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®).

VA Worcester CBOC

Project ID	1000131488
Rating system & version	LEED V4 BD+C: CS
Project registration date	05/18/2020

CERTIFIED SILVER GOLD PLATINUM

Construction Final Review Decision

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

LEED v4 BD+C: Core and Shell

Attempted: 42, Denied: 2, Pending: 0, Awarded: 40 of 110 points

INTEGRATIVE PROCESS	0 OF 1
Integrative Process	0 / 1

LOCATION AND TRANSPORTATION	7 OF 20
LEED for Neighborhood Development Location	0 / 20
Sensitive Land Protection	2 / 2
High Priority Site	0 / 3
Surrounding Density and Diverse Uses	4 / 6
Access to Quality Transit	1 / 6
Bicycle Facilities	0 / 1
Reduced Parking Footprint	0 / 1
Green Vehicles	0 / 1

SUSTAINABLE SITES	1 OF 11
Construction Activity Pollution Prevention	Y
Site Assessment	1 / 1
Site Development - Protect or Restore Habitat	0 / 2
Open Space	0 / 1
Rainwater Mgmt	0 / 3
Heat Island Reduction	0 / 2
Light Pollution Reduction	0 / 1
Tenant Design and Construction Guideline	0 / 1

WATER EFFICIENCY	2 OF 11
Outdoor Water Use Reduction	Y
Outdoor Water Use Reduction	1 / 2
Indoor Water Use Reduction	Y
Indoor Water Use Reduction	0 / 6
Building-Level Water Metering	Y
Cooling Tower Water Use	0 / 2
Water Metering	1 / 1

ENERGY AND ATMOSPHERE	20 OF 33
Fundamental Commissioning and Verification	Y
Minimum Energy Performance	Y
Optimize Energy Performance	13 / 18
Building-Level Energy Metering	Y
Fundamental Refrigerant Mgmt	Y
Enhanced Commissioning	6 / 6
Advanced Energy Metering	0 / 1
Demand Response	0 / 2
Renewable Energy Production	0 / 3
Enhanced Refrigerant Mgmt	1 / 1
Green Power and Carbon Offsets	0 / 2

MATERIALS AND RESOURCES	2 OF 14
Storage and Collection of Recyclables	Y
Construction and Demolition Waste Mgmt Planning	Y
Building Life-Cycle Impact Reduction	0 / 6
Product disclosure & optimization - Environmental Product Declarations	1 / 2
Product disclosure & optimization - Sourcing of Raw Materials	0 / 2
Product disclosure & optimization - Material Ingredients	0 / 2
Construction and Demolition Waste Mgmt	1 / 2

INDOOR ENVIRONMENTAL QUALITY	3 OF 10
Minimum IAQ Performance	Y
Environmental Tobacco Smoke Control	Y
Enhanced IAQ Strategies	2 / 2
Low-Emitting Materials	0 / 3
Construction IAQ Mgmt Plan	1 / 1
Daylight	0 / 3
Quality Views	0 / 1

INNOVATION	4 OF 6
Innovation	3 / 5
LEED Accredited Professional	1 / 1

REGIONAL PRIORITY CREDITS	1 OF 4
Optimize Energy Performance	1 / 1

TOTAL	40 OF 110

Credit details

PROJECT INFORMATION

Project Information **Awarded**

Design Preliminary Review

Thank you for submitting your project for review. We hope you find the following review comments helpful. If you have questions about this review or if you would like to request a call to discuss your project, please contact us at http://www.gbci.org/contact. If requesting a call, please provide your availability and your detailed question(s) so that GBCI may prepare for the call.

The Project Information form has been completed and the supporting documentation has been provided.

INTEGRATIVE PROCESS

Integrative Process
Possible points: 1

Withdrawn

LOCATION AND TRANSPORTATION

LEED for Neighborhood Development Location — **Not attempted**
Possible points: 20

Sensitive Land Protection — **Awarded : 2**
Possible points: 2
Attempted: 2, Denied: 0, Pending: 0, Awarded: 2

Design Preliminary Review

Option 1: Previously Developed

Awarded.

High Priority Site — **Not attempted**
Possible points: 3

Surrounding Density and Diverse Uses — **Awarded : 4**
Possible points: 6
Attempted: 4, Denied: 0, Pending: 0, Awarded: 4

Design Preliminary Review

Option 1: Surrounding Density

Awarded.

Access to Quality Transit — **Awarded : 1**
Possible points: 6
Attempted: 1, Denied: 0, Pending: 0, Awarded: 1

Design Preliminary Review

Awarded.

Bicycle Facilities — **Withdrawn**
Possible points: 1

Reduced Parking Footprint — **Not attempted**
Possible points: 1

Green Vehicles — **Denied : 1**
Possible points: 1
Attempted: 1, Denied: 1, Pending: 0, Awarded: 0

Design Final Review

Option 1: Electric Vehicle Charging

The additional documentation does not demonstrate compliance. Based on the provided parking plan it is unclear that charging equipment has been provided for at least 2% of the total parking capacity and that separate preferred parking spaces for green vehicles have been provided for at least 5% of total parking capacity and the preferred parking spaces highlighted on the site plan do not to meet the LEED definition of preferred

If appealing, provide the following.

1. Provide a revised site plan demonstrating that the parking for green vehicles is in a preferred location.

2. Provide a revised form and site plan demonstrating that charging equipment is provided for at least 2% of the total parking and separate preferred parking spaces for green vehicles have been provided for at least 5% of total parking capacity.

Design Preliminary Review

Option 1: Electric Vehicle Charging

1. It is not clear whether the total parking capacity has been correctly determined. Specifically, parking located in the parking garage expansion outside of the LEED Boundary appears to be shared with other buildings and it is not clear how parking was allocated to the project building.

Provide the following:

a. A narrative clarifying how the total parking capacity was determined.

b. A revised LEED Form and site plan, if necessary.

2. The preferred parking spaces highlighted on the site plan do not appear to meet the LEED definition of preferred. Preferred spaces are those spaces with the shortest walking distance to the main entrance of the project (exclusive of spaces reserved for people with disabilities).

Provide a revised site plan demonstrating that the parking for green vehicles is in a preferred location. Alternatively, provide a narrative demonstrating that the current location is considered preferred.

3. It is unclear that charging equipment has been provided for at least 2% of the total parking capacity and that separate preferred parking spaces for green vehicles have been provided for at least 5% of total parking capacity.

Provide a revised form and site plan demonstrating that charging equipment is provided for at least 2% of the total parking and separate preferred parking spaces for green vehicles have been provided for at least 5% of total parking capacity.

Note that the LEED v4.1 credit substitution path may provide an alternative to demonstrating compliance. Visit the v4.1 Credit Catalog to view the updated version of this credit. The LEED v4.1 Beta Guide is available here: http://www.usgbc.org/leed/v41. All v4 credits are available for substitution. If resubmitting following the v4.1 compliance path, complete the v4.1 LEED Form and provide the required documentation as described in the LEED v4.1 Beta Guide for this credit.

SUSTAINABLE SITES

Construction Activity Pollution Prevention — **Awarded**

Construction Preliminary Review

EPA Construction General Permit

Awarded.

Site Assessment — **Awarded : 1**
Possible points: 1
Attempted: 1, Denied: 0, Pending: 0, Awarded: 1

Design Final Review

Awarded.

Design Preliminary Review

1. The required documentation has not been provided.

Provide the following:

a. The site survey that highlights the characteristics of the site.

2. The Site Assessment Worksheet appears to be missing information regarding human health effects.

Provide revised documentation that includes information on human health effects. Include a narrative describing any special circumstances or why [this topic was / these topics were] not included in the assessment.

Site Development - Protect or Restore Habitat — **Not attempted**
Possible points: 2

Open Space — **Not attempted**
Possible points: 1

Rainwater Management — **Not attempted**
Possible points: 3

Heat Island Reduction — **Not attempted**
Possible points: 2

Light Pollution Reduction — **Denied : 1**
Possible points: 1
Attempted: 1, Denied: 1, Pending: 0, Awarded: 0

Design Final Review

Additional documentation has been provided. However, the following issues exist:

1. Nighttime Luminance of signage (S1-S2, S5) found in Table: Internally illuminated signage of the LEED Form continues to exceed 200 cd/sq m during nighttime hours. This luminance cannot be exceeded by any internally illuminated exterior signage.

2. The revised documentation "VA Worcester_REV 5_2022-0208" shows a lighting boundary and photometric site plan with exterior fixtures' vertical illuminance exceeding 0.10 FC in areas adjacent to the property that are not owned by the same entity as this LEED project.

3. The lighting boundary indicated on "VA Worcester_REV 5_2022-0208" does not align with the LEED project boundary on the Northern side (plan East) and it is unclear if the adjacent property is owned by the same owner as this LEED project. It is consequently unclear if the lighting boundary has been modified in an

allowable manner as outlined in the Lighting Boundary section of the LEED v4 BD+C Reference Guide.

The documentation does not demonstrate compliance.

Design Preliminary Review

1. The site lighting plan provided does not clearly indicate the lighting boundary. It is noted that the property is surrounded by streets but this is only apparent to the North and South. Refer to the Lighting Boundary section of the Reference Guide for additional clarification.

Provide the following:

a. A site lighting plan that clearly indicates the lighting boundary.

b. A narrative describing any modifications for areas that do not align with the LEED Project Boundary.

2. The Nighttime Luminance of signage (S1-S2, S5) found in Table: Internally illuminated signage of the credit form exceeds 200 cd/sq m during nighttime hours.

Provide a revised luminaire schedule and a narrative noting any changes that have been made.

Light Trespass: Option 2, Calculation Method

1. The lighting boundary has not been indicated on the site plan. It is noted that the property is surrounded by streets but this is only apparent to the North and South. Refer to the Lighting Boundary section of the Reference Guide for additional clarification.

Provide a revised photometric site plan that indicates the lighting boundary showing the point-by-point foot calculation illustrating the worst-case scenario of vertical illuminance for each luminaire as it crosses the lighting boundary in order to confirm compliance with the illuminance requirements of MLO LZ2.

Tenant Design and Construction Guideline — **Not attempted**
Possible points: 1

WATER EFFICIENCY

Outdoor Water Use Reduction **Awarded**

Design Preliminary Review

Option 2: Reduced Irrigation

Awarded.

Outdoor Water Use Reduction **Awarded : 1**

Possible points: 2
Attempted: 1, Denied: 0, Pending: 0, Awarded: 1

Design Preliminary Review

Option 2: Reduced Irrigation, 61%

Awarded.

Indoor Water Use Reduction **Awarded**

Design Final Review

Usage-based Calculation, 20.75%

It is noted that the Indoor Water Use Reduction calculator indicates that less than 100% of the occupants will be using each fixture. When the calculator is revised with the percent of occupants using each fixture family equaling 100% when summed in total for each fixture family, the project has reduced potable water use by 24.35%. Awarded.

Design Preliminary Review

It is noted that the Prescriptive Achievement option has been selected in the LEED Form, whereas points are being pursued WEc Indoor Water Use Reduction which requires the Usage-based Calculation option to document compliance. Since points are being pursued under WEc Indoor Water Use Reduction the following comments pertain to the Usage-based Calculation option.

Usage-based Calculation, 35.25%

1. The required documentation has not been provided for the lavatories, kitchen sinks, private lavatories, and showerheads.

Provide manufacturer documentation/cut sheets to confirm the fixture model, flush or flow rate, and WaterSense label for the eligible fixtures.

2. The percent of males expected to use restrooms with urinals in the Indoor Water Use Calculator is listed as 100% and has not been adjusted to reflect the male occupants’ use of the unisex restrooms without urinals that are shown on the floor plans in PI Project Information.

Provide the following:

a. A revised Indoor Water Use Calculator with the percent of males expected to use restrooms with urinals adjusted to account for the male occupants' use of the restrooms without urinals.

b. A narrative to explain any special circumstances.

3. The Indoor Water Use Reduction calculator indicates that less than 100% of the occupants will be using each fixture.

Provide the following:

a. A revised calculator with the percent of occupants using each fixture family equaling 100% when summed in total for each fixture family (e.g. the male toilet, female toilet, urinal, lavatory, kitchen sink, and showerhead should each equal 100% in total).

b. If project-specific special circumstances exist, a narrative and documentation/calculations justifying different usage rates.

4. The private lavatory has been selected in the Indoor Water Use Reduction calculator for the Patient group, yet it does not appear that the private lavatory classification is appropriate for this project type. Private is defined as fixtures in residences, hotel or motel guest rooms, and private rooms in hospitals. Fixtures used by residential occupants and fixtures used by residential-type occupants who use the building for sleeping accommodations fall into the private classification. Resident bathrooms in dormitories, patient bathrooms in hospital and nursing homes, and prisoner bathrooms are considered private use. All other applications are deemed to be public.

Provide revised calculations, ensuring that the lavatories are classified as public.

5. The showerhead has not been included for the Employee group and the urinals shown on the floor plans have not been included in the calculations.

Provide the following:

a. Revised documentation to include all fixtures installed in the project.

6. The WC flush rate stated in the calculator (1.27 gpf) is inconsistent with the manufacturer documentation (1.28 gpf).

Provide the following:

a. Revised calculations that are consistent with the manufacturer data.

OR

b. A narrative explaining any special circumstances.

Indoor Water Use Reduction — **Not attempted**
Possible points: 6

Design Preliminary Review

Usage-based Calculation, 35.25%

1. WEp Indoor Water Use Reduction is pending clarifications.

Refer to the comments within the prerequisite and resubmit this credit.

Building-Level Water Metering — **Awarded**

Design Preliminary Review

Awarded.

Cooling Tower Water Use — **Not attempted**
Possible points: 2

Water Metering — **Awarded : 1**
Possible points: 1
Attempted: 1, Denied: 0, Pending: 0, Awarded: 1

Design Preliminary Review

Awarded.

ENERGY AND ATMOSPHERE

Fundamental Commissioning and Verification **Awarded**

Construction Final Review

Awarded.

Construction Preliminary Review

1. Functional performance test documentation has not been provided for mechanical systems.

Provide at least one complete functional performance test for each of the applicable systems.

Minimum Energy Performance **Awarded**

Design Final Review

Option 1: Whole-Building Energy Simulation, 29.9% ASHRAE 90.1-2010 Appendix G energy cost savings.

Awarded.

The total predicted annual energy consumption for the project is 1,123,207 kWh/year of electricity and 1,145,114 kWh/year (39,073 therms/year) of natural gas.

Design Preliminary Review

Modeled energy cost savings of 29.6% have been claimed with Option 1: Whole Building Energy Simulation. However, to demonstrate compliance, the following comments requiring a project response (marked as Mandatory) must be addressed for the Final Review.

TECHNICAL ADVICE

REVIEW COMMENTS REQUIRING A PROJECT RESPONSE (Mandatory)

1. Provide the following:

a. A narrative response to each Preliminary Review comment below.

b. A narrative describing any additional changes made to the energy models between the Preliminary and Final Review phases not addressed by the responses to the review comments. The mandatory comments are perceived to reduce the projected savings for the Proposed design. If the projected savings increase substantially in the Final submission, without implementing any optional comments that may improve performance, a narrative explanation for these results must be provided.

2. It is unclear if the utility rates have been modeled as required.

The Performance Output tab of the Minimum Energy Performance Calculator indicates that the electricity cost has been modeled at a rate of $0.1324/kWh (Baseline) and $0.1272/kWh (Proposed), which is lower than expected since the U.S. Energy Information Administration average commercial electricity rate in the state of Massachusetts is $0.1801/kWh.

Revise the electricity rate to reflect either the EIA average rates, the expected utility rates. Provide the utility companies' rates schedules if they are incorporated into the models. Revise the Minimum Energy Performance Calculator as necessary.

3. It is not clear whether the window U-values of U-0.35, U-0.34, and U-0.30 used for the Proposed Case accounts for the impact of the window frames on the whole assembly as required by the ASHRAE modeling protocol.

Provide information to confirm that the framed assembly U-value was used for the Proposed Case windows (such as: showing that the whole window assembly has been tested by NFRC; verifying that LBNL Window 6 calculations have been provided for the whole assembly; or verifying that the frame effects are captured within the energy modeling software). Alternatively, revise the model referencing ASHRAE 90.1-2010 Table A8.2. Update the Minimum Energy Performance Calculator as necessary and provide an updated IES BPRM

Report verifying that the Proposed Case window assembly U-Values have been modeled as designed. Note that as the IES software has limited output reporting capabilities, screenshots of pertinent inputs are also acceptable.

4. The Lighting tab of the Minimum Energy Performance Calculator indicates that credit for interior lighting power reductions have been taken for the entire building. However, according to the CO2 Monitoring Spaces.pdf drawing provided within the IQc Enhanced Indoor Air Quality Strategies, only the first and second floors have been fitted out for the tenant. Such drawings for the third and fourth floor do not appear to have been provided. It is also unclear if the project is utilizing LEED Interpretation #10129. Credit can only be taken for designed interior lighting, or if the project is utilizing LEED Interpretation #10129.

Provide clarification about whether the third and fourth floors have been fit out for the tenant. If they have, provide the drawings that show the lighting design. Alternatively, if the project is following LEED Interpretation 10129, provide appropriate documentation. Otherwise, if the third and fourth floors have not been fitted out for the tenant yet, model the interior lighting associated with these floors identically between both cases. Update the Minimum Energy Performance Calculator as necessary and provide an updated IES BPRM Report verifying that the interior lighting in the third and fourth floors has been modeled as required. Note that as the IES software has limited output reporting capabilities, screenshots of pertinent inputs are also acceptable.

5. It is unclear whether the Proposed Case HVAC systems have been modeled as designed because supply airflows and fan powers are modeled inconsistent with the mechanical design (Plp Project Information: PROJ INFO_MECH SCHEDULES PLANS AND DRAWINGS.pdf). Also, there are HVAC systems and components listed in the mechanical schedule that do not appear to be included in the energy model. Table G3.1.10 (b)(Proposed) requires that the model be consistent with the design documents.

a. The modeled Proposed Case supply airflows appear inconsistent with the mechanical design. For example, the mechanical schedule indicates that total the supply airflow for the rooftop units is 60,000 cfm and fan coil units is 23,642 cfm, for a total supply airflow of 83,642 cfm. However, the Minimum Energy Performance Calculator indicates that the total supply airflow for these systems has been modeled at 62,000 cfm.

Revise the supply airflows to be consistent with the mechanical design. Update the Minimum Energy Performance Calculator as necessary and provide an updated IES BPRM Report verifying that the modeled supply airflows for all systems are consistent with the design. Note that as the IES software has limited output reporting capabilities, screenshots of pertinent inputs are also acceptable.

b. The modeled Proposed Case system fan powers appear inconsistent with the mechanical design. For example, the mechanical schedule indicates that the fan powers for the rooftop units (RTU-1, RTU-2, RTU-3, RTU-4, and RTU-5) are 96.46 kW (supply) and 42.682 kW (exhaust), and total fan powers for the fan coil units are 10.16 kW (supply). However, the Minimum Energy Performance Calculator indicates that the total fan powers for these systems is 43.3 kW (supply) and 18.0 kW (exhaust).

Revise the fan powers to be consistent with the mechanical design. Update the Minimum Energy Performance Calculator as necessary and provide an updated IES BPRM Report verifying that the modeled fan powers for all systems are consistent with the design. Note that as the IES software has limited output reporting capabilities, screenshots of pertinent inputs are also acceptable.

Update the model so that all HVAC system parameters (e.g. fan volumes, fan powers, efficiencies, heating/cooling capacities, etc.) are consistent with the design documents, update the Minimum Energy Performance Calculator to reflect all changes made, and update the form to reflect any changes made.

6. It is unclear whether the Proposed Case chilled water and hot water pump powers, flow rates, and pump quantities are modeled as designed because the chilled and hot water pump inputs are modeled inconsistent with the mechanical design (Plp Project Information: PROJ INFO_MECH SCHEDULES PLANS AND DRAWINGS.pdf). Table G3.1.10 (b)(Proposed) requires that the model be consistent with the design documents.

The modeled Proposed Case chilled water pump inputs appear inconsistent with the design. For example, the mechanical schedule indicates that there are two primary chilled water pumps, each with 345 gpm, 75 ft head, 15 HP, 8.61 BHP, and 20.46 W/gpm (one of which is standby) and two secondary chilled water pumps, each with 320 gpm, 75 ft head, 15 HP, 7.9 BHP, and 20.24 W/gpm (one of which is standby). However, the Water-Side HVAC tab of the Minimum Energy Performance Calculator indicates that there are two primary chilled water pumps (18.6 W/gpm, 690 gpm) and two secondary chilled water pumps (18 W/gpm, 640 gpm).

Additionally, the mechanical schedule indicates that there are three primary hot water pumps, each with 120 gpm, 30 ft head, 1.5 HP, 1.3 BHP, and 9.62 W/gpm, and two secondary hot water pumps, each with 240 gpm, 75 ft head, 10 HP, 5.83 BHP, and 20.25 W/gpm (one of which is standby). However, the Water-Side HVAC tab

of the Minimum Energy Performance Calculator indicates that there are two primary hot water pumps (8.075 W/gpm, 2 gpm, variable speed) and two secondary hot water pumps (18.11 W/gpm).

Revise the Proposed Case chilled water and hot water pump inputs to be consistent with the design. Note that standby pumps do not need to be modeled. Update the Minimum Energy Performance Calculator as necessary, ensuring that all modeled pump inputs are filled in and provide an updated IES BPRM Report verifying that the Proposed Case chilled and hot water pump inputs have been modeled as designed. Note that as the IES software has limited output reporting capabilities, screenshots of pertinent inputs are also acceptable.

Update the model so that all water-side HVAC system parameters (e.g. pump quantities, flow rates, motor powers, pump controls, etc.) are consistent with the design documents, update the Minimum Energy Performance Calculator to reflect all changes made, and update the form to reflect any changes made.

7. It is unclear if the outside airflow has been modeled as required. The mechanical schedule indicates that the total design outside airflow is 52,200 cfm provided by RTU-1, RTU-2, RTU-3, RTU-4, and RTU-5. It is also noted that the EQp Minimum Indoor Air Quality Performance credit form narrative indicates that the outside air is modeled consistent with ASHRAE 170-2017 and ASHRAE 62.1-2010. Additionally, the Air-Side HAVE tab of the Minimum Energy Performance Calculator indicates that the outside airflow in the Baseline and Proposed Case is 52,077 cfm and 52,200 cfm, respectively. However, the VRP calculations provided in the EQp Minimum Indoor Air Quality Performance submission do not clearly indicate the total minimum required outside airflow. Section G3.1.2.6 exception c requires that, when the minimum outdoor air intake flow in the Proposed Case is greater than the amount required by the rating authority or building official (see EQp: Minimum Indoor Air Quality Performance for ASHRAE 62.1-2010 calculations for the outdoor airflow rate required by the rating authority - GBCI), the Baseline Case must be modeled as the greater of the outdoor airflow rate required by the rating authority or the building official and will be less than the Proposed Case. Note that 30% increased ventilation, if pursued within EQc Enhanced IAQ Strategies, should not be modeled in the Baseline Case building.

Provide clarification about the total minimum required outside airflow. Revise the outside airflow in the Baseline Case to be consistent with the minimum required outside airflow in the EQp Minimum Indoor Air Quality Performance submission, and revise the outside airflow in the Proposed Case to be consistent with the design. Update the Minimum Energy Performance Summary as necessary and provide an updated IES BPRM Report verifying that the outside airflows have been modeled as required in both models. Note that as the IES software has limited output reporting capabilities, screenshots of pertinent inputs are also acceptable.

8. The Minimum Energy Performance Calculator indicates that Secondary HVAC systems have not been modeled in the Baseline Case building. However, ASHRAE 90.1-2010 Section G3.1.1 requires that Secondary HVAC systems are modeled whenever exception(s) to Section G3.1.1 are applicable. In the case of this project, it appears that the spaces served by the fan coil units (data room, electric room, elevator equipment rooms, etc) will satisfy exceptions in Section G3.1.1, and therefore secondary HVAC systems are anticipated.

Revise the Minimum Energy Performance Calculator and the energy model and provide a narrative to explain if any exception(s) from G3.1.1 were used to specify Other HVAC system type(s) in the Baseline model. Update the Minimum Energy Performance Calculator as necessary and provide an updated IES BPRM Report verifying that secondary HVAC systems are modeled as anticipated. Note that as the IES software has limited output reporting capabilities, screenshots of pertinent inputs are also acceptable.

REVIEW COMMENTS THAT DO NOT REQUIRE A PROJECT RESPONSE FOR THIS PROJECT, BUT SHOULD BE CONSIDERED AS EDUCATIONAL NOTES FOR FUTURE SUBMITTALS (Optional)

9. It appears that a different input capacity has been modeled for the Baseline and Proposed Case service water heating. The Service Water Heating tab of the Minimum Energy Performance Calculator indicates that the Baseline and Proposed Case service water heating input capacity is 548,000 BTU and 199,000 BTU, respectively.

Revise the model to include the service water heating input capacity identically between the Baseline and Proposed Case consistent with the requirements of Table G3.1.11. Update the Minimum Energy Performance Calculator as necessary and provide an updated IES BPRM Report verifying that the service water heating input capacity has been modeled as required. Note that as the IES software has limited output reporting capabilities, screenshots of pertinent inputs are also acceptable.

Optimize Energy Performance **Awarded : 13**

Possible points: 18

Attempted: 13, Denied: 0, Pending: 0, Awarded: 13

Design Final Review

Option 1: Whole Building Energy Simulation, 29.9%

Awarded.

Design Preliminary Review

Option 1: Whole Building Energy Simulation, 29.6%

1. EAp Minimum Energy Performance is pending clarifications.

Refer to the comments within the prerequisite and resubmit this credit.

Building-Level Energy Metering **Awarded**

Design Preliminary Review

Awarded.

Fundamental Refrigerant Management **Awarded**

Revised Review Comment

Awarded.

Design Preliminary Review

Awarded.

Enhanced Commissioning **Awarded : 6**

Possible points: 6

Attempted: 6, Denied: 0, Pending: 0, Awarded: 6

Construction Final Review

Option 1: Enhanced Systems Commissioning Path 2, Enhanced and Monitoring-Based Commissioning

Awarded.

Option 2: Envelope Commissioning

Awarded.

Construction Preliminary Review

Option 1: Enhanced Systems Commissioning Path 2, Enhanced and Monitoring-Based Commissioning

1. EAp Fundamental Commissioning and Verification is pending clarifications.

Refer to the comments within the prerequisite and resubmit this credit.

Option 2: Envelope Commissioning

1. It is unclear if performance testing was included in the scope of envelope commissioning for this project. The National Institute of Building Sciences (NIBS) Guideline 3–2012 confirms that testing of the building enclosure shall occur (either lab testing, field testing, or a combination of both), and that on-site verification of the building enclosure shall be part of the commissioning process.

a. Provide at least one completed functional field test for envelope commissioning indicating the date(s) of test(s), name(s) of those present at the test, and including the project-specific test scripts stepping through the field test and logging the measurements and observations associated with the test script.

2. Information about the envelope commissioning has not been included in the commissioning plan table of contents, current facilities requirements, operations and maintenance plan, and representative functional

tests uploaded with EAp Fundamental Commissioning and Verification.

Revise the documents referenced above or provide supplements to these documents demonstrating that all EA Prerequisite Fundamental Commissioning and Verification tasks were completed for the building envelope by the Envelope CxA. Provide:

a. Commissioning plan or commissioning plan table of contents that addresses envelope commissioning.

b. Current facilities requirements (CFR) document or CFR table of contents that addresses envelope commissioning.

c. Operations and maintenance plan (OMP) or OMP table of contents that addresses envelope commissioning.

d. At least one completed functional test for envelope commissioning indicating the date(s) of test, name(s) of those present at the test, and including the project-specific test scripts stepping through the field test and logging the measurements and observations associated with the test script.

Ensure that the documentation demonstrates that field water tests have been performed for the envelope consistent with Further Explanation>Building Envelope Commissioning Basics in the LEED v4 BD+C Reference Guide and Annex U of NIBS Guideline 3-2012

3. It is unclear whether all the required field tests have been performed for the envelope. Annex U of NIBS Guideline 3-2012 states that field water testing is required for all projects. It appears that field water testing may not have been performed.

Provide evidence that the required field water test has been performed for the envelope. Refer to Further Explanation>Building Envelope Commissioning Basics in the LEED v4 BD+C Reference Guide and Annex U of NIBS Guideline 3-2012 for examples of envelope systems tests that may be performed and further guidance.

Advanced Energy Metering — **Withdrawn**
Possible points: 1

Demand Response — **Not attempted**
Possible points: 2

Renewable Energy Production — **Not attempted**
Possible points: 3

Enhanced Refrigerant Management — **Awarded : 1**
Possible points: 1
Attempted: 1, Denied: 0, Pending: 0, Awarded: 1

Design Final Review

Option 2: Calculation of Refrigerant Impact

Awarded.

Items that do not require a response for this project, but should be considered for future projects:

1. The credit form Table: Mechanical cooling and refrigeration equipment appears to show per HVAC&R Equipment Type a Life of 10 years for scroll compressors. However, per the LEED v4 Reference Guide typical life values for this equipment indicates 20 years. Previously the submission did not comply as the total refrigerant impact per ton was 105.36, which is greater than the maximum allowable value of 100. Using the default of 20 years, the project now complies with a total refrigerant impact per ton of 87.8. For future submissions ensure the Life value can be substantiated (if greater) through documentation or matches the default equipment life found in Table 2 of the LEED v4 Reference Guide.

Design Preliminary Review

Option 2: Calculation of Refrigerant Impact

1. It does not appear that the refrigerant impact calculation is inclusive of all refrigerant based equipment with a refrigerant charge greater than 0.5 lb. According to document 'Schedule_M7-0-CS', RTUs 1-5 have refrigerant R410A.

Revise the LEED Form to provide Equipment Type, Units, Qunit, Refrigerant, Rc, and Life inputs consistent with the design for all HVAC&R systems. Provide documentation to support the refrigerant charge, and equipment life input values.

Green Power and Carbon Offsets **Withdrawn**
Possible points: 2

MATERIALS AND RESOURCES

Storage and Collection of Recyclables **Awarded**

Design Preliminary Review

Awarded.

Construction and Demolition Waste Management Planning **Awarded**

Construction Final Review

Awarded.

Construction Preliminary Review

1. The construction waste management plan (CWMP) does not address alternative daily cover (ADC).

Provide a narrative addressing whether the recycling facilities used alternative daily cover (ADC) and considered it recycled content in their reporting. Note that any ADC produced by the facilities is to be included in the final waste report as landfill waste. Confirm that ADC has been included as waste in the submitted final waste report. Revise the form, as necessary.

Building Life-Cycle Impact Reduction **Not attempted**
Possible points: 6

Building Product Disclosure and Optimization - Environmental Product Declarations **Awarded : 1**
Possible points: 2
Attempted: 1, Denied: 0, Pending: 0, Awarded: 1

Construction Final Review

Option 1. Environmental Product Declarations

The project meets the requirements using the LEED v4.1 substitution path for this credit.

The documentation provided demonstrates that at least ten weighted products, sourced from at least three different manufacturers, meet the requirements for environmental product declarations. Product documentation has been reviewed for materials listed in the Building Products Calculator: Rows 9-24.

Awarded.

Construction Preliminary Review

MRc BPDO – Environmental Product Declarations

Option 1: Environmental Product Declaration

1. The EPDs for Armstrong Ultima Tegular (line 9) and Corian Solid Surface (line 11) do not include the information for which standard (either EN 15804 or ISO 21930) was used for the Product Category Rule (PCR).

Provide an updated EPD or other documentation demonstrating which standard was used for the PCR.

2. Several products Including Mannington Charge (line 13), Nora Grano 926 (line 14), Tarkett IQ Optima (line 15), Tarkett Carpet Tile (line 16), CS Acrovyn (line 17), NBK Terart Large Panels (line 19), GreenGirt Thermally Broken Support System (line 21), Owens Corning Thermafiber Pipe Insulation (line 22), Tarkett Baseworks Rubber Treat (line 23), Sherwin Williams Promar 200 (line 24), and Owens Corning Fiberglas Insulation (line 27) have been entered into the MR Building Product Calculator as Product Specific; however, the provided documentation indicates Product-Specific Type III.

Confirm and adjust the MR Building Product Calculator as necessary.

Note that the LEED v4.1 credit substitution path may provide an alternative to demonstrating compliance. The

threshold is at least 20 weighted products in v4 and 10 weighted products in v4.1. When calculated to address issue #2, there are 15.25 weighted products. Visit the v4.1 Credit Catalog to view the updated version of this credit. The LEED v4.1 Beta Guide is available here: http://www.usgbc.org/leed/v41. All v4 credits are available for substitution. If resubmitting following the v4.1 compliance path, complete the v4.1 LEED Form and provide documentation as described in the LEED v4.1 Beta Guide for this credit.

Building Product Disclosure and Optimization - Sourcing of Raw Materials — **Withdrawn**
Possible points: 2

Building Product Disclosure and Optimization - Material Ingredients — **Withdrawn**
Possible points: 2

Construction and Demolition Waste Management — **Awarded : 1**
Possible points: 2
Attempted: 1, Denied: 0, Pending: 0, Awarded: 1

Construction Final Review

Option 1: Diversion, Path 1

Awarded.

Construction Preliminary Review

Option 1: Diversion, Path 1

1. Calculations showing the waste diverted from landfill have not been provided.

Provide a copy of the completed Construction and Demolition Waste Calculator (found under the credit's "Resources" tab in the Credit Library) or equivalent documentation.

2. It is not clear if alternative daily cover (ADC) has been included as landfill waste in the calculations, as required.

Address the issue regarding ADC outlined in the associated prerequisite; if necessary, revise the documentation so the calculations exclude ADC.

3. The calculations indicate that commingled waste has been used but documentation confirming either the project specific diversion rates (by material) or the average annual recycling rate for the facility that is regulated by a governing authority has not been provided.

Provided the documentation to demonstrate compliance.

INDOOR ENVIRONMENTAL QUALITY

Minimum Indoor Air Quality Performance — Awarded

Design Final Review

Option 1: ASHRAE Standard 62.1-2010

Awarded.

Design Preliminary Review

Option 1: ASHRAE Standard 62.1-2010

1. The total area of 48,492 square feet documented for this prerequisite varies substantially from the total gross area of 112,996 square feet reported in the EAp Minimum Energy Performance submission. Note that it appears that RTU-3 and RTU-4 which serve the third and fourth floors are not included within the VRP calculations. It appears that the majority of these two floors are shell space, and must therefore be included in the VRP calculations. It is not clear whether all occupied space has been accounted for within the ventilation rate procedure calculations. Although some of the difference can be attributed to non-occupied spaces (e.g., mechanical rooms, inactive stairwells, shafts, and gross versus net area) and space types that are only required to meet the exhaust requirements of Table 6-4 without specific Table 6-1 minimum ventilation rate requirements (e.g., restrooms, janitor closets), a justification for any difference in excess of roughly 10% must be provided. All occupied spaces (which can include regularly occupied, non-regularly occupied, and unconditioned areas) must be provided with ventilation that meets the minimum requirements in accordance with ASHRAE 62.1-2010.

Update the Ventilation Rate Procedure calculations to include all occupied spaces and ensure that the area is reported consistently among all credits. If the difference in area is greater than 10%, provide a detailed narrative that describes the approximate area breakdown of the excluded spaces by space type to confirm that all occupied spaces have been included in the calculations. Note that if the third and fourth floors have not been fitted out yet, a reasonable estimation of the breakdown of space types must be made.

Note the following:

The USGBC Minimum Indoor Air Quality Performance (http://www.usgbc.org/resources/minimum-indoor-air-quality-performance-calculator) calculators is available to calculate the minimum ventilation needed to comply with this prerequisite and the 30% increase in ventilation needed to comply with EQc2: Increased Ventilation. It has the ability to calculate ventilation requirements for multiple units within the same file.

Environmental Tobacco Smoke Control — Awarded

Design Preliminary Review

Awarded.

Enhanced Indoor Air Quality Strategies — Awarded : 2

Possible points: 2
Attempted: 2, Denied: 0, Pending: 0, Awarded: 2

Design Final Review

Option 1: Enhanced IAQ Strategies

Awarded.

Option 2: Additional Enhanced IAQ Strategies

B. Increased Ventilation

Awarded.

Design Preliminary Review

Option 1: Enhanced IAQ Strategies

1. It does not appear that all regularly used exterior entrances have entryway systems installed, as required. The provided floor plans indicate that entrance at C1-1215 Receiving would be classified as a regularly used exterior entrance and does not appear to have a compliant entryway system.

Provide revised uploads demonstrating that qualifying entryway systems are installed at all regularly used entrances which are not exit-only locations. If applicable, include a narrative clarifying why any entry points do not meet the credit definition of regularly used exterior entrance.

Option 2: Additional Enhanced IAQ Strategies

C. Carbon Dioxide Monitoring

1. The Ventilation Rate Procedure calculations provided in EQp Minimum IAQ Performance indicate that CO2 sensors have not been installed within each densely occupied space (Conference Room C2-2228).

Provide documentation confirming that all spaces with a design occupant density greater than or equal to 25 people per 1000 square feet are monitored by CO2 sensors.

Design Preliminary Review

Option 1: Enhanced IAQ Strategies

Awarded.

Option 2: Additional Enhanced IAQ Strategies

C. Carbon Dioxide Monitoring

Awarded.

Low-Emitting Materials — **Withdrawn**
Possible points: 3

Construction Indoor Air Quality Management Plan — **Awarded : 1**
Possible points: 1
Attempted: 1, Denied: 0, Pending: 0, Awarded: 1

Construction Preliminary Review

Awarded.

Daylight — **Withdrawn**
Possible points: 3

Quality Views — **Withdrawn**
Possible points: 1

INNOVATION

Innovation **Awarded : 3**

Possible points: 5

Attempted: 3, Denied: 0, Pending: 0, Awarded: 3

Design Final Review

Strategy 3: Pilot Credit 155: Safety First: Design for Indoor Air Quality and Infection Control

The LEED Form states that the project team has registered for Pilot Credit 155: Safety First: Design for Indoor Air Quality and Infection Control. The project team has documented compliance with the ventilation and filtration requirements. The description of ventilation strategies, calculations for air changes per hour for occupied spaces, and copy of facilities requirements and operations and maintenance plan and updated commissioning plan communicating the purpose and intended performance of IAQ related building systems have been provided. Additionally, the registration and survey information have been provided.

Awarded.

Design Preliminary Review

Strategy 1: Walkable Project Site

The LEED Form has been completed stating that the project is pursing Walkable Project Site. The project has the following features:

- Continuous sidewalks or equivalent all-weather routes for walking on the project site, such as woonerfs or footpaths, serve all functional building entrances and connect them to public sidewalks.

- A main entrance on the primary façade faces a public space such as a street, square, park, paseo, or plaza, but not a parking lot, and is connected to sidewalks.

- The primary façade has a minimum building-height-to-street center line ratio of 1:1.5, e.g. a minimum of 1 unit of building height for every 1.5 units distance from street center line to building façade.

- Any new off-street parking is located at the rear or interior side of the building, minimizing visibility of the off-street parking from the vehicle travel way and the primary façade.

- Newly constructed sidewalks are at least 10 feet (2.5 meters) wide for retail or mixed-use projects and at least 5 feet (1.5 meters) wide for all other project types.

- No more than 20% of the street frontage includes garage or service bay openings. Alley5 access is used instead, if available.

- At-grade crossings with driveways account for no more than 10% (or 20 feet [6 meters], whichever is greater) of the length of sidewalks that are adjacent to streets within the project.

- No more than 30% of the primary façade at ground-level is without doors or windows, with a maximum interval of 15 feet between doors or windows. On all other street frontages, no more than 40% or 50 feet (15 meters), whichever is less, of ground-level façades extending along the sidewalk are without doors or windows.

- Trees are provided between the vehicle travel way and sidewalk at intervals of no more than 50 feet (15 meters), measured from the center of the trees.

The site plan, exterior elevations and calculations have been provided.

Awarded.

Strategy 2: Green building Education

The LEED Form states that the project team has developed and implemented a Public Education program. This strategy is detailed in the LEED BD+C v2009 Reference Guide. The documentation provided for the development of a signage program and self-guided tours complies with the Reference Guide requirements.

Awarded.

Strategy 3: Pilot Credit 155: Safety First: Design for Indoor Air Quality and Infection Control

The LEED Form states that the project team has registered for Pilot Credit 155: Safety First: Design for Indoor Air Quality and Infection Control. The project team has documented compliance with the filtration requirements.

1. The required documentation has not been provided.

Provide the description of ventilation strategies, calculations for air changes per hour for occupied spaces, and copy of facilities requirements and operations and maintenance plan and updated commissioning plan communicating the purpose and intended performance of IAQ related building systems.

2. It is not clear if the project has registered and completed the survey for Pilot Credit 155: Safety First: Design for Indoor Air Quality and Infection Control.

Provide documentation verifying that the project has registered for this pilot credit with USGBC and has completed the USGBC Pilot Credit Feedback Survey. The survey may be found at the following link: http://www.usgbc.org/help/where-can-i-find-pilot-credit-survey-link-documenting-my-pilot-credit]. Note that it also is highly encouraged that the project participate in an online Pilot Credit Forum via LEEDuser.

One point pending.

LEED Accredited Professional **Awarded : 1**

Possible points: 1

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

Construction Final Review

Awarded.

Construction Preliminary Review

1. The LEED AP certificate has not been uploaded to the designated team member's profile.

Update the individual profile of the designated team member within LEED Online to include the LEED AP certificate. Alternatively, upload a copy of the team member's certificate to this credit.

REGIONAL PRIORITY CREDITS

Rainwater Management
Possible points: 1

Indoor Water Use Reduction
Possible points: 1

Cooling Tower Water Use
Possible points: 1

Optimize Energy Performance
Possible points: 1
Attempted: 1, Denied: 0, Pending: 0, Awarded: 1

Renewable Energy Production
Possible points: 1

Building Life-Cycle Impact Reduction
Possible points: 1

TOTAL	**110**	**42**	**2**	**0**	**40**

Review summary

Review	Submitted	Returned	Points: Submitted	Denied	Pending	Awarded
Design Preliminary	**12/03/2021**	**01/10/2022**	**35**	**0**	**24**	**11**

Credit	Status	Type	POINTS: Attempted	Denied	Pending	Awarded
Project Information	Anticipated		0	0	0	0
Sensitive Land Protection	Anticipated	Design	2	0	0	2
Surrounding Density and Diverse Uses	Anticipated	Design	4	0	0	4
Access to Quality Transit	Anticipated	Design	1	0	0	1
Green Vehicles	Pending	Design	1	0	1	0
Site Assessment	Pending	Design	1	0	1	0
Light Pollution Reduction	Pending	Design	1	0	1	0
Outdoor Water Use Reduction	Anticipated	Design	0	0	0	0
Outdoor Water Use Reduction	Anticipated	Design	1	0	0	1
Indoor Water Use Reduction	Pending	Design	0	0	0	0
Building-Level Water Metering	Anticipated	Design	0	0	0	0
Water Metering	Anticipated	Design	1	0	0	1
Minimum Energy Performance	Pending	Design	0	0	0	0
Optimize Energy Performance	Pending	Design	14	0	14	0
Building-Level Energy Metering	Anticipated	Design	0	0	0	0
Fundamental Refrigerant Management	Anticipated	Design	0	0	0	0
Enhanced Refrigerant Management	Pending	Design	1	0	1	0
Storage and Collection of Recyclables	Anticipated	Design	0	0	0	0
Minimum Indoor Air Quality Performance	Pending	Design	0	0	0	0
Environmental Tobacco Smoke Control	Anticipated	Design	0	0	0	0
Enhanced Indoor Air Quality Strategies	Pending	Design	2	0	2	0
Innovation	Pending	Design	3	0	1	2
	Pending		3	0	3	0

Design Final	**05/04/2022**	**05/26/2022**	**23**	**2**	**0**	**23**

Credit	**Status**	**Type**	**POINTS: Attempted**	**Denied**	**Pending**	**Awarded**
Green Vehicles	Denied	Design	1	1	0	0
Site Assessment	Anticipated	Design	1	0	0	1
Light Pollution Reduction	Denied	Design	1	1	0	0
Indoor Water Use Reduction	Anticipated	Design	0	0	0	0
Minimum Energy Performance	Anticipated	Design	0	0	0	0
Optimize Energy Performance	Anticipated	Design	14	0	0	14
Enhanced Refrigerant Management	Anticipated	Design	1	0	0	1
Minimum Indoor Air Quality Performance	Anticipated	Design	0	0	0	0
Enhanced Indoor Air Quality Strategies	Anticipated	Design	2	0	0	2
Innovation	Anticipated	Design	3	0	0	5

Construction Preliminary	06/30/2022	08/29/2022	10	0	6	1

Credit	Status	Type	POINTS: Attempted	Denied	Pending	Awarded
Construction Activity Pollution Prevention	Awarded	Construction	0	0	0	0
Fundamental Commissioning and Verification	Pending	Construction	0	0	0	0
Enhanced Commissioning	Pending	Construction	6	0	3	0
Construction and Demolition Waste Management Planning	Pending	Construction	0	0	0	0
Building Product Disclosure and Optimization - Environmental Product Declarations	Pending	Construction	1	0	1	0
Construction and Demolition Waste Management	Pending	Construction	1	0	1	0
Construction Indoor Air Quality Management Plan	Awarded	Construction	1	0	0	1
LEED Accredited Professional	Pending	Construction	1	0	1	0

Construction Final	**11/18/2022**	**12/15/2022**	**9**	**0**	**0**	**9**

Credit	Status	Type	POINTS: Attempted	Denied	Pending	Awarded
Fundamental Commissioning and Verification	Awarded	Construction	0	0	0	0
Enhanced Commissioning	Awarded	Construction	6	0	0	6
Construction and Demolition Waste Management Planning	Awarded	Construction	0	0	0	0
Building Product Disclosure and Optimization - Environmental Product Declarations	Awarded	Construction	1	0	0	1
Construction and Demolition Waste Management	Awarded	Construction	1	0	0	1
LEED Accredited Professional	Awarded	Construction	1	0	0	1