⚡
	Occupant health and wellness <sup>1</sup>	⚡	✓	✓	✓	⚡
Energy Efficiency	Actual energy use reduction <sup>1</sup>	⚡	⚡	⚡	✗	⚡
	ENERGY STAR® products <sup>1</sup>	⚡	⚡	✗	⚡	⚡
	Renewable energy <sup>2</sup>	✓	✓	✓	⚡	✓
	Clean and alternative energy <sup>2</sup>	✓	✓	✓	⚡	✓
	Metering <sup>2</sup>	✓	✓	✓	✓	✓
	Benchmarking <sup>1</sup>	✓	⚡	⚡	✓	✓
Water Use Efficiency and Management	Actual indoor water use reduction <sup>1</sup>	✓	⚡	⚡	⚡	⚡
	Actual outdoor water use reduction <sup>1</sup>	✓	⚡	⚡	⚡	⚡
	Water conserving products <sup>1</sup>	✓	✓	✗	✓	✓
	Meters <sup>1</sup>	✓	⚡	⚡	⚡	⚡
	Cooling towers	✓	✗	⚡	✗	✓
	Water efficient landscapes <sup>1</sup>	⚡	⚡	✓	⚡	⚡
	Alternative sources of water <sup>2</sup>	✗	✓	✓	✓	✓
	Stormwater management <sup>1</sup>	✓	✓	✓	✓	✓
Solid Waste Diversion	Space for collection and storage of recyclables <sup>1</sup>	✓	✓	✓	✓	✓
	Construction waste management <sup>1</sup>	✓	⚡	✓	✗	⚡
	Waste diversion for Occupants <sup>1</sup>	⚡	⚡	✓	⚡	⚡
Sustainable Procurement	Recycled content	⚡	⚡	✗	⚡	✓
	Biobased content <sup>2</sup>	⚡	⚡	✓	⚡	✗
	Environmentally preferable products <sup>1</sup>	✓	⚡	✓	✓	✓
	Ozone depleting compounds <sup>1</sup>	✓	✓	✓	⚡	✗
Siting	Access to public transportation	✓	✓	✓	✓	✓
	Access to public amenities/neighborhood assets	✗	✗	✓	✓	⚡
	Floodplain avoidance <sup>2</sup>	✗	✗	✓	✓	✗
	Occupant transportation emissions	✓	✓	✓	✓	✓
	Bicycling options	✓	✓	✓	✓	✓



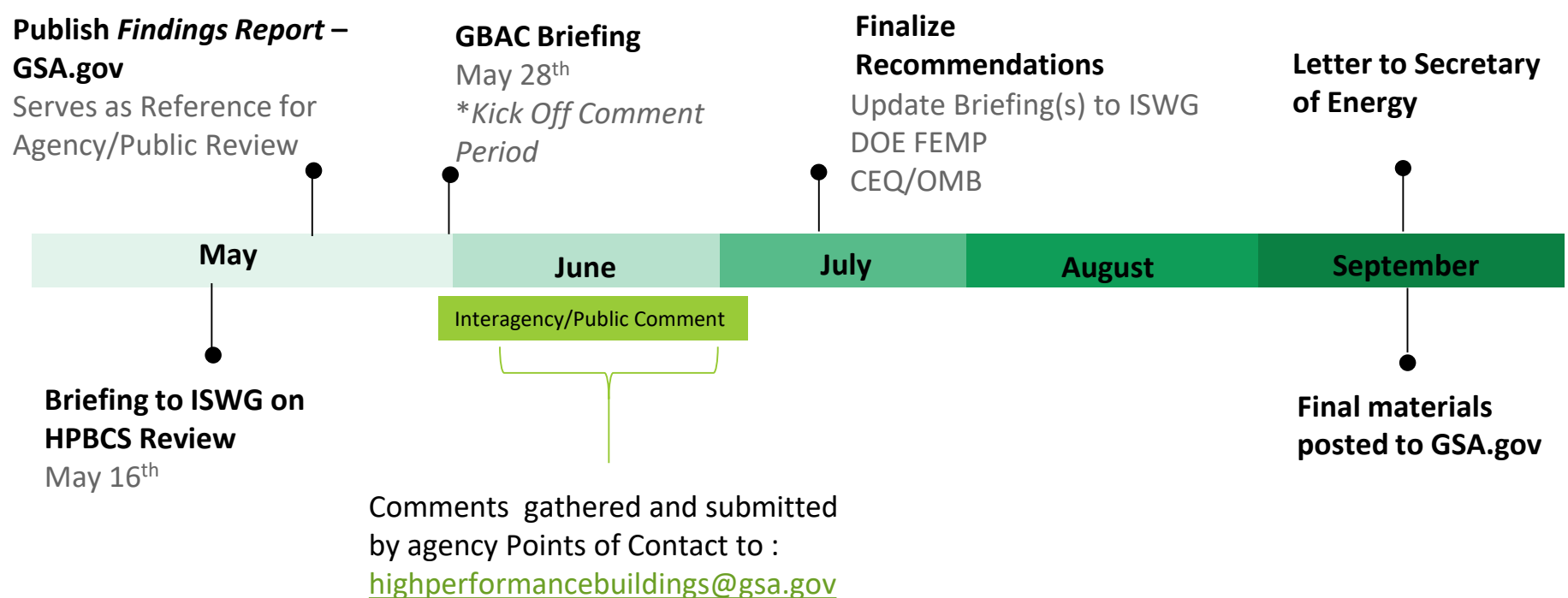
# Findings

## Effectiveness Criteria Summary of Findings - Existing Building Certification Systems

Criteria	Sub-criteria	Green				
		LEED O&M	Globes EB	LBC EB	BREEAM	BOMA
Energy Efficiency	Actual energy use reduction <sup>3</sup>	!	!	!	✗	!
	ENERGY STAR® products <sup>1</sup>	!	!	✗	!	!
	Renewable energy <sup>2</sup>	✓	✓	✓	!	✓
	Clean and alternative energy <sup>2</sup>	✓	✓	✓	!	✓
	Metering <sup>3</sup>	✓	✓	✓	✓	✓
	Benchmarking <sup>1</sup>	✓	!	!	✓	✓

# Next Steps

## Project Timeline – FY2019



# Agency Review and Comment

- GSA will notify agencies when draft recommendations are available for interagency review/comment (late May 2019).
  - Kevin Kampschroer has contacted CSOs to request a point of contact from each agency for comment consolidation and submission.
- Agencies will have ~1 month to review and comment.
  - *Findings Report* will be published by 5/24/19 on GSA.gov as a reference for agency review.
- GSA will provide an update to the ISWG in Summer 2019

# Questions?

Additional questions please send to

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