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ENERGY STAR® is a U.S. Environmental Protection Agency program helping businesses and individuals fight climate change through superior energy efficiency.

April 2014

The Licensed Professional's Guide:

# **Understanding the Roles and Requirements for Verifying Commercial Building Applications for ENERGY STAR Certification**

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# Introduction

Energy use in commercial buildings accounts for nearly 20 percent of U.S. greenhouse gas emissions at a cost of more than \$100 billion per year. Through ENERGY STAR®, the United States Environmental Protection Agency (EPA) works with owners and managers of our nation’s commercial buildings to help them strategically manage their facilities’ energy performance, cut energy use, lower utility bills, and reduce greenhouse gas emissions. An important part of this effort is EPA’s recognition of top performance.

ENERGY STAR certified buildings use 35% less energy and emit 35% less carbon dioxide than average buildings.

More than a dozen types of commercial buildings, including office buildings, K-12 schools, and retail stores, can earn EPA’s mark of superior energy efficiency – the ENERGY STAR, which is recognized by 85 percent of American consumers. Commercial buildings that earn the ENERGY STAR must perform in the top 25 percent of buildings nationwide compared to similar buildings and their performance must be verified by a licensed professional.

To determine a building’s energy performance and how it compares to similar buildings, organizations and individuals can use EPA’s free-online benchmarking tool, Portfolio Manager® ([www.energystar.gov/benchmark](http://www.energystar.gov/benchmark)). Once all the necessary data is input into Portfolio Manager, the benchmarked building can receive an ENERGY STAR score. The 1-to-100 ENERGY STAR score accounts for differences in operating conditions, regional weather, and other important considerations. Buildings that receive an energy performance score of 75 or higher are eligible for ENERGY STAR certification.

## Purpose of this Guide

Once a building has achieved an ENERGY STAR score of 75 or higher in Portfolio Manager, a representative of the building (typically the building owner, manager, or building engineer) may apply for the ENERGY STAR. As part of the application process, the applicant must have a Licensed Professional (LP) sign and seal his/her ENERGY STAR Data Verification Checklist for Certification (hereafter referred to as “the application”), validating that all of the submitted information is correct and that the indoor environmental quality meets industry standards.

The purpose of this guide is to provide LPs with step-by-step instruction on how to correctly verify the reported data and assess indoor environmental quality.

The role of the LP is to verify that all energy use is accounted for accurately, the building characteristics have been properly reported, and indoor environmental quality has not been compromised in pursuit of energy conservation. By verifying the completeness and correctness of the application submitted to the EPA, the LP helps to ensure the integrity of the ENERGY STAR certification.

## Eligibility Criteria for Individuals Verifying Applications for ENERGY STAR

For the purpose of verifying applications for ENERGY STAR certification, EPA requires a LP to meet the following qualifications:

- Possess a current license in any U.S. State, Canadian Province, or territory of the U.S. or Canada as a Professional Engineer (PE) or Registered Architect (RA) and be in good standing;  
*Note:* the LP does not need to hold a PE or RA license in the state in which the building he/she is verifying is located.
- Have a working knowledge of building systems, ASHRAE Standard 55, ASHRAE Standard 62.1, and the IESNA Lighting Handbook; and
- Understand all applicable state and territorial engineering and architectural licensure laws, professional ethics requirements, and regulations prior to offering or performing services in a jurisdiction.

Only LPs meeting these qualifications are eligible to verify commercial building applications for ENERGY STAR certification. LPs are to provide unbiased services and are bound by law to uphold strict ethical standards. They must verify that the information contained in the application is accurate to the best of their knowledge, based on a site visit to the building, their technical expertise, and a good faith effort to comply with the instructions provided in this guide.

Should a LP be found to have falsified information on a building's application for ENERGY STAR Certification, EPA reserves the right to pursue recourse through the engineering and architectural professional licensing authorities granting that individual's license, and under Federal law. Title 18 USC Section 1001, Crimes and Criminal Procedure, Fraud and False Statements, holds that:

Whoever, in any matter within the jurisdiction of the executive, legislative, or judicial branch of the Government of the United States, knowingly and willfully – (1) falsifies, conceals, or covers up by any trick, scheme, or device a material fact; (2) makes any materially false, fictitious, or fraudulent statement or representation; or (3) makes or uses any false writing or document knowing the same to contain any materially false, fictitious, or fraudulent statement or entry; shall be fined under this title, imprisoned not more than 5 years ... or both.<sup>1</sup>

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<sup>1</sup> Full text of Title 18 USC Sec 1001 is available at: <http://uscode.house.gov>

## Spot Audits

In the summer of 2014, EPA will begin conducting spot audits of applications for ENERGY STAR Certification. With the growing market demand for ENERGY STAR Certification, it is necessary to take additional measures to protect the integrity of the ENERGY STAR brand and work to ensure that only buildings with superior energy performance have the ENERGY STAR. On a regular, ongoing basis, EPA will randomly pull applications in the review process to undergo a spot audit. Examples of information that EPA may ask for include:

- Copies of all the utility bills and invoices for fuel purchases within the period of performance;
- Documentation and/or explanation of how the building attributes were verified; and
- Explanation of how the LP assessed the indoor environmental quality.

At the time an application is selected for audit, EPA will send audit documents and instructions on how to complete them to the LP who verified the application. The LP will then have two weeks to submit all audit materials to EPA. As a best practice, records related to an application for ENERGY STAR certification, including utility bills and documents used to support the verification of building attributes, should be kept for two years from the date on which the ENERGY STAR was awarded.

## Help for Public Schools and Worship Facilities

Many K-12 schools, as well as Houses of Worship, qualify for ENERGY STAR certification, but are unable to pursue certification due to lack of budget to pay for the verification by a LP. Because these buildings are often cornerstones of the local community and offer an opportunity to showcase and communicate effective energy management and environmental protection, EPA has initiated a program in which LPs can volunteer to provide “free of charge” verifications for the ENERGY STAR certification to K-12 schools and Worship Facilities.

LPs who have volunteered to provide free ENERGY STAR verifications for K-12 schools and/or Worship Facilities are listed here

[http://www.energystar.gov/index.cfm?fuseaction=pe\\_directory.showPESearchK12](http://www.energystar.gov/index.cfm?fuseaction=pe_directory.showPESearchK12)

LPs wishing to be listed in the volunteer directory should email: [spp@energystar.gov](mailto:spp@energystar.gov)

## Additional Resources

For additional information on the ENERGY STAR Commercial Buildings Program and benchmarking buildings with Portfolio Manager, visit [www.energystar.gov/buildings](http://www.energystar.gov/buildings)

For answers to specific questions, submit a question through [www.energystar.gov/buildingshelp](http://www.energystar.gov/buildingshelp)

# The ENERGY STAR Application Process

The application process for ENERGY STAR certification is completed online within Portfolio Manager. Generally, the applicant (typically a representative of the building such as the owner, manager, or building engineer) enters his/her property information and energy consumption data into Portfolio Manager and completes the first seven steps outlined below prior to the LP's site visit to the property. In some cases, the LP may be involved with the ENERGY STAR certification application from inception to award, completing all of these steps. Whether assisting through the process or just performing a site visit and verification, it will be useful for the LP to be familiar with all stages of the application process.

1. **Enter Data** - Log in to Portfolio Manager and enter the required whole building operational and energy information, including at least 11 consecutive months of energy data for all active meters that account for all energy use in the building.
2. **Click on "Eligible to Apply for the ENERGY STAR"** - In Portfolio Manager, on the "Property Summary" page, look in the upper right hand corner of the screen for the heading "Eligibility for the ENERGY STAR." If the property is eligible to apply for the ENERGY STAR, meaning that it earned a score of 75 or higher, a link will appear. Click on the link "Eligible to Apply for the ENERGY STAR."
3. **Enter Property Information** – Provide the following information about the property in the appropriate fields: property description, property name for listing display, and property profile.
4. **Choose Contacts for Application** – Select a primary contact for the application, a signatory, and an LP in the Contact Information for Your Application section.
5. **Enter Award Information** – Select the preferred type of complimentary decal and contact information for delivering the award.
6. **Review Eligibility Details** – It is important to review the eligibility details on the application before submission. Select the appropriate Period Ending Date and review and correct any ENERGY STAR eligibility alerts that have been flagged
7. **Generate the Application for Signatures** - Generate the application for signatures by clicking on **Generate and Download Current Application for Professional Signatures**. Ensure that there is a tracking number in the bottom right-hand corner of the Statement of Energy Performance.

LP

8. **Conduct a Site Visit - Verifying Data and Assessing Indoor Environmental Quality** - A LP conducts a site visit of the building. The LP may engage a representative to conduct all or part of the site visit while under his or her direction and control. However, the application must still bear the seal and signature of the LP, who remains responsible for all work performed by others under his or her direction and control.

During the site visit, the LP or one of his/her designated representatives should have a printed copy of the application. The LP must check and verify the reported information.

The application provides a summary of a property's physical and operating characteristics, as well as its total energy consumption. It also includes the attestations of the building meeting the industry standards for indoor environmental conditions. The LP must assess the indoor environmental conditions and determine whether the building has acceptable indoor air quality, thermal environmental conditions, and illumination.

For an average building, it should typically take a LP about one full day to conduct the site visit and complete the verification of the information on the application.

LP

9. **Sign Documents** –The applicant must address any insufficiencies and correct errors the LP identified during the site visit. Once the information in the application accurately reflects the building operations and performance, and has been verified, the LP must complete, sign, date, and seal the application.

10. **Submit Application** - Enter the tracking number from the signed application in Portfolio Manager and check the necessary boxes. Attach a signed PDF of the application. Make sure the LP stamp, along with any signatures, is visible on the PDF. Validate your credentials by entering your Portfolio Manager username and password, e-sign the application, and submit to EPA.

11. **Respond to EPA Questions** - Upon EPA's receipt of the application, the Primary Contact will receive an email notification. If there are any issues or questions regarding the application, the Primary Contact (or in some cases the LP) may be asked to provide additional information and clarification.

12. **Receive Award** - Within 4-6 weeks of EPA approval of the application for ENERGY STAR certification, the Award Recipient will receive the ENERGY STAR award and congratulatory letter. If EPA denies the application, the Primary Contact will be notified and provided with recommendations for further action.

The year of the ENERGY STAR Certification is the calendar year in which it was awarded.

A building that has earned the ENERGY STAR becomes eligible to re-apply one year after the date of the last energy data entry included in the Statement of Energy Performance submitted as part of the previously awarded application.

# Verifying the Application for ENERGY STAR Certification

This section describes, in detail, the process by which the LP should verify the accuracy of each element included on the application. The application also includes detailed questions to assist the LP in conducting his/her checks.

**It is the responsibility of the LP to verify all of the following data elements and ensure that the whole building is represented in the application.**



When reviewing the application, the LP **must check each box and/or write-in a note confirming the correctness of each line item.**

## Summary Information



### Property name

The name listed is the official, complete name to be displayed in the Registry of ENERGY STAR Certified Buildings and Plants



### Primary function

The overall property function is correct, per EPA's property use definitions.



### Gross floor area

This value is the total floor area of the whole building as measured from the principal exterior surfaces of the enclosing fixed walls. It is the sum total of all the building's property uses reported on the application, and it should represent the whole building.



### Year built

The year built is the year in which construction of the building was completed. In some cases, this may be the year in which a major renovation was completed. The year built is not factored into the ENERGY STAR score; however EPA uses this information for data analysis on the age of buildings earning ENERGY STAR certification.



### For year ending

The last date of the 12 month period for which the application is being submitted. This date is selected by the applicant and cannot be more than 120 days before the date of submission.





### **Date Application Becomes Ineligible**

The date 120 days after the For Year Ending date. Note: LPs should work with the applicant to ensure that there is enough time before the 120 expiration date to conduct the site visit, complete the application, and submit the application.

## Property and Contact Information



### **Property Address**

The street address of the property is complete and correct.



### **Property Owner**

The name and contact information is complete and correct.



### **Primary Contact**

The name and contact information is complete and correct.



### **Property ID**

The property ID is the correct ID number generated by Portfolio Manager specifically for this property.

## Basic Property Information



### **Property name**

The name listed is the official, complete name to be displayed in the Registry of ENERGY STAR Certified Buildings and Plants.



### **Primary function**

The overall property function falls into one of the following categories of operation, according to EPA's definitions of each property type. If the primary function of the property does not fall into one of these categories as defined by EPA, then the property is not eligible for ENERGY STAR certification.

- Bank/Financial Institution
- Courthouse
- Data Center
- Hospital (General Medical and Surgical)
- Hotel
- K-12 School

- Office
- Retail Store
- Senior Care Community
- Supermarket
- Warehouse (refrigerated or non-refrigerated)
- Worship Facility

For a definition of each property function, refer to this list of property types eligible to receive a 1-100 ENERGY STAR score: <http://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager/identify-your-property-type-0>.



### Location

The full address, including the 5-digit zip code, is complete and accurate.



Only commercial buildings located in the U.S. and its territories, or those owned by the U.S. government located in foreign countries, are eligible to earn the ENERGY STAR.



### Gross Floor Area

The Gross Floor Area is the total floor area, as measured from the principal exterior surfaces of the enclosing fixed walls. It is the sum total of all the building's property uses reported on the application, and it should represent the whole building.

Additionally, the LP must ensure that the reported area of each of the property use types total the whole building's gross square foot.



For atriums, only the base floor area that they occupy should be counted. Interstitial (plenum) space between floors should not be included in the total gross floor area.



Leasable or rentable space should not be used because it is a subset of a building's gross floor area.



### Annual Occupancy *[applicable to Offices, Hotels, and K-12 Schools]*

Over the course of the 12-month period being assessed, a building designated as an Office or Hotel must have had an average occupancy rate of greater than 50 and 55 percent, respectively, and a K-12 School must have been open for at least 8 months.



Office buildings with vacant space should enter the vacant square foot as a separate "Office" property use entry, with zero weekly operating hours, zero workers, and zero personal computers.

If the occupancy level in the building fluctuates, calculate the average occupancy over a period of time. For example, if the building was at 70% occupancy for the first half of the year, then at 80% occupancy for the second half of the year, you would calculate the occupancy level to be 75% occupancy for the year.



### Number of Buildings

EPA's 1 to 100 ENERGY STAR score for many building types, the exceptions being Hospitals, Hotels, K-12 Schools, and Senior Care Communities, are based on statistical analyses of individual, single structures. For an accurate ENERGY STAR score, it is important that the function and structure of the building meet EPA's definitions.

**Campus of buildings:** Only Hotel, K-12 School, Hospital, and Senior Care Community may apply as a campus. All buildings and energy use on the campus that support the function of the K-12 School, Hotel, Hospital, or Senior Care Community should be combined and entered as a single property. Hotels, K-12 Schools, Hospitals, and Senior Care Communities are often located in campus settings, and this is accounted for in the EPA energy performance scoring models for these property use types. The LP must verify that all buildings supporting the function of the Hotel, K-12 School, Hospital, or Senior Care Community have been included in the application.

**Single Building:** For Bank/Financial Institution, Courthouse, Data Center, House of Worship, Office, Retail Store, Supermarket, and Warehouse, the LP must verify that the property is **a single, whole, structure**. If a building has multiple towers connected by common concourse levels or common areas that cannot truly be separated between the towers, then EPA considers it to be a single structure. A series of buildings situated closely together as a plaza or campus, even if sharing a common heating or cooling source, or sharing an energy meter, are **not** considered a single structure.

### Is this a single structure?

#### Examples:

- A building with two towers that share four stories of common space that includes an atrium, cafeteria, and seamless connections between two towers is considered a single structure because there is a complete and indivisible connection.
- Two office towers built on top of an underground parking garage may be considered an entire, single structure **OR** each of the towers may be benchmarked individually, provided they have complete, measured energy data.
- An office complex that consists of two buildings connected by an outdoor covered walkway is **not** considered a single structure because the buildings can be easily separated. Each of these buildings must be separately metered and entered as two distinct buildings in Portfolio Manager.
- Two office towers that have no physical connection, but share a central plant and energy meters, are **not** considered a single structure because there is no physical, structural connection.

## Verifying the Indoor Environmental Standards

**As part of the review of the application for ENERGY STAR certification, the LP is required to use his/her professional judgment and the guidance of industry standards to assess whether indoor environmental quality standards have been met at the building and have not been compromised in pursuit of energy reductions.**

The LP must have a working knowledge of building systems, the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) Standards 55, 62.1 and the Illuminating Engineering Society of North America's (IESNA) Lighting Handbook.

### Indoor Air Quality

The LP must verify that minimum ventilation rates and acceptable indoor air quality are provided according to the most recent version of the industry standard, ANSI/ASHRAE Standard 62.1, *Ventilation for Acceptable Indoor Air Quality*.

The purpose of the ASHRAE Standard 62.1 is to “specify minimum ventilation rates and other measures intended to provide indoor air quality that is acceptable to human

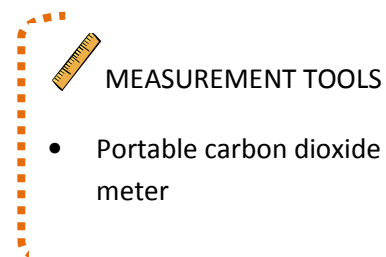
Hospitals and Senior Care Communities may use ASHRAE Standard 62.1 or AIA 2001, *Guideline for Design and Construction of Hospital and Healthcare*

occupants and that minimizes adverse health effects.”<sup>2</sup> The Standard considers acceptable indoor air quality to be “air in which there are no known contaminants at harmful concentrations as determined by regulatory authorities and with which at least 80 percent of people exposed do not express dissatisfaction.”

The ASHRAE Standard 62.1 establishes two procedures that can be used to demonstrate acceptable indoor air quality:

1. Ventilation Rate Procedure – measures outdoor air intake rates based on property use type, occupancy, and floor area
2. Indoor Air Quality Procedure – analyzes contaminant sources, contaminant concentration limits, and level of perceived indoor air acceptability

The LP may choose to follow either of the two procedures to determine a building’s compliance to the ASHRAE Standard 62.1, though many LPs use the ventilation rate procedure, using measures of carbon dioxide as a reference point. The LP measures the level of carbon dioxide in the breathing zone of an occupied room. Air quality is assessed through CO<sub>2</sub> measurement and ventilation rates are mathematically derived using constants.



Ventilation rate (L/s) = CO<sub>2</sub> generation rate/ (acceptable indoor CO<sub>2</sub> concentration – ambient CO<sub>2</sub> concentration)

ASHRAE Standard 62.1 includes additional requirements related to certain sources, including outdoor air, construction processes, moisture, and biological growth, regardless of which procedure is selected for indoor air quality.

By taking actual measurements of the indoor air quality of the building, the LP is expected to give a professional opinion about the capability of the building to supply adequate ventilation for the maintenance of acceptable indoor air quality. Ultimately, it is the responsibility of the LP to determine, based on his or her professional opinion, whether the building meets the letter and spirit of ASHRAE Standard 62.1 considering all measured data and observations at the time of the site visit.

## Thermal Environmental Conditions

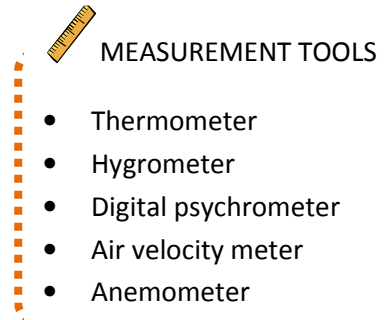
The LP must verify that the building meets acceptable thermal environmental conditions as established by ANSI/ASHRAE Standard 55 “Thermal Environmental Conditions for Human Occupancy.” ASHRAE Standard 55 establishes acceptable thermal comfort ranges for indoor spaces which are dependent on temperature, relative humidity, air speed, and occupant activity and clothing insulation. Thermal comfort may vary from person to person; however, extensive laboratory and field data have been collected by ANSI/ASHRAE to provide necessary statistical data


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<sup>2</sup> ANSI/ASHRAE Standard 62.1-2010

to define conditions that a specified percentage of occupants will find comfortable. ASHRAE Standard 55 outlines two methods for assessing the acceptability of thermal conditions in occupied spaces based on whether the indoor environment has set conditions controlled by a heating, ventilation, and air-conditioning system or is naturally conditioned under the control of the occupants, primarily through the opening and closing of windows.

Given these different methods, the LP is expected to give a professional opinion about the capability of the building to provide acceptable thermal environmental conditions per guidelines provided by ASHRAE Standard 55. The LP should measure the temperature, relative humidity, and air speed of a representative sample of the occupied interior spaces of the building during occupied hours. It is the responsibility of the LP to consider all measured data and observations at the time of the site visit and to determine, in his or her professional opinion, whether the building meets the letter and spirit of ASHRAE Standard 55.



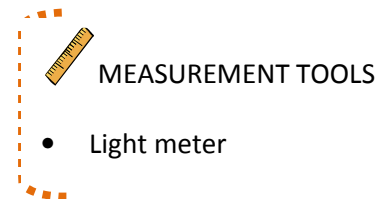
 While conducting the site visit, the LP or his/her representative should observe and record indications of possible occupant thermal discomfort such as personal fans, space heaters, window air conditioning units, or altered thermostats.

## Illumination

The LP must verify that the building meets acceptable illumination levels in accordance with the illuminance determination procedure of the Illuminating Engineering Society of North America (IESNA) Lighting Handbook.

The IESNA Lighting Handbook recommends horizontal and/or vertical task illuminances for a wide variety of locations and tasks. A sample of the minimum recommended illumination levels in foot-candles (FC) are given in the table on page 26. Please refer to the most current edition of the IESNA Lighting Handbook for the full list of recommended illumination levels of interior spaces.

To measure illuminance, the LP should position a light meter at the proper height on the work surface at the task location. Illuminance can be measured in foot-candles (fc) which is the illuminance on a uniform surface one foot away from the light of one candle.



The LP should measure the illumination levels in a representative sample of the occupied interior spaces of the building as well as any associated parking facilities. He or she is expected to give a professional opinion about the capability of the building to provide minimum IESNA Lighting Handbook recommended illumination levels of both interior occupied spaces and generally unoccupied spaces (such as parking garages and lots). It is the responsibility of the LP to decide, based on his or her professional opinion, if the building meets the minimum recommended illumination levels considering all measured data and observations at the time of the site visit.



If during the site visit, the LP observes multiple dramatic differences (a deviation of a third or more) between the actual and recommended illuminance in the building, then the LP should not sign the application until the lighting issues have been addressed.

*Selected Excerpt from IESNA Lighting Design Guide*  
**Recommended Illumination Levels for Interior Spaces**

Property Use Type	Horizontal (FC)	Vertical (FC)	Property Use Type	Horizontal (FC)	Vertical (FC)
<b>Offices</b>					
meeting rooms	30	5	copy rooms	10	3
video conference room	50	30	lobbies/reception areas	10	3
private offices	50	5	stairways and corridors	5	-
open plan offices	30 to 50	5	restrooms	5	3
<b>Educational Facilities</b>					
reading – white boards	-	5	science labs	50	30
reading – chalk boards	-	50	art rooms	50	30
reading – pen/ typed print/ pencil	30	-	lecture halls	100	50
<b>Health Care Facilities</b>					
anesthetizing	50	10	recovery room, general	10	3
autopsy, general	50	10	emergency outpatient	50	10
cardiac function lab	50	10	critical care areas	5	3
work areas, general	30	5	surgical suite, general	300-1000	50
occupational therapy	30	5	surgical holding room	50	10
operating areas, delivery, recovery, and lab suite & service	50	3	patient rooms, observation	5	3
<b>Hotels</b>					
guest rooms, general	10	-	front desk	50	-
bathrooms	30	5	lobby, general lighting	10	-
corridors, elevators, & stairs	5	-	linen room, general	10	-
<b>Retail</b>					
fitting areas	100	30	general merchandise display	50	10
stock rooms	30	5			
<b>Supermarkets</b>					
shelving	50	10	dairy	50	10
produce	50	10	meat	50	10

### Property Use Details

The LP must assess whether the property use designation and attributes have been correctly characterized and entered. He or she must also ensure that the floor area for all individual property uses adds up to the gross floor area for the entire building.




#### **Building Use**


The primary property function matches with one of the property functions listed on pages 7-8.




All supporting spaces for the property should be included under the square foot of this main activity/property use designation. This includes services and amenities that directly support the main activity of the building, and could reasonably be assumed to appear in similar properties across the country. For example, in an office building, this might include a coffee shop, a flower shop, a news stand, a barber shop, etc. In a hotel, this would include the gift shop, gym and spa, and any restaurants.

 As a general rule of thumb, an applicant should designate as few property use types as possible. When in doubt, do not split a property use out.

Every building has a mechanical room with heating and cooling equipment. This space should not be separately designated, but included in the gross floor area of the main property use type.

 If a food service area supports the main property use (e.g. a cafeteria serving workers in an Office or a restaurant in a Hotel), then the square foot should be included within the main property use type. If a food service area is a food court or restaurant that is open to the general public, it should be entered as "Other."

 Only a property in which consumer products are sold and which is at least 5,000 sq ft with an exterior entrance to the public should be designated as Retail. Any retail type property that does not meet this definition should be designated as the most appropriate property type as listed in Portfolio Manager. Examples include Convenience Store with or without Gas Station, Enclosed Mall, and Personal Services (Health/Beauty, Dry Cleaning, etc.) etc.



## **Gross Floor Area**

This value is the total floor area of the whole building as measured from the principal exterior surfaces of the enclosing fixed walls. The LP should verify that the value printed here represents the sum total of all the building's property types reported on the application, and that they, in turn, represent the whole building.




**Specific Property Use Details** The LP must verify that each of the property details are correct.


Depending on the designated property use type, different property use details will be included. The LP must verify each of these property use details, which may include weekly operating hours, number of workers on the main shift, number of PCs, or other pertinent characteristics specific to each property use type.

The LP is not obligated to count each attribute, such as computers; however he/she must verify the correctness of the value reported. The LP may verify this information by asking credible parties who have a detailed knowledge of the building and/or cross-checking information with

available reports from departments within the organization. For example, the LP may use a report from human resources to verify the reported number of workers on the main shift, or consult the IT department to verify the number of computers owned or issued by the organization.

 “Weekly operating hours” is defined as the number of hours during the week the building is occupied by a majority of the employees and therefore considered to be operational. The LP should verify that the applicant did not include HVAC start-up time or hours when the building was occupied only by maintenance, security, or other support personnel.

In a situation where a building has multiple tenants with varied hours, the LP should verify that the applicant created an additional property use for tenants whose weekly operating hours differ from the building norm by 10 hours or more. For example, if standard weekly operating hours are 65 but one tenant’s employees are present for 75 hours each week, then that tenant’s square foot should be entered as a separate property use with 75 weekly operating hours.

 Only report what is requested for each attribute.

The ENERGY STAR 1-to-100 scoring models are derived from a statistically representative sample of the national building population with an analysis of the building attributes that are most highly correlated with its energy consumption. The building attributes required within Portfolio Manager are determined through an extensive statistical analysis of dozens of attributes gathered in the national sample survey that include the buildings’ energy-related building characteristics and their energy consumption and expenditures.



Anything other than what is requested per the attribute definition should not be included in the count for the attribute. For example:

“Number of PCs” **only** includes desktop computers, laptops, and servers. It does **not** include monitors, tablets, smartboards, and fax machines.

“Workers on the main shift” **only** includes the number of employees present during the main shift. It does **not** include visitors, clients, everyone who came into the building over the course of 24 hours, or the total number of works across multiple shifts.

“Number of MRI Machines” **only** includes Magnetic Resonance Imaging machines in the facility. It does **not** include X-ray, CT scan, other imaging or diagnostic equipment.



## **Parking**

### ***Include or Exclude***

The ENERGY STAR 1-to-100 score assesses a building's energy performance. For the most accurate assessment of the building's performance, where possible, do not include Parking. Parking can be excluded if it is separately metered.

If the energy consumed by the lighting and ventilation associated with the Parking is on a shared meter with the building, then include Parking.

If a structure is composed of 75 percent or more parking garage (enclosed or non-enclosed), then it is not eligible for ENERGY STAR certification.

### ***Definitions***

Parking refers to any space used for parking vehicles. This includes open parking lots, parking structures that may be only partially enclosed, and fully-enclosed (or underground) parking structures. Parking structures may be free standing or may be physically connected to a building.

The Gross Floor Area for Parking is entered in three categories: Enclosed, Non-Enclosed (with roof), and Open.

Enclosed: a parking structure that is fully enclosed, with four solid walls and a roof.

Non-Enclosed: a parking structure that has a roof with partial walls or open sides.

Open: parking area that is not covered by a roof, typically an open lot or the top level of an above ground parking structure.

### ***How to Measure***

The Licensed Professional must verify the total square foot of all types of parking reported on the application. This can be verified by obtaining information from building blue prints, resurfacing project reports, using a measuring wheel, or by counting parking spaces and accounting for driving lanes. Estimating square foot based on aerial photographs, such as from Google Earth, is not acceptable as it is not an actual measurement.

Gross Floor Area should include all areas associated with the parking structure/area including individual parking spaces, driveways and aisles, security booths, stairwells, elevator shafts, and equipment or storage areas.

## **Data Center**

Data Center is a unique space because one of the operational characteristics is a set of energy meters capturing the IT Energy Consumption. The LP must verify that the applicant entered the correct metering configuration and measured annual IT energy value. It can be helpful for the LP to collaborate with both the IT manager and building manager to ensure that all the required information about the metering configuration and IT energy data are accurate.

### ***Definitions***

#### **Data Center**

Data Center applies to spaces specifically designed and equipped to meet the needs of high density computing equipment, such as server racks used for data storage and processing.

Data center space located within multi-use buildings is typically larger than 500 square feet in floor area, and usually has:

- A constant total power load (including non-IT energy use for power distribution and cooling systems) of 75 kilowatts (kW), with the IT equipment drawing a 30-50 kW power load;
- Dedicated uninterruptible power supplies and cooling systems; and
- A raised floor to facilitate equipment cooling.

#### **IT Energy**

In Portfolio Manager, IT Energy is defined as the total amount of energy required by the server racks, storage silos, and other IT equipment in the data center space. This data is entered into Portfolio Manager in kWh. It should not include supplemental loads like HVAC equipment, lighting, or security equipment.

#### **Power Distribution Unit (PDU)**

A device that delivers conditioned power from the uninterruptible power supplies (UPS) to servers, networking equipment and other electronic equipment.

#### **Uninterruptible Power Supply (UPS)**

A piece of equipment that maintains power to electrical loads in the event of a utility power supply disruption. The UPS conditions the power reaching the load under normal operation to prevent undesired features of the power source (outages, sags, surges, bad harmonics, etc.) from adversely affecting the performance of servers and other equipment. UPS typically use batteries as an emergency power source and provide power to servers until emergency generators come online.

## Data Center

### *How to Measure*

There are three acceptable options for determining the IT Energy:

1. **Meter (kWh) at the output of the UPS (preferred)**

**Note:** If the UPS supports non-IT loads (e.g. cooling equipment, mechanical) that amount to more than 10% of its total load, then the applicant must exclude the non-IT equipment by taking one of the following approaches:

- If energy used by non-IT equipment is measured, then it may be subtracted from the total UPS energy, and the remainder should be entered into the IT Energy meter in Portfolio Manager; **OR**
- If energy used by non-IT equipment is not measured, then supply a reading from the input to the PDU that supports the IT equipment.

2. **Meter (kWh) at the input of the PDU**

- If there is not a UPS; **OR**
- If the UPS supports non-IT loads that account for more than 10% of the total load and are not submetered.

3. **Calculate kWh by recording kW readings every 15 minutes or more frequently**

- UPS is connected to a software solution (ex. a Building Management System or some other software program) that logs the kW values at 15 minute intervals and converts it to monthly kWh values.
- Some newer UPS have the ability to log these kW readings at 15 minute or more frequent increments as well.

**Note:** If the applicant has calculated IT Energy using this third option, the LP must review how the readings were collected, verify that the readings were collected in increments of no greater than every 15 minutes, and use their professional judgement to assess how accurately the interval readings were used to calculate the monthly IT energy values.

## Energy consumption



### Site Energy Use Summary

The site energy use summary presents the sum total of all entered energy inputs. The LP should look at this summary and determine if the energy profile is what would be expected for the building type in that climate. If the energy use profile is different than expected, the LP should re-examine the energy inputs to ensure that no energy source or meter was excluded.



### Energy Intensity

The LP should review the Source Energy Use Intensity because it can signal that the energy consumption data may have been entered with incorrect units. Typical Source Energy Use Intensity falls within the range of 30 kBtu/ft<sup>2</sup> to 500 kBtu/ft<sup>2</sup>.



### Power Generation Plant

If a Powerplant is specified on the application, the LP should verify that there is a specific power purchasing agreement.



### Energy Meters

The LP must verify that all actual, as-billed energy consumption for all fuels for the building is correctly entered and captured on the application. The energy meters must account for the total energy consumption from all property uses within the building envelope. For each energy source used in the building, the LP is expected to review energy consumption documentation, such as monthly utility bills for electric, natural gas, and district energy, and invoices for bulk fuel purchases.

- Check that all forms of energy that are required for the building's operation have been reported.
- Check that the units for each of the fuels have been entered correctly.
- Check that no simulated or model values have been used.




If an energy meter was broken for some portion of the application period, submit a ticket at [www.energystar.gov/BuildingsHelp](http://www.energystar.gov/BuildingsHelp) with a detailed description of the situation, including the time period for which the meter was broken, and an ENERGY STAR team member will provide guidance on how to proceed.


Reportable fuel sources include electricity (grid purchases, on-site solar and on-site wind), natural gas, fuel oil, diesel fuel, district steam or hot water, district chilled water, propane, coal, coke, kerosene and wood.



If wood, coal, fuel oil, or propane is combusted on-site, such as in a boiler, then the purchased quantities of these fuels must be reported. Unlike electricity and natural gas,

wood, coal, fuel oil, and propane may not be delivered or measured on a month-to-month billing period. Consequently, they can be entered as they are billed or the delivery amount may be divided over the total months covered by the purchase.

 On-site Combined Heat and Power systems consume a single input fuel (e.g. natural gas) to produce both heat and electricity. The LP should verify that this input fuel is included in the total reported energy. This information may be found on monthly values for a fuel such as natural gas, or from other irregular billing periods for diesel oil or coal. The applicant is not required to report the amount of heat and electricity generated from the combined heat and power system.


 On-site renewable electricity, generated through wind or solar photovoltaic power generation systems installed on or at the building site is treated as a fuel and entered into Portfolio Manager using a standard electricity meter in the Energy Meters section, similar to grid purchased electricity. Applicants are required to report:

- (1) kWh used on-site (from the wind or solar system), by the building;
- (2) kWh sold or exported to the grid; and
- (3) kWh purchased from the grid.

EPA does not accept net meters. The LP is required to confirm that all on-site renewable electricity is reported in full and should ensure that the applicant is not subtracting the on-site solar or wind energy generated from the total energy consumption of the building. For more information on EPA's policies with regard to green power, please refer to [www.energystar.gov/GreenPower](http://www.energystar.gov/GreenPower).

## Sign & Date

After all of the elements on the application have been verified and deemed to be correct, the LP must sign and date the application.

 Note that the application must be postmarked before the date specified as the "Date application becomes ineligible." Therefore, work with the applicant to ensure that there is enough time before the 120 day expiration date to conduct the site visit, complete the application, and postmark the application.

## Verify Information



### Licensed Professional

The name and contact information for the Licensed Professional are correct and the LP's license number is accurate. The LP's stamp should also be visible. Sometimes the LP's stamp is not visible when the application is scanned, so it is worth double checking this.





## Tracking Number

The application has a tracking number printed at the bottom right-hand corner of the paper. Applications “generated for uses other than applying for the ENERGY STAR,” do not have a tracking number and will not be accepted. If there is not a tracking number on the application, then the applicant needs to download an application within the “Apply for the ENERGY STAR” process in Portfolio Manager.

## Seal & Sign

After all of the information has been reviewed and deemed to be correct, the LP must apply his/her professional seal or stamp and sign the application, thus attesting that the information contained within the application is accurate and in accordance with the instructions in this Guide. The LP must ensure that the name, license number, and contact information is complete and correct, matching the information on his/her professional stamp.



If the LP does not have a stamp, include a copy of the state issued certificate of licensure as a Professional Engineer or Registered Architect with the application.

The person who signs the signatory agreement must be a representative of the property applying for ENERGY STAR certification (typically the owner, manager, or a building engineer). In cases where the LP works for the organization certifying, he/she may sign the application twice – in the LP verification section, as well as the signatory agreement. However, if the LP does not work for the organization that is certifying, he/she may not sign the signatory agreement.



The person submitting the application should check to make sure the LP stamp and all signatures are visible on the scanned copy of the application before submitting it to EPA. If they are not, EPA will require resubmission of the application.