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The Canadian Licensed Professional's Guide:

Understanding the Roles and Requirements for Verifying Commercial Building Applications for ENERGY STAR[®] Certification

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Background

Energy use in commercial/institutional buildings accounts for nearly 10 percent of greenhouse gas emissions and total energy use in Canada. To support energy management of commercial and institutional buildings in Canada, and through the use of tools such as ENERGY STAR® Portfolio Manager®, Natural Resources Canada (NRCAN) 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 NRCAN's recognition of top energy performance.

Several commercial building types, such as office buildings, K-12 schools, and indoor ice rinks, can earn NRCAN's mark of superior energy efficiency: the ENERGY STAR, which is recognized by 85 percent of Canadian 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. Over time, NRCAN will be developing 1–100 ENERGY STAR scores for additional building types.

To determine a building's energy performance and how it compares to similar buildings, organizations and individuals can use ENERGY STAR Portfolio Manager, a free online benchmarking tool (www.energystar.gov/benchmark). Once all the necessary data is input into Portfolio Manager, the benchmarked building can receive an ENERGY STAR score. The 1–100 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 engineer) may apply for the ENERGY STAR. As part of the application process, applicants must have a Licensed Professional (LP) sign and stamp their ENERGY STAR Data Verification Checklist for Certification (hereafter referred to as "the application"), validating that all of the submitted information is correct.

The purpose of this guide is to provide LPs with additional detail on ENERGY STAR program expectations and guidance to help verify the reported data and assess indoor environmental quality. It is not meant to replace jurisdictional code requirements or good engineering judgement.

The role of the LP is to verify that all energy use is accounted for accurately, that building characteristics have been properly reported and that indoor environmental quality has not been compromised in pursuit of energy reductions. By verifying the completeness and correctness of the

application submitted to NRCan, 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, NRCan requires an LP to meet the following qualifications:

- Possess a current license in any Canadian province or territory or U.S. state as a Professional Engineer (P.Eng) or Registered Architect and be in good standing;

Note: The LP does not need to hold a P.Eng license or be a registered architect in the province/territory in which the building he/she is verifying is located.

- Have a solid knowledge of building equipment and systems, energy use in buildings, ASHRAE Standard 55, ASHRAE Standard 62.1, and the Illuminating Engineering Society of North America (IESNA) Lighting Handbook; and
- Understand all applicable provincial or territorial engineering or 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 uphold strict ethical standards. They must verify that the information contained in an 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 an LP be found to have falsified information on a building's application for ENERGY STAR Certification, NRCan reserves the right to rescind the certifications of buildings verified by the LP, to restrict the LP's signing authority under the ENERGY STAR certification program, and to pursue recourse through the engineering or architectural professional licensing authority granting that individual's license.

Audits

On a regular, ongoing basis, NRCan randomly pulls applications in the review process to undergo an audit. NRCan uses this audit and quality assurance process as a way both to protect the integrity of the ENERGY STAR brand and to improve the application process and supporting resources. Our objective is to confirm that all energy data and building use details within an application have been

entered correctly into Portfolio Manager and properly verified during the LP's site visit. Examples of information that NRCan asks 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 use details were verified; and
- Documentation and/or explanation of the measurement and calculation methods used to assess the indoor environmental quality.

At the time an application is selected for audit, NRCan sends audit documents and instructions on how to complete them to the LP who verified the application and to the primary contact for the application. The LP then has two weeks to submit all audit materials to NRCan. 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 use details, should be kept for two years from the date on which the ENERGY STAR was awarded.

Additional Resources

For additional information on the ENERGY STAR Commercial and Institutional Buildings Program and benchmarking buildings with Portfolio Manager, visit the ENERGY STAR Buildings page at <http://www.nrcan.gc.ca/energy/efficiency/buildings/energy-benchmarking/3691>.

For answers to specific certification questions, send a message to our certification email at nrcan.energystarcertificationbuildings.nrcan@canada.ca.

The ENERGY STAR Application Process

The application process for ENERGY STAR certification is completed online within Portfolio Manager. The applicant (typically a representative of the building such as the owner, manager, or building engineer) enters the 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 into Portfolio Manager and enter the required whole building operational and energy information, including at least 12 consecutive months of energy data for all active meters that account for all energy use in the building.

2. **Click on “Apply for ENERGY STAR Certification”** – In Portfolio Manager, on the “Property Summary” page, look in the upper right hand corner of the screen for a link next to a small ENERGY STAR logo. This link will tell you whether you are eligible for certification or not. If the property is not eligible, click on the link “Not eligible to apply for ENERGY STAR Certification” to find out why. If the property is eligible to apply for the ENERGY STAR, click on the “Apply for ENERGY STAR Certification” to fill out the online application.
3. **Enter property information** – Provide the following information about the property in the appropriate fields: property name for NRCan’s ENERGY STAR-Certified Building Registry listing display, plans to certify next year, photo and property narrative. Verify that information for display is correct.
4. **Choose contacts for application** – Add if necessary and 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 language(s) for your complimentary decals and certificate. Provide 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 New Application for Download” 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.

8. **Conduct a site visit – verify data and assess indoor environmental quality** – An LP conducts a site visit of the building. The LP may engage a representative to conduct all or part of the site visit under his or her direction and control. However, the application must still bear the stamp 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 or her designated representatives should have a 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 certain indoor environmental conditions. The LP must assess the indoor environmental conditions and determine whether the building has acceptable outside air ventilation, thermal conditions and illumination.

The site visit must occur during the 12-month performance period or in the 120 days following.

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

LP

LP

9. **Sign documents** – If the LP identifies any insufficiencies and/or errors, the applicant must correct them. Once the information in the application accurately reflects the building operations and performance, and has been verified, the LP can complete, sign, date and seal the application.
10. **Submit application** – Enter the tracking number from the signed application in Portfolio Manager (in the “Application Tracking Number” box at the top of the screen) and check the necessary boxes to confirm that the application has been signed and stamped by the signatory and LP. 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.
11. **Respond to NRCAN questions** – Upon NRCAN’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 NRCAN approval of the application for ENERGY STAR certification, the Award Recipient will receive the ENERGY STAR award and congratulatory letter. If NRCAN 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 full LP assessment and verification is required each year.

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 or 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 a note confirming the accuracy of each line item.**

Summary Information

✔ **Property name**

The name listed is the official, complete name to be displayed in NRCan's ENERGY STAR-Certified Building Registry.

✔ **Primary function**

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

✔ **Gross floor area (GFA)**

This value is the total floor area of the 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 the property has undergone a complete renovation that included gutting and rebuilding the interior. The year built is not factored into the ENERGY STAR score; however, NRCan may use this information for data analysis on the age of buildings earning ENERGY STAR certification.

✔ **For year ending**

This date is the last day 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**

This date is 120 days after the "For year ending" date. Note: The LP should work with the applicant in advance to ensure that there is enough time before the date application becomes ineligible 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 property owner name and contact information are complete and correct.

✔ **Primary contact**

The primary contact name and contact information are 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 NRCan's ENERGY STAR-Certified Building Registry.

✔ **Primary function**

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

- Financial Office
- Hospital (General Medical and Surgical)
- K-12 School
- Office
- Medical Office
- Senior Care Community
- Residential Care Facility
- Supermarket / Grocery Store
- Convenience Store
- Recreation - Ice / Curling Rink

For a definition of each property function, refer to our glossary: (<https://portfoliomanager.energystar.gov/pm/glossary>).

✔ **Location**

The full address, including the postal code, is complete and accurate.

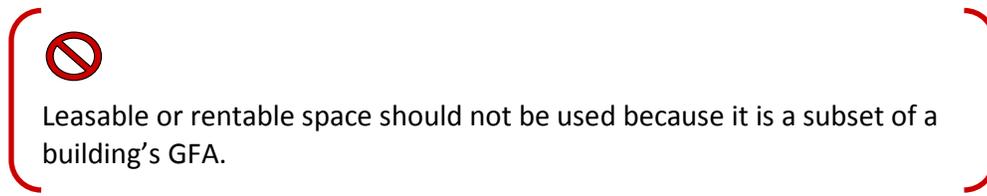
- Only commercial buildings located in Canada are eligible to earn Canadian ENERGY STAR certification. Buildings located in the U.S. and its territories or owned by the U.S. government located in foreign countries are eligible to earn U.S. ENERGY STAR certification.

✔ **Gross floor area**

The GFA 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 GFA.

- 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 GFA.



✔ **Annual occupancy** *[applicable to Offices and K-12 Schools]*

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

- Office properties with vacant space should enter the vacant area 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-percent occupancy for the first half of the year, then at 80-percent occupancy for the second half of the year, you would calculate the occupancy level to be 75-percent occupancy for the year.

✔ **Number of buildings**

For an accurate ENERGY STAR score, it is important that the function and structure of the building meet ENERGY STAR definitions.

Campus of buildings: The following property types may apply as a campus of multiple buildings. All buildings that support the primary function should be combined and

entered as a single property. The inclusion of all of the campus's buildings must be verified by the LP on the application.

- K-12 School
- Hospital (General Medical and Surgical)
- Senior Care Community
- Residential Care Facility
- Recreation - Ice / Curling Rink

Single building: The following property types must apply as single buildings. 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 NRCan 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.

- Financial Office
- Office
- Medical Office
- Supermarket / Grocery Store
- Convenience Store

Is this a single structure?

Examples:

- A building with two towers that share four storeys of common space that includes an atrium, a cafeteria and seamless connections between the 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. 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 Quality

As part of the review of the application for ENERGY STAR certification, the LP is required to use his or her professional judgment and the guidance of industry standards to confirm that certain measures of indoor environmental quality have not been compromised in pursuit of energy reduction and efficiency practices.

This assessment requires an on-site evaluation using industry standards as a guide to measure specific attributes of indoor environmental quality. This will require that the LP have a working knowledge of building HVAC and lighting systems, as well as the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standards 55¹ and 62.1² and the Illuminating Engineering Society of North America's (IESNA) Lighting Handbook.³

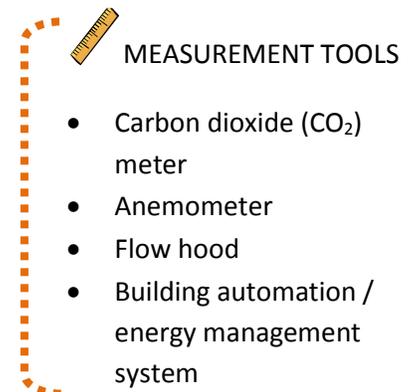
This assessment requires measurement of the outside air ventilation rates or CO₂ concentrations, temperature, humidity, and lighting levels in a representative sample of building spaces throughout the building. Representative spaces may be determined by space types (e.g. private offices, common areas), usages (e.g. tenants), or system types (in multiple system buildings).

This assessment is also **not** intended to be an evaluation of compliance with these industry standards in whole, local building codes, or a comprehensive assessment of the building indoor air quality. The spirit of the assessment is to verify that there are no major deficiencies in indoor environmental quality.

Outside Air Ventilation

For mechanically ventilated buildings, the LP shall confirm minimum outside ventilation rates by any of the following;

- Direct outdoor air flow measurements, (*see ASHRAE 111 or an applicable national standard for measuring and balancing air flow*);
- CO₂ concentration measurements (*see ASHRAE 62.1 Appendix D and ASTM D6245 Standard Guide for Using Indoor CO₂ Concentrations to Evaluate Indoor Air Quality and Ventilation*);
- Detailed air flow calculations derived from as-built equipment specifications, and physical inspection of system operation and control; or
- Recent outdoor air-balancing reports (within a year of submission) and physical inspection of system operation and control.



¹ ANSI/ASHRAE [Standard 55-2013](#) -- *Thermal Environmental Conditions for Human Occupancy*

² ANSI/ASHRAE [Standard 62.1-2016](#) -- *Ventilation for Acceptable Indoor Air Quality*

³ Illuminating Engineering Society of North America [Lighting Handbook](#), 10th edition

Using guidance from the most recent version of *ANSI/ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality* and outdoor air measurements, the LP should determine whether there is sufficient outdoor air. When pursuing corrective action, the LP should use his or her professional judgement and consideration. For example, detailed ASHRAE 62.1 calculations may be required, and several considerations should be evaluated prior to adjustment, including the possibility of freezing coils, pressure impacts, etc.

For naturally ventilated buildings, the LP shall follow *ASHRAE 62.1, Section 6.4, Natural Ventilation Procedure*, to confirm the minimum outdoor air opening and space configuration requirements.

Hospitals, Medical Offices and Senior Care Communities may use guidance from *ASHRAE Standard 62.1, CSA Z317.2 Special Requirements for HVAC in Healthcare Facilities* or *ANSI/ASHRAE/ASHE Standard 170: Ventilation of Health Care Facilities*, as applicable.

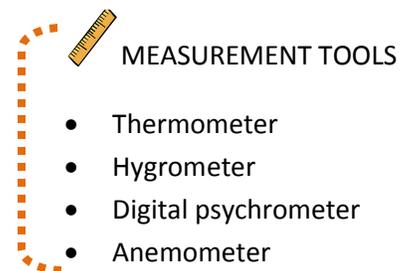
Building occupancy types not covered by these standards, or spaces that are inaccessible to the LP, are exempt from this requirement. The LP should document his or her evaluation of these exempted situations in the notes section of the application. Buildings with physical constraints should be provided with a minimum outside air flow of 10 cubic feet per minute (CFM) per person.

- In general, physically constrained buildings measuring outside air flow of less than 10 CFM per person, or CO₂ concentrations in excess of 700 parts per million (ppm) above ambient merit additional evaluation, discussion with building owners and management, and corrective action. The LP should not sign the application until the outdoor air issues have been addressed.

Thermal Environmental Conditions

The LP shall verify that acceptable thermal environmental conditions are provided, using guidance from the most recent version of *ANSI/ASHRAE Standard 55 Thermal Environmental Conditions for Human Occupancy*.

The LP should measure the dry bulb temperature, relative humidity, radiant temperature and (optionally) air speed in a representative sample of the occupied interior spaces of the building during occupied hours, to confirm an acceptable thermal environment for observed or anticipated occupant activity and clothing using guidance from *Section 7, Evaluation of Comfort in Existing Buildings*.



For building occupancy types not covered by this standard, as well as spaces that are inaccessible to the LP, the LP should document his or her evaluation of these situations in the notes section of the application.

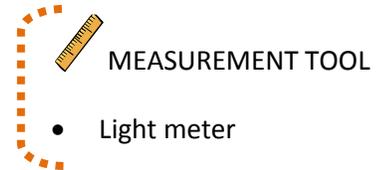
- In general, set points and/or measurements that appear to be dramatically low or high as compared to acceptable thermal environmental conditions merit additional evaluation, discussion with building owners and management, and/or corrective action. The LP should not sign the application until thermal environmental condition issues have been addressed.

Illumination

The LP shall verify that minimum recommended illumination levels are provided according to the most recent version of the IESNA Lighting Handbook.

The IESNA Lighting Handbook recommends horizontal and/or vertical task illuminances for a wide variety of spaces and tasks.

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.



For building occupancy types not covered by these recommendations, as well as spaces that are inaccessible to the LP (e.g. individual apartments), the LP should document his or her evaluation of these situations in the notes section of the application.



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.

Property Use Details

The LP must assess whether the Property Use Type and Use Details have been correctly characterized and entered. He or she must also ensure that the GFA for all individual property uses add up to the GFA for the entire property.

✔ **Property type**

The primary property function matches with one of the property functions listed on page 7.

- Many secondary uses for the property should be included under the primary property total GFA. 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 an ice/curling rink, this may include a food service area.
- 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 GFA of the main property use type.

✔ **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 use types reported on the application, and that those property use types represent the whole building.

✔ **Specific property use details**

The LP must verify that each of the Property Use Details is 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 Main Shift, Number of Computers, or other pertinent characteristics specific to each Property Use Type.

The LP is not obligated to count each Property Use Detail, such as computers; however, the LP should 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 Main Shift, or consult the IT department to verify the Number of Computers owned or issued by the organization.

■ "Weekly Operating Hours" is defined the following ways, depending on the building type.

- **Office, Financial Office:** The total number of hours per week where the majority of workers are present. For example, if the majority of workers are in the building from 8:00 a.m. – 6:00 p.m. M–F, then Weekly Operating Hours should be 50 (10 hrs * 5 days per week).
 - If the building has two or more tenants with hours that differ by more than 10 percent, then each should be shown on the application as a separate Property Use.
 - If the building has two or more tenants with hours that differ by less than 10 percent, then the largest tenant's (based on GFA) hours should be reported on the application as the Weekly Operating Hours for the whole building.
 - If the hours vary seasonally (e. g. half-day Fridays in the summer), then the schedule that is followed most often should be used.
 - If the building has two shifts of workers, add together the number of hours of both shifts.
 - The following hours should not be included:
 - When the property is occupied only by maintenance, security, cleaning crew or other support personnel; and
 - HVAC startup or shutdown time.
- **Properties that serve or sell to customers (medical office, etc.).** The Weekly Operating Hours should be the hours that the facility is open to the public.



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

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

“Workers on Main Shift” includes **only** 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 workers across multiple shifts.

“Number of Full-Time Equivalent Workers” includes **only** employees of the property, sub-contractors who are on-site regularly and volunteers who perform regular on-site tasks to support facility operation. It does **not** include visitors to the property such as clients, customers, patients or spectators.

- “Licensed Bed Capacity” is the total number of beds that the hospital is licensed to have in operation. This may be more than the number of Staffed Beds, which are those that are set up and ready for use.
- “Number of Indoor Ice Rinks” is the number of indoor ice rinks used for indoor hockey, ringette, public or figure skating. It does not include curling sheets. Curling clubs are not currently eligible for a score or certification.
- “Months Main Indoor Ice Rink in Use” is the number of months per year when the main indoor ice rink(s) used for indoor hockey, ringette, public or figure skating is open. It does not apply to curling sheets. The main indoor ice rink refers to the ice rink with the maximum months of use.

Parking

Include or exclude

The ENERGY STAR 1–100 score assesses a building’s energy performance. For the most accurate assessment of the building’s performance, where possible, do not include parking area. 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 area.

If a structure is composed of 50 percent or more parking garage (enclosed or non-enclosed), then it is not eligible for ENERGY STAR certification. The exception is if the parking energy is sub-metered and excluded, in which case the property is eligible for certification as long as the Parking GFA (Completely or Partially Enclosed) is less than 75 percent of the Property GFA.

Definitions

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

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

GFA 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

A data center is a unique space. Energy consumption estimates are computed to adjust for the presence of data centers. The LP must verify that the applicant entered the correct Data Center GFA and that the space meets the definition of a data center. The LP must verify that data center energy use is included in the total building energy use and **not** sub-metered and excluded.

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 45 square metres (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.

GFA should include data center space within the building, including raised floor computing space, server rack aisles, storage silos, control console areas and battery rooms. Include only the spaces that are uniquely associated with the data center in the GFA. For example, do not include spaces such as break rooms, restrooms, stairways or hallways that are used by the primary use type (typically office) occupants or mechanical rooms containing cooling equipment serving the primary use type. Instead, include these spaces in the primary use type GFA.

Power Distribution Unit (PDU)

A PDU is a device that delivers conditioned power from the uninterruptible power supply to servers, networking equipment and other electronic equipment.

Uninterruptible Power Supply (UPS)

A UPS is 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, harmonics, etc.) from adversely affecting the performance of servers and other equipment. A UPS typically uses batteries as an emergency power source and provides power to servers until emergency generators come online.

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 use 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 0.34 GJ/m² to 5.7 GJ/m².

✔ 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 must 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 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.

Reportable fuel sources include electricity (grid purchased, 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, either 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.

NRCan 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 NRCan’s policies with regard to green power, please refer to the Portfolio Manager Technical Reference: Green Power, available for download at www.energystar.gov/GreenPower.

- In some cases, energy bills may not match meter entries. This is because many energy information services “calendarize” energy bills to align with calendar months. For example, if the actual billing period is from the 15th of one month to the 15th of the next month, a utility may create a month of data running from the 1st to the 31st of the month; Portfolio Manager does the same to produce annualized metrics. Some utilities will also provide aggregated data, which assigns all of a given period’s consumption to a single month based on a specified criterion, such as the month in which the majority of billing days fell for that record or the month in which the meter read period started (or ended). Scores are typically not affected in any material way, and it is acceptable for the LP to verify the application using this data.
- If an energy meter was broken for some portion of the application period, please contact NRCan at nrcan.energystarcertificationbuildings.rncan@canada.ca with a detailed description of the situation, including the time period during which the meter was broken, and an ENERGY STAR team member will provide guidance on how to proceed.

Sign and 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 submitted before the date specified as the “Date application becomes ineligible.” Therefore, the LP should 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. If the application becomes ineligible, the applicant should update with recent energy data and use details and generate a new application form.

Verify Administrative Information

✔ Licensed Professional

The name, contact information and license number for the LP are correct.

✔ Tracking number

The application has a tracking number printed at the bottom right-hand corner of each page. 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 no tracking number on the application, then the applicant needs to download an application within the “Apply for the ENERGY STAR” process in Portfolio Manager.

Stamp and Sign

After all of the information has been reviewed and deemed to be correct, the LP must apply his or 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.

- If the LP does not have a stamp, the license number and licensing association may be included in the application instead. A copy of the provincial/territorial issued certificate of licensure as a Professional Engineer or Registered Architect may be requested by NRCan.

The person who signs the signatory agreement must be a representative of the property applying for ENERGY STAR certification (typically the owner, manager or building engineer). An LP who works for the organization certifying may sign the application twice – in the LP verification section, as well as the signatory agreement. However, an LP who does not work for the organization that is certifying 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 NRCan. If the LP stamp is not visible, NRCan will check the website of the provincial or territorial licensing body to verify that the LP’s license is current. If the signatures are not visible or if the LP’s license is not current, NRCan will require resubmission of the application.

Appendix: Sample Application for ENERGY STAR Certification



ENERGY STAR® Application for Certification

98

ENERGY STAR®
Score¹

Office / Bureau (Test)

Registry Name: Office / Bureau (Test)
Property Type: Office
Gross Floor Area (m²): 25,548 (274,996 ft²)
Built: 1975

For Year Ending: 10/31/2017²
Date Application Becomes Ineligible: 02/28/2018

1. Score is on a scale of 1-100. Application must be submitted within 4 months of the Period Ending date. Award is not final until approval is received.
2. The ENERGY STAR Score is based on total source energy. A score of 75 is the minimum to be eligible for the ENERGY STAR.



Please use the [Canadian Licensed Professional's Guide: Understanding the Roles and Requirements for Verifying Commercial Building Applications for ENERGY STAR Certification](https://www.nrcan.gc.ca/energy/efficiency/buildings/energy-benchmarking/building/20258) for reference in completing this checklist
(<https://www.nrcan.gc.ca/energy/efficiency/buildings/energy-benchmarking/building/20258>).

Property & Contact Information

Property Address

Office / Bureau (Test)
1 Test Street
Ottawa, Ontario K1A 0E4

Property ID: 5898754

Property Owner

Natural Resources Canada /
Ressources Naturelles Canada
580 Booth Street
Ottawa, ON K1A 0E4
123-456-7890

Primary Contact

Jane Doe
2 Test Street
Gatineau, ON D3433E
819-999-9999
Jane.doe@canada.ca

1. Review of Whole Property Characteristics

Basic Property Information

1) Property Name for Registry: Office / Bureau (Test)

Is this the official name to be displayed in [Natural Resources Canada's ENERGY STAR Certified Building Registry](#)?

Yes No

If "No", please specify: _____

2) Property Type: Office

Is this an accurate description of the primary use of this property?

Yes No

3) Location:

Yes No

1 Test Street
Ottawa, Ontario K1A 0E4

Is this correct and complete?

4) Gross Floor Area: 25,548 m² (274,996 ft²)

Yes No

Does this represent the entire property? (i.e., no part of the building/property was excluded/subtracted from the total) If "no" please specify what space has been excluded

5) Average Occupancy (%): 95

Yes No

Is this occupancy percentage accurate for the entire 12 month period being assessed?

6) Number of Buildings: 1

Yes No

Does this number accurately represent all structures?

Notes:

Indoor Environmental Standards

1) Ventilation for Acceptable Indoor Air Quality

Outdoor air rates were confirmed on-site using an allowable method as described in the Canadian Licensed Professional's Guide. Sampling considered systems with previous complaints and suspected under-ventilation, different space types (i.e. office, retail), usages (i.e. tenants), system types (in multiple system buildings), etc.

Yes No

Using guidance from ASHRAE 62.1 and on-site assessment, the Licensed Professional confirms that there are no major deficiencies with respect to the provision of adequate outdoor air ventilation. (If the answer is no and major deficiencies were noted, please indicate in the notes section what corrective action and follow-up verification was implemented. If the unit was physically incapable of providing minimum outdoor air, describe the situation and provide the minimum cfm/person).

Yes No

2) Acceptable Thermal Environmental Conditions

Sample temperature, relative humidity and radiant temperature measurements for all space use types in the building were taken using measurement tools described in the Canadian Licensed Professional's Guide. Sampling considered previous complaints and suspected under-heated or cooled spaces, different space types (i.e. office, retail), usages (i.e. tenants), system types (in multiple system buildings), etc.

Yes No

Using guidance from ASHRAE 55 and on-site measurements, the Licensed Professional confirms that there are no major deficiencies with respect to the provision of adequate thermal environmental conditions. (If the answer is no and major deficiencies were noted, please indicate the issue in the notes section what corrective action and follow-up verification was implemented)

Yes No

3) Adequate Illumination

Sample illumination measurements were taken on site using measurement tools described in the Canadian Licensed Professional's Guide. Sampling considered areas with previous complaints and suspected under-illumination, different space types (i.e. office, retail), usages (i.e. tenants), etc.

Yes No

Using guidance from IESNA and on-site measurements, the Licensed Professional has confirms that there are no major deficiencies with respect to the provision of adequate illumination. (If the answer is no and major deficiencies were noted, please indicate the issue in the notes section what corrective action and follow-up verification was implemented.)

Yes No

Notes:

2. Review of Property Use Details

Office: Building Use / Utilisation du bâtiment

 This Use Detail is used to calculate the 1-100 ENERGY STAR Score.

★ 1) Gross Floor Area: 25,548 m² (274,996.12 ft²)

Is this the total size, as measured between the outside surface of the exterior walls of the building(s)? This includes all areas inside the building(s) such as: occupied tenant areas, common areas, meeting areas, break rooms, restrooms, elevator shafts, mechanical equipment areas, and storage rooms. Gross Floor Area should not include interstitial plenum space between floors, which may house pipes and ventilation. Gross Floor Area is not the same as rentable, but rather includes all area inside the building(s). Leasable space would be a sub-set of Gross Floor Area. In the case where there is an atrium, you should count the Gross Floor Area at the base level only. Do not increase the size to accommodate open atrium space at higher levels. The Gross Floor Area should not include any exterior spaces such as balconies or exterior loading docks and driveways.

Yes No

★ 2) **Weekly Operating Hours: 60**

Is this the total number of hours per week that the property is occupied by the majority of the employees? It does not include hours when the HVAC system is starting up or shutting down, or when property is occupied only by maintenance, security, cleaning staff, or other support personnel. For properties with a schedule that varies during the year, use the schedule most often followed.

Yes No

★ 3) **Number of Workers on Main Shift: 650**

Is this the total number of workers present during the primary shift? This is not a total count of workers, but rather a count of workers who are present at the same time. For example, if there are two daily eight hour shifts of 100 workers each, the Number of Workers on Main Shift value is 100. Number of Workers on Main Shift may include employees of the property, sub-contractors who are onsite regularly, and volunteers who perform regular onsite tasks. Number of Workers should not include visitors to the buildings such as clients, customers, or patients.

Yes No

★ 4) **Percent That Can Be Heated: 100**

Is this the total percentage of the property that can be heated by mechanical equipment?

Yes No

★ 5) **Percent That Can Be Cooled: 100**

Is this the total percentage of the property that can be cooled by mechanical equipment? This includes all types of cooling from central air to individual window units.

Yes No

Notes:

3. Review of Energy Consumption

Data Overview

Site Energy Use Summary

Electric - Grid (GJ)	9,697.4 (100%)
Total Energy (GJ)	9,697.4

Energy Intensity

Site (GJ/m ²)	0.38
Source (GJ/m ²)	0.74

National Median Comparison

National Median Site EUI (GJ/m ²)	0.85
National Median Source EUI (GJ/m ²)	1.67
% Diff from National Median Source EUI	-55.5%

Emissions (based on site energy use)

Greenhouse Gas Emissions (Metric Tons CO ₂ e)	107.8
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Note: All values are annualized to a 12-month period. Source Energy includes energy used in generation and transmission to enable an equitable assessment.

Summary of All Associated Meters

The following meters are associated with the property, meaning that they are added together to get the total energy use for the property. Please see additional tables in this checklist for the exact meter consumption values. **Note: please review all meter entries, making note of any unusual entries, and, if they are correct, provide a manual note to explain.**

Meter Name	Fuel Type	Start Date	End Date	Associated With:
Electric Grid Meter / Compteur électricité du réseau	Electric - Grid	12/12/2013	In Use	Office / Bureaux (Test)

Total Energy Use

Yes No

Do the meters shown above account for the total energy use of this property during the reporting period of this application?

Additional Fuels

Yes No

Do the meters above include all fuel types at the property? That is, no additional fuels such as district steam, generator fuel oil have been excluded.

On-Site Solar and Wind Energy

Yes No

Are all on-site solar and wind installations reported in this list (if present)? All on-site systems must be reported.

Notes:

Electric - Grid Meter: Electric Grid Meter / Compteur électricité du réseau (kWh (thousand Watt-hours))

Associated With: Office / Bureaux (Test)

Start Date	End Date	Usage	Green Power?
10/17/2016	11/16/2016	464,913	No
11/17/2016	12/15/2016	466,781.9	No
12/16/2016	01/15/2017	458,002.9	No
01/15/2017	02/15/2017	600,000	No
02/15/2017	03/16/2017	458,000	No
03/16/2017	04/16/2017	457,000	No
04/16/2017	05/16/2017	12,312	No

Start Date	End Date	Usage	Green Power?
05/16/2017	06/16/2017	111	No
06/16/2017	07/16/2017	1,231	No
07/16/2017	08/16/2017	123	No
08/16/2017	09/16/2017	123	No
09/16/2017	10/16/2017	123	No
10/16/2017	11/16/2017	123	No
Total Consumption (kWh (thousand Watt-hours)):			2,918,843.8
Total Consumption (GJ):			10,507.4

Total Energy Consumption for this Meter

Yes No

Do the fuel consumption totals shown above include consumption of all energy tracked through this meter that affect energy calculations for the reporting period of this application (i.e., do the entries match the utility bills received by the property)?

Notes:

4. Signature & Stamp of Verifying Licensed Professional

_____ (Name) visited this site on _____ (Date). Based on the conditions observed at the time of the visit to this property, I verify that the information contained within this application is accurate and in accordance with the Licensed Professional Guide.

Signature _____

Date _____

Licensed Professional

License: Canada License 4232 in YT

Jane Doe
 2 Test Street
 Gatineau, ON D3433E
 819-999-9999
 Jane.doe@canada.ca



NOTE: When applying for the ENERGY STAR, the signature of the Verifying Professional must match the stamp.

5. Signatory Agreement

I hereby nominate the above described property for award of the ENERGY STAR. I have provided a copy of the Licensed Professionals Guide to the ENERGY STAR for Commercial Buildings to our Licensed Professional (LP) for reference. As documented by the above checklist, this property meets the conditions necessary to qualify as ENERGY STAR. I am submitting this application within four months of the Year Ending Date (October 31, 2017) used to generate the application. I will assist NRCan, if requested, in verifying any data included in this application. Furthermore, I agree to associate the ENERGY STAR logo only with the aforementioned property and to adhere to the [ENERGY STAR logo use guidelines](#).

Signature (must be a direct employee of the building owner/manager): _____

Date: _____

Signatory Name: Jane Doe

Property Owner: Natural Resources Canada / Ressources Naturelles Canada