ENERGY STAR® PortfolioManager™

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The Canadian Licensed Professional's Guide:

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

Canada

Aussi disponible en français sous le titre : Guide canadien pour les professionnels agréés : Comprendre les rôles et les responsabilités dans la vérification des demandes de certification ENERGY STAR® pour les bâtiments commerciaux

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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, reduce 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 (LP). Over time, NRCan will be developing 1 to 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 on-line benchmarking tool (energystar.gov/benchmark). Once all the necessary data is input into Portfolio Manager, the benchmarked building can receive an ENERGY STAR score, if it meets certain eligibility requirements. 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 engineer) may apply for the ENERGY STAR Certification. As part of the application process, applicants must have an LP sign and stamp their ENERGY STAR Data Verification Checklist for Certification (hereafter referred to as "the application") to validate that 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.

SYMBOL KEY

Below are symbols used in this guide to draw attention to important points.

The Post-it® note icon is used for tips within the written text of the document.

✓ The check mark indicates items that the LP should be verifying on the application.

The prohibition icon indicates information to not include in the application.

ELIGIBILITY CRITERIA FOR PEOPLE VERIFYING APPLICATIONS

NRCan requires an LP to have the following qualifications to verify applications for ENERGY STAR certification:

- Possess a licence in any Canadian province or territory or a United States state as a professional engineer (P.Eng.) or a registered architect and be in good standing;

  Note: The LP needs to be licensed or registered in only one province, territory or state, regardless of the location of the building being verified.

- Have a solid knowledge of building equipment and systems, energy use in buildings, ASHRAE Standard 55,[1] ASHRAE Standard 62.1,[2] and *The Lighting Handbook*[3] (published by the Illuminating Engineering Society of North America [IESNA]); and

- Understand all applicable provincial or territorial engineering or architectural licensure laws, professional ethics requirements, and regulations before offering or performing services in a jurisdiction.

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 licence.

[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, *The Lighting Handbook*, 10th edition

AUDITS

On a regular, ongoing basis, NRCan randomly audits applications in the review process. NRCan uses this audit and quality assurance process to protect the integrity of the ENERGY STAR brand and to improve the application process and supporting resources. The 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 and to confirm that indoor environmental conditions have been verified.

NRCan asks for information such as:

- 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.

When 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 has two weeks to submit all audit materials to NRCan. Records related to an application for ENERGY STAR certification should be kept for two years from the date on which the ENERGY STAR was awarded. Such records include utility bills and documents used to support the verification of building use details and indoor environmental quality.

ADDITIONAL RESOURCES

For additional information on the ENERGY STAR Commercial and Institutional Buildings Program and on benchmarking buildings with Portfolio Manager, visit the ENERGY STAR Buildings page at 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.rncan@canada.ca.

ENERGY STAR APPLICATION PROCESS

The applicant, typically a representative of the building such as the owner, manager or building engineer, must apply for ENERGY STAR certification on-line within Portfolio Manager.

The applicant enters the property information and energy consumption data and completes the first seven of the following steps before the LP visits 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. But whether the LP is involved throughout the process or performs just a site visit and verification, it will be useful for the LP to be familiar with all stages of the application process.

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

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 Apply for ENERGY STAR Certification** – In Portfolio Manager, on the Property Summary page, in the upper right corner of the screen, is a link next to a small ENERGY STAR logo. Click this link to learn if the property is eligible for certification. If the property is not eligible, click Not eligible to apply for ENERGY STAR Certification to find out why. If the property is eligible, click Apply for ENERGY STAR Certification to complete the on-line application.

3. **Enter the property information** – Provide a property name for the display of NRCan's ENERGY STAR Certified Building Registry listing. Include plans to certify next year, a photo and a property description. Verify that the information for the buildings registry is correct.

4. **Choose contacts for the application** – Add a contact 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 languages for your complimentary decals and certificate. Provide contact information for delivering the award.

6. **Review eligibility details** – Select the appropriate Year Ending Date and review any ENERGY STAR eligibility alerts that have been flagged by correcting the data or providing a response, as necessary.

7. **Generate the application for signatures** – Generate the application for signatures by clicking Generate New Application for Download and clicking Download Current Application for Professional Signatures. Ensure that there is a tracking number in the bottom right corner of the Statement of Energy Performance.

LICENSED PROFESSIONAL

8. **Conduct a site visit – verify data and assess indoor environmental quality** – A site visit of the building is required. The site visit may take place anytime within the 12-month application period or within the 120 days following the year ending date. The LP is responsible for verifying that the information on the application is an accurate representation of the building's performance for the application period. You can use a site visit to verify two consecutive application years if the date of the site visit meets the requirements for both certification years. For that, the site visit must occur within the 120 days after the first certification year and within the 12-month application period for the second certification. The LP may engage a representative to conduct all or part of the site visit under his or her direction and control. This representative may work for a company applying for certification, for the LP's company or for a third party. However, the application must 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 representative needs a copy of the application to 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. For the application period, the LP or representative must assess the indoor environmental conditions with appropriate measurements and determine if the building has acceptable outdoor air ventilation, thermal environmental conditions and illumination. Measurements must be recorded and kept on file for two years. The recorded measurements will be required for an audit.

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 certification becomes eligible to re-apply 11 months after the Period Ending Date of this application.

9. **Sign the documents** – If the LP identifies any insufficiencies 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 the application** – Enter the tracking number from the signed application into Portfolio Manager, in the Application Tracking Number box at the top of the screen. Check the necessary boxes to confirm that the application has been completed, signed and stamped by the signatory and LP. Upload a signed PDF of the application, making sure the LP stamp, along with any signatures, are visible on the PDF. Validate your credentials by entering your Portfolio Manager username and password, e-sign the application, and submit it.

11. **Respond to NRCan questions** – The primary contact will receive an email notification when NRCan receives the application. 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 four to six weeks of NRCan approving 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.

VERIFYING THE APPLICATION

This section describes the process by which the LP should verify the accuracy of each element on the application. The application also includes detailed questions to help the LP conduct these checks.

The LP is responsible for verifying the following data elements and ensuring 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**
The gross floor area (GFA) is the total floor area of the building as measured from the principal exterior surfaces of the enclosing fixed walls. It is the sum 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.

✓ **Year Ending Date**
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 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, city, province/territory and postal code 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. This can be any individual associated with the building – NRCan will contact this individual with any questions about the application.

✓ Property ID

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

✓ Property Type

The primary property function falls into one of the following categories of operation, according to ENERGY STAR's definitions of each property type. If not, 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, see our glossary: 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 United States and its territories or owned by the United States government located in foreign countries are eligible to earn United States 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 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 Types sum to the whole building's GFA.

For atriums that span multiple stories, only the base floor area should be counted. Interstitial (plenum) space between floors should not be included in the total GFA.

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

✓ Annual occupancy (applicable to Offices and K-12 Schools)

Over 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 greater than 10 percent of the area 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. 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

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 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. Each of these buildings must be separately metered and certified individually.
- Side-by-side buildings that share only a common wall are considered separate buildings.
- A "stacked" configuration will always be considered a single structure, even if both portions are separately owned, operated, and metered and have separate entrances. For example, a high-rise that has offices on floors 1 to 8 and senior care residences on floors 9 to 14 is a stacked configuration.

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, NRCan considers it to be a single structure. A series of buildings situated closely together, such 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

✓ **Whole property verification**

The application must account for the entire property, with no space excluded. If space has been excluded, it must be documented in the Notes field that the excluded space meets all the following requirements:

- The Property Use must be less than 10 percent of the building's GFA.
- The Property Use must not be a property type that is eligible to receive an ENERGY STAR score.
- The Property Use must be sub-metered so that both the Property Use's floor area and energy consumption can be excluded.
- The Property Use's energy use patterns must be significantly different than those of the rest of the building (e.g. a cellphone tower on a building).

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. The LP needs a working knowledge of building HVAC and lighting systems, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards 55 and 62.1 and *The Lighting Handbook* from the Illuminating Engineering Society of North America (IESNA).

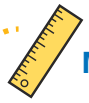
This assessment requires measurement of the outdoor air ventilation rates or carbon dioxide (CO_2) concentrations, air temperature, radiant temperature (optional), humidity, air speed (optional), and lighting levels in a representative sample of spaces throughout the building, during the application period. 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). If the application is selected for an audit, recorded measurements will be requested.

This assessment is **not** intended to be an evaluation of compliance with these industry standards in whole or with local building codes nor 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.

Outdoor Air Ventilation

For mechanically ventilated buildings, the LP shall confirm minimum outdoor ventilation rates by any of the following methods:

- Direct outdoor air flow measurements (see *ASHRAE Standard 111 Testing, Adjusting, and Balancing of Building HVAC Systems* or an applicable national standard for measuring and balancing air flow);
- CO_2 concentration measurements (see ASHRAE Standard 62.1, Appendix D and *ASTM D6245 Standard Guide for Using Indoor CO_2 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.



MEASUREMENT TOOLS

- CO_2 meter
- Anemometer
- Flow hood
- Building automation / energy management system

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

For naturally ventilated buildings, the LP should follow ASHRAE Standard 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 and 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 CO_2 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.

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. The measurement must be done during occupied hours to confirm an acceptable thermal environment for observed or anticipated occupant activity and clothing, using guidance from ASHRAE Standard 55, Section 7, Evaluation of Comfort in Existing Buildings.

MEASUREMENT TOOLS

- Thermometer
- Hygrometer
- Digital psychrometer
- Anemometer

For building occupancy types not covered by this standard, as well as for 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 IESNA's *The Lighting Handbook*.

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

MEASUREMENT TOOLS

- Light meter

The LP should measure the illumination levels in a representative sample of the occupied interior spaces of the building, as well as in any associated parking facilities.

For building occupancy types not covered by these recommendations, as well as for 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, the LP should not sign the application until the lighting issues have been addressed.

PROPERTY USE DETAILS

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

✓ **Property type**

The primary property function matches with one of the property functions listed in the Basic Property Information section.

Many secondary uses for the property should be included under the primary property total GFA. These uses include 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, an applicant should designate as few Property Types as possible. When in doubt, do not split a property use.

Every building has a mechanical room with heating and cooling equipment. This space should not be separately designated, but be included in the GFA of the main Property Type.

If a food service area supports the main property use (e.g. a cafeteria serving workers in an office), the GFA should be included within the main Property Type.

✓ Gross floor area

The gross floor area 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 of all the building's Property Types reported on the application and that those Property Types represent the whole building. If the GFA of any individual property use changes during the application period, that change must be accounted for by a corresponding change in another property use's GFA as of the same date. Such a change could be a suite becoming vacant, which increases the vacant space by 1,000 square metres.

✓ Specific property use details

The LP must verify that each of the Property Use Details is correct. Depending on the designated Property 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 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. Should the application be selected for audit, the LP will be asked to provide the method used to verify each use detail.

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. to 6:00 p.m. Monday to Friday, Weekly Operating Hours should be 50 (10 hours x 5 days per week).
  - If the building has two or more tenants with hours that differ by more than 10 percent, 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, the largest tenant's hours (based on the GFA) 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), the schedule that is followed most often should be used.
  - If the building has two shifts of workers, sum the hours of both shifts.
  - The following hours should not be included:
    - When the property is occupied only by maintenance, security, cleaning 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.

Only what is requested per the Property Use Detail definition should 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 employees present during the main shift. It does not include visitors, clients, everyone who came into the building over the 24 hours or the 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 the facility operation. It does not include visitors to the property such as clients, customers, patients or spectators.

Licensed Bed Capacity is the 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 and public or figure skating. It does not include curling sheets. Curling clubs are not eligible for a score or certification.

Months Main Indoor Ice Rink in Use is the months per year when the main indoor ice rinks used for indoor hockey, ringette and public or figure skating are 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 to 100 score assesses a building's energy performance. For the most accurate assessment of the building's performance, where possible, do not include the parking area. Parking can be excluded if it is separately metered.

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

If a structure is composed of 50 percent or more parking garage (enclosed or non-enclosed), 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 if 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. The category 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 areas 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 areas 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 the GFA based on aerial photographs, such as from Google Earth, is not acceptable because it is not an actual measurement.

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

ENERGY CONSUMPTION

✓ **Site energy use summary**

The site energy use summary presents the sum 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/m^2 to 5.7 GJ/m^2, depending on the property type.

✓ 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 estimated, 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, 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:

- kilowatt hours used on-site (from the wind or solar system) by the building;
- kilowatt hours sold or exported to the grid; and
- kilowatt hours 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 about green power, see the *ENERGY STAR® Portfolio Manager® Technical Reference: Green Power*, available for download at energystar.gov/GreenPower.

In some cases, energy bills may not match meter entries. The discrepancy occurs 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 makes the same adjustments 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, contact NRCan at nrcan.energystarcertificationbuildings.rncan@canada.ca and provide a detailed description of the situation, including the period during which the meter was broken. An ENERGY STAR team member will provide guidance on how to proceed.

✓ **Energy meters**

This section lists meters that have not been included in the energy metrics, most likely because they are sub-meters. The LP must confirm that these meters are appropriately assigned as "not associated" because they would be double counting energy use if they were included.

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 licence number for the LP are correct.

✓ **Tracking number**

The application has a tracking number printed at the bottom right corner of each page. Applications generated for uses other than applying for the ENERGY STAR certification do not have a tracking number and will not be accepted. If there is no tracking number on the application, 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 and date the application. By signing the application, the LP attests 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 LP can include the licence number and licensing association in the application instead. NRCan may request a copy of the provincial/territorial certificate of licensure as a Professional Engineer or Registered Architect.

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 ensure that 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 licence is current. If the signatures are not visible or if the LP's licence is not current, NRCan will require a new application with valid credentials.

APPENDIX: SAMPLE APPLICATION FOR ENERGY STAR CERTIFICATION

ENERGY STAR® Application for Certification

98

ENERGY STAR ® Score[1]

Office / Bureaux (Test)

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

For Year Ending: 10/31/2017[2]
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* for reference in completing this checklist (https://www.nrcan.gc.ca/energy/efficiency/buildings/energy-benchmarking/building/20258).

Property & Contact Information

Property Address	Property Owner	Primary Contact
Office / Bureaux (Test) 1 Test Street Ottawa, Ontario K1A 0E4	Natural Resources Canada / Ressources Naturelles Canada 580 Booth Street Ottawa, ON K1A 0E4	Jane Doe 2 Test Street Gatineau, ON D3433E 819-999-9999
Property ID: 5898754	123-456-7890	Jane.doe@canada.ca

1. Review of Whole Property Characteristics

Basic Property Information

1) **Property Name for Registry:** Office / Bureaux (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 exclude

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/m²)	0.38
Source (GJ/m²)	0.74

National Median Comparison	
National Median Site EUI (GJ/m²)	0.85
National Median Source EUI (GJ/m²)	1.67
% Diff from National Median Source EUI	-55.5%
Emissions (based on site energy use)	
Greenhouse Gas Emissions (Metric Tons CO2e)	107.8

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

Professional Engineering Stamp

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