



LEED for New Construction

How to Interpret this Report

Purpose The Leadership in Energy and Environmental Design (LEED) Rating System was designed by the US Green Building Council to encourage and facilitate the development of more sustainable buildings.

Environmental Categories The report is organized into five environmental categories as defined by LEED including: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environm

LEED Prerequisites Prerequisites must be achieved. Non-compliant prerequisites must be resolved before a certification can be awarded.

LEED Credits The environmental categories are subdivided into the established LEED credits, which are based on desired performance goals within each category. An assessment of whether the credit is earned or denied is made and a narrative describes the basis for the assessment.

Achieved The applicant has provided the mandatory documentation which supports the achievements of the credit requirements, achieving the associated points. Currently the project has scored the adjacent points in this category.

44

Denied The applicant has applied for a point in a particular credit, but has misinterpreted the credit intent or cannot substantiate meeting the requirements. Currently the project has the adjacent points in this category.

0

Rating This Project has achieved enough points for Gold Rating.

Official Scores Official LEED v2 Scores: Certified: 26-32 Silver Rating: 33-38 Gold Rating: 39-51 Platinum Rating: 52+

Earned	Denied		
7	0	Sustainable Sites	Possible Points 14
0	0	Construction Activity Pollution Prevention	Prerequisite 1-Version 2.2
		Design Application	8/4/2010
		<p>The LEED Submittal Template has been provided stating that the project has followed local erosion and sedimentation control standards and codes, which are more stringent than the NPDES program requirements. A narrative describing the implemented erosion and sedimentation control measures and a copy of the project's proposed erosion and sedimentation control plan have been provided.</p> <p>However, it is unclear if the erosion and sedimentation control plan provided is the final plan. Note 5 of the plan indicates the provided drawing is for information only and the contractor will develop and submit their soil erosion and sediment control plan for approval.</p> <p>TECHNICAL ADVICE: Please provide a copy of the approved contractor's erosion and sedimentation control plan.</p>	
		Construction Application	10/7/2010
		<p>The LEED Submittal Template has been revised to address the issues outlined in the Preliminary Review. A clarification narrative and a signed copy of the SWPPP have been provided in support of this credit. The documentation demonstrates credit compliance.</p>	
1	0	Site Selection	Credit 1-Version 2.2
		Design Application	8/4/2010
		<p>The LEED Submittal Template has been provided stating that the project site does not meet any of the prohibited criteria.</p>	
1	0	Development Density and Community Connectivity	Credit 2-Version 2.2
		Design Application	8/4/2010
		<p>The LEED Submittal Template has been provided stating that the project site is located within 0.5 miles of 13 community services and 2 residential districts with a minimum density of 10 units per acre. Additionally, a listing of the neighborhood services has been provided on the template. The required site map showing the 0.5 mile radius and the locations of the community services and residential district has also been provided.</p>	
0	0	Brownfield Redevelopment	Credit 3-Version 2.2

1	0	Alternative Transportation: Public Transportation Access	Credit 4.1-Version 2.2
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Design Application	8/4/2010
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The LEED Submittal Template has been provided stating that the project is served by 4 bus lines within 0.25 miles of the project site. A scaled drawing showing the location of the transit stop has been provided.

1	0	Alternative Transportation: Bicycle Storage and Changing Rooms	Credit 4.2-Version 2.2
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Design Application	8/4/2010
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The LEED Submittal Template has been provided stating that the project is non-residential. The Template states that bicycle storage facilities have been provided to serve 5.0% of FTE and Transient building occupants, measured at peak occupancy, and shower facilities for 0.5% of the FTE. Plans have been provided showing the location of the shower/changing facilities and the bike storage facilities.

		Alternative Transportation: Low-Emitting and Fuel Efficient Vehicles	Credit 4.3-Version 2.2
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1	0	Alternative Transportation: Parking Capacity	Credit 4.4-Version 2.2
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Design Application	8/4/2010
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The LEED Submittal Template has been provided stating that no new parking has been added to the site.

		Site Development: Protect or Restore Habitat	Credit 5.1-Version 2.2
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		Site Development: Maximize Open Space	Credit 5.2-Version 2.2
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		Stormwater Management: Quantity Control	Credit 6.1-Version 2.2
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		Stormwater Management: Quality Control	Credit 6.2-Version 2.2
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		Heat Island Effect: Non-Roof	Credit 7.1-Version 2.2
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1	0	Heat Island Effect: Roof	Credit 7.2-Version 2.2
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Design Application	8/4/2010
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The LEED Submittal Template has been provided stating that the roofing materials used on the project have a SRI value of 104 for 100% of the roof surface. A roof plan has been provided.

1

0

Light Pollution Reduction

Credit 8-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that the project's interior and exterior lighting has been designed in accordance with the requirements of this credit.

Interior Lighting: The submittal narrative indicates that the non-emergency interior lighting fixtures are automatically controlled to turn off during non-business hours. Manual override capability is provided for after hours use. Interior lighting plans have been uploaded to support this claim.

Exterior Lighting Power: The template indicates that the lighting power densities for exterior area fixtures do not exceed 80% of the ASHRAE recommendations. Exterior lighting plans have been uploaded to support this claim.

Light Trespass: The template indicates that the project is located in LZ-2. Based on requirements for LZ-2, the project complies with this portion of the credit requirement.

In addition, a Site Lumen calculation has been provided, along with a narrative explaining the light trespass analysis undertaken for the project.

Earned
4
2

Denied
0
0

Water Efficiency	Possible Points	5
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Water Efficient Landscaping

Credit 1.1-1.2-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that no permanent irrigation system has been installed. A narrative has also been included describing the landscaping design strategies installed on the site. The narrative states that the planting will only be watered by hand during the initial plant establishment period.

Innovative Wastewater Technologies

Credit 2-Version 2.2

2

0

Water Use Reduction

Credit 3.1-3.2-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that the project has reduced potable water use by 31.4% from a calculated baseline design through the installation of low-flush urinals, low-flow women's shower, low-flow lavatories and kitchen sink.

Earned	Denied		Possible Points
16	0	Energy and Atmosphere	17
0	0	<p>Fundamental Commissioning of the Building Energy Systems</p> <p>Design Application 8/4/2010</p> <p>The LEED Submittal Template has been provided stating that the fundamental commissioning requirements have been completed. In addition, a narrative was provided describing the commissioned systems, as well as the results of the commissioning process.</p>	Prerequisite 1-Version 2.2
0	0	<p>Minimum Energy Performance</p> <p>Design Application 8/4/2010</p> <p>Additional documentation has been provided for EAc1. However, the clarifications provided are not sufficient to verify achievement of at least two points under EAc1.</p> <p>This prerequisite is pending the achievement of at least two points in EAc1.</p> <p>Please note that the project team does not have to appeal both EAc1 and this prerequisite - if EAc1 is successfully appealed then this prerequisite will be marked as earned by association.</p>	Prerequisite 2-Version 2.2
		<p>Construction Application 10/7/2010</p> <p>Additional documentation has been provided for EAc1 Optimize Energy Performance. However, the clarifications provided are not sufficient to verify achievement of at least two points under EAc1.</p> <p>This prerequisite is pending the achievement of at least two points in EAc1.</p> <p>Please note that the project team does not have to appeal both EAc1 and this prerequisite - if EAc1 is successfully appealed then this prerequisite will be marked as earned by association.</p>	
		<p>Construction Application Appeal 1/25/2011</p> <p>Sufficient information has been provided to confirm at least two points in EAc1 Optimize Energy Performance. Therefore, this prerequisite has been marked as awarded.</p>	
0	0	<p>Fundamental Refrigerant Management</p> <p>Design Application 8/4/2010</p> <p>The LEED Submittal Template has been provided stating that base building HVAC systems use no CFC-based refrigerants.</p>	Prerequisite 3-Version 2.2

10

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Optimize Energy Performance

Credit 1-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template and supporting documentation have been provided stating that the project has achieved an energy cost savings of 54.3% using the ASHRAE 90.1-2004 Appendix G methodology. Energy efficiency measures include an improved thermal envelope, reduced interior lighting power density, occupancy sensors, on-site solar thermal energy, and DES lake cooling system. However, the following 24 review comments requiring a project team response (marked as Mandatory) must be addressed for the final review. For the remaining review comments (marked as Optional), a project team response is optional.

Please post the original documentation for this credit (including the original EAc1 Template) to LEED online in a zip file (e.g. Preliminary EAc1 Submittal.zip) for comparison in the next review phase. Please also upload a summary document that includes a narrative response to each preliminary review comment that has been addressed by the project team, and a narrative describing any additional changes made to the energy models between the preliminary and final review phase.

Please note that the project was registered after 06/27/2007, and is therefore required to achieve a minimum of 2 points to qualify for LEED certification based on the following document (<http://www.usgbc.org/ShowFile.aspx?DocumentID=2303>).

TECHNICAL ADVICE:**REVIEW COMMENTS REQUIRING A PROJECT TEAM RESPONSE (Mandatory):**

1. It appears from the descriptions in the supporting documentation (Energy Modeling Report.pdf) that a district energy source is used for the Proposed building cooling. Note that all projects registered with the USGBC on or after 05/28/2008, and using district thermal energy are required to follow the guidance of the (Required Treatment of District Thermal Energy in LEED-NC version 2.2 and LEED for Schools), which can be found at the following link: <http://www.usgbc.org/ShowFile.aspx?DocumentID=4176>. Since this project was registered prior to 05/28/2008, it is optional to use this guidance for this project. However, if this guidance is NOT used, and the project is receiving district cooling, the district cooling must be modeled in accordance with ASHRAE Appendix G requirements. The cooling energy must be modeled using purchased energy rates in the Proposed Case versus the appropriate Appendix G Baseline cooling system in the Baseline Case. Please provide further information supporting the chilled water rates used in the project, or if desired, revise the model to reflect the methodologies presented in the District Energy Requirements document.
2. The Baseline SHGC does not meet the requirements of Table G3.1#5(Baseline) (c), which requires that all Baseline Vertical Fenestration (both North and Non-North facing glass) be modeled using the SHGC-all values from Table 5.5-6 (0.39). Please revise all Baseline fenestration to reflect the SHGC-all value for both North and non-North facing glass. Please update the LEED Submittal Template and simulation accordingly.
3. Table 1.4 indicates the Proposed fenestration is based on ASHRAE 90.1-2004, which is unexpected. Table G3.1#5(Proposed) requires all components of the building envelope in the Proposed design to be modeled as designed. Please confirm the Proposed fenestration is modeled as designed. Revise the Template, models, and supporting documentation accordingly.
4. Table 1.4 implies the space by space method has been used for interior lighting, however only values for office and locker are indicated to have been used for the entire building. In the Baseline values for each space type must be used (conference, corridor, restrooms, etc.) Please provide a table indicating each space type corresponding to Table 9.6.1, the square footage, and lighting power density used. Additionally, include the

Proposed design lighting power density for each space. Please specifically indicate in Table 1.4 the lighting power density per space function as well as the overall weighted average lighting power density for both the Baseline and Proposed Case.

5. Table 1.4 Proposed Other Lighting Control Credits indicates no credits, which is inconsistent with the supporting documentation (Energy Modeling Report.pdf) that indicates credit was taken for occupancy sensors. Please verify that credit is not taken where occupancy sensors are required in accordance with Section 9.4.1.2, and indicate the credit modeled for the occupant sensor controls (if any), verifying that this credit aligns with Table G3.2, and is only applied to fixtures controlled by occupant sensors. Please revise the models, if necessary, update the Template, and revise the supporting documentation accordingly.

6. The exterior lighting power is not consistent in SSc8, Light Pollution Reduction (0.16 kW for the Proposed design and 0.42 kW ASHRAE allowable for the Baseline design) and Table 1.4 of the Template (0.2 kW for the Proposed design and 0.2 kW ASHRAE allowable for the Baseline design). Please revise the exterior lighting power for the Proposed model and Baseline model and update Table 1.4 as needed so the exterior lighting power is consistent across credits. Ensure that the Baseline exterior lighting power in Table 1.4 is equal to the ASHRAE allowable in SSc8 (the ASHRAE allowable is found by dividing the LEED allowable by 0.8 for tradable surfaces) and that no credit is taken in the Proposed design case for lighting reductions on non-tradable surfaces per a LEED NCv2.2 EAc1 CIR dated 4/25/2007. Note that additional lighting power allowance cannot be claimed in the Baseline model for surfaces that are not provided with lighting in the actual design and lighting fixtures cannot be double counted for different exterior surfaces.

7. Table 1.4 indicates Proposed Fan Supply Volumes that are inconsistent with the supporting documentation (Energy Modeling Report.pdf) and indicates that the Proposed Fan Power was calculated based on G3.1.2.9, which is inconsistent with Table G3.1#10(Proposed)(b). Please revise the Proposed HVAC system to be modeled consistent with design documents and provide documentation to support this. Revise the Template, model, and supporting documentation accordingly.

8. Table 1.4 states that the Baseline HVAC Fan Powers were based on G3.1.2.9, however from the information provided this does not appear to be correct. Please revise the sum of the supply, return, exhaust and relief fans for each HVAC system to be equal to the power calculated in G3.1.2.9, where CFM refers to the supply cfm for each HVAC system. Please also indicate whether any CIRs or ASHRAE 90.1 Addenda have been used to calculate the fan power, note all pressure adjustments reflected in the fan power calculations, and provide a copy of the revised calculations. Report the revised total fan power in the Template Table 1.4, and update the Template Table 1.8.1 and simulation summary reports to reflect the changes.

9. It is unclear whether the Baseline equipment capacities were based on sizing runs, and oversized by 25% for heating, and 15% for cooling in accordance with Section G3.1.2.2. It is also unclear whether the Proposed Case equipment capacities were modeled as designed. If necessary, please revise the Baseline case heating and cooling capacities in accordance with ASHRAE Section G3.1.2.2 requirements, and the Proposed Case equipment capacities to reflect the actual design. In Table 1.4, please list the total Baseline and Proposed Case cooling and heating capacities in Table 1.4, and the applicable capacity ranges for the systems used in the Baseline and Proposed Case (consistent with the ranges listed in Tables 6.8.1A through 6.8.1G).

10. It is unclear whether the minimum outside air rates (in CFM) were modeled identically in the Baseline and Proposed Case for all zones not having Demand Control Ventilation in the Proposed Case. Please confirm that minimum outside airflow (in units of cfm) was modeled identically in the Baseline and Proposed case using the Proposed case rates. Additionally, please verify that all systems in both the Baseline and Proposed case are modeled with zero outside air flow when fans are cycled on to meet unoccupied setback temperatures unless health or safety regulations mandate an alternate minimum flow during unoccupied periods (in which case, the

unoccupied outside air rates should be modeled identically in the Baseline and Proposed Case).

11. Table 1.4 indicates a Baseline cooling efficiency from Table 6.8.1D, which is unexpected for HVAC system type #3. Provide the Baseline HVAC system capacity and cooling efficiency consistent with Table 6.8.1A. Revise the Template, model, and supporting documentation accordingly.

12. Table 1.4 indicates the Proposed Chilled Water Loop and Pump Parameters identical to the Boiler Parameters, which is unexpected. Please revise the Template to include the chiller water and boiler parameters and confirm the mandatory requirements of section 6.4 have been adhered to. Include pumping powers for the water heating system in Table 1.4. Revise the models and supporting documentation accordingly.

13. Table 1.4 indicates the Baseline water heating is modeled based on Table 6.8.1F, which is inconsistent with Table G3.1#11(Baseline)(b) that requires it to be modeled according to Section 7.4.2 and Table 7.8. Additionally, insufficient information was provided to justify the service water heating savings. Please provide sufficient information to justify all water heating savings. If taking credit for low-flow fixtures, please be sure to provide backup water heating calculations showing the fixtures consistent with those reported in WEC3, as well as estimations of the percentage hot water versus cold water flow, and the delta T of the DHW system, as well as the anticipated hot water temperatures at the fixtures.

14. Table 1.4 indicates energy recovery is modeled for credit in the Proposed case. Please provide further information regarding the energy recovery efficiency, verify that outside air is modeled with zero flow in both the Baseline and Proposed Case during unoccupied periods when fans are cycled on to meet unoccupied setback temperatures unless health or safety regulations mandate an alternate minimum flow during unoccupied periods (in which case, the unoccupied outside air rates should be modeled identically in the Baseline and Proposed Case), and indicate the bypass mechanism used to bypass the energy recovery during mild conditions.

15. Pumps are reflected in the Baseline Case energy outputs, even though the Baseline Case HVAC System Type is System Type #3, which does not include an HVAC circulation loop. Please provide further information to justify the pumping energy reported for the Baseline case, or revise the model as necessary to remove pumping energy.

16. It is unclear whether the Baseline Case has been modeled with a single packaged single zone system (System Type #3) for each thermal block as required by ASHRAE 90.1-2004 Table G3.1#7. Please verify that the Baseline case has been modeled with the same number of thermal blocks as the Proposed case and that each Baseline case thermal block is modeled with a separate packaged single zone system. Please also indicate the total Baseline cooling and heating capacities, and indicate the heating and cooling efficiencies for each Baseline system type cooling capacity range consistent with the efficiencies per capacity range listed in the corresponding Tables 6.8.1A through 6.8.1G. Please keep in mind that the efficiencies for each unit must be determined individually based on the capacity of each Baseline system, not as a sum of all units.

17. The supporting documentation (Energy Modeling Report.pdf) indicates the modeling software used has the capability of modeling radiant floor heating, chilled beam system, and solar energy. Input reports have not been provided to demonstrate this claim. Additionally, all output reports have been provided in SI units, which are unexpected for a project located in the U.S and have been converted to English to be entered in the Template. Please revise the Template and supporting documentation to include all information in English Units and provide a copy of the modeling software reports Input Summary, ABUPS, System Summary, and the file that shows the annual energy cost by fuel source to support the level of savings indicated in the Template.

18. Table 1.8.1 indicates the space cooling consumptions are identical between all rotations. Please review the

Baseline and confirm they were modeled in accordance with Table G3.1#5(Baseline) (a) and revise the Template, supporting documentation, and model, as required.

19. Table 1.8.2 omits Proposed Demands for interior and exterior lighting. Please update the Template to include these values. Additionally, the Baseline interior lighting equivalent hours (determined by dividing the total annual consumption by the total power) are 1.87 hours/year, which is unexpectedly low. Please revise the model to correctly include all lighting and provide a copy of the schedule used for interior lighting. Revise the Template and models accordingly.

20. The Baseline model fan equivalent full load hours (determined by dividing the total annual fan consumption by the total fan power) are 8,767 hours/year, which is unexpectedly high given the anticipated schedule of operation for the project. Please verify that the HVAC system models reflect all mandatory controls from section 6, and reflect the anticipated schedule of operation for the building. After making any necessary changes to the model, please provide a narrative justifying the equivalent full load hours of operation for fans.

21. Table 1.8.2 omits Proposed Demands for Space cooling. Please update the Template to include these values. Additionally, the consumption and demands indicated appear to be unexpectedly low. Please review the Baseline and Proposed inputs for the model to confirm that they conform to Appendix G modeling protocol, and provide sufficient information regarding the energy inputs in Table 1.4 to justify the reported consumption and demands.

22. Table 1.8.2 indicates a Space Heating consumption savings of 84.9% while the demands are equal in both models. This relative difference is unexpected. Please review the Baseline and Proposed inputs for the model to confirm that they conform to Appendix G modeling protocol, and provide sufficient information regarding the energy inputs in Table 1.4 to justify the reported consumption and demands.

23. The energy savings reported for fans, and the energy increase reported for the heat rejection does not appear to be substantiated based on the energy inputs reported in Table 1.4. Please review the Baseline and Proposed inputs for the model to confirm that they conform to Appendix G modeling protocol, and provide sufficient information regarding the energy inputs in Table 1.4 to justify the reported 90.9% fans energy savings and the 5.5% heat rejection energy increase indicated in Table 1.8.2[Note: you may also submit an accompanying narrative if this would more easily facilitate the confirmation of energy savings.] Please revise the Baseline and Proposed models, and update the Template.

24. Table 1.6 has indicated the on-site renewable energy cost as \$1,345 with is unexpectedly high. This implies a virtual rate of \$12.22/therm while the Proposed design uses a virtual rate of \$1.2/therm. It is indicated in Section 1.6 that the renewable energy is modeled directly in the energy model and costs listed in Table 1.6 will NOT be subtracted from the total, therefore the errors in renewable energy cost in Table 1.6 will not affect the energy savings. However, this inflated cost has been used in EAc2, which is incorrect. Please revise the table based on the Proposed system virtual rate or modeling output reports and update all credits to be consistent.

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

25. The Template narrative stated that text could not be entered in Table 1.8.2 for the Final End Use component listed. Note that Table 1.8.2 is linked to 1.8.1. A description for this end use can be entered into Table 1.8.1 even if it is only used in the Proposed design.

Construction Application

10/7/2010

Revised documentation has been provided including a narrative response to preliminary review comments, updated simulation input and output summary files, calculations, revised modeling report, and an updated LEED Submittal Template claiming a performance improvement of 48.1% using the ASHRAE 90.1-2004 Appendix G methodology. However 3 issues remain outstanding.

For future submittals, please post the preliminary and final review documentation for this credit (including the EAc1 templates) to LEED online in a separate zip file for each round of review (e.g. Preliminary EAc1 Submittal.zip, Final EAc1 Submittal.zip) for comparison in the next review phase. Please also upload a summary document that includes a narrative response to each final review comment, and a narrative describing any additional changes made to the energy models between the preliminary and final review phase.

OUTSTANDING ISSUES:

1. Preliminary Review Item #8 requested the Baseline Fan Powers be recalculated to be consistent with G3.1.2.9. The response narrative stated the powers were recalculated and Table 1.4 indicates 945 cfm Total for both models, which is unexpected. Additionally, when added up the 11 zones in the Baseline calculations total 1,720 cfm.

If appealing, revise the sum of the Baseline supply, return, exhaust, and relief fans for each HVAC system to be equal to the power calculated in G3.1.2.9, where CFM refers to the supply cfm for each HVAC system and the Proposed to be as designed.

2. Preliminary Review Item #9 requested confirmation that the Baseline equipment capacities were based on sizing runs, and oversized by 25% for heating, and 15% for cooling in accordance with Section G3.1.2.2. The response narrative stated that the baseline equipment capacities were based on sizing runs and the proposed case equipment characteristics were modeled as design, which is incorrect. Section G3.1.2.2 requires the Baseline systems to be oversized.

If appealing, revise the Baseline HVAC equipment to be based on sizing runs and oversized by 25% for heating, and 15% for cooling in accordance with Section G3.1.2.2.

3. Preliminary Review Item #13 requested justification for the level of savings for water heating while #17 requested justification to demonstrate on-site renewable energy source can be modeled within the modeling software. The response narrative and modeling reports demonstrate that the solar energy was modeled directly in the modeling software, though based on this it is not clear how in Table 1.8.2 the project is showing a 76.4% space heating and 61.4% service water heating consumption and in Table 1.6 a total 627 therms generated annual. It appears the project is counting this solar energy savings twice; it is also unexpected that the site is generating and taking credit for almost twice the required heating.

If appealing, revise the on-site renewable energy to only be counted once and provide supporting calculations to demonstrate the level of savings indicated.

Due to these issues, the predicted energy savings could not be confirmed.

Construction Application Appeal

1/25/2011

Revised documentation has been provided including a narrative response to final review comments, updated simulation input and output summary files, fan power calculations, and an updated LEED Submittal Template claiming a performance improvement of 59.3% using the ASHRAE 90.1-2004 Appendix G methodology. Sufficient information has been provided to address all issues raised in the preliminary review. The total

predicted annual energy consumption for the project is 11,125 kWh/year of electricity and 559 therms/year of natural gas, which is inclusive of 556 therm/year of on-site renewable energy due to a solar water heating system.

The following issue does not change the overall result of this credit, but should be noted as an educational note for future projects:

1. The project team has stated that the revised Baseline Case fan power increased due to the fan volume sizing being based on the heating mode. This is very unlikely in most climates, and the cooling mode is typically the case with the more stringent design case. Looking at the 0 degree Baseline output report pages 16-18, the "zone heating" does in fact produce a higher Baseline fan volume than the "zone cooling." However, the time of the zone heating peaks are either at 7:00 a.m. or 9:00 a.m. This is unexpected. It appears that the zone heating produces a higher fan volume is an oversight that may be due to one or both of the following potential issues:

a. It is unknown if the fans are allowed to cycle on and off during unoccupied times as required by ASHRAE 90.1-2004, Table G3.1 #4 (Proposed). If not allowed to cycle, the space will cool drastically at night, and once the fans turn on in the morning, a large heating peak may be present in the model, which is used as the peak design condition, which is not correct.

b. It is unknown what the unoccupied temperature setpoint has been modeled as. If the unoccupied setpoint is too low, a similar effect may occur whereby the HVAC system is trying to heat the building greatly within the first hour (at the same time that ventilation air is introduced), creating a peak in the heating case.

This issue may be circumvented by setting the unoccupied temperature at 10 degrees F below the occupied setpoint, or creating a "step" in the temperature setpoint the hour before occupancy occurs.

The adjustment to the modeling results using the "zone cooling" fan CFMs, results in a cost savings of approximately 51.9%, which is still above the minimum necessary to obtain an ID point.

3

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On-Site Renewable Energy

Credit 2-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that 28.96% of the project's energy cost is being offset by renewable site generated energy. Additional documentation includes photo and roof plan.

However, the energy costs and energy consumption reported in EAc2 do not match the savings reported in EAc1 and the energy costs indicated in EAc1 appear to be calculated incorrectly. Additionally, further clarification is needed for EAc1 to confirm that the total energy cost is correctly reported before credit can be awarded for renewable energy.

TECHNICAL ADVICE:

After responding to the EAc1 documentation clarification requests, confirm that the total energy and cost in the EAc2 Template matches the numbers reported in the final EAc1 submittal.

Construction Application

10/7/2010

Additional documentation has been provided for EAc1 Optimize Energy Performance. However, the clarifications provided are not sufficient to verify achievement of EAc1. The documentation does not demonstrate credit compliance.

Construction Application Appeal

1/25/2011

Sufficient information has been provided to confirm at least two points in EAc1 Optimize Energy Performance. The LEED Submittal Template has been updated stating that 25.05% of the project's energy cost is being offset by renewable energy generated onsite and that the project has used a computer model simulation to document improved building energy performance under EA Credit 1.

Therefore, 3 points have been awarded for this credit.

1

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Enhanced Commissioning

Credit 3-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that the enhanced commissioning requirements have been completed. In addition, a narrative was provided describing the enhanced commissioning processes that were employed on the project. A copy of the commissioning report has been provided.

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Enhanced Refrigerant Management

Credit 4-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that the project does not use refrigerants.

1

0

Measurement and Verification

Credit 5-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that the project has developed and implemented a measurement and verification plan consistent with Option (D) of the IPMVP.

However, a summary and not a copy of the project's M and V plan have been provided. Additionally, the summary makes references to energy modeling software that was not utilized in EAc1.

TECHNICAL ADVICE:

Please provide a copy of the project's M and V plan. The M and V plan should clearly indicate the chosen option and compliance measures and cover a period of no less than one year of post-construction occupancy. An itemized list of suggested components of a comprehensive M and V plan may be found in Section 3.2 of the IPMVP.

Construction Application

10/7/2010

A copy of the project's M and V plan has been provided to address the issues outlined in the Preliminary Review and the Template states that the project has developed and implemented a measurement and verification plan consistent with Option (D) of the IPMVP. The documentation demonstrates credit compliance.

Green Power

Credit 6-Version 2.2

Earned	Denied		
4	0	Materials and Resources	Possible Points 13
0	0	Storage and Collection of Recyclables	Prerequisite 1-Version 2.2
		Design Application	8/4/2010
		<p>The LEED Submittal Template has been provided stating that the project has provided appropriately sized dedicated areas for the collection and storage of recycling materials, including cardboard, paper, plastic, glass, and metals. Additional documentation included a letter describing the recycling process on campus and a campus flyer on how and what to recycle.</p>	
<input type="checkbox"/>	<input type="checkbox"/>	Building Reuse	Credit 1.1-1.2-Version 2.2
<input type="checkbox"/>	<input type="checkbox"/>	Building Reuse, Non-Structural	Credit 1.3-Version 2.2
0	0	Construction Waste Management	Credit 2-Version 2.2
<input type="checkbox"/>	<input type="checkbox"/>	Resource Reuse	Credit 3-Version 2.2
2	0	Recycled Content	Credit 4-Version 2.2
		Design Application	8/4/2010
		<p>The LEED Submittal Template has been provided stating that 43.108% of the total building materials content, by value, has been manufactured using recycled materials.</p>	
2	0	Regional Materials	Credit 5-Version 2.2
		Design Application	8/4/2010
		<p>The LEED Submittal Template and calculation have been provided stating that 29.625% of the total building materials value is comprised of building materials and/or products that have been extracted, processed and manufactured within 500 miles of the project site.</p> <p>However, it is unexpected for steel products with a high recycle content to also be a local product and to be harvested and manufactured the same distance from the project suite. The source of the recycled material in steel products can vary widely and several of the manufacturers note they collect scrap from a radius of 250 miles and more. Scrap collected from more than 500 miles of the project site is not allowed within the calculation.</p>	

TECHNICAL ADVICE:

Please provide calculations for how the raw materials were determined. To clarify and support these calculations, submit documentation such as manufacturers' letters or cut sheets specifying that the materials were manufactured and extracted within a 500 mile radius of the project. Recalculate the Submittal Template as necessary.

Construction Application

10/7/2010

The LEED Submittal Template has been revised to address the issues outlined in the Preliminary Review and demonstrates the percentage of steel has been reduced to account for the scrap more than 500 miles away from the project site. The revised value is 22.333%. A narrative and product information have been provided in support of this credit. The documentation demonstrates credit compliance.

		Rapidly Renewable Materials	Credit 6-Version 2.2
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0	0	Certified Wood	Credit 7-Version 2.2
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Earned	Denied	Indoor Environmental Quality	Possible Points	15
8	0	Minimum IAQ Performance	Prerequisite 1-Version 2.2	
1	0			

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that the project complies with the minimum requirements of ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality, using the Ventilation Rate Procedure. A supplemental narrative has been provided to describe the project's ventilation design. The narrative states some information regarding design outside air intake volumes.

However, there are three issues to address:

1. The Ventilation Rate Procedure (VRP) calculations provided with the outdoor air ventilation calculations to demonstrate the required outdoor air (Vot) for only 2,410 square feet. Note that the requirements of EQp1 state that the minimum outside air rates determined by the Ventilation Rate Procedure must be met individually by each ventilation zone (rather than by system) for all occupied areas (3,360 square feet).
2. The VRP calculations provided should show the minimum exhaust rates required by ASHRAE from Table 6-4.
3. The only narrative provided indicates the outdoor air for the mechanically ventilated spaces for the critical zones were determined, yet the project's outdoor air ventilation design strategy including the HVAC equipment used for the individual spaces has not been provided.

TECHNICAL ADVICE:

Please provide the following information:

- 1. Revised ventilation rate procedure (VRP) calculations to include individual square feet for each space calculated so as to indicate the total ventilated area to be close to the total conditioned area listed in EAc1 Template.
- 2. The minimum exhaust rates from Table 6-4 as required by ASHRAE with the VRP calculations.

Note that the 62MZCalculator demonstrates the minimum outdoor air required, and therefore by itself it does not demonstrate compliance with the requirements of this prerequisite. The project must demonstrate outdoor air compliance for Individual spaces within each occupied zone for compliance with ASHRAE 62.1-2004.

- 3. A revised narrative to describe the outdoor air ventilation design strategy including the HVAC equipment supplying the outdoor air for the occupied zone. Additionally, include documentation to clarify the where the AHU-R-1 and AHU-R-2 are since the HVAC schedule shows they are in two different buildings.

Construction Application

10/7/2010

A revised LEED Submittal Template and a supplemental narrative have been provided to address the issues in the Preliminary Review comments stating the project's outdoor air ventilation design strategy including the HVAC equipment for outdoor air flow and exhaust. Detailed outdoor air VRP calculations, and exhaust calculations for all occupied spaces have provided in support of this prerequisite. A mechanical plan has also been provided. The documentation demonstrates the prerequisite requirements.

0

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Environmental Tobacco Smoke (ETS) Control

Prerequisite 2-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that smoking is prohibited inside buildings within the project and that designated smoking areas have been located at least 25 feet away from building entries, windows, and air intakes. Additional documentation includes a copy of the project's no smoking policy.

Outdoor Air Delivery Monitoring

Credit 1-Version 2.2

1

0

Increased Ventilation

Credit 2-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that the project has increased breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum rates required by ASHRAE Standards 62.1-2004 as determined by EQp1.

However, achievement of this credit is dependent upon achievement of EQp1.

The total outdoor air provided for 30% greater than the minimum requires by ASHRAE 62.1-2004 has not been indicated on the VRP calculations for each occupied zone. This does not include the exhaust spaces that should be in compliance with ASHRAE Table 6-4.

TECHNICAL ADVICE:

Please resolve the pending issues surrounding EQp1.

Please verification that the minimum outside air rates as determined by ASHRAE 62.1-2004 have been clearly exceeded by at least 30% in each individual ventilation zone.

Construction Application

10/7/2010

A revised LEED Submittal Template and a supplemental narrative have been provided to address the issues in the Preliminary Review comments and state that the project has increased breathing zone (Vbz) outdoor air ventilation rates to all occupied zones by at least 30% above the minimum rates required by ASHRAE Standards 62.1-2004. Revised VRP calculations and a mechanical plan have been provided in support of this credit. The documentation demonstrates credit compliance.

1

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Construction IAQ Management Plan: During Construction

Credit 3.1-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that the project developed and implemented a construction IAQ Management Plan that followed the referenced SMACNA Guidelines. The Template indicates there were no air handling units open during construction. A copy of the IAQ Management plan indicating the SMACNA guidelines and photos describing the implemented IAQ measures have been provided.

However, the IAQ Plan does not include Scheduling as one of the SMACNA guidelines, yet the IAQ Management Plan included some construction processes that relate to scheduling. Examples of this are: drying time for newly constructed masonry, as well as scheduling for flush-out procedures for EQc3.2.

TECHNICAL ADVICE:

Please provide a revised copy of the IAQ Management plan to demonstrate that the project has followed all 5 SMACNA guidelines specified in the LEED-NCv2.2 Reference Guide (Third Edition), on page 325.

Construction Application

10/7/2010

A revised LEED Submittal Template, a supplemental response narrative, and a copy of a revised IAQ Management Plan have been provided to address the issues in the Preliminary Review comments, and show scheduling and sequencing implemented during construction. The documentation demonstrates credit compliance.

1

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Construction IAQ Management Plan: Before Occupancy

Credit 3.2-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that the project is performing a flush-out prior to occupancy by supplying a total air volume of 14,000 cubic feet of outdoor air per square foot of floor area while maintaining an internal temperature of 60 degrees F and relative humidity of 60%. A supplemental narrative describing the project's pre-occupancy flush-out process, including the data regarding the temperature, air flow, and duration of the flush-out, has been provided.

However, the filtration media used during the flush-out process has not been stated in the IAQ Management Plan.

The achievement of this credit is dependent upon achievement of EQc3.1.

TECHNICAL ADVICE:

Please provide a revised IAQ plan to state the filtration media used during the flush-out process as described on page 331 of the LEED-NC v2.2 Reference Guide, Third Edition.

Resolve the pending issues surrounding EQc3.1.

Construction Application

10/7/2010

A revised LEED Submittal Template, a supplemental narrative, and filtration media cut sheets have been provided to address the issues in the Preliminary Review comments and state that MERV 13 filtration media was installed during the flush-out procedures. The documentation demonstrates credit compliance.

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Low-Emitting Materials: Adhesives and Sealants

Credit 4.1-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that the listed indoor adhesive and sealant products comply with the VOC limits of the referenced standards for this credit. The template includes the required product details for each product in the list.

However, it appears that all indoor adhesives and sealants used in the project are not included in the list.

TECHNICAL ADVICE:

The following items should have been included in credit documentation: general construction adhesives, fire-stopping sealants, duct sealants, plumbing adhesives, and cove base adhesives. Please provide a comprehensive list of adhesives and sealants and / or a narrative explaining why these items were not used.

1

0

Low-Emitting Materials: Paints and Coatings

Credit 4.2-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that all indoor paint and coating products comply with the VOC limits of the referenced Green Seal and SCAQMD standards. The template includes a list of the required product details.

1

0

Low-Emitting Materials: Carpet Systems

Credit 4.3-Version 2.2

Design Application

8/4/2010

The LEED Submittal Template has been provided stating that the installed flooring complies with testing and product requirements through an alternative compliance method.

Per the CIR ruling issued 7/31/2009, Forbo Linoleum products meet the California Department of Health Services Standards for Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers. Forbo Marmoleum flooring is certified using the SMART flooring standard which requires that emissions shall not exceed referenced standard.

American Olean ceramic tile issued a January 29, 2009 memo entitled LEED 2009, CHPS, and Formaldehyde-Free Certification. Within this memo it indicates that all tile manufactured by American Olean have been tested and passed the referenced standard.

Low-Emitting Materials: Composite Wood and Agrifiber Credit 4.4-Version 2.2

1 0 **Indoor Chemical and Pollutant Source Control** Credit 5-Version 2.2

Design Application 8/4/2010

The LEED Submittal Template has been provided stating that the project has installed the required indoor chemical and pollutant source control measures required by this credit. A listing of each entryway product installed for the building has been provided and in cases where roll out/carpeted systems have been used, confirmation of required contracted maintenance has been provided. Copies of the project's construction drawings have been provided. The template confirms that MERV 13 filtration media has been installed in all HVAC systems prior to occupancy.

However, the location and length of the installed entryway system is not indicated on the drawings. The included floor finish schedule only indicates the entryway is to be quarry tile and no mention of the entryway system.

TECHNICAL ADVICE:

Please provide copies of the appropriate project drawing sheets highlighting the installed entryway system with dimensions.

Construction Application 10/7/2010

An additional narrative and photograph have been provided to address the issues outlined in the Preliminary Review and demonstrates the entryway system is the proper length. The documentation demonstrates credit compliance.

1 0 **Controllability of Systems: Lighting** Credit 6.1-Version 2.2

Design Application 8/4/2010

The LEED Submittal Template has been provided stating that a sufficient quantity of lighting controls are provided for individual workstations, and states that appropriate lighting controls are available for shared multi-occupant spaces. A narrative has also been provided describing the project's lighting control strategy with a description of the type and location of the lighting controls. Cut sheets of the under cabinet lights and desk light were also included.

1 0 **Controllability of Systems: Thermal Comfort** Credit 6.2-Version 2.2

Design Application 8/4/2010

The LEED Submittal Template has been provided stating that a sufficient quantity of thermal controls are provided for individual workstations, and states that appropriate thermal controls are available for all shared

multi-occupant spaces. A narrative has also been provided describing the project's thermal control strategy with a description of the type and location of the thermal controls. A mechanical floor plan has also been included. Please note for future projects to only include spaces used for training, presentations, or classrooms; toilet rooms and locker rooms would not count toward this.

0 0 **Thermal Comfort: Design** Credit 7.1-Version 2.2

0 0 **Thermal Comfort: Verification** Credit 7.2-Version 2.2

0 0 **Daylighting and Views: Daylight 75% of Spaces** Credit 8.1-Version 2.2

0 0 **Daylighting and Views: Views for 90% of Spaces** Credit 8.2-Version 2.2

Design Application 8/4/2010

The LEED Submittal Template has been provided stating that the project has provided direct line of sight views for 90.35% of all regularly occupied areas. Copies of applicable project drawings highlighting the direct line of sight through exterior windows have been provided as required. The project team has also provided a narrative describing special occupancy areas that have been excluded from compliance. The narrative confirms that these spaces have been appropriately excluded.

However, there are three issues to address:

1. The calculations to support this claim have not been provided.
2. The plan view provided shows daylight views through doors, which can not be counted unless there is glazing. The LEED NC v2.2 EQc8 Ruling dated 9/15/2008 indicates (open doors do not meet the requirements of this credit to provide views to the outdoors.)
3. It is unclear which spaces are counted as regularly occupied which spaces are not regularly occupied. The EQc8.1 CIR Ruling dated 5/1/2009 indicates (regularly occupied spaces where people are seated or standing as they work, regardless of the frequency that occupation may occur). Additionally, this does not include entryways, hallways or break rooms.

TECHNICAL ADVICE:

Please provide the following:

1. A revised Template and new calculations to include all regularly occupied spaces. An EQc8 Calculator can be obtained from the going to the USGBC website, LEED Resources, LEED Online Sample Credit Templates, Sample LEED-NC v2.2 credit templates and open for EQc8 Supporting Calculator.pdf for reference. This document can be used to import the project regularly occupied area and glazing areas.
2. A revised plan view showing the daylight views for all regularly occupied spaces not through the doors. If the doors are glazed, provide door elevations and schedule to verify the glazing.
3. A revised Template and calculations to include on the regularly occupied spaces and the area of daylight views as stated in the definition shown in the LEED-NC v2.2 Reference Guide, Third Edition and CIR mentioned

above.

Earned	Denied	Innovation and Design Process	Possible Points	5
5	0	Innovation in Design		Credit 1.1-Version 2.2
1	0			8/4/2010

Design Application 8/4/2010

The LEED Submittal Template has been provided stating that the project team has developed and implemented a Public Education program. This strategy is detailed in LEED-NC IDc1.1 CIR ruling date 9/24/01. The CIR states that to take advantage of the educational value of the green building features of a project and to earn a LEED point, any approach should be actively instructional. Two of the following three elements must be included in the educational program (in brief, please review the entire CIR): a comprehensive signage program; the development of a manual, guideline, or case study; and the development of an outreach program or guided tour. The project team has provided a copy of a brochure, a signed affidavit, and a draft of an educational manual. The documentation has stated the manual will be finished after construction phase.

However, the submitted documentation provides information for only one component (development of a case study).

TECHNICAL ADVICE:

Please provide documentation for a green guided tour or a comprehensive signage program to clarify that two of the three CIR criteria have been met: the development of an outreach program or guided tour (a script and a tour stop description drawing), and / or electronic examples of the comprehensive signage program (photos or drawings).

The documentation provided has stated the manual will be finished when the building construction is completed. The project team may defer this credit until the construction submittal review. Additionally, the green education process should be for the project building.

Construction Application 10/7/2010

A revised LEED Submittal Template and a supplemental response narrative have been provided to address the issues in the Preliminary Review comments and state that the project is committed to a comprehensive signage after certification. A copy of a sample tour script has been provided to illustrate the sustainable aspects of the project with a narrative stating tours have already taken place. This documentation clarifies the requirement of a guided tour as an interactive outreach program for the second component. The documentation demonstrates credit compliance.

1	0	Innovation in Design		Credit 1.2-Version 2.2
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Design Application 8/4/2010

The LEED Submittal Template has been provided stating that the project achieves exemplary performance for

EAc1 Optimize Energy Performance as specified in the LEED Reference Guide or posted CIR rulings. The guideline for exemplary performance in EAc1 is 45.5%. However, the base credit is pending clarifications.

TECHNICAL ADVICE:
Please see comments in EAc1.

Construction Application 10/7/2010

Additional documentation has been provided for EAc1 Optimize Energy Performance. However, the clarifications provided are not sufficient to verify achievement of EAc1 or exemplary performance for EAc1. The documentation does not demonstrate credit compliance.

Construction Application Appeal 1/25/2011

Sufficient information has been provided to confirm a cost savings of at least 45.5% in EAc1 Optimize Energy Performance. Therefore, this credit has been marked as awarded.

1

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Innovation in Design Credit 1.3-Version 2.2

Design Application 8/4/2010

The LEED Submittal Template has been provided stating that the project team has developed and implemented a Transportation Demand Management strategy. The project has provided quantitative performance improvements (comparing a baseline and design case) and a comprehensive strategy (more than one product or process) that is significantly better than standard design practices.

1

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Innovation in Design Credit 1.4-Version 2.2

Design Application 8/4/2010

The LEED Submittal Template has been provided stating that the project achieves exemplary performance for EAc2 On-Site Renewable Energy as specified in the LEED Reference Guide or posted CIR rulings. The guideline for exemplary performance in EAc2 is 17.5%. However, the base credit is pending clarifications.

TECHNICAL ADVICE:
Please see comments in Eac2.

Construction Application 10/7/2010

Additional documentation has been provided for EAc2 On-Site Renewable Energy. However, the clarifications provided are not sufficient to verify achievement of EAc2 or exemplary performance for EAc2. The documentation does not demonstrate credit compliance.

Construction Application Appeal 1/25/2011

Sufficient information has been provided to confirm that at 25.05% of the project's energy cost is being offset by renewable energy generated onsite, which meets the exemplary performance requirement of 17.5%. Therefore, this credit has been marked as awarded.

1

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LEED Accredited Professional Credit 2-Version 2.2

Design Application 8/4/2010

The LEED Submittal Template has been provided stating that a LEED AP has been a participant on the project

development team. A copy of the LEED AP award certification for Matthew Kozlowski has been included as required.

Earned	Denied	Administrative Inquiries	Possible Points	0
0	0			