

# ENERGY STAR® and Green Building Rating Systems

USGBC  
Leadership in  
Energy and  
Environmental  
Design (LEED®)  
v4



Green  
Globes™  
 GREEN  
GLOBES

IREM  
Certified  
Sustainable  
Properties  
(CSP)



BOMA  
BEST®



BOMA  
BEST® Building  
Environmental  
Standards

BREAAAM  
BREEAM® USA

# Agenda

- Overview
  - ENERGY STAR
  - Green Building Rating Systems
- ENERGY STAR Tools
  - Portfolio Manager
  - Target Finder
  - Sustainable Buildings Checklist
- Using ENERGY STAR Tools
  - LEED
    - Building Design + Construction (BD+C) v4
    - Building Operations + Maintenance (O+M) v4
  - Green Globes
    - New Construction
    - Existing Buildings
  - IREM Certified Sustainable Properties (CSP)
  - BOMA BEST
  - BREEAM
- Question & Answer Session



# ENERGY STAR for Buildings and Plants

Voluntary EPA program that delivers environmental benefits and financial value through superior energy efficiency.



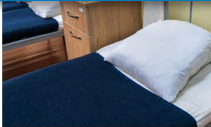


# Property types with 1-100 ENERGY STAR scores

## Scores based on CBECS data



Bank Branch



Barracks\*



Courthouses



Distribution Centers



Financial Offices



Hotels



K-12 Schools



Office Buildings



Medical Offices



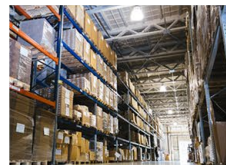
Residence Hall/Dormitory\*



Retail Stores



Supermarkets



Warehouses



Wholesale club/Supercenters



Worship Facilities

## Scores based on other survey data



Convenience Stores



Data Centers



Hospitals



Multifamily Housing



Senior Living Communities



Single-Family Homes\*



Wastewater Treatment Plants\*

# Green Building Rating Systems Overview

	LEED	Green Globes	IREM CSP	BOMA BEST	BREEAM
<b>Property Types Eligible</b>	All	All	Office, Multi-family, Shopping Center	All	All commercial and residential
<b>Building Types Eligible</b>	New & Existing Buildings	New & Existing Buildings	Existing Buildings	Existing Buildings	New & Existing Buildings, Renovations
<b>Assessment Process</b>	Submit templates documenting building design and management practices	Self-reported questionnaire process	Excel-based checklist with documentation requirements	Online assessment with compliance documentation requirements	Online assessment with third-party verification
<b>Criteria</b>	Prerequisites and Credits	Credits	Prerequisites and Credits	Prerequisites and Credits	Credits
<b>Verification</b>	LEED accredited professional	Assessor	IREM Board	BOMA BEST Verifier	Third-party assessor, licensed by BRE
<b>Time &amp; Cost</b>	Medium	Low	Low	Medium	Low-Medium
<b>Use ENERGY STAR as a standard within energy category</b>	Yes	Yes	Yes	Yes	Yes



# Why Do Green Building Rating Systems Use ENERGY STAR?

- Trusted mark of energy efficiency for over 20 years
- Based on frequently-updated data gathered through credible processes with transparent statistical methods
- Tools such as Portfolio Manager are no-cost, easy-to-use, and universally accessible
- Portfolio Manager “normalizes” data to account for
  - Location/climate
  - Building size
  - Building occupancy
  - Hours of operation
  - And more (depending on property type)



## ENERGY STAR Tools

Portfolio Manager

Target Finder

Sustainable Buildings Checklist





# Portfolio Manager for Benchmarking Existing Buildings

Portfolio Manager helps *operations* teams

- Benchmark the energy use of all properties in their portfolio
- Compare one building against a national sample of similar properties
- Track changes in energy and water use over time in a single building, groups of buildings, or entire portfolios
- Track and report cost savings and CO<sub>2</sub> emissions
- Set priorities for use of limited staff time and/or investment capital
- Receive an energy use intensity (EUI) value for each property
- Apply for the ENERGY STAR certification

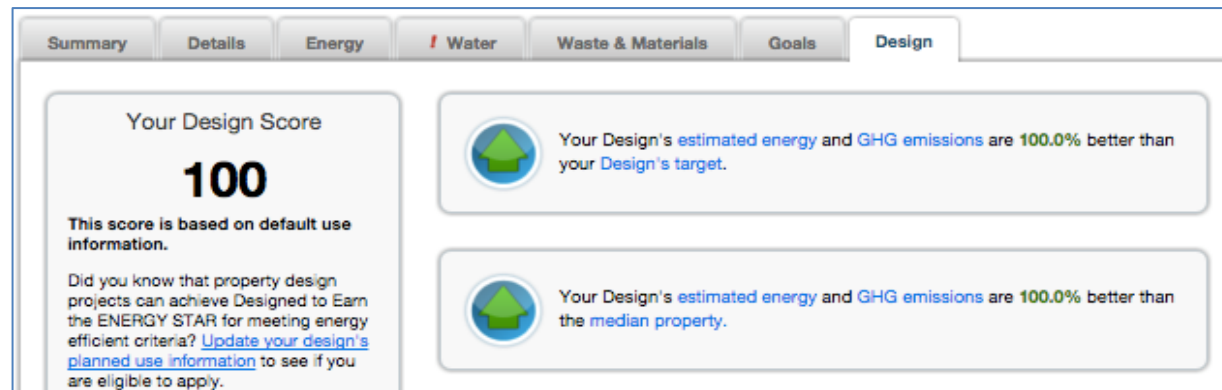


<http://www.energystar.gov/benchmark>



# Portfolio Manager for Projects in Design Phase

- Portfolio Manager's "Design" tab allows to you to save energy and property information for your new building design project for future comparison against actual performance
- Compare your energy estimates with your design target and the national median for your property type
- Compare between estimated, as-designed, and actual energy consumption once the property is built and occupied
- Generate documentation for energy certification recognition



# Target Finder for Projects in Design Phase

Target Finder is an energy performance calculator built into Portfolio Manager's Design tab, and is also a stand-alone tool. Target Finder calculates:

- Energy use intensity (EUI)
- Absolute energy required to achieve goal
- Estimated ENERGY STAR score (1-100) of design
- Energy costs and GHG emissions associated with design
- “Target Finder” is the term used by LEED, Green Globes, and CHPS

### Target

You can choose either a Target ENERGY STAR Score or a Target % Better than Median to see how much energy your property would need to be consuming annually to reach your target. If you have estimated your property's annual consumption, you can compare this against your target.

Target ENERGY STAR Score  (1-100) ENERGY STAR Scores are not available for every type of property because of availability of reliable reference information.

Target % Better than Median This is calculated based on the median property. For example, you might like your property to be 20% better than a typical property of the same type.

# Sustainable Buildings Checklist in Portfolio Manager

The Sustainable Buildings Checklist helps Federal agencies and non-Federal buildings

- Conduct initial and final building walkthrough assessments
- Track and easily view progress on each guiding principle
- Upload compliance documents to the repository for record keeping
- Create a portfolio-wide federal building sustainability roll-up report
- Review up-to-date energy and water metrics generated by Portfolio Manager

# Sustainable Buildings Checklist

- 1. Employ Integrated Assessment, Operation, and Management Principles
  - Integrated Assessment, Operation, and Management
    - 1.1. Team**
    - 1.2. Goals
    - 1.3. Plan
    - 1.4. Occupant Feedback
  - Commissioning
- 2. Optimize Energy Performance
  - Energy Efficiency
  - Onsite Renewable Energy
  - Measurement and Verification
  - Benchmarking
- 3. Protect and Conserve Water
  - Indoor Water
  - Outdoor Water
  - Storm Water
  - Water Efficient Products
- 4. Enhance Indoor Environmental Quality
  - Ventilation and Thermal Comfort
  - Moisture Control
  - Daylighting and Occupant Controls
  - Low-Emitting Materials
  - Integrated Pest Management
  - Tobacco Smoke Control
- 5. Reduce Environmental Impact of Materials
  - Recycled Content
  - Biobased Content
  - Environmentally Preferable Products
  - Waste and Materials Management
  - Ozone Depleting Compounds

## Guiding Principle: 1.1. Team

Use an integrated team to develop and implement policy regarding sustainable operations and maintenance.

[View References & Resources](#)

- Yes
- No
- In Process
- Not Assessed
- Not Applicable (N/A) - [Justification Required](#)

### Supporting Documentation

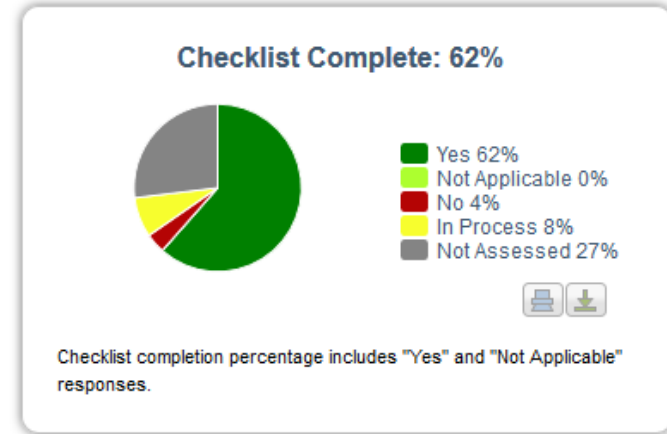
- Team charter, roster or equivalent
- Completed "Responsible Team Member" fields
- Other

[Upload and View Documents on File](#)

### Responsible Team Member

Team Member:

### Notes/Comments:



**Generate & Download A Printable Checklist**

This Printable Checklist can be used to show all of your responses to date or to prepare your responses in advance.

[Download & Print PDF](#)

<https://www.energystar.gov/buildings/tools-and-resources/how-use-sustainable-buildings-checklist-0>



# Results and Metrics Comparisons

Summary | Details | Energy | Water | Waste & Materials | Goals | Design

**Your Design Score**

## 78

**Congratulations! Your design is eligible for Designed to Earn the ENERGY STAR.**

Did you know that property design projects can achieve Designed to Earn the ENERGY STAR for meeting energy efficient criteria? [Learn more.](#)

[Apply for Designed to Earn the ENERGY STAR recognition](#)

Your Design's estimated energy and GHG emissions are **3.3%** worse than your Design's target.

Your Design's estimated energy and GHG emissions are **27.7%** better than the median property.

You have not entered any information about your property's performance while in use yet. But, when you do, you can see the difference here between the actual performance of your property and your design.

Download Your Statement of Energy Design Intent (SEDI)

This document provides an overview of your design and metrics. It is also used for Designed to Earn the ENERGY STAR applications.

[Download & Print Statement](#)

**About this Property's Design**

**Target:** Target % Better than Median: 30

**Uses:** K-12 School (100.0%)

**Energy Types:** Electric - Grid (31.3%)  
Natural Gas (68.7%)

[Edit](#)

**Energy Use Intensity (EUI)**

Category	Site EUI (kBtu/sq ft)	Source EUI (kBtu/sq ft)
Design Project	~55	~85
Your Design Target	~55	~80
Median Property	~75	~115

**Metrics Comparison for Your Design and/or Target**

Metric	Design Project	Design Target*	Median Property*	Property Measurement in Use
ENERGY STAR score (1-100)	78	80	50	<a href="#">Not Available</a>
Source EUI (kBtu/sq ft)	87.1	84.3	120.5	<a href="#">Not Available</a>
Site EUI (kBtu/sq ft)	54.6	52.8	75.4	<a href="#">Not Available</a>
Source Energy Use (kBtu)	17,428,601.6	16,865,954.7	24,094,221.0	<a href="#">Not Available</a>
Site Energy Use (kBtu)	10,912,001.7	10,559,730.4	15,085,329.1	<a href="#">Not Available</a>
Energy Cost (\$)	141,959.63	137,376.76	196,252.52	<a href="#">Not Available</a>
Total GHG Emissions (Metric Tons CO <sub>2</sub> e)	765.8	741.1	1,058.7	<a href="#">Not Available</a>

\* To perform calculations for your design target, we use the fuel mix that you've entered for your design energy estimates. If you have not entered estimated design energy, we'll use the average for your state. To perform calculations for the national median, we will assume the fuel mix and operational details of your property measurement in use, if available. Otherwise, we will use your design estimates.

MyPortfolio | Sharing | Reporting | Recognition

**Charts & Graphs**

*Weather Normalized Source EUI*

**How much total primary fuel would be required by my properties, under average weather conditions?**

**ENERGY STAR Performance Documents**

- [Statement of Energy Performance \(SEP\)](#)
- [Statement of Energy Design Intent \(SEDI\)](#)
- [Data Verification Checklist](#)
- [Progress & Goals Report](#)
- [ENERGY STAR Scorecard](#)
- [Water Scorecard](#)

**Templates & Reports (9)** [Create a New Template](#)

Name	Status	Action
Performance Highlights	No Report Generated	<a href="#">I want to...</a>
Energy Performance	No Report Generated	<a href="#">I want to...</a>
Emissions Performance	No Report Generated	<a href="#">I want to...</a>
Water Performance	No Report Generated	<a href="#">I want to...</a>
Fuel Performance	No Report Generated	<a href="#">I want to...</a>
ENERGY STAR Certification Status	No Report Generated	<a href="#">I want to...</a>
Partner of the Year Report	No Report Generated	<a href="#">I want to...</a>
Sustainable Buildings Checklist Report	No Report Generated	<a href="#">I want to...</a>
Waste Performance	No Report Generated	<a href="#">I want to...</a>

Generated reports will only be available for 90 days. After that time you just need to "generate" a new report to populate your template with data.

# ENERGY STAR Resources

## Training Resources

- Access “How-to” guides and video training: <https://www.energystar.gov/buildings/training>
- Register for webinars: <http://esbuildings.webex.com>

## Access Tools and Resources:

- <https://www.energystar.gov/buildings/tools-and-resources>

## Help Desk:

- <http://www.energystar.gov/buildingshelp>

## Using ENERGY STAR Tools

**LEED for Building Design +  
Construction  
(BD+C) v4.1**

**LEED for Building Operations +  
Maintenance  
(O+M) v4.1**



**LEED**



# The LEED v4.1 BD+C and O+M Rating Systems

Multidisciplinary credit categories

- Location and Transportation (LT)
- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy and Atmosphere (EA)
- Materials and Resources (MR)
- Indoor Environmental Quality (EQ)
- Innovation (IN)
- Regional Priority (RP; in BD+C only)
- Integrative Process (IP; in BD+C only)
- **Prerequisites** (no points awarded; required) and **credits** (points awarded)

# Energy and Atmosphere for LEED BD+C

		New Construction	Core and Shell	Schools	Retail	Data Centers	Warehouses and Distribution Centers	Hospitality	Healthcare
<b>ENERGY AND ATMOSPHERE</b>		<b>33</b>	<b>33</b>	<b>31</b>	<b>33</b>	<b>33</b>	<b>33</b>	<b>33</b>	<b>35</b>
Prerequisite	Fundamental Commissioning and Verification	P	P	P	P	P	P	P	P
Prerequisite	Minimum Energy Performance	P	P	P	P	P	P	P	P
Prerequisite	Building-Level Energy Metering	P	P	P	P	P	P	P	P
Prerequisite	Fundamental Refrigerant Management	P	P	P	P	P	P	P	P
Credit	Enhanced Commissioning	6	6	6	6	6	6	6	6
Credit	Optimize Energy Performance	18	18	16	18	18	18	18	20
Credit	Advanced Energy Metering	1	1	1	1	1	1	1	1
Credit	Grid Harmonization	2	2	2	2	2	2	2	2
Credit	Renewable Energy	5	5	5	5	5	5	5	5
Credit	Enhanced Refrigerant Management	1	1	1	1	1	1	1	1

[LEED Guide for Building Design and Construction](#) (LEED v4.1)



# Energy and Atmosphere for LEED BD+C

		New Construction	Core and Shell	Schools	Retail	Data Centers	Warehouses and Distribution Centers	Hospitality	Healthcare
<b>ENERGY AND ATMOSPHERE</b>		<b>33</b>	<b>33</b>	<b>31</b>	<b>33</b>	<b>33</b>	<b>33</b>	<b>33</b>	<b>35</b>
Prerequisite	Fundamental Commissioning and Verification	P	P	P	P	P	P	P	P
Prerequisite	Minimum Energy Performance	P	P	P	P	P	P	P	P
Prerequisite	Building-Level Energy Metering	P	P	P	P	P	P	P	P
Prerequisite	Fundamental Refrigerant Management	P	P	P	P	P	P	P	P
Credit	Enhanced Commissioning	6	6	6	6	6	6	6	6
Credit	Optimize Energy Performance	18	18	16	18	18	18	18	20
Credit	Advanced Energy Metering	1	1	1	1	1	1	1	1
Credit	Grid Harmonization	2	2	2	2	2	2	2	2
Credit	Renewable Energy	5	5	5	5	5	5	5	5
Credit	Enhanced Refrigerant Management	1	1	1	1	1	1	1	1

[LEED Guide for Building Design and Construction](#) (LEED v4.1)



# Integrative Process in LEED BD+C

**Step-by-Step Guidance**

Required documentation

Further explanation +

Related credit tips

Changes from LEED 2009

Referenced Standards

Exemplary performance

## Step-by-Step Guidance

### Discovery Steps

**Step 1. Become familiar with integrative process**

Review the Integrative Process (IP) ANSI Consensus National Standard Guide© 2.0 for Design and Construction of Sustainable Buildings and Communities, which provides step-by-step guidance and a methodology for improving building design, construction, and operations through a replicable, integrative process. Although this standard encourages project teams to engage in a comprehensive integrative process, the credit requirements address only the discovery phase, whose steps are similar to those described in the ANSI guide for engaging energy and water-related systems.

**Step 2. Conduct preliminary energy research and analysis (in concert with Step 3)**

Complete energy-related research and analysis to support effective and informed discussions about potential integrative design opportunities (see [Further Explanation, Recommended Preliminary Data Collection](#)).

- Collect information about the local climate, site conditions, energy sources, transportation options, and potential building features.
- Use the U.S. Environmental Protection Agency's Target Finder tool or other data sources to benchmark energy performance for the project's type, scope, occupancy, and location.
- Develop a "simple box" energy model (assuming a simplified building form) to generate a basic distribution of energy uses and identify dominant energy loads.
- Use this conceptual energy model to analyze design alternatives for potential load reduction strategies (see [Further Explanation, Recommended Preliminary Energy Analysis and Example 1](#)).

**Step 3. Conduct preliminary water research and analysis (in concert with Step 2)**

Complete water-related research and analysis to support effective and informed discussions about potential integrative design opportunities.



GETTING STARTED WITH INTEGRATIVE PROCESS  
Integrative Process Credit



WHY INTEGRATIVE PROCESS?  
Integrative Process Credit

**Glossary**

[View LEED v4 terms and definitions](#)

# Energy and Atmosphere (EA) and Water Efficiency (WE) in LEED O+M

<b>WATER EFFICIENCY</b>		<b>15</b>
Prerequisite	Water Performance	15
<b>ENERGY AND ATMOSPHERE</b>		<b>35</b>
Prerequisite	Energy Efficiency Best Management Practices	Required
Prerequisite	Fundamental Refrigerant Management	Required
Prerequisite	Energy Performance	33
Credit	Enhanced Refrigerant Management	1
Credit	Grid Harmonization	1

[LEED Guide for Operations & Maintenance: Existing Buildings](#) (LEED v4.1)

# Energy and Atmosphere (EA) and Water Efficiency (WE) in LEED O+M

## AUTOMATING DATA TO THE ARC PLATFORM™ ENERGY STAR® PORTFOLIO MANAGER™

### SHARING YOUR PORTFOLIO MANAGER ACCOUNT

If you are sharing your Energy Star® PORTFOLIO MANAGER™ account with the Arc Platform™ for the first time navigate to the Energy Star® website login and follow these steps.

### ADD THE LEED PROJECT ID

1. Navigate to the details tab of the project and click, "edit" under "unique identifiers"

Basic Information  
 Construction Status: This property that is one single building  
 Property GFA - Self Reported: 200,000 Sq. Ft.  
 Occupancy: 80%

Unique Identifiers (IDs)  
 Portfolio Manager ID: 507067  
 Custom IDs: None  
 Standard ID: None

2. Add the LEED project ID under "standard ID" and save

Standard ID  
 LEED US Project ID: 90000017

### SHARE YOUR ACCOUNT WITH LEED PERFORMANCE REPORTING

1. Navigate to Energy Star® PORTFOLIO MANAGER™ home page and click "Contacts"

Welcome DEMO PROJECT Account Settings | Contacts | Help | Sign Out

Add Contact

2. Click "Add Contact"

3. Search by email, "contact@arcskoru.com" and click "connect"

Add Contact

Find Contact in Portfolio Manager

Name: [ ]  
 Organization: [ ]  
 Username: [ ]  
 Email: contact@arcskoru.com



USGBC LEED Performance Reporting with USGBC

4. Agree to the terms and send the connection request

Notifications (1)

You are connected to USGBC LEED

5. You will be notified in PORTFOLIO MANAGER™ once USGBC accepts the request

### SHARE YOUR PROJECT METERS

1. Navigate to "sharing" and select "share (or Edit Access to) a Property"

My Portfolio | Sharing | Planning | Reporting | Registration

My Shared Properties (0)

Share (or Edit Access to) a Property

2. Select the property you wish to share, the LEED Performance Reporting account as the recipient, and finally the "read only" permission and meters.

### SHARING YOUR PORTFOLIO MANAGER™ ACCOUNT

Within 24 hours of the request being accepted, energy and water data should sync to the Arc platform.

### NEED HELP?

Email [contact@arcskoru.com](mailto:contact@arcskoru.com) for assistance.

# Using ENERGY STAR Tools

## Green Globes

New Construction  
Existing Buildings



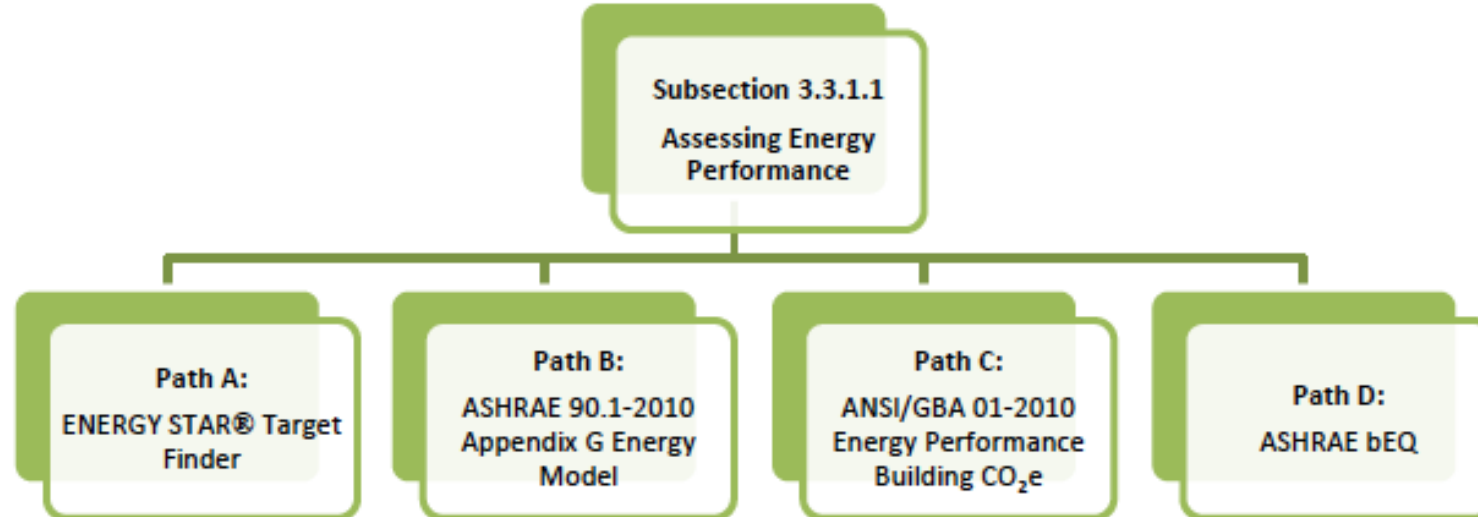
# Green Globes

Environmental Assessment Area	Points	Description
Project Management	50	Integrated Design Process, Meetings, Performance Goals, Environmental Management, Commissioning
Site	115	Development Area, Ecological Impacts, Stormwater Management, Landscaping, Exterior Light Pollution
Energy	390	Performance, Demand, Metering, Measurement and Verification, Building Opaque Envelope, Lighting, HVAC Systems and Controls, Efficient Equipment, Renewable Energy, Energy Efficient Transportation
Water	110	Consumption, Cooling Towers, Boilers & Water Heaters, Water Intensive Applications, Treatment, Alternate Sources, Metering, Irrigation
Materials & Resources	125	Building Assembly, Interior Fit-outs, Re-use, Waste, Building Service Life Plan, Resource Conservation, Building Envelope
Emissions	50	Heating, Ozone-depleting Potential, Global Warming Potential
Indoor Environment	160	Ventilation, Source Control and Measurement, Lighting Design and Systems, Thermal Comfort, Acoustic Comfort
Total Points	1000	



# Energy Performance and Green Globes New Construction

- Green Globes provides four paths for assessing energy performance
- **Path A, ENERGY STAR Target Finder**, is worth a maximum of 100 points
- Path C, ANSI/GBA 01-2010 Energy Performance Building Carbon Dioxide Equivalent Emissions Reduction, uses Target Finder to establish a Baseline Equivalent Emission Rate



# Energy Performance and Green Globes New Construction

Table 3.3.1.1.1.1: Path A Point Distribution

ENERGY STAR® Score	Points
100	100
99	100
98	100
97	100
96	100
95	100
94	100
93	92
92	92
91	92
90	84
89	84
88	84
87	76

ENERGY STAR® Score	Points
86	76
85	76
84	68
83	68
82	68
81	60
80	60
79	60
78	52
77	52
76	52
75	44
74 - 0	0



# Green Globes New Construction: Dashboard Keyed to Design Stages

Progress key: ■ Not started ■ In Progress ■ Completed

Project Dashboard Click on any stage name or box to go to questionnaire	Sections								
	Proj Mgt	Site	Energy	Water	Resources	Emissions	Indoor Environ.	Total Questions Answered	% of Points Earned
<a href="#">Predesign - project init stage</a>									
<a href="#">Predesign - site analysis</a>	N/A					N/A			N/A
<a href="#">Predesign - programming</a>									N/A
<a href="#">Schematic design</a>									
<a href="#">Design development</a>									N/A
<a href="#">Construction documents</a>									
<a href="#">Contracting &amp; construction</a>									N/A
<a href="#">Commissioning</a>		N/A							N/A

  = Goal Setting stage    
   = Preliminary Assessment stage    
   = Final Assessment stage

# Green Globes New Construction: Schematic Design

Question	Answer	Points
Modelling and simulation of building energy performance: establishing an energy target		100
Has a preliminary building energy simulation been carried out on each of the concept options?	<input type="radio"/> Yes <input type="radio"/> No	100
<a href="#">Input the value of the projected annual energy use in kBtu.</a>	<input type="text"/>	
Please supply the following data in order that an Energy Star® energy target may be established:		
<a href="#">Energy Star® target percentile</a>	<input type="text" value="Choose"/> %	

**Design Project pathway  
in Portfolio Manager**

## Tooltip

Choose a target percentile for the Energy Star® Target Finder - e.g. a target of 80% means that you are aiming to be in the top 20% for energy efficiency.

If you do not wish to set an Energy Star® Target (for example because your project's parameters do not meet the Energy Star® Target Finder criteria), select "No Target".

# Green Globes New Construction: Design Development

SELECT/ADD PROJECT    SELECT STAGE    SELECT SECTION    COMPLETE QUESTIONNAIRE    VIEW REPORT

go to Section →

**Building 1 - Office**

**Stage: Construction Documents (Plans and Specifications)**  
**Section: Energy Questions**

**STAGE STATUS**  
Stage Rating: 0%  
Pages Answered: 0 of 12

**SECTION SURVEY QUESTIONS**  
It is not necessary to complete the questions in order or at the same time.

Question	Answer	Points
Building energy performance		100
Have the energy performance targets been achieved?	<input type="radio"/> Yes <input type="radio"/> No	
Input the value of the projected annual energy use in kBtu.	<input type="text"/>	
Input the value of the projected energy savings as a percentage compared to the reference base building.	<input type="text"/> %	100
Input the value of carbon dioxide (CO <sub>2</sub> ) emissions savings.	<input type="text"/> kg.	

Save and Continue

**Design Project pathway in Portfolio Manager**

**Tooltip**  
Aim for a level of performance 20%, 30% 40% or 50% better than that of a similar baseline "average" building in that geographical location, as determined by the EPA Energy Star Target Finder.

# Green Globes Existing Buildings

## Dashboard

Progress key: ■ Not started ■ In Progress ■ Completed

Building Dashboard Click on any box to go to questionnaire	Sections							
	Energy	Water	Resources	Emissions	Indoor Environ.	Environ. Mgmt.	Total Questions Answered	% of Points Earned
<a href="#">Building Overview</a>	<span style="color: green;">■</span>	<span style="color: green;">■</span>	<span style="color: green;">■</span>	<span style="color: green;">■</span>	<span style="color: green;">■</span>	<span style="color: green;">■</span>	<span style="color: green;">■</span>	<span style="color: blue;">■</span>

**BUILDING OVERVIEW**

Click to go to the Building Overview page.



# Green Globes Existing Buildings

Question	Answer	Points
Energy Consumption		80
<a href="#">Please select the fuels or utilities used by the building, for which energy consumption figures will be entered.</a>		80
<input type="checkbox"/> Gas <input type="checkbox"/> Electricity <input type="checkbox"/> Propane <input type="checkbox"/> Oil <input type="checkbox"/> Steam <input type="checkbox"/> Chilled Water		
Please supply the following data in order that an Energy Star energy target may be established:		
<a href="#">How many people work in this facility during normal operating hours?</a>	50	
<a href="#">Number of PCs</a>	60	
<a href="#">How many hours per week is the facility open?</a>	55	
<a href="#">% Heated</a>	50% or more ▼	
<a href="#">% Air-Conditioned</a>	50% or more ▼	



# Green Globes Existing Buildings

**Requires 12 months of data**

Question	Answer	F
<b>Energy Consumption</b>		
<a href="#">Please specify the ending month of the 12 month period for which energy consumption figures are being entered.</a>	Month: n/a   Year: n/a	
<a href="#">What was the building's total energy bill for the 12 month period specified?</a>	\$ <input type="text"/>	
<a href="#">What was the total energy consumption for each non-renewable fuel type, in total or by month, for the 12 month period specified?</a>		
Electricity month 1:	kWh. <input type="text"/> Cost \$ <input type="text"/>	
Electricity month 2:	kWh. <input type="text"/> Cost \$ <input type="text"/>	
Electricity month 3:	kWh. <input type="text"/> Cost \$ <input type="text"/>	
Electricity month 11:	kWh. <input type="text"/> Cost \$ <input type="text"/>	
Electricity month 12:	kWh. <input type="text"/> Cost \$ <input type="text"/>	





## Using ENERGY STAR Tools

Institute of Real Estate Management  
(IREM) Certified Sustainable Properties  
(CSP)

Existing Buildings



# IREM Certified Sustainable Properties – Credit Categories



# IREM Certified Sustainable Properties – Baseline Requirements

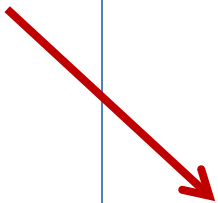
Management	Establish a plan for marketing your sustainability success
Energy	Establish an energy management policy
Energy	Benchmark energy use in areas under management control
Water	Establish a water management policy
Water	Benchmark water use in areas under management control
Health	Establish an IAQ management plan
Health	Conduct an IAQ walk-through in areas under management control



# IREM Certified Sustainable Properties – Credit Requirements

Energy

- Commit to ongoing training on energy management for engineering team
- Hold periodic property manager-building engineer meetings to discuss energy management and property financials
- Conduct a walk-through to detect malfunctioning equipment and opportunities for improvement
- Provide information to tenants on energy management
- Recommend ENERGY STAR equipment for tenant improvements
- Reduce energy consumption by 5% over baseline in areas under management control
- Conduct an energy meter inventory
- Determine if onsite renewable energy installations are feasible for the property
- Reduce energy consumption by 10% over baseline in areas under management control
- Reduce energy consumption by 15% over baseline in areas under management control
- Achieve an ENERGY STAR Score of at least 60
- Implement at least one green or energy-aligned lease
- You can claim all points in this category if your property has achieved the ENERGY STAR property certification, LEED for Existing Buildings: Operations & Maintenance, Green Globes for Existing Buildings, or an IREM-approved local standard.



# IREM Certified Sustainable Properties – Property Requirements

REQUIREMENTS FOR EVERY PROPERTY	Yes
<b>Baseline Management</b>	
<a href="#">B.1 Perform a sustainability market assessment</a>	<input checked="" type="checkbox"/>
<a href="#">B.2 Discuss sustainability and investment goals with owner or supervisor</a>	<input checked="" type="checkbox"/>
<a href="#">B.3 Commit to monitoring the effect of sustainability on property financials</a>	<input checked="" type="checkbox"/>
<a href="#">B.4 Hold meetings with your staff team, at least quarterly, to discuss progress on sustainability program</a>	<input checked="" type="checkbox"/>
<a href="#">B.5 Establish a plan for marketing your sustainability success</a>	<input checked="" type="checkbox"/>
<b>Baseline Energy</b>	
<a href="#">B.6 Establish an energy management policy</a>	<input checked="" type="checkbox"/>
<a href="#">B.7 Benchmark energy use in areas under management control</a>	<input checked="" type="checkbox"/>
<b>Baseline Water</b>	
<a href="#">B.8 Establish a water management policy</a>	<input checked="" type="checkbox"/>
<a href="#">B.9 Benchmark water use in areas under management control</a>	<input checked="" type="checkbox"/>



# IREM Certified Sustainable Properties – Tools and Documentation

## W.8 Reduce water use by 10% over baseline in areas under management control

1. Indicate your baseline date and water use for areas under management control.

**Baseline Date**

**Annual water use in kgal or kgal/ft<sup>2</sup>**

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2. Indicate the water use and percentage improvement over the established baseline.

**New annual water use in kgal or kgal/ft<sup>2</sup>**

**Percentage Improvement**

--	--

3. List at least 2 improvements you made to achieve the water use reduction.

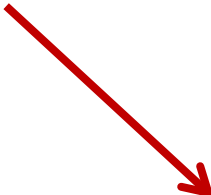
1.
2.

### Alternative Documentation

Instead of this form, you may submit at least one of the following to IREM:

- Baseline and new ENERGY STAR® Water Performance report
- Baseline new summary water usage information showing improvement

E-mail Completed Form to IREM  
(Remember to attach form to e-mail.)



# Using ENERGY STAR Tools

Building Owners and Managers  
Association (BOMA) BEST Program

Existing Buildings



**BOMA** Building  
**BEST®** Environmental  
Standards



# BOMA BEST: Programs

- **BOMA Sustainable Buildings Program:** track energy and water performance for:
  - Single Buildings – 3-year certification managed by local BOMA associations
  - Portfolio Program – 1-year certification managed by BOMA Canada

1.0 Energy	2.0 Water	3.0 Air Quality	4.0 Comfort	5.0 Health and Wellness	6.0 Purchasing	7.0 Custodial	8.0 Waste	9.0 Site	10.0 Stakeholder Engagement
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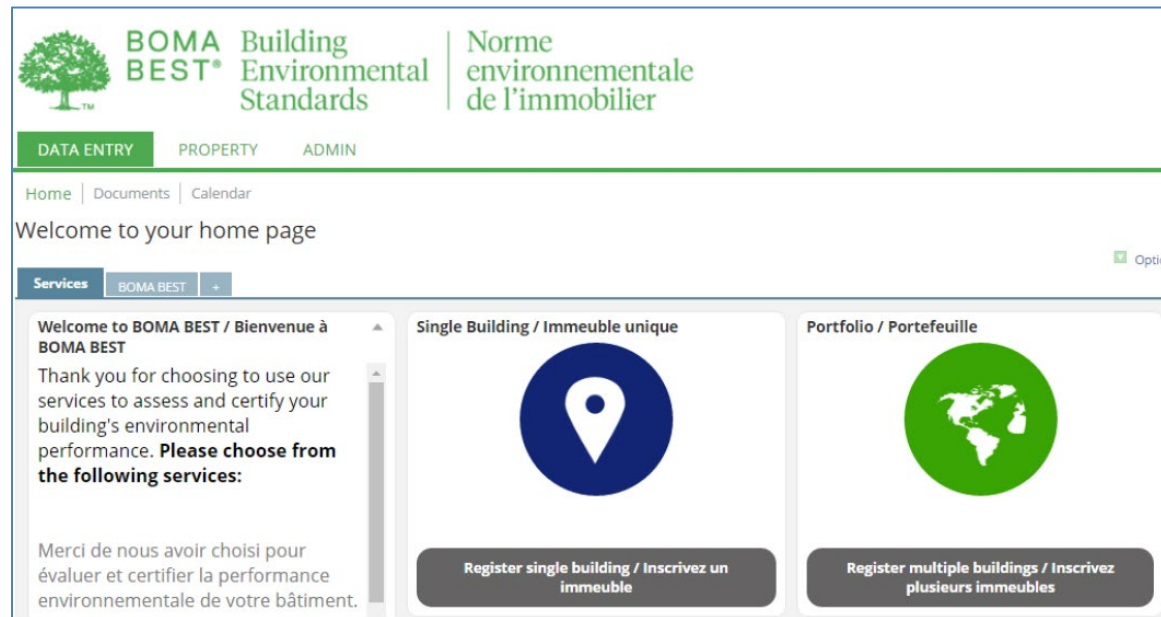




# BOMA BEST: Verification and Certification


## Steps to Verification and Certification

- 1) Register in the BOMA BEST Online Portal
- 2) Complete assessment questionnaire - synchronize your Portfolio Manager account and use your ENERGY STAR Score to report performance metrics.
- 3) Request verification
- 4) On-site third party verification
- 5) Achieve certification



# BOMA BEST: BEST Practices

- BEST Practices present minimum requirements for all buildings
- Upload documentation demonstrating each BEST Practice to the questionnaire
- All buildings must achieve BEST Practices for their asset class to achieve certification.



**BEST Practice 3: Energy Management Plan**  
Applicable to Office, Enclosed Shopping Centre, Light Industrial, Open Air Retail, and Universal


Is an Energy Management Plan in place at the building?	
<b>Explanation &amp; Evaluation</b>	<p>This question is a BEST Practice and is required for all levels of certification.</p> <p><b>Description:</b> Energy management is the continuous process of managing behavioral, organizational and technical change to improve the building's energy performance.</p> <p><b>Requirements:</b> The Energy Management Plan must have been reviewed and updated in the last three (3) years.</p> <p>Create a plan that identifies Energy Conservation Measures (ECM) for the building (such as those provided in the Energy Audit, as available). For each initiative, identify the following:</p> <ul style="list-style-type: none"><li>• Whether a particular ECM will be pursued or not;</li><li>• The person responsible for the implementation of the ECM;</li><li>• The budget associated with the ECM; and</li><li>• A timeline for completion.</li></ul>

# BOMA BEST: Energy and Water Benchmarking

- Additional points are available if building benchmark their energy and water performance.
- Benchmarking must be performed by either the BOMA BEST Online Portal or the ENERGY STAR portal. In both cases, the ENERGY STAR methodology is used to calculate performance.

Energy Star

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No synchronization  Pull from Energy Star  Push to Energy Star

Data will be pulled from Energy Star into cr360 for this property.

**Not yet synchronized**

Portfolio Manager ID:

# BOMA BEST: Energy Performance

- Energy performance is based on ENERGY STAR Score.
- Points are also available if users can provide a weather-normalized site EUI.

<b>01.02.01 - Do you benchmark energy performance using either BOMA BEST or ENERGY STAR Portfolio Manager portal?</b>	<input type="radio"/> BOMA BEST <input checked="" type="radio"/> <b>ENERGY STAR</b> <input type="radio"/> No	<b>10 / 10 points</b>
	<a href="#">▼ Show additional help text</a> <a href="#">Attach files...</a>	
<b>Select your preferred unit</b>	Please choose... ▼ <a href="#">▼ Show additional help text</a>	
<b>01.02.02 - What is the calculated weather-normalized site Energy Use Intensity (EUI) for this building?</b>	Enter number... <a href="#">▼ Show additional help text</a> <a href="#">Attach files...</a>	
<b>01.02.03 - What is the ENERGY STAR score achieved by this building?</b>	0-49 ▼ <a href="#">▼ Show additional help text</a>	<b>0 / 90 points</b>

# BOMA BEST: Water Performance

- Water performance is based on Water Use Intensity.

<b>02.02.01 - Do you benchmark water performance using either the BOMA BEST or ENERGY STAR Portfolio Manager portal?</b>	<input type="radio"/> BOMA BEST <input checked="" type="radio"/> ENERGY STAR <input type="radio"/> No	5 / 5 points
	<a href="#">▼ Show additional help text</a> <a href="#">Attach files...</a>	
Select your preferred unit for reporting your Water Use Intensity (WUI)	<input type="text" value="m3/m2/year"/>	
<b>02.02.02 - What is the calculated Water Use Intensity (WUI) for the building?</b>	<input type="text" value="0.19"/> <a href="#">▼ Show additional help text</a> <a href="#">Attach files...</a>	
<b>02.02.03 - What is the Water Use Intensity (WUI) range achieved by this building?</b>	<input type="text" value="Less than 0.2 m3/m2/year"/>	15 / 15 points
	<a href="#">▼ Show additional help text</a>	

## Using ENERGY STAR Tools

Building Research Establishment (BRE)  
BREEAM In-Use

Existing Buildings

# BREEAM® | USA

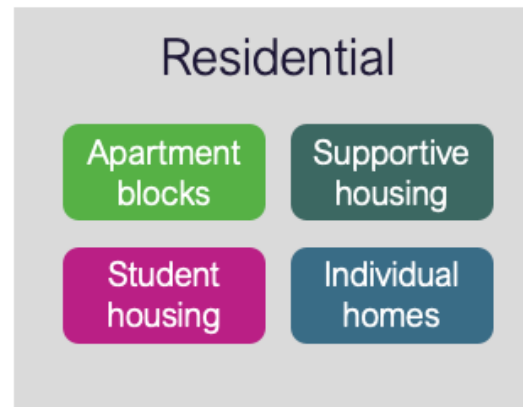
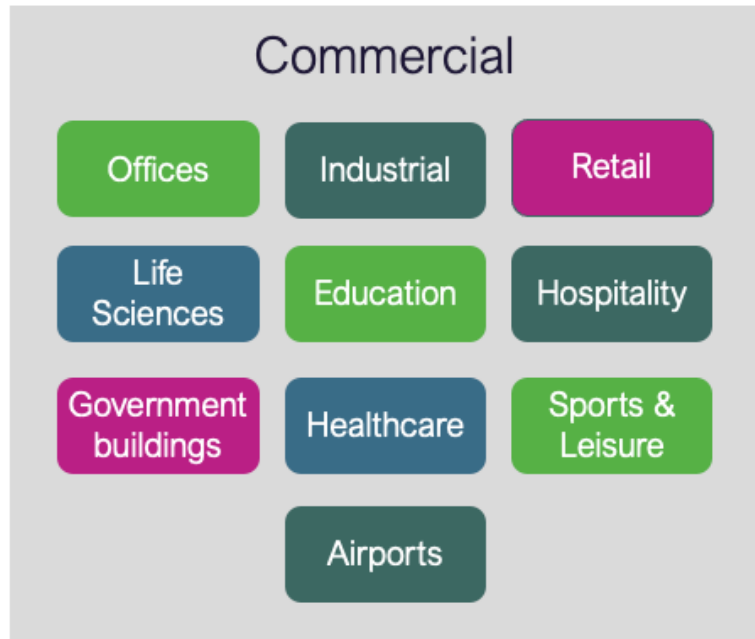


# BREEAM In-Use: About the program



- Launched in 1990, BREEAM was the world's first green building certification program
- 600,000+ certificates issued in 93 countries
- BREEAM In-Use is for new and existing buildings
- BREEAM standards are globally applicable and in some cases, have been adapted for specific countries. **BREEAM USA In-Use** reflects US standards and practices while allowing owners and managers to compare performance with their assets in other countries.

# BREEAM In-Use: About the program

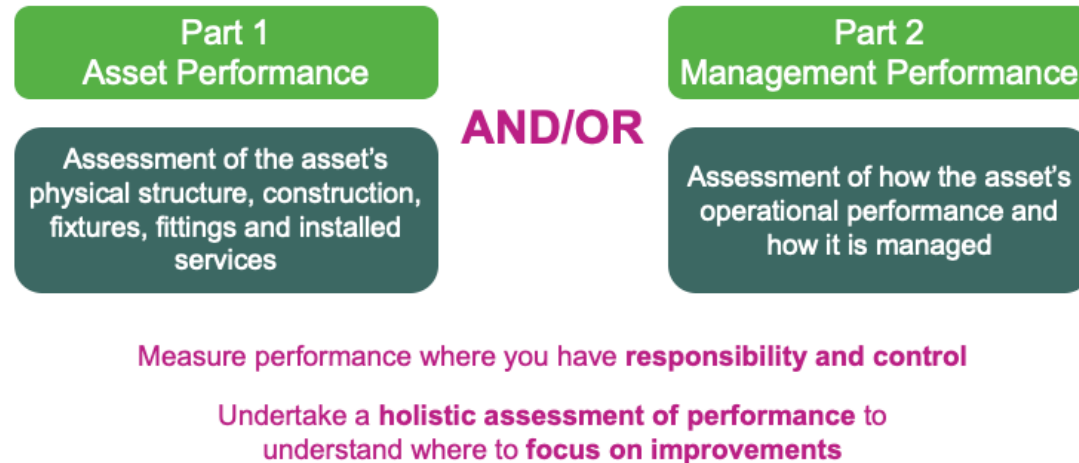


- BREEAM In-Use can be used in nearly every type of Commercial or Residential asset
- Full technical standards are available at no cost via [www.breeam.com/usa](http://www.breeam.com/usa)



# BREEAM In-Use: About the program

- BREEAM In-Use has two Parts which are independently scored and assessed.
- Assets can choose which Part(s) they want to pursue based on where they have responsibility and control.
- ENERGY STAR interacts with both Parts.

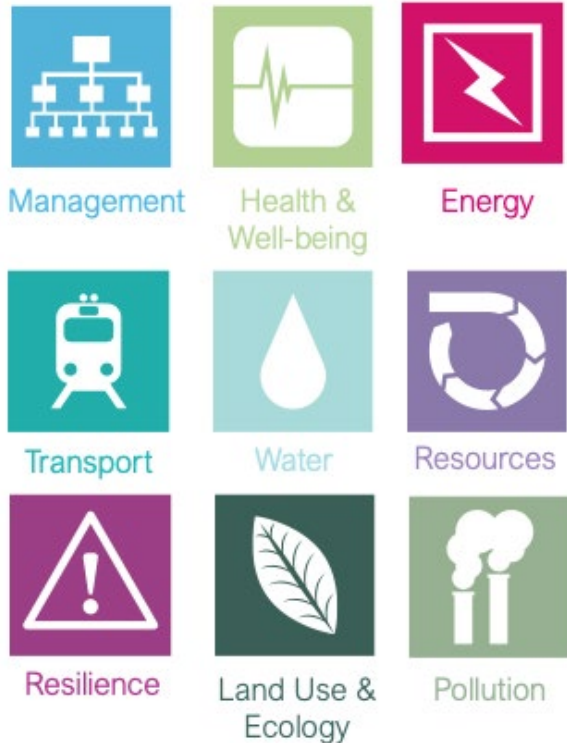


# BREEAM In-Use: About the program

BREEAM Overall Score	BREEAM Rating	Star Rating	Expected % of buildings that should be able to achieve the performance
≥85%	Outstanding	★★★★★★	Top 1%
≥70% to <85%	Excellent	★★★★★	Top 10%
≥55% to <70%	Very Good	★★★★	Top 25%
≥40% to <55%	Good	★★★	Top 50%
≥25% to <40%	Pass	★★	Top 75%
≥10% to <25%	Acceptable	★	

- There are 6 ratings, ranging from Acceptable to Outstanding.
- Based on the performance levels, 75% of buildings should be able to achieve a rating but the higher ratings
- There are no prerequisites - performance that all assets must achieve before they can be certified at any level.
- There are minimum standards linked to some of the ratings that ensure a broad approach to sustainability is demonstrated.

# BREEAM In-Use: About the program



- BREEAM In-Use has nine categories which reflect holistic sustainability approach: environmental performance, occupant health and wellbeing and protecting/growing financial value in the asset.
- Each category contains Issues which address a specific performance aspect. Credits are awarded for demonstrated performance, with most issues having a ladder approach to awarding increasingly higher performance.
- The categories are weighted to encourage assets to focus on those with the most sustainability impact. This provides flexibility while ensuring that only those assets that adopt a broad approach to sustainability can achieve the higher ratings.

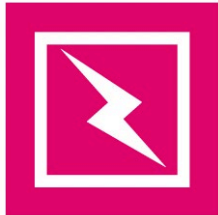
# BREEAM: Pathway to Verification



- BREEAM's online platform facilitates the benchmarking process and providing documentation for certification.
- Asset performance is measured against the BREEAM In-Use standard by answering questions about performance.
- The platform provides dynamic scoring and can function as a gap analysis.

- Certification requires a documentation review and a visit to the site by an Assessor trained and licensed by BRE.
- Clients choose which licensed Assessor they want to work with.
- Assessors set their own service fees to match the scope of work required.

# BREEAM and ENERGY STAR



ENERGY

## Part 1 Asset Performance

- Energy efficiency of building envelope
- Energy efficiency of installed services systems
- Renewable energy generation capacity
- Energy monitoring and management capabilities

## Part 2 Management Performance

- Operational energy performance
- Energy audit
- Energy consumption reporting
- Reduction of carbon emissions

- **ENE 12**  
ENERGY STAR certification is recognized as a local energy performance asset.  
3 credits available.
- **ENE 19-21**  
Fuel data captured for ENERGY STAR can be used for BREEAM.  
Credits awarded based on performance: annual carbon emissions per square foot from energy against a benchmark based on space uses within the asset.  
Up to 50 credits available for performance, with max credits only available for net zero carbon emissions.  
One to 5 exemplary credits available for net positive performance.

# Recap

ENERGY STAR has resources to help you earn LEED, Green Globes, CSP, BOMA BEST, or BREEAM recognition for building design and existing buildings

EPA's Portfolio Manager tool can be used to obtain certification related to both building design and operations.

Portfolio Manager is the leading tool to support utility data tracking for operations and benchmarking for existing buildings.

Portfolio Manager's "Design" tab and Target Finder functionality can be used to support certifications related to both building design and operations, because it informs energy management early in the design process, as well as setting energy management goals

# Questions?

**Slides and a recording of today's presentation will be sent out to all registrants**

If you have any questions on Portfolio Manager or the ENERGY STAR®  
program, contact us at:

[www.energystar.gov/BuildingsHelp](http://www.energystar.gov/BuildingsHelp)