

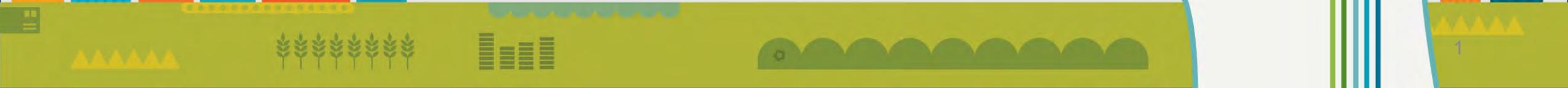


®

POWERED BY
ASHRAE

ASHRAE's Building EQ

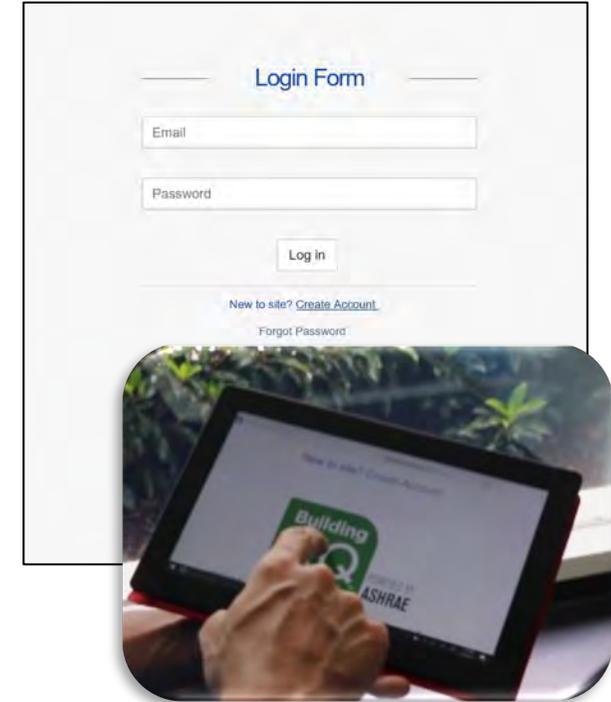
Be an Energy Genius





What is Building EQ?

- Free web-based Portal
- Benchmarks energy performance
- Calculates building EUI based on CZ
- Not an energy modeling tool
- Assists with ASHRAE Level 1 Energy Audit
- Provides data to improve energy performance



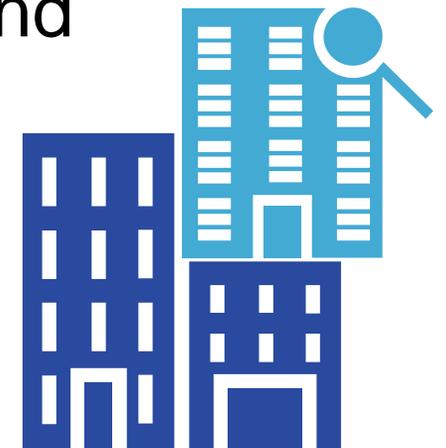
Carbon Metrics Coming Soon





Other Energy Reporting Programs

- EPA ENERGY STAR Portfolio Manager – Benchmarking
- DOE Building Energy Asset Score
- USGBC LEED – Broader sustainability rating
- GBI Green Globes – Broader sustainability rating
- BOMA 360 – Six O&M focused criteria (including energy)
- Mandatory state and local benchmarking, labeling, and disclosure programs





How Does Building EQ compare?

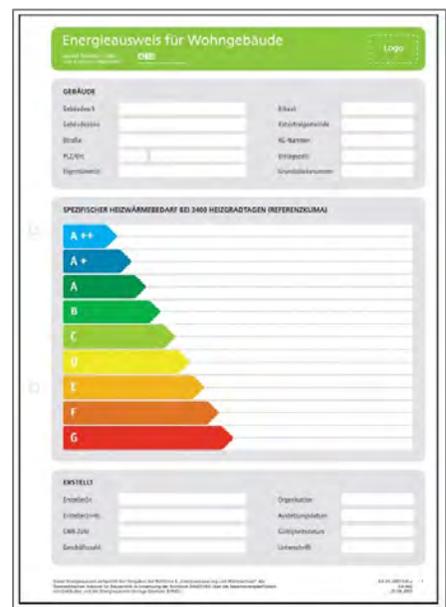
	Benchmarking	Asset Rating	8760 hr Energy Modelling
Building EQ	✓	✓	
ENERGY STAR Portfolio Manager	✓		
DOE Asset Score		✓	
Energy Plus			✓
Trace, HAP, etc.			✓





Global Labeling Efforts

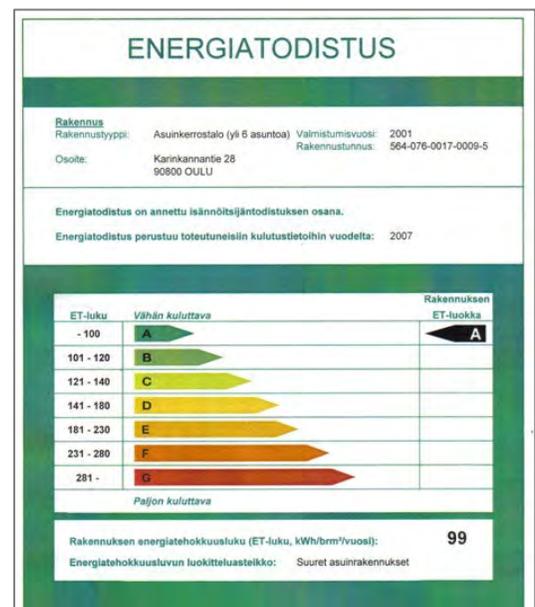
Widespread acceptance internationally



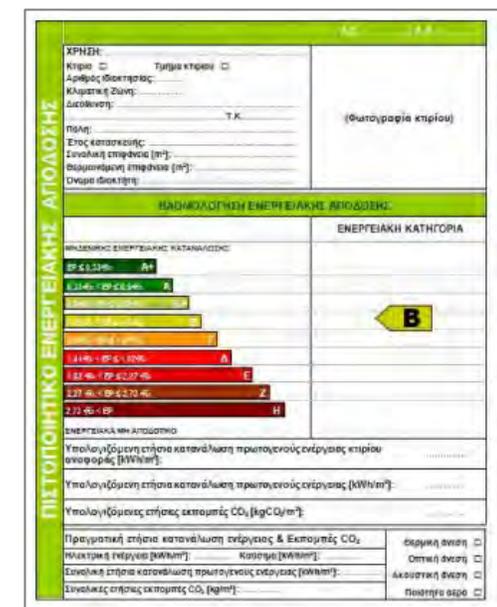
Austria



England & Wales



Finland



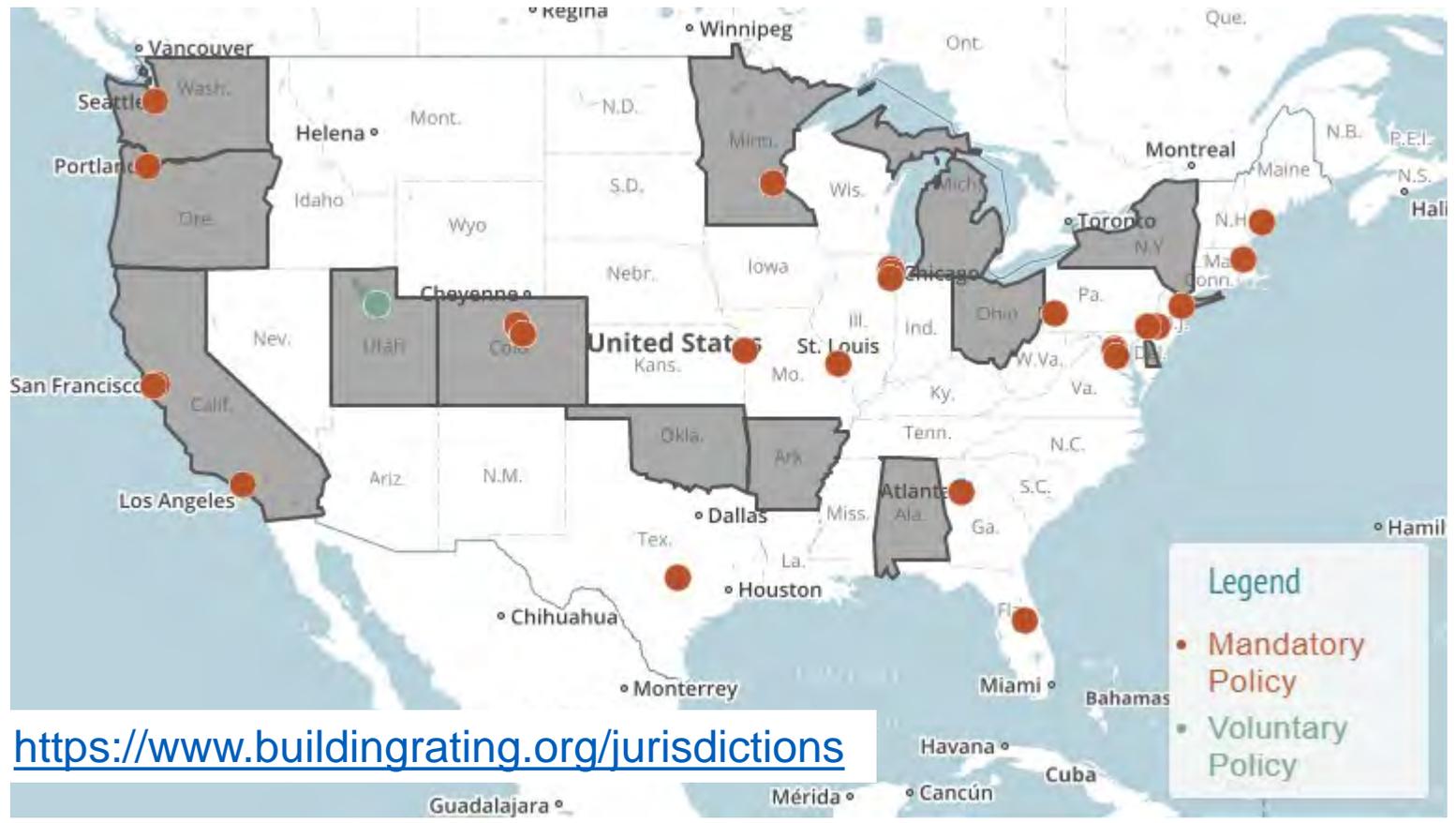
Greece





Building Rating Polices & Programs

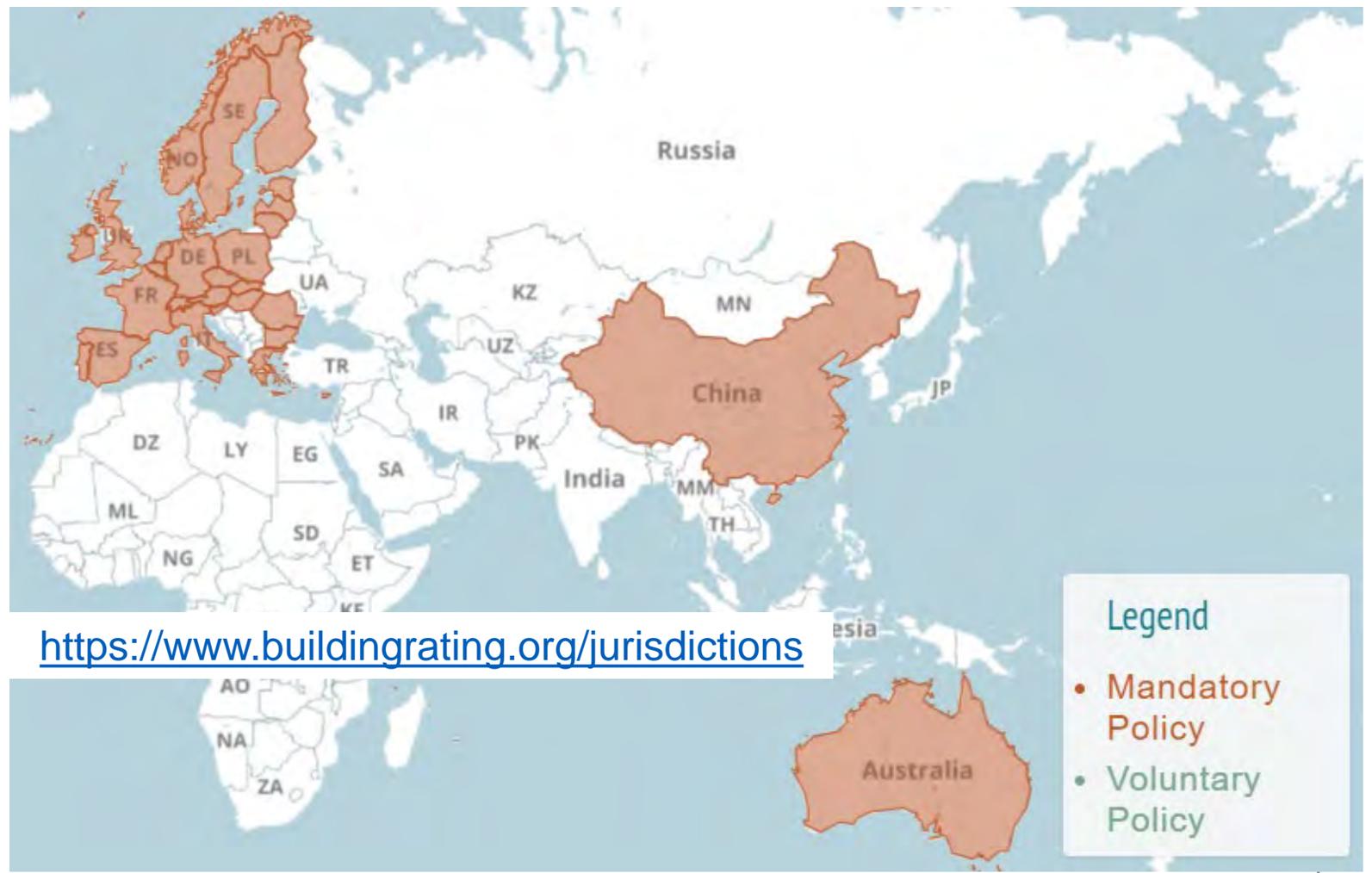
The map shows jurisdictions focused on improving energy & water performance of their buildings





Building Rating Policies & Programs

The map shows jurisdictions focused on improving energy & water performance of their buildings





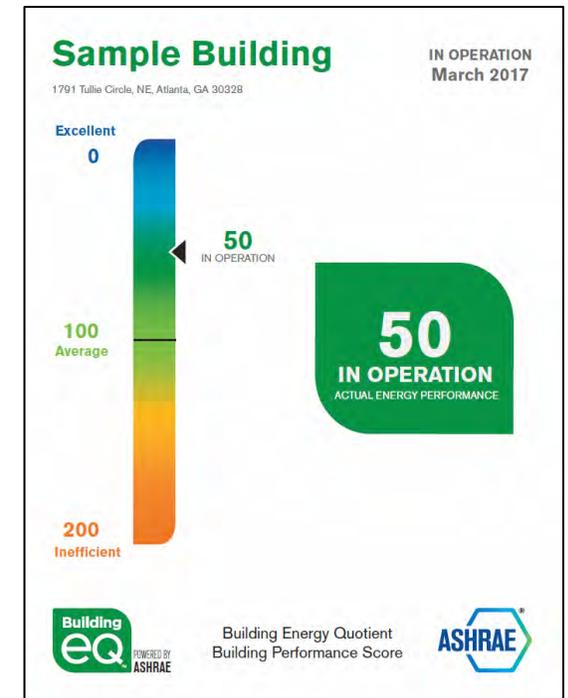
Building EQ Tour - Overview

- Anyone can use it and get a Building Performance Score
- Credentialed users can submit a project for ASHRAE approval and official rating
- In Operation assessment based on actual energy use – resonates with decision makers
- As Designed assessment based on energy models using Standard 90.1 PRM procedures – provides additional information



In Operation Assessment

- Uses metered energy bills for energy usage
- Reflects how the building is designed, used, and operated
- Most common application
- Unitless rating scale from 0 (zero net energy) to 100 (average) to 200 (energy inefficient)
- Allows for tracking of improvements and comparing building to itself over time





In Operation Assessment



How Good is My Building?



- Get energy bills
- Do a walk through
- Enter data into Portal manually or via E* Portfolio Manager
- Get Building score

Celebrate good score with ASHRAE Building EQ Label Report

Start a dialog on how to improve building score

Submit project for official rating
OR
Use project information to start conversation with management





As Designed Assessment



- Evaluates potential energy use normalized for building occupancy and operating conditions
- Uses ASHRAE Standard 90.1 PRM modeling procedures
- Rating from 0 (zero net energy) to 100 (average) to 200 (energy inefficient)





As Designed Assessment



Want to buy building?
Want assessment first



- Get energy bills
- Conduct building walk-thru
- Enter data into Portal manually or from E* Portfolio Manager
- Score shows high energy usage



- Currently 24/7 call center
- Re-rate with **As Designed**
- Better rating because of neutralized operating conditions.





As Designed Rating



New building operating less than 12 months.



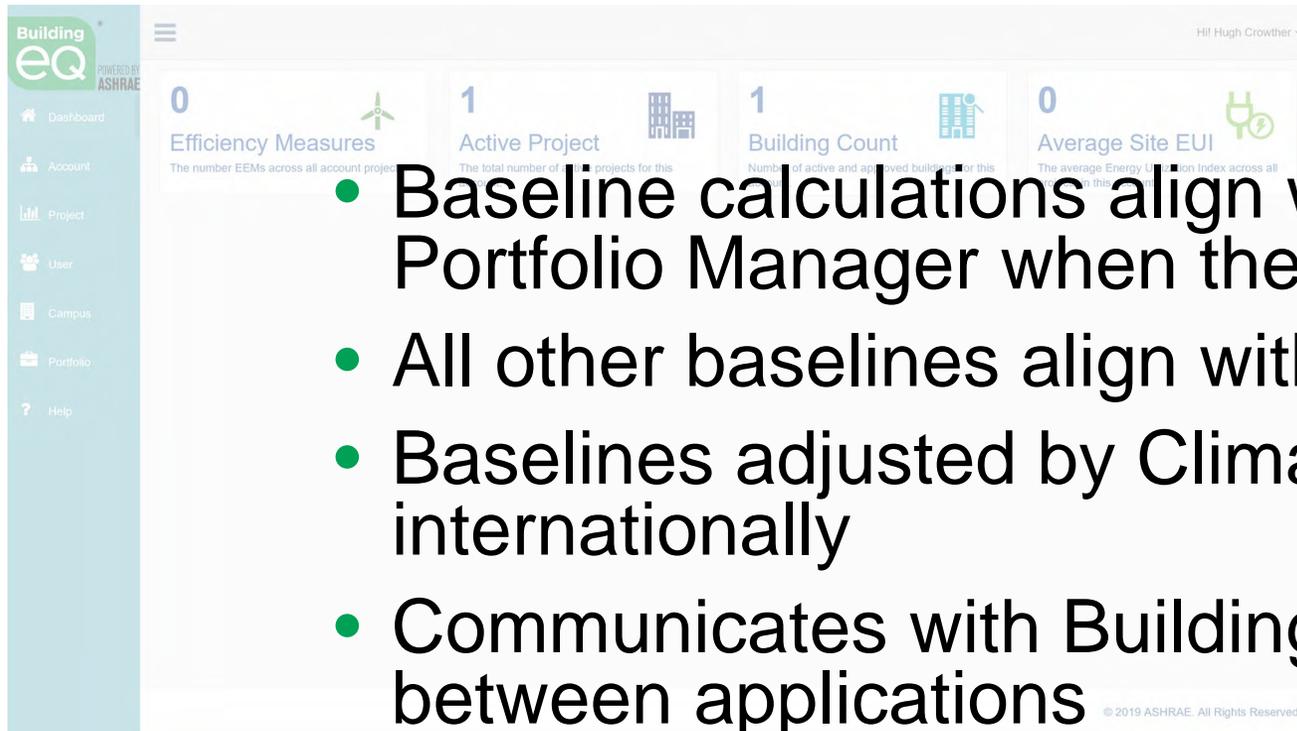
- Evaluate design options
- Develop final model using as-built conditions



- Get As Designed rating
- Determine if building has energy efficient design based on assets



Building EQ Tour - Overview



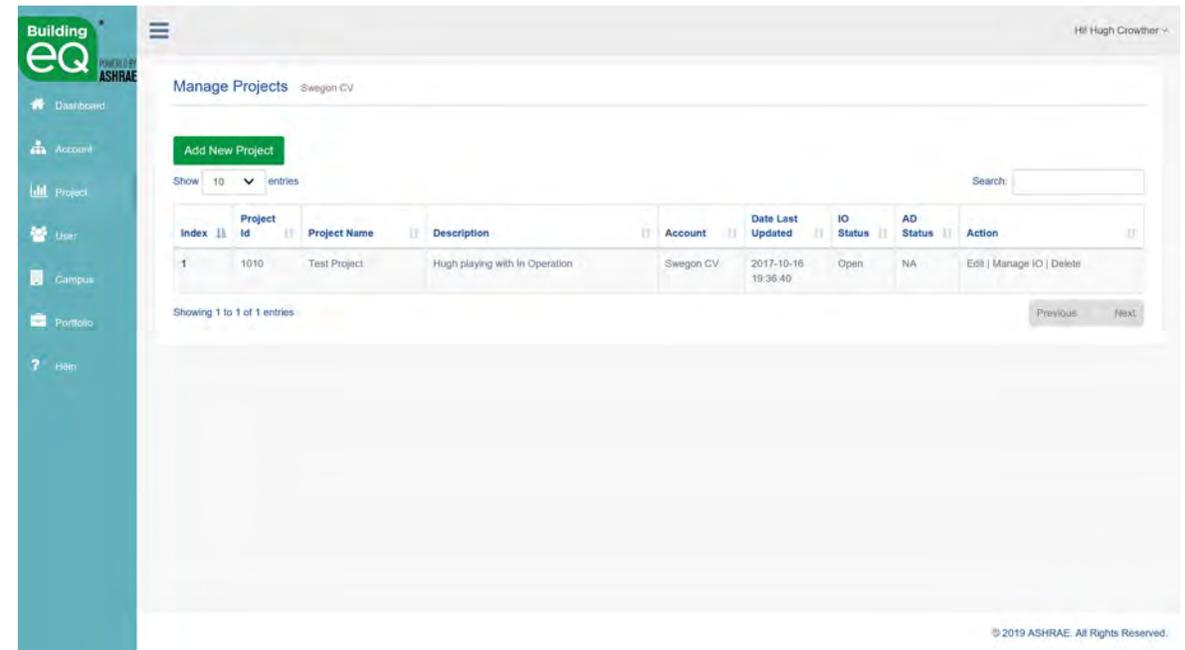
- Baseline calculations align with 2003 ENERGY STAR™ Portfolio Manager when the building type allows
- All other baselines align with Standard 211
- Baselines adjusted by Climate Zone & applicable internationally
- Communicates with BuildingSync to allow data transfer between applications
- Reports available for approved projects





Building EQ Tour – Project Options

- Manage projects by account, portfolio, and campus
- Maintain project data in one location
- Return to unfinished projects at a later time
- Create default building and copy to new project



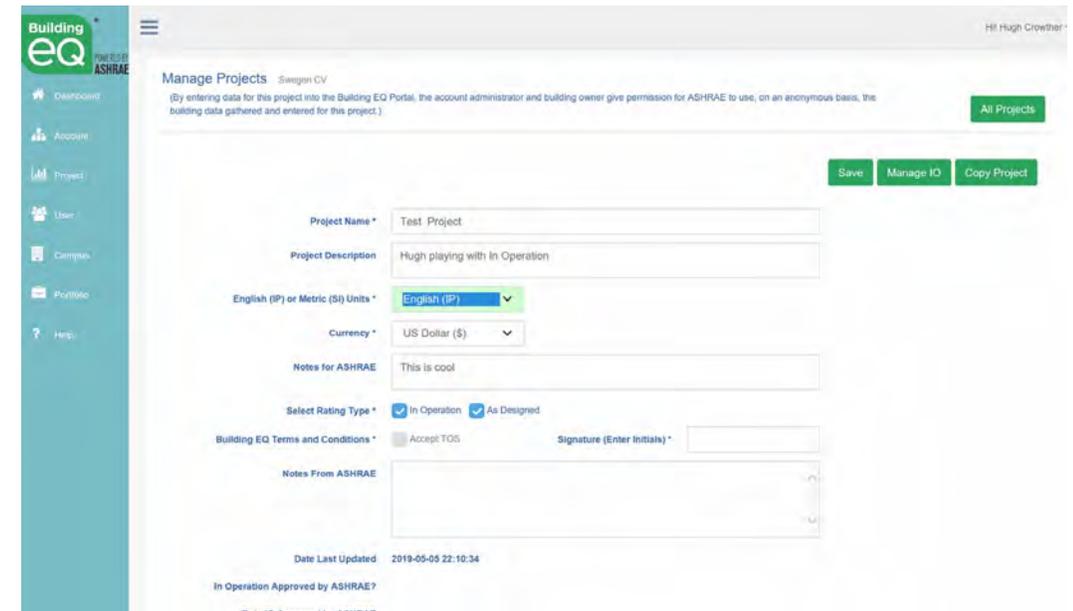
The screenshot shows the 'Manage Projects' page in the Building EQ application. The page has a teal sidebar on the left with navigation options: Dashboard, Account, Project, User, Campus, Portfolio, and Help. The main content area is titled 'Manage Projects' and includes a green 'Add New Project' button, a search bar, and a table of project entries. The table has columns for Index, Project Id, Project Name, Description, Account, Date Last Updated, IO Status, AD Status, and Action. One entry is visible with Project Id 1010, Project Name 'Test Project', and Description 'Hugh playing with In Operation'. The footer of the page contains the copyright notice '© 2019 ASHRAE. All Rights Reserved.'





Building EQ Tour – Project Options

- As Designed, In Operation or both
- SI (Standard International) or IP (Inch-Pound)
- English, French, & Spanish languages
- All Countries, All Climate Zones
- Country specific currency



Building EQ
Manage Projects

Project Name * Test Project

Project Description Hugh playing with in Operation

English (IP) or Metric (SI) Units * English (IP)

Currency * US Dollar (\$)

Notes for ASHRAE This is cool

Select Rating Type * In Operation As Designed

Building EQ Terms and Conditions * Accept TOS Signature (Enter Initials) *

Notes From ASHRAE

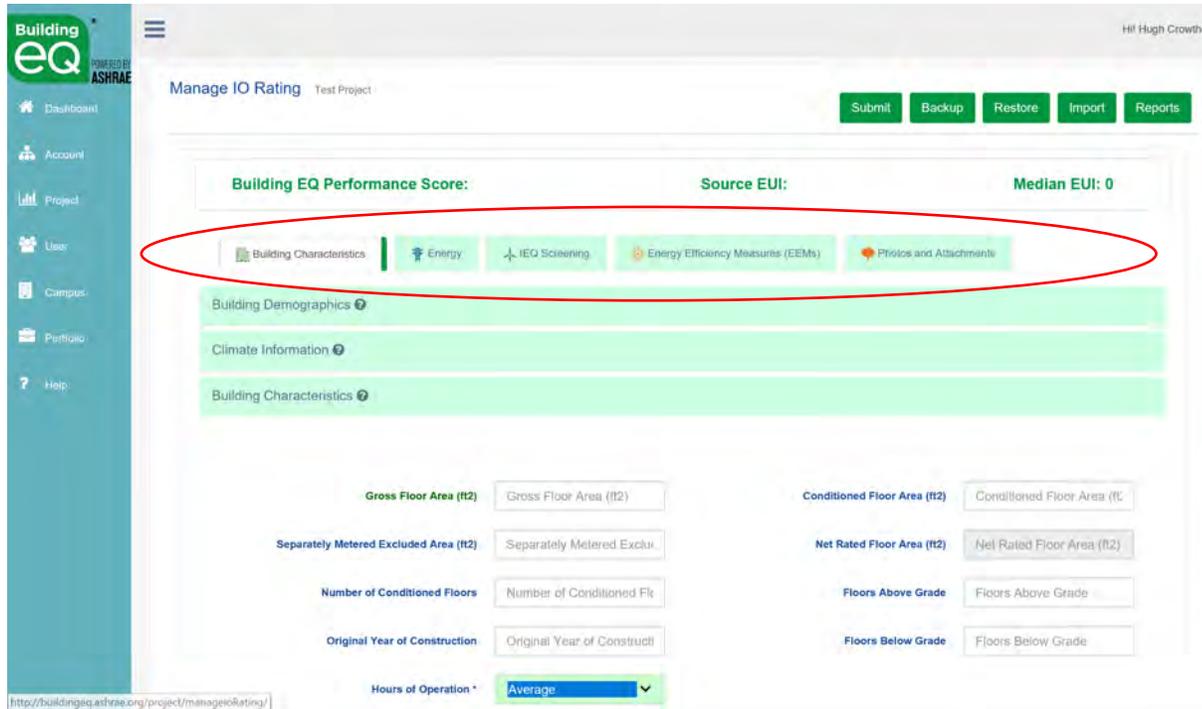
Date Last Updated 2019-05-05 22:10:34

In Operation Approved by ASHRAE?

Additional countries and currencies added to pull-down menus as needed/requested



Building EQ Tour – Portal Screens



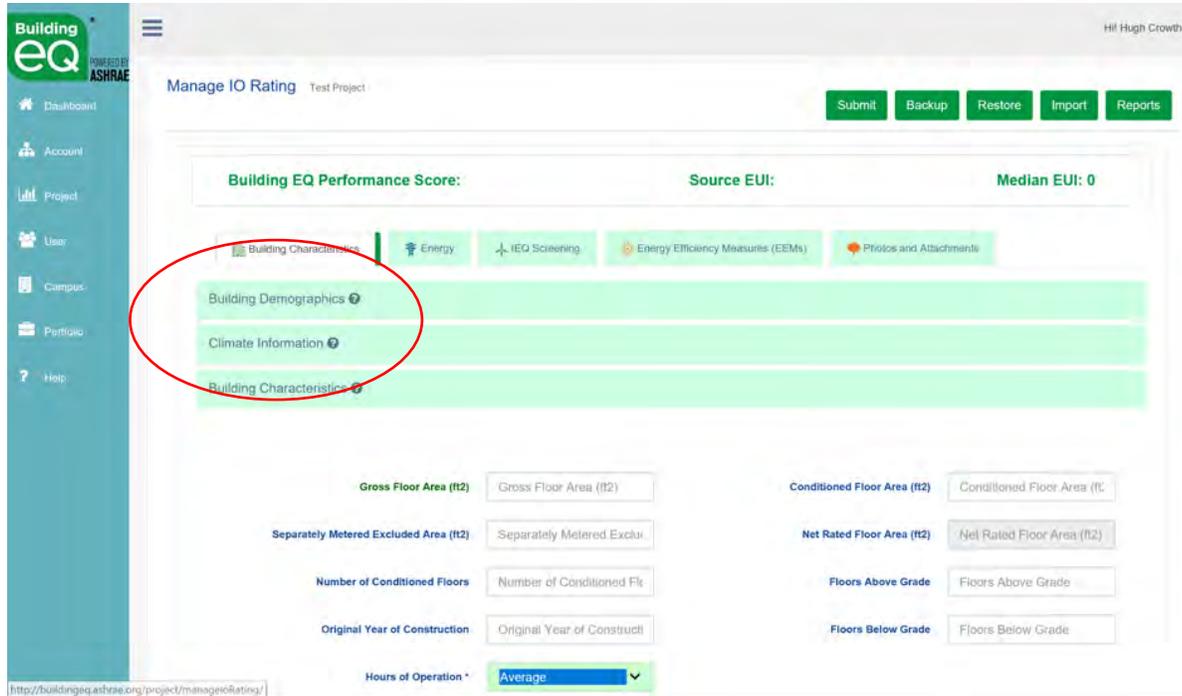
The screenshot shows the Building EQ portal interface. The top navigation bar includes a sidebar with links for Dashboard, Account, Project, User, Campus, Portfolio, and Help. The main content area is titled "Manage IO Rating" and features a "Test Project" dropdown. A row of buttons includes Submit, Backup, Restore, Import, and Reports. Below this, a summary section displays "Building EQ Performance Score:", "Source EUI:", and "Median EUI: 0". A red oval highlights a horizontal menu with five tabs: Building Characteristics, Energy, IEQ Screening, Energy Efficiency Measures (EEMs), and Photos and Attachments. The main content area is divided into sections for Building Demographics, Climate Information, and Building Characteristics. The bottom section contains various input fields for building metrics such as Gross Floor Area (ft2), Conditioned Floor Area (ft2), Separately Metered Excluded Area (ft2), Net Rated Floor Area (ft2), Number of Conditioned Floors, Floors Above Grade, Original Year of Construction, Floors Below Grade, and Hours of Operation (set to Average).

Main Tabs Include:

- Building Characteristics
- Energy
- IEQ Screening
- Energy Efficiency Measures
- Photos and Attachments



Building EQ Tour – Data Input



Building EQ Performance Score: Source EUI: Median EUI: 0

Building Characteristics | Energy | IEQ Screening | Energy Efficiency Measures (EEMs) | Policies and Attachments

Building Demographics

Climate Information

Building Characteristics

Gross Floor Area (ft2) Conditioned Floor Area (ft2)

Separately Metered Excluded Area (ft2) Net Rated Floor Area (ft2)

Number of Conditioned Floors Floors Above Grade

Original Year of Construction Floors Below Grade

Hours of Operation * Average

Data Input:

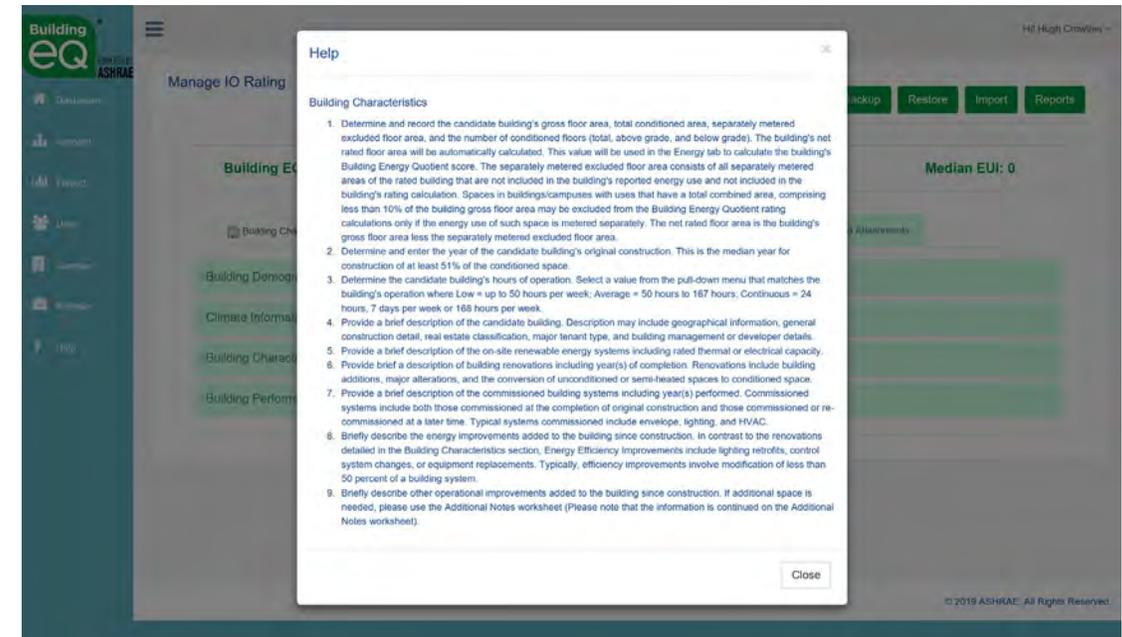
- Accordion menus under each Tab
- Inputs adjust based on your building type
- Answer questions related to just your building type





Building EQ Tour - Help

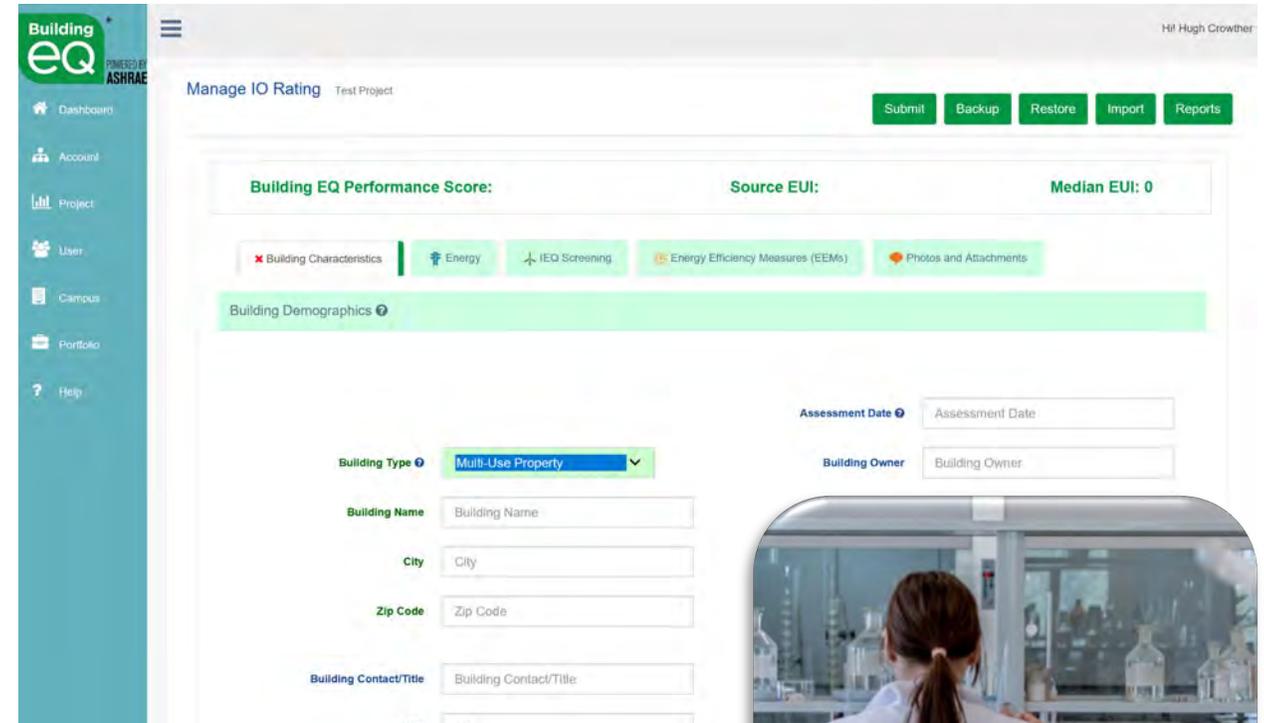
- Help screens provide explanation, suggestions
- Notifications allow for immediate corrections
 - Errors (must be fixed)
 - Warnings (data seems unusual)
 - Good (all data okay)





Building EQ Tour – Building Types

- Extensive building types
- Multiple use properties
- Lab Buildings
 - Most detailed lab benchmarking available
 - Accounts for multiple lab types, hours of operation, and lab area ratio





Building EQ Tour - Reports

- User Input Report – PDF of Portal inputs **FREE**
- Building EQ Label Report – graphically shows score **FREE**
- Disclosure Report – PDF of key energy performance data **\$50**
- Spreadsheet Audit Report (Excel) – Level 1 Energy Audit **\$50**
- Narrative Audit Report (Word) – Level 1 Energy Audit **\$200**

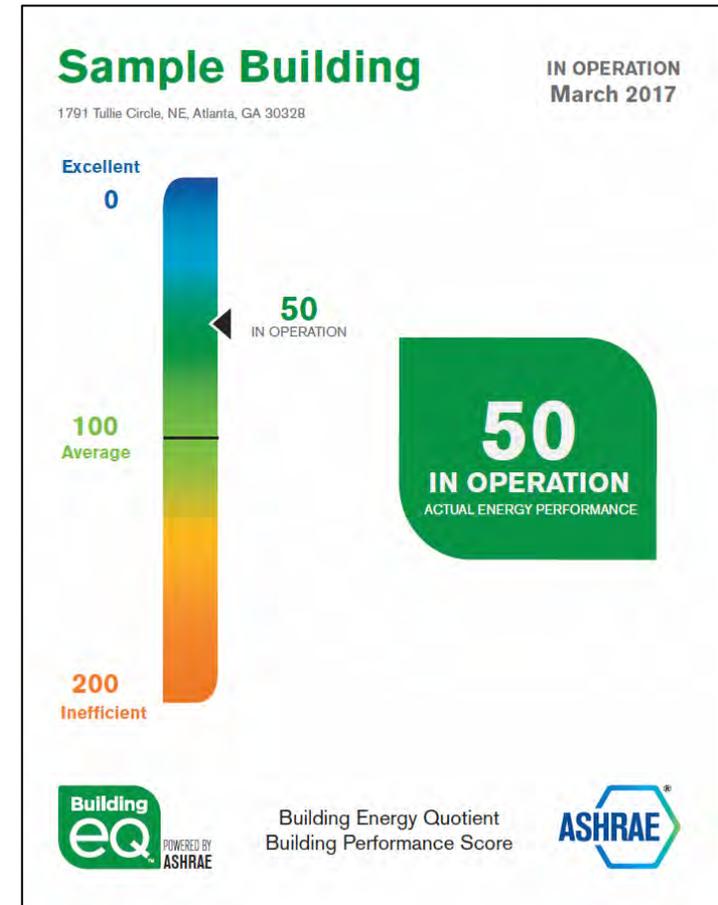




Building EQ Performance Score



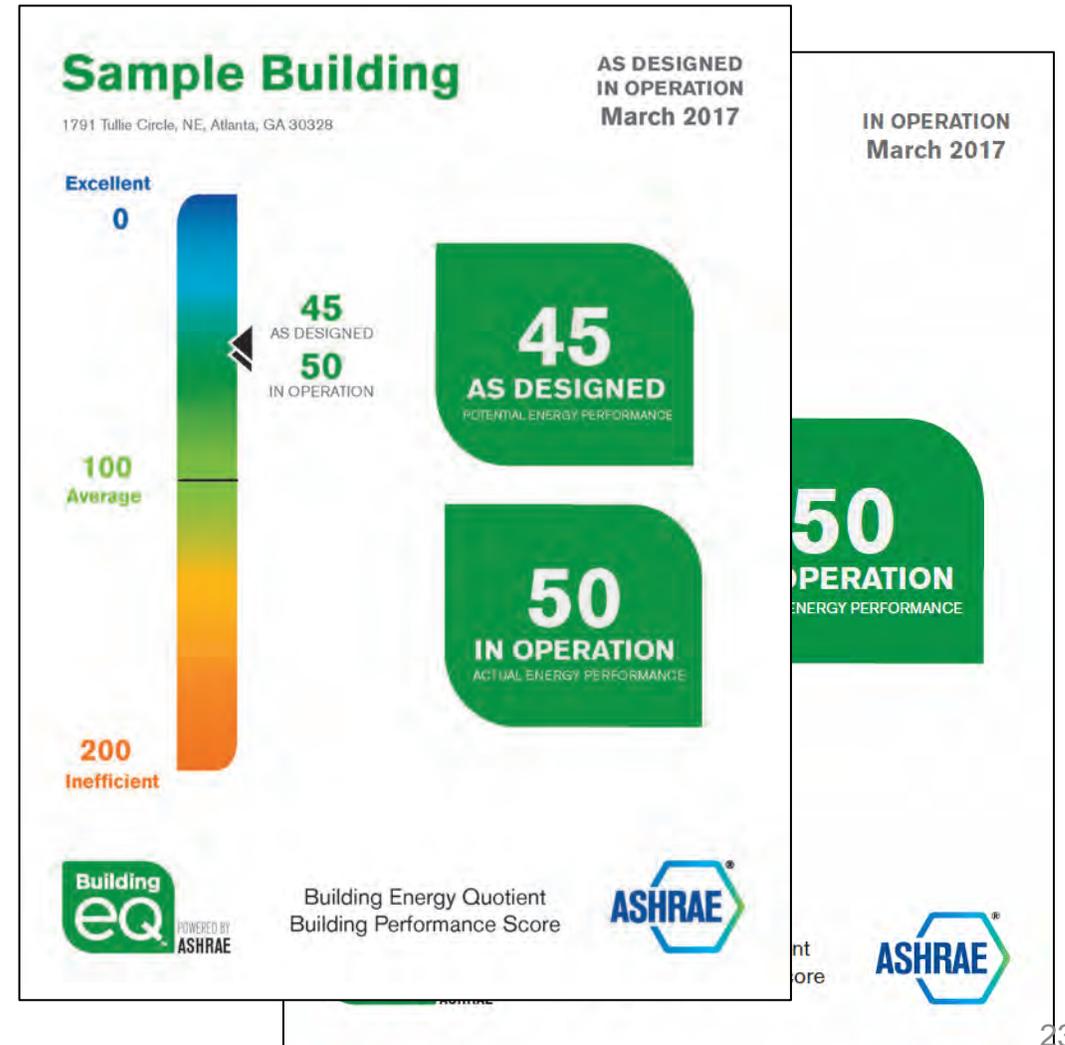
- Building Performance Score opens dialog on improving the building
- In Operation based on metered energy use
- As Designed based on energy models
- Measured on fixed scale showing movement toward Zero Net Energy





Building EQ Label Report

- Visual indicator of Building EQ Performance Score on a barometer/scale
- **FREE** to credentialed user for approved submissions
- Buildings that like their score can get a plaque for display





Building EQ Disclosure Report

- Presents key energy information
- Documents compliance with disclosure ordinances
- Provides data for Real Estate transactions
- **\$50** to credentialed users for approved submissions

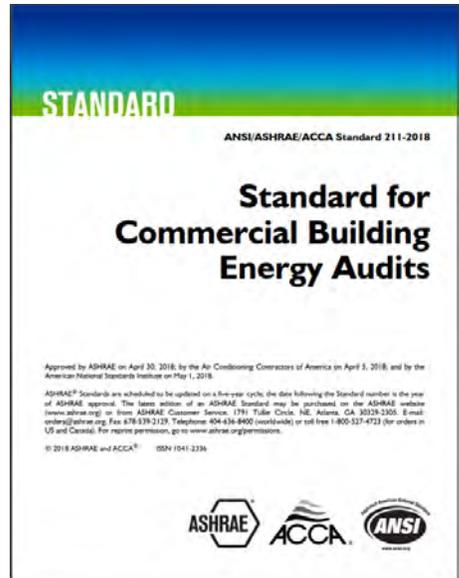
BUILDING EQ DISCLOSURE CERTIFICATE					
Building Identification Information					
Building name:			Assessment Date:		
Building Address:		Building Owner:		Primary Contact for Facility:	
Building Type:		Year Built:		Gross Floor Area (sq.ft.):	
Name of qualified Energy Modeler (PE or BEMP):			Name of qualified Energy Assessor (PE or BEAP):		
Building Energy Use Summary					
Simulated Energy Use Site		Energy Use Summary (kBtu)		Metered Energy Use Site	
0	0	Electricity	0	0	0
0	0	Natural Gas	0	0	0
0	0	Fuel Oil	0	0	0
0	0	Purchased Steam	0	0	0
0	0	Purchased Chilled Water	0	0	0
0	0	Other ()	0	0	0
0	0	Other ()	0	0	0
0	0	Total Energy Use	0	0	0
0	0	Qualified Renewable Energy	0	0	0
0	0	Renewable % of Total	0	0	0
0	0	Net Energy Usage	0	0	0
Energy Use Intensity (kBtu/sf-yr)					
Design Potential		Actual Metered			
Site	Source	Site	Source	Site	Source
0	0	0	0	0	0
Median EUI					
Site	Source	Site	Source	Site	Source
0	0	0	0	0	0
Building EQ Building Performance Score					
ASHRAE Building EQ – As Designed			ASHRAE Building EQ – In Operation		
Score #			Score #		
Awarded: Month, Yr			Awarded: Month, Yr		
Energy Star Rating for Jurisdictional Compliance					
EPA ENERGY STAR Target Finder			EPA ENERGY STAR Portfolio Manager		
Rating #			Rating #		
For the Year of 20--			For the Year of 20--		
Attachments					
<input type="checkbox"/> Statement of Energy Design Intent <input type="checkbox"/> Energy Simulation Data <input type="checkbox"/> ASHRAE Building EQ Data			<input type="checkbox"/> Statement of Energy Performance <input type="checkbox"/> ASHRAE Level 1 Energy Audit <input type="checkbox"/> ASHRAE Building EQ Data		
Certified By:					
Owner's Representative: (Name:)			(Signature:)		





Building EQ & Level 1 Energy Audits

- In Operation assessment aligned with Standard 211 Level 1 energy audit
- Provides understanding of how building ranks against similar buildings AND the initial evaluation on how to improve the building
- Provides consistent approach to energy audits
- Device responsive screens to collect data during required site visit
- Extensive library of EEMs from pull-down menus





Building EQ Spreadsheet Report

- Building EQ delivers Level 1 Energy Audit Reports aligned with ASHRAE Standard 211 requirements
- The Building EQ Spreadsheet Audit Report auto populates Standard 211 Level 1 required spreadsheets
- **\$50** to all users for all projects

The screenshot displays several overlapping spreadsheet windows. The top window is a table with columns: EEM Recommendation, Modified System, Based on Occupant Schedules at EQ, Other Non-Energy Impacts, Lower Cost, Upper Cost, Savings Impact, Typical ROP/Prevalence, and Priority. Below it is a form for 'Building Information' with fields for Building Name, Building Owner, Energy Auditor, Street, City, State, and Postal Code. Another window shows an 'Existing Building' energy usage table:

Energy Type	Total Annual Use*	Units	Conversion Multiplier	Thousands \$/1000Btu	Total Annual Cost (\$)
Electricity	385,655 kWh		0.431	1,247,985	\$ 44,243
Natural Gas					
Purchased Steam					
Discharged Hot Water					
					44,243

Below the table is a legend explaining cell types: blue for 'user input', green for 'calculated', and an asterisk for 'required inputs for the Asset Score tool'. A text box provides instructions on reporting forms and units (IP or SI).

Specific Notes on Select Tabs

All - Annual Summary
Formulas under "Total Annual Use" column prorate the energy use to a full calendar year (365 days). This is done to correct for differences between utility bill data and expected actual usage.

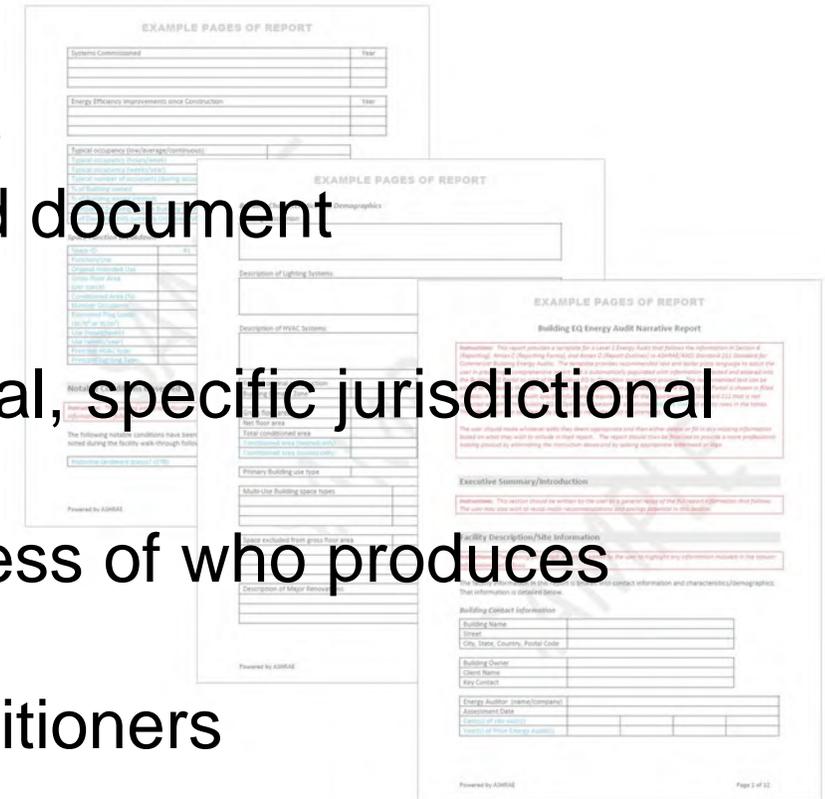
All - Metered Energy
Explanation of the "Days" calculation - Utilities will often report usage from midnight to midnight; but sometimes they will take a reading at a specific time of day. In the latter case, the end date will match the start date of the following month's bill. But in the former case, the end date of one bill will be offset by one day in the following month's bill. The formula simultaneously accounts for both the former and the latter case. User to modify formula if incorrect for application.





Building EQ Narrative Audit Report

- Customizable MS Word report template for use by assessor / consultant
- Meets Std 211 Level 1 reporting requirements
- Auto-populates data from the Portal into Word document
- Saves report preparation time for Assessor
- Can be edited and tailored to include additional, specific jurisdictional requirements
- Allows for consistent reporting format regardless of who produces report
 - **\$200** to credentialed practitioners for approved submissions



Building EQ Credentialed Users



- Certification required for official submissions
- PE licensed in the jurisdiction where project located, can be facility manager or building engineer
- ASHRAE Certified Providers
 - Building Energy Assessment Professional (www.ashrae.org/BEAP)
 - Building Energy Modeling Professional (www.ashrae.org/BEMP)
- DOE Better Buildings Workforce Guidelines Building Energy Auditor or Energy Manager
 - AEE Certified Energy Auditor and Energy Manager
 - EMA Energy Management Professional





Building EQ Energy Genius Award

- Recognizes excellence in the assessment of building energy performance
- Requires submission of a Building EQ project
 - In Operation project to complete a Standard 211 Level 1 Energy Audit of the building
 - As Designed project to complete and asset rating of the building
- Judging based on Building EQ project information, building performance/design improvement, complexity of building, involvement of students, use of ASHRAE resources.





Summary: Building EQ

- Benchmarking, assessment, and audit tool
- Performs both In Operation and As Designed ratings
- Aligns with ASHRAE Standard 211 Level 1 Energy Audits
- Helps make bad buildings good and good buildings great
- Consistent benchmarking and audit formats from different consultants
- Flexible for managing large portfolios of buildings and users
- Compares buildings via CZ rather than national boundaries





Check it out!

www.ashrae.org/BuildingEQ

www.youtube.com/watch?v=8UprJpl5cMs&t=3s

www.youtube.com/watch?v=K45K0YfOjpU&t=45s



