metering and monitoring

Credit 3

Individual Building  Portfolio

Project Name: [name]

Project Number: GS- [####]

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| --- | --- | --- | --- |
| Total Points available: | 2 | Points claimed: | [#] |

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| --- | --- | --- | --- | --- |
| No. | **Building** | **Criteria** | **Description** | **Claimed** |
| 3.1 | **Action** | **Metering** | **1 point** is available where accessible metering is provided to monitor building energy and water consumption, including all energy and water common uses, major uses, and sources. | [#] |
| 3.2 | **Building** | **Monitoring Systems** | **1 point** is available where a monitoring strategy is implemented through an automatic monitoring system, capable of capturing and processing the data produced by the installed energy and water meters, and accurately and clearly presenting data consumption trends. | [#] |

Project-specific technical questions

|  |  |
| --- | --- |
| There are no project-specific technical questions for this credit. |  |
| There are project-specific technical questions for this credit and all responses received from the GBCA are attached. |  |

3.1 Metering

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| --- | --- |
| The project achieved one (1) point in the previous Certification and **no changes** have been made to the building during the performance period that would have an impact on the metering provided to monitor building energy and water consumption.  ***No further information is required for this criterion.*** |  |
| The project achieved one (1) point in the previous Certification and **changes** have been made to the building during the performance period that have had an impact on the metering provided to monitor building energy and water consumption.  ***Complete sections 3.1.1 and 3.1.2.*** |  |
| One (1) point was not targeted / awarded in the previous Certification.  ***Complete sections 3.1.1 and 3.1.2 or 3.1.3.*** |  |

#### 3.1.1 Metering distinct uses or floors

Describe how the metering systems meet the compliance requirements for each of the items below, by referencing supporting evidence attached to the Submission Template. Please provide bookmarks or page references to the supporting evidence.

| **Requirements** | **Supporting Evidence** |
| --- | --- |
| 3.1.1.1 Describe how metering has been provided to allow for monitoring of the relevant or major areas or functions of the building. Please note, in most cases floor by floor metering will suffice if the entire floor has a single use.  If a floor has multiple tenants or owners, describe how each tenancy or property has also been separately sub-metered. |  |
| 3.1.1.2 Describe how any energy load for a single item, over 100kVA or 5% of the total energy use for the building, has been independently sub-metered.  Identify where smaller supplementary equipment is grouped on the same meter as the major use item and verify that the combined load of smaller items is cumulatively less than 20kVA. |  |
| 3.1.1.3 Show that all groupings of like items for energy metering (e.g. two chillers or two air handling units) have a combined load that does not exceed 25% of the total energy use for the building. |  |
| 3.1.1.4 Show that all common water uses that consume 10% or more of the building’s water use are independently metered. |  |

#### 3.1.2 Water and energy meters

Describe how the water and energy meters meet the compliance requirements for each of the items below, by referencing supporting evidence attached to the Submission Template. Please provide bookmarks or page references to the supporting evidence.

| **Requirements** | **Supporting Evidence** |
| --- | --- |
| 3.1.2.1 Show that all utility meters meet metering guidelines under the weights and measures legislation, as outlined under the current *National Measurement Regulations.*  Verify that existing meters meet these requirements, as well as any other utility meters being installed. |  |
| 3.1.2.2 Show that all non-utility meters and sub-meters, that meter a load of greater than 100kVA, have been validated in compliance with the most current ‘*Validating Non-Utility Meters for NABERS ratings’* protocol. |  |
| 3.1.2.3 Show how meters are either:   * Connected to the BMS, a web based interface or other software interface accessible building to the facility manager and/or other relevant operations personnel; or * Located in an area that allows regular monitoring and maintenance by facilities managers and other relevant operations personnel. |  |

#### 3.1.3 Small buildings exception

Where the building’s Gross Floor Area (excluding car parking areas) is smaller than 1000m2, describe how the metering systems meets the compliance requirement for the item below, by referencing supporting evidence attached to the Submission Template. Please provide bookmarks or page references to the supporting evidence.

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| --- | --- |
| **Requirements** | **Supporting Evidence** |
| Show that specialist equipment is not present in the building, and that the single meter for energy and the single meter for water comply with the criterion.  Show how utility meters, that are used to meet these compliance, are accessible to the building manager. |  |

#### 3.1B Green Star Metering and Monitoring Systems

The building seeking Green Star- Performance certification is already certified under one the Green Star As Built rating tools, and at least one (1) point was achieved in the relevant ‘*Metering and* Monitoring’ credit and no changes have been made.

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| --- | --- |
| **Requirements** | **Supporting Evidence** |
| Identify which credit from a Green Star As Built rating tool was achieved including evidence that the credit was awarded by the GBCA. |  |

Identify where this information can be found within the supporting documentation provided.

|  |  |
| --- | --- |
| **Supporting Documentation**  (Name / title / description of document) | **Reference**  (Page no. or section) |
| [####] | [####] |
| [####] | [####] |

DISCUSSION

Outline any issues you would like to highlight and clarify with the Certified Assessor(s).

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3.2 Monitoring systems

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| The project achieved one (1) point in the previous Certification and **no changes** have been made during the performance period to the implemented monitoring strategy and automatic monitoring system.  ***No further information is required for this criterion.*** |  |
| The project achieved one (1) point in the previous Certification and **changes** have been made during the performance period to the implemented monitoring strategy and automatic monitoring system.  ***Complete sections 3.2.1 and 3.2.2.*** |  |
| One (1) point was not targeted / awarded in the previous Certification.  ***Complete sections 3.2.1 and 3.2.2 or 3.2.3.*** |  |

#### 3.2.1 Monitoring strategy

Describe how the monitoring strategy meet the compliance requirements for each of the items below, by referencing supporting evidence attached to the Submission Template. Please provide bookmarks or page references to the supporting evidence.

| **Requirements** | **Supporting Evidence** |
| --- | --- |
| 3.2.1.1 Show that the monitoring strategy addresses at least 95% of loads for energy and water. |  |
| 3.2.1.2 Show that the information available to facilities management, and other relevant operations staff includes: | |
| The incoming input (electricity, gas, water, etc.); |  |
| The end uses sub metered (lighting, HVAC, fans); |  |
| The estimated energy consumption by end use; |  |
| Identification of which meter(s) provide the required information; |  |
| The individual metered end use consumption; and |  |
| The location and the type of meters. |  |

#### 3.2.2 Automatic monitoring system

Describe how the automatic monitoring systems meet the compliance requirements for each of the items below, by referencing supporting evidence attached to the Submission Template. Please provide bookmarks or page references to the supporting evidence.

| **Requirements** | **Supporting Evidence** |
| --- | --- |
| 3.2.2.1 Describe how the automatic monitoring systems records both consumption and demand of energy or water; and how they are capable of producing reports on quarter hourly, hourly, daily, monthly, and annual energy use for all energy meters. |  |
| 3.2.2.2 Show that the installed meters are capable of producing an output that can be transmitted to a central location (either onsite or offsite); and that the central location can provide data retrieval and reporting mechanisms. Show that the automatic monitoring system is capable of the following: | |
| Collecting data from all meters; |  |
| Alerting to missing data due to failures; |  |
| Recording and processing of data on energy use or water consumption at user adjustable intervals; |  |
| Raising an alarm when the energy or water use increases beyond certain parameters and automatically and instantly issue an alert the facilities manager; |  |
| Providing a breakdown of the information by building system (mechanical, electrical, etc.), or by space (or by tenanted floor); and |  |
| Providing the consumption water or energy, the load versus time (load profile), and the power factor (in the case of energy). |  |

#### 3.2.3 Small buildings exception

Where the building’s Gross Floor Area (excluding car parking areas) is smaller than 1000m2, describe how the monitoring strategy meets the compliance requirements for each of the items below, by referencing supporting evidence attached to the Submission Template. Please provide bookmarks or page references to the supporting evidence.

| **Requirements** | **Supporting Evidence** |
| --- | --- |
| 3.2.3.1 Show how the automated metering system provides an alert to the building manager or owner when unusual patterns are identified. |  |
| 3.2.3.2 Where offsite monitoring is used show that it has a central reporting system. |  |
| 3.2.3.3 Show that a “Smart Metering” system has been installed for all units within a multi-unit residential project. | ***Only applicable for multi-unit residential projects*** |

#### 3.2B Green Star Metering and Monitoring Systems

The building seeking Green Star- Performance certification is already certified under one the Green Star As Built rating tools, and at least one (1) point was achieved in the relevant ‘*Metering and* Monitoring’ credit and no changes have been made.

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| --- | --- |
| **Requirements** | **Supporting Evidence** |
| Identify which credit from a Green Star As Built rating tool was achieved including evidence that the credit was awarded by the GBCA. |  |

Identify where this information can be found within the supporting documentation provided.

|  |  |
| --- | --- |
| **Supporting Documentation**  (Name / title / description of document) | **Reference**  (Page no. or section) |
| [####] | [####] |
| [####] | [####] |

DISCUSSION

Outline any issues you would like to highlight and clarify with the Certified Assessor(s).

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DECLARATION

I confirm that the information provided in this document is truthful and accurate at the time of completion.

Provide author details, including name, position and email address:

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| --- |
|  |

[Date]