



## LEED certification review report

This report contains the results of the technical review of an application for LEED® certification submitted for the specified project. LEED certification is an official recognition that a project complies with the requirements prescribed within the LEED rating systems as created and maintained by the U.S. Green Building Council® (USGBC®). The LEED certification program is administered by Green Business Certification Inc. (GBCI®).

### University of Miami School of Business

**Project ID** 1000116640  
**Rating system & version** LEED V4.1 O+M: EB  
**Project registration date** 03/15/2019










#### Gold Certified

Certified: 40-49, Silver: 50-59, Gold: 60-79, Platinum: 80+

### LEED v4.1 O+M: Existing Buildings

Attempted: 73, Denied: 0, Pending: 0, Awarded: 73 of 100 points

	<b>LOCATION AND TRANSPORTATION</b>	<b>12 OF 14</b>		<b>MATERIALS AND RESOURCES</b>	<b>7 OF 9</b>
	Transportation Performance	12 / 14		Purchasing Policy	Y
	<b>SUSTAINABLE SITES</b>	<b>0 OF 4</b>		Facility Maintenance and Renovation Poli	Y
	Rainwater Mgmt	0 / 1		Waste Performance	7 / 8
	Heat Island Reduction	0 / 1		Purchasing	0 / 1
	Light Pollution Reduction	0 / 1		<b>INDOOR ENVIRONMENTAL QUALITY</b>	<b>15 OF 22</b>
	Site Mgmt	0 / 1		Minimum IAQ	Y
	<b>WATER EFFICIENCY</b>	<b>8 OF 15</b>		Environmental Tobacco Smoke Control	Y
	Water Performance	8 / 15		Green Cleaning Policy	Y
	<b>ENERGY AND ATMOSPHERE</b>	<b>31 OF 35</b>		Indoor Environmental Quality Performance	14 / 20
	Energy Efficiency Best Mgmt Practi	Y		Green Cleaning	1 / 1
	Energy Performance	31 / 33		<b>INNOVATION</b>	<b>0 OF 1</b>
	Fundamental Refrigerant Mgmt	Y		Innovation	0 / 1
	Grid Harmonization	0 / 1		<b>TOTAL</b>	<b>73 OF 100</b>
	Enhanced Refrigerant Mgmt	0 / 1			

## Credit details



### PROJECT INFORMATION

#### Project Information

**Awarded**

#### Standard Final Review

Approved. The reporting period is July 1, 2018 through June 30, 2019.

#### Standard Preliminary Review

Project information has been provided.

1. The 365-day reporting period intended for this application is not clear. It is noted that the reporting period end dates for performance prerequisites vary between May 13, 2019 and June 30, 2019 as listed in the provided Performance Periods Table, but as stated in the Get Started section of the LEED v4.1 O+M Beta Guide, the same one year, 365-day reporting period must be used for all performance scores. That is, all data in Arc must be from within the same 365-day period for all performance prerequisites.

When submitting for the Final Review, ensure that the correct reporting period end date is selected in LEED Online. Provide a narrative to confirm the reporting period dates and ensure that all data for the reporting period is supported with documentation as outlined in the Preliminary Review comments for certain prerequisites below.

Note the following.

I. Points for performance prerequisites are subject to change in the Final Review depending on factors such as any changes made to the one-year reporting period dates, floor area, occupancy, or category-specific input values.



## LOCATION AND TRANSPORTATION

### Transportation Performance

Possible points: 14

Attempted: 12, Denied: 0, Pending: 0, Awarded: 12

**Awarded : 12**

#### Standard Preliminary Review

Awarded.

Note the following.

I. It appears that a test survey response entry was made on March 29, 2019 but this should not be included in the results. As this entry is not expected to affect the number of points achieved under this prerequisite in this case, compliance is not affected. For future projects, ensure that test entries or other anomalous entries are removed from the survey results by contacting [contact@arcskoru.com](mailto:contact@arcskoru.com).



**SUSTAINABLE SITES**

**Rainwater Management**  
Possible points: 1

**Withdrawn**

**Heat Island Reduction**  
Possible points: 1

**Withdrawn**

**Light Pollution Reduction**  
Possible points: 1

**Withdrawn**

**Site Management**  
Possible points: 1

**Withdrawn**



## WATER EFFICIENCY

### Water Performance

Possible points: 15

Attempted: 8, Denied: 0, Pending: 0, Awarded: 8

**Awarded : 8**

#### Standard Final Review

Awarded.

Note the following.

I. The unit of measure (gallons) is not identified in logs provided for the well water meter. For future projects, ensure that the unit of measure is identified in the supporting documentation and is consistent with that selected in Arc.

#### Standard Preliminary Review

Documentation has been provided to support the performance data.

1. As stated in the Project Information review comment, the intended, 365-day reporting period for this application is not clear. Therefore, it is not clear that the performance data and documentation provided for this prerequisite covers the entire reporting period intended for this application. Note that for the indoor potable water meters, data has been entered in Arc through June 13, 2019 and supporting documentation has been provided for the 365-day period of June 14, 2018 through June 13, 2019. For the well water meter, the data only goes through June 1, 2019 and supporting documentation has only been provided for January 1, 2019 through May 31, 2019. The data and documentation must cover the entire reporting period, which must be the same 365-day period for the entire application.

After identifying the application's 365-day reporting period under Project Information, revise the consumption values and provide utility invoices (and internal metering logs for the well water meter) as needed to cover the entire reporting period (365 days) through the application's intended reporting period end date.



## ENERGY AND ATMOSPHERE

### Energy Efficiency Best Management Practi

**Awarded**

#### Standard Final Review

Awarded.

#### Standard Preliminary Review

A current facilities requirements and operations and maintenance plan have been implemented at the project building. An ASHRAE Preliminary Energy Use Analysis and an ASHRAE Level 1 Walk-Through Assessment have been conducted.

1. The sequence of operations does not address two distinct systems.

Provide a revised excerpt of the operations and maintenance plan to include prescribed processes by which building systems respond to external conditions (e.g., temperature, humidity) and commands (e.g., on, off, modulate) for at least two distinct systems. Refer to "Sequences of operations" in the Further Explanation section of this prerequisite in the LEED v4 O+M Reference Guide, as the prerequisite requirements listed are similar to the requirements in LEED v4.1 O+M.

2. While the audit report identifies the current energy use index of the project building and a comparison with similar buildings, and identifies target indices related to energy reduction goals, it does not identify cost reduction goals.

Revise the audit to establish target indices related to cost reduction goals. The energy use intensity (EUI) tool of ENERGY STAR's Portfolio Manager can help teams establish target goals.

3. The ASHRAE Level 1 report includes the financial assessment (e.g., return on investment, payback) of no-cost and low-cost improvement opportunities, but it does not include the maintenance implications of each measure.

Provide an updated ASHRAE Level 1 report, or supplemental documentation, to document the maintenance implications of no-cost and low-cost improvement opportunities.

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### Energy Performance

**Awarded : 31**

Possible points: 33

Attempted: 31, Denied: 0, Pending: 0, Awarded: 31

#### Standard Final Review

Awarded.

#### Standard Preliminary Review

Documentation has been provided to support the performance data.

1. As stated in the Project Information review comment, the intended, 365-day reporting period for this application is not clear. Therefore, it is not clear that the performance data and documentation provided for this prerequisite covers the entire reporting period intended for this application. Note that for the district chilled water meter, data has been entered in Arc through June 30, 2019. For electric grid meter, the data only goes through May 17, 2019 and supporting documentation has only been provided for May 18, 2018 through May 17, 2019. The data and documentation must cover the entire reporting period, which must be the same 365-day period for the entire application.

After identifying the application's 365-day reporting period under Project Information, revise the consumption values and provide utility invoices (and calculations for the chilled water entries, as requested below) as needed to cover the entire reporting period (365 days) through the application's intended reporting period end date.

2. A narrative has been provided to confirm that there is not a chilled water submeter in place. The narrative indicates that 2016 chilled water submeter data has been normalized and adjusted using degree day data collected on-site over 2018 and part of 2019 to estimate the monthly chilled water consumption for the reporting period, and that a trend analysis has been completed to compare the metered electric data with the

chilled water consumption, but baseline data and calculations performed to determine monthly chilled water consumption over the reporting period have not been provided.

Provide the 2016 baseline data and any calculations performed, along with assumptions made, to justify the chilled water consumption values entered into Arc for the reporting period. Explain how the calculations result in a conservative estimate for reporting period chilled water use.

3. The narrative indicates that the quote and scope of work to install a chilled water submeter has been provided under EAp Energy Efficiency Best Management Practices, but it does not appear that this has uploaded.

Provide documentation to confirm that the chilled water submeter will be installed in the project building in the fall of 2019.

Note the following.

I. As stated in the Requirements section of this prerequisite in the LEED v4.1 O+M Guide, permanently installed energy meters or submeters that measure total building energy consumption must be in place, and 12 months of metered energy data must be used to obtain the energy performance score. For projects with extenuating circumstances limiting the ability to obtain 12 months of metered data, a formal request to USGBC should be submitted outlining a proposed alternative compliance path prior to application submittal.

Because it appears that the 2016 metered data may be conservative due to recent upgrades on the air handlers and VFDs, a one-time exception for the project's current application only is under consideration. A comprehensive response to the preliminary review comments will be required to determine the merit of the proposed approach.

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#### **Fundamental Refrigerant Management**

**Awarded**

##### **Standard Preliminary Review**

No CFCs

Awarded.

Note the following.

I. The provided phase-out plan lists equipment that contains R22, which is not a CFC. While R22 is being phased out by the EPA in January of 2020, it is not a CFC, and therefore a phase-out plan for this equipment is not required for this prerequisite.

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#### **Grid Harmonization**

Possible points: 1

**Withdrawn**

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#### **Enhanced Refrigerant Management**

Possible points: 1

**Withdrawn**



## MATERIALS AND RESOURCES

### Purchasing Policy

**Awarded**

#### Standard Preliminary Review

Awarded.

### Facility Maintenance and Renovation Poli

**Awarded**

#### Standard Preliminary Review

Awarded.

### Waste Performance

Possible points: 8

Attempted: 7, Denied: 0, Pending: 0, Awarded: 7

**Awarded : 7**

#### Standard Final Review

Awarded.

Note the following.

I. For future projects, if performing a waste audit, ensure that the waste audit report makes it clear that the annual electronic durable goods waste data that has been prorated to the daily waste values in Arc is specific to the project building's waste generation during the reporting period and does not reflect campus-wide waste.

#### Standard Preliminary Review

Documentation has been provided to support the performance data.

1. Page 1 of the audit report states that contamination of recyclable materials was discovered in the audit, yet based on the information in Table 2 of the report, it appears that all recyclable waste was considered to be diverted when determining the "Waste Diverted" value of 290.88 lbs that is currently entered into Arc. Therefore, it appears that contaminated waste may have been incorrectly included in Arc as diverted waste. In addition, page 1 of the report states that recyclables were recovered from the bags identified as waste, and it is not clear if such waste has incorrectly been included in the "Waste Diverted" value in Arc. Only recyclable waste that is properly sorted with recyclables by occupants should be counted as diverted.

Revise the audit report to identify the amount of contaminated recyclable waste found during the audit as well as the amount of recyclables found in the landfill-bound waste stream. Remove these amounts from the "Waste Diverted" value in Arc, as necessary.

Note the following.

I. Based on the audit report, it does not appear as though the waste values in Arc account for electronic durable goods waste. For future projects, ensure that the waste generated and diverted values to include electronic durable goods waste generated and diverted during the reporting period and provide supporting documentation. If electronic durable goods were not generated during the reporting period, provide a narrative confirming this. If performing a one-day waste audit, annual waste data, for example, can be prorated to a daily value and added to the waste audit results.

### Purchasing

Possible points: 1

**Withdrawn**

#### Revised Review Comment

Option 3. Electronic Equipment, 88.69%, 49 picograms per lumen-hour

1. The purchasing calculator indicates that compliant electric powered purchases are ENERGY STAR certified, but as stated in the credit requirements, ENERGY STAR certification may only contribute to credit compliance



if the equipment type does not yet fall under the EPEAT rating systems. Note that based on a search at <http://epeat.sourcemap.com/?category=pcsdDisplays>, the Optilpex 5260 AIO CTO is only EPEAT Bronze certified and does not qualify; this product constitutes more than 50% of the purchases, yet at least 50% of the purchases in the calculator must meet the required criteria. Therefore, it is not clear that this credit is achievable based on the data provided.

Confirm that all equipment types addressed by the EPEAT rating systems have an EPEAT silver rating or better. Adjust the electronics calculations as necessary. Note that as stated in the requirements of this credit, purchasing information and documentation must be provided for at least one month during the reporting period.

2. The purchasing calculator indicates that the only lamp purchased is 49 picograms per lumen-hour, which does not meet the credit requirement to purchase lamps containing no mercury (with equivalent energy efficiency as mercury containing lamps) or have an average low mercury content of 25 picograms per lumen-hour or less.

Revise the calculator to demonstrate that lamps purchased contain no mercury (with equivalent energy efficiency as mercury containing lamps) or have an average low mercury content of 25 picograms per lumen-hour or less. Note that as stated in the requirements of this credit, purchasing information and documentation must be provided for at least one month during the reporting period.



### Minimum Indoor Air Quality

**Awarded**

#### Standard Final Review

Awarded.

#### Standard Preliminary Review

##### Systems Able to Meet Required Outdoor Airflow Rates

1. The method or protocol used to measure the exhaust ventilation rates has not been provided in the LEED form. The narrative only describes the method or protocol used to measure the total quantity of outdoor air delivered to the project.

Revise the narrative to include the method or protocol used to measure the total quantity of outdoor air delivered and the exhaust ventilation rates. Ensure that the information includes the measurement device or system, its accuracy, and how and when the measurements were taken.

2. It does not appear that the calculations have been completed at the system level. It appears that AHUs have been grouped together by building wing in the supporting calculations, rather than listed separately. Outdoor airflow calculations and measurements are required at the furthest point along the distribution system prior to outdoor air being mixed with return air.

Provide revised VRP calculations and outdoor airflow measurements that are taken at the system level. Provide a narrative explaining the changes made.

3. It is not clear whether potentially critical zones have been identified appropriately in the supporting Ventilation Rate Procedure (VRP) calculations. Zone level data is used to calculate the required outdoor air at the system level. Therefore, sufficient information must be provided to show that all potentially critical occupiable zones have been accounted for individually in the calculations to determine the critical zone. Grouping of all potentially critical occupiable zones with a similar occupancy type in the calculations may not appropriately determine the systems critical zone. Potentially critical zones entered must be the most likely candidates for the critical zone (e.g., spaces with high occupant density such as conference rooms and meeting spaces, and spaces with low minimum flow per unit area or per person). If entering all ventilation zones into the calculator, the remaining ventilation zones listed may group a large number of spaces, as long as the space occupant category is the same (e.g., office), the space population density is similar, the value for  $E_z$  is the same, the zone primary airflow ( $V_{pz}$ ) per unit floor area is similar, and the primary air fraction ( $E_p$ ) is similar. The values for  $A_z$ ,  $P_z$ ,  $V_{dz}$ , and  $V_{pz}$ , should be entered as the sum of the values for all ventilation zones that are grouped into a single zone.

Provide revised VRP calculations that account for potentially critical zones individually and only group zones according to the guidance above. Provide a narrative that clearly denotes which ventilation zones are grouped.

4. The calculations include a number of zones that have an  $E_z$  value of 1.0 (which typically represents cooling mode) but that also have an  $E_p$  value less than 1 (representing the fact that these zones supply recirculated air). Generally, systems in cooling mode only supply primary air and do not include recirculated air.

Provide a narrative addressing the apparent discrepancy outlined above and revise the calculations as necessary. Specifically, if the systems are operating in heating mode with recirculated air, confirm that the systems meet the requirements for an  $E_z$  value of 1.0 outlined on the Instructions tab of the Minimum IAQ Performance Calculator, under CSCRW: Ceiling supply of warm air less than 15 deg F above space temperature and ceiling return provided such that the 150 fpm supply air jet reaches to within 4.5 ft of floor level. If the systems operate in cooling mode without recirculated air and this is the worst-case scenario, confirm that this is the case and revise the calculations such that they do not account for recirculated air. Note that if changes are made to the zone primary airflow values to account for an appropriate  $E_p$  value (i.e., no recirculation), then the system primary airflow values must be updated accordingly.

Note the following.

I. The Ventilation calculation outlined in Section 6.2 of ASHRAE 62.1 has been used to calculate the minimum outdoor air rate. Note that the latest guidance in the LEED v4.1 O+M Guide offers a simplified calculation method for projects with multi-zone systems as an alternative to the Ventilation calculation outlined in Section

6.2 of ASHRAE 62.1. To utilize this method, the project should apply the simplified calculation to each of the systems (AHUs) in the building. All AHUs supplying outdoor air to the building must be addressed and the calculations should account for system peak occupancy and the entire building's gross floor area (rather than just the occupiable space). Refer to the LEED v4.1 O+M Guide for further guidance.

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## Environmental Tobacco Smoke Control

**Awarded**

### Standard Preliminary Review

Awarded.

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## Green Cleaning Policy

**Awarded**

### Standard Preliminary Review

Option 1: In-house Green Cleaning Policy

Awarded.

Note the following.

I. The table on page 7 of the policy lists Greenguard certification as a sustainability criterion for several products, but Greenguard is not a sustainability criterion of EQc Green Cleaning. As the sustainability criteria of EQc Green Cleaning are otherwise correctly listed on the preceding pages of the policy, compliance is not affected. For future projects, ensure that the sustainability criteria of EQc Green Cleaning are clearly distinguished from any additional criteria.

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## Indoor Environmental Quality Performance

**Awarded : 14**

Possible points: 20

Attempted: 14, Denied: 0, Pending: 0, Awarded: 14

### Standard Preliminary Review

Awarded.

Note the following.

I. The supporting documentation indicates that a photo-ionization detector (PID) has been used to measure the TVOC concentration levels. Due to the sensitivity of PIDs, the lowest value entered in the Arc Data Template must be the smallest increment the measuring device can report (e.g., 0.1 ppm = 229 ug/m3) for a concentration level below detectable limits. As the maximum TVOC value affects the performance score, compliance is not affected for this review. For future reviews, ensure that TVOC values in the Arc Data Template reflect the maximum recorded value or the smallest incremental reading of the measuring device. For PIDs, future readings of 0 ppm should be recorded as the lowest value in the detectable range of the device.

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## Green Cleaning

**Awarded : 1**

Possible points: 1

Attempted: 1, Denied: 0, Pending: 0, Awarded: 1

### Standard Final Review

Awarded, 78.47%.

### Standard Preliminary Review

Option 4. Cleaning Products and Materials, 77.5%

1. The purchase date listed for all products in the calculator is June 1, 2019, making it unclear whether the calculations represent either a product inventory or total annual purchases as required by this credit.

Provide a narrative clarifying whether the calculations represent either a product inventory or total annual purchases. If necessary, revise the calculations and supporting documentation to reflect either a product inventory or total annual purchases.





**INNOVATION**

**Innovation**  
Possible points: 1

**Withdrawn**

TOTAL	100	73	0	0	73
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# Review summary

Review	Submitted	Returned	Points: Submitted	Denied	Pending	Awarded
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Standard Preliminary	07/11/2019	07/23/2019	74	0	48	26
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Credit	Status	Type	POINTS: Attempted	Denied	Pending	Awarded
Project Information	Pending		0	0	0	0
Transportation Performance	Awarded		12	0	0	12
Water Performance	Pending		8	0	8	0
Energy Efficiency Best Management Practi	Pending		0	0	0	0
Energy Performance	Pending		31	0	31	0
Fundamental Refrigerant Management	Awarded		0	0	0	0
Purchasing Policy	Awarded		0	0	0	0
Facility Maintenance and Renovation Poli	Awarded		0	0	0	0
Waste Performance	Pending		7	0	7	0
Minimum Indoor Air Quality	Pending		0	0	0	0
Environmental Tobacco Smoke Control	Awarded		0	0	0	0
Green Cleaning Policy	Awarded		0	0	0	0
Indoor Environmental Quality Performance	Awarded		14	0	0	14
Green Cleaning	Pending		1	0	1	0

<b>Standard Final</b>	<b>08/05/2019</b>	<b>08/15/2019</b>	<b>47</b>	<b>0</b>	<b>0</b>	<b>47</b>
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<b>Credit</b>	<b>Status</b>	<b>Type</b>	<b>POINTS: Attempted</b>	<b>Denied</b>	<b>Pending</b>	<b>Awarded</b>
Project Information	Awarded		0	0	0	0
Water Performance	Awarded		8	0	0	8
Energy Efficiency Best Management Practi	Awarded		0	0	0	0
Energy Performance	Awarded		31	0	0	31
Waste Performance	Awarded		7	0	0	7
Minimum Indoor Air Quality	Awarded		0	0	0	0
Green Cleaning	Awarded		1	0	0	1