Center for Sustainable Living

6/26/2008

Construction Application Review

LEED®-NC

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 & Atmosphere, Materials & Resources, Indoor Envir

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 [39] 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.

Denied [1] 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.

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	
9	0	Sustainable Sites — Possible Points: 14
0	0	**Construction Activity Pollution Prevention** — Prerequisite 1-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project's erosion and sedimentation control plan conforms to the 2003 EPA Construction General Permit, which outlines the provisions necessary to comply with Phase I and Phase II of the NPDES program. The following supporting documents have also been provided: 1) A narrative describing the local code and the implemented erosion and sedimentation control measures, and; 2) A copy of the project's erosion and sedimentation control plan.

1	0	**Site Selection** — Credit 1-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project site does not meet any of the prohibited criteria.

1	0	**Development Density & Community Connectivity** — Credit 2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided stating that the project site is located within a minimum of ten (10) community services and a minimum of one (1) residential district, with a minimum density of 10 units per acre. Additionally, a listing of the neighborhood services within 1/2 mile of the project site and a site map showing the locations of these services has been provided on the Template.

		Brownfield Redevelopment — Credit 3-Version 2.2

1	0	**Alternative Transportation: Public Transportation Access** — Credit 4.1-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project is served by the Dickinson College Shuttle Service, which provides transportation to rail and bus stations as well as the airport. Although the shuttle service only operates during holidays and breaks, this arrangement is acceptable for a college campus which tends to experience peak transportation volumes during these times.

1 | 0 **Alternative Transportation: Bicycle Storage & Changing Rooms** Credit 4.2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project is residential. The Template states that covered bicycle storage facilities have been provided to serve 15% of building occupants. Plans have been provided showing the location of the covered bike storage facilities.

1 | 0 **Alternative Transportation: Low-Emitting & Fuel Efficient Vehicles** Credit 4.3-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that 1 signed, on-street parking space for Low-Emitting / Fuel Efficient Vehicles has been provided through an agreement with the City of Carlisle. Since the project does not include any on-site parking, this alternate compliance approach is acceptable as documented.

1 | 0 **Alternative Transportation: Parking Capacity** Credit 4.4-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that no new parking has been added to the site.

☐ | ☐ **Site Development: Protect or Restore Habitat** Credit 5.1-Version 2.2

1 | 0 **Site Development: Maximize Open Space** Credit 5.2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project has been developed in an area with zoning requirements, but with no requirement for open space, and has provided vegetated open space equal to at least 20% of the project's site area. Site drawings have been provided in support of this credit.

1 | 0 **Stormwater Management: Quantity Control** Credit 6.1-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project has implemented a stormwater management plan that results in no net increase (rate and quantity) in runoff from calculated pre-project conditions, for a 1.5 year, 24 hour peak discharge. Calculations have been provided to demonstrate compliance with the requirements of this credit.

☐ | ☐ **Stormwater Management: Quality Control** Credit 6.2-Version 2.2

1	0	**Heat Island Effect: Non-Roof**	Credit 7.1-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that a minimum of 30% of the non-roof impervious surfaces on-site are presently under shade. Calculations provided in the submittal claim that of the 772.50 s.f. of total non-roof impervious surfaces, 93% are presently under shade. A site plan has been provided showing the extents of the paved areas, and a site photo showing existing shading of the ramp has been provided.

However, the site plan shows some hardscape area labeled as "porous paving (carpool drop-off)" that has not been included in the site area calculation. This area should be included under the total area of non-roof hardscape surfaces. Depending on the type of paving system used, this area may count towards the area of hardscape surfaces that are at least 50% pervious, which would contribute to the heat island reduction credit.

TECHNICAL ADVICE:

Please revise your site area calculations by including the area labeled as "porous paving" under the total area of non-roof hardscape surfaces. You may also submit information verifying that the "porous paving" system is at least 50% pervious in order to count that area towards the heat island reduction credit.

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The LEED Submittal Template has been provided verifying that a minimum of 30% of the non-roof impervious surfaces on-site are presently under shade. Calculations provided in the submittal claim that of the 772.50 s.f. of total non-roof impervious surfaces, 93% are presently under shade. A site plan has been provided showing the extents of the paved areas, and a site photo showing existing shading of the ramp has been provided. A supplemental narrative has been provided verifying that the "porous paving" shown on the site plan was not installed, and that the calculation of non-roof impervious area is correct.

0	0	**Heat Island Effect: Roof**	Credit 7.2-Version 2.2

0	0	**Light Pollution Reduction**	Credit 8-Version 2.2

Earned	Denied		
5	0	Water Efficiency	Possible Points 5

2	0	**Water Efficient Landscaping**	Credit 1.1-1.2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that no permanent irrigation system has been installed. A landscape plan and narrative have been included describing the native/drought-tolerant planting installed on the site. The template states that the planting will only be watered during the initial plant establishment period.

1	0	**Innovative Wastewater Technologies**	Credit 2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template and water use calculations have been provided verifying that the project has reduced potable water use for sewage conveyance by 100% from a calculated baseline design through the installation of dual flush water closets which use greywater collected from showers.

2	0	**Water Use Reduction**	Credit 3.1-3.2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template and water use calculations have been provided verifying that the project has reduced potable water use by 54% from a calculated baseline design through the installation of dual flush water closets, low flow faucets, and low flow showerheads. The project also features a greywater system that captures water from shower use for use in sewage conveyance.

Earned	Denied	Energy & Atmosphere	Possible Points: 17
8	0		
0	0	**Fundamental Commissioning of the Building Energy Systems**	Prerequisite 1-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying 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.

0 | 0 **Minimum Energy Performance** Prerequisite 2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project complies with the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4) of ASHRAE 90.1-2004 (without amendments). However, further clarification is needed for EA Credit 1 to confirm that the requirements of ASHRAE 90.1-2004 have been met.

TECHNICAL ADVICE:
After responding to the EAc1 documentation clarification requests, confirm that the project meets the requirements of ASHRAE 90.1-2004.

Construction Application 5/13/2008

The LEED Submittal Template has been provided verifying that the project complies with the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4) of ASHRAE 90.1-2004 (without amendments).

0 | 0 **Fundamental Refrigerant Management** Prerequisite 3-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that base building HVAC&R systems use no CFC-based refrigerants.

4 | 0 **Optimize Energy Performance** Credit 1-Version 2.2

Design Application 2/5/2008

For this particular situation, since 16% of the project is new construction and 84% is renovation of an existing building, the entire project must achieve a minimum Performance Rating of 18.5% to qualify for five points under this credit, based on the CIR dated 9/14/07. The LEED Submittal Template and supporting documentation have been provided verifying that the project has a Performance Rating of 19.3% using the ASHRAE 90.1-2004 Appendix G methodology. However, the difference in unmet load hours for heating between the Baseline and the Proposed Design is 80 hours, which is greater than the maximum allowed difference of 50 hours. In addition, process energy costs were not included in the energy model. As stated in the LEED 2.2 Reference Manual, process energy cost must equal 25% of the Baseline Building Performance or a narrative must be provided to substantiate lower process energy inputs.

TECHNICAL ADVICE:
Please revise your energy model to reduce the difference in unmet load hours for heating, and to include process energy costs. If process energy costs are less than 25% of the energy cost, the project team must provide documentation to support the inputs used. Please note that process loads should be identical for the Baseline and Design cases unless the Exceptional Calculation Method is used.

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The LEED Submittal Template and supporting documentation have been provided verifying that the project has achieved an energy cost savings of 16.1% using the ASHRAE 90.1-2004 Appendix G methodology. Supporting documentation substantiates this claim. Energy efficiency measures incorporated into the building design include a high performance thermal envelope and the use of a corn pellet stove for primary space

3	0	**On-Site Renewable Energy**	Credit 2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been submitted verifying that 56.71% of the project's energy cost is being offset by renewable site generated energy. The narrative indicates that the PV array that serves this building is located on the roof of an adjacent building. A letter from the owner has been provided certifying that the renewable energy generated for this project will not be claimed in any other LEED projects on campus, in accordance with the CIR dated 9/18/2007. However, further clarification is needed for EA Credit 1 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.

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The LEED Submittal Template has been submitted verifying that 51.93% of the project's energy cost is being offset by renewable site generated energy. The narrative indicates that the PV array that serves this building is located on the roof of an adjacent building. A letter from the owner has been provided certifying that the renewable energy generated for this project will not be claimed in any other LEED projects on campus, in accordance with the CIR dated 9/18/2007.

		Enhanced Commissioning	Credit 3-Version 2.2
0	0	**Enhanced Refrigerant Management**	Credit 4-Version 2.2
0	0	**Measurement & Verification**	Credit 5-Version 2.2

1	0

Green Power

Credit 6-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project has a 2.5-year purchase agreement to procure at least 35% of the project's annual electric energy from a power supply that meets the Green-E definition for renewable power. The submitted documentation includes a copy of the contract with Community Energy, Inc. to provide green power equal to 2,000,000 kWh per year. However, the contract is to supply green power for the entire campus of Dickinson College, not just for the Center for Sustainable Living facility.

TECHNICAL ADVICE: Please provide additional documentation indicating what quantity of the green power purchased under this agreement will be assigned to the Center for Sustainable Living facility, and demonstrating that this quantity represents at least 35% of the annual electric energy usage for the facility. Also, please provide a letter from the owner certifying that the quantity of green power that is assigned to this

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The LEED Submittal Template has been provided verifying that the project has a 2.5-year purchase agreement to procure 8,000,000 kWh of green power from Community Energy, Inc. to serve the entire Dickinson campus. The submitted documentation includes a copy of the contract with Community Energy, Inc. In addition, a letter from the owner has been provided verifying that 43,835 kWh of the purchased green power will be assigned to the Center for Sustainable Living facility, which represents 100% of the annual electrical energy usage. The letter also verifies that the quantity of green power that is assigned to this facility will not be assigned to any future projects seeking LEED certification.

Earned	Denied	Materials and Resources	Possible Points: 13
6	0		
0	0	**Storage & Collection of Recyclables**	Prerequisite 1-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project has provided appropriately sized dedicated areas for the collection and storage of recycling materials, including cardboard, paper, plastic, glass, and metals. Plans have been provided highlighting the location of recycling collection areas within the project.

1	0

Building Reuse

Credit 1.1-1.2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that 92% of the existing wall, floor, and roof elements have been reused. Calculations and highlighted building drawings have been provided to support

0	0	**Building Reuse, Non-Structural**	Credit 1.3-Version 2.2

1	0	**Construction Waste Management**	Credit 2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project has diverted 46.8 tons (51%) of on-site generated construction waste from landfill. Calculations have been provided to document the waste types and receiving agencies for recycled materials.

2	0	**Resource Reuse**	Credit 3-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project has used salvaged, refurbished or reused materials equal to 17% of the total materials value. Calculations have been provided to document the materials used and values for each tracked item.

1	0	**Recycled Content**	Credit 4-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template and calculations have been provided verifying that 10.488% of the total building materials content, by value, have been manufactured using recycled materials.

1	0	**Regional Materials**	Credit 5-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template and calculation have been provided verifying that 18.135% 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.

		Rapidly Renewable Materials	Credit 6-Version 2.2

		Certified Wood	Credit 7-Version 2.2

Earned	Denied		
6	1	Indoor Environmental Quality	Possible Points: 15

1	0	**Minimum IAQ Performance**	Prerequisite 1-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying 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 also includes specific information regarding fresh air intake volumes.

0	0	**Environmental Tobacco Smoke (ETS) Control**	Prerequisite 2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that smoking is prohibited inside buildings within the project and that designated smoking areas have been located away from building openings and air intakes.

		Outdoor Air Delivery Monitoring	Credit 1-Version 2.2

		Increased Ventilation	Credit 2-Version 2.2

1	0	**Construction IAQ Management Plan: During Construction**	Credit 3.1-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been submitted verifying that the project developed and implemented a construction IAQ management plan that followed the referenced SMACNA Guidelines. The plan indicates that the air handling equipment was sealed and not operated during construction, and that MERV 8 filtration media was installed prior to occupancy. Required photographs describing the implemented IAQ measures have not been provided; however, a narrative describing the implemented IAQ measures has been provided instead.

0	0	**Construction IAQ Management Plan: Before Occupancy**	Credit 3.2-Version 2.2

1	0	**Low-Emitting Materials: Adhesives & Sealants**	Credit 4.1-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that all adhesive and sealant products comply with the VOC limits of the referenced standards for this credit. A summary of all interior adhesive and sealant products has been provided along with VOC data for each product confirming that they comply with the referenced VOC limits.

0	0	**Low-Emitting Materials: Paints & Coatings**	Credit 4.2-Version 2.2
1	0	**Low-Emitting Materials: Carpet Systems**	Credit 4.3-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that installed carpet systems comply with the VOC limits of the CRI Green Label Plus Testing Program. The submittal lists InterfaceFLOR as the installed product.

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

0	1

Indoor Chemical & Pollutant Source Control

Credit 5-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project has installed the required indoor chemical and pollutant source control measures required by this credit. A listing of the walk-off product installed at the entry vestibule has been provided and confirmation of required maintenance by College housekeeping personnel has been described in the narrative. Copies of the project's construction drawings have been provided showing the location of the walk-off mat at the entry vestibule, however, entryway systems are not specified on the two other entry doors leading into the main common area (Door #103 and Door #103A).

The Submittal Template confirms that MERV 13 filtration media has been installed in all HVAC systems prior to occupancy. There are no chemical use areas in the building, therefore additional separations are not required in this situation.

TECHNICAL ADVICE:
According to the LEED v2.2 Reference Guide and posted CIRs, entryway systems must be installed "at all entryways that are directly connected to the outdoors." The side and rear doors as well as the individual unit doors appear to be regularly used entry points from the outside, so there is still potential for contaminants to be tracked into the building through these doors. Therefore, the intent of this credit is not fully met by

Construction Application 5/13/2008

The LEED Submittal Template has been provided verifying that the project has installed the required indoor chemical and pollutant source control measures required by this credit. A listing of the walk-off product installed at the entry vestibule has been provided and confirmation of required maintenance by College housekeeping personnel has been described in the narrative. Copies of the project's construction drawings have been provided showing the location of the walk-off mat at the entry vestibule, however, entryway systems are not specified on the two other entry doors leading into the main common area (Door #103 and Door #103A).

According to the LEED v2.2 Reference Guide and posted CIRs, entryway systems must be installed "at all entryways that are directly connected to the outdoors." The side and rear doors as well as the individual unit doors appear to be regularly used entry points from the outside, so there is still potential for contaminants to be tracked into the building through these doors. Therefore, the intent of this credit is not fully met by providing a single walk-off mat at the entry vestibule.

0	0

Controllability of Systems: Lighting

Credit 6.1-Version 2.2

1	0

Controllability of Systems: Thermal Comfort

Credit 6.2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided listing the thermal controls available for individual bedrooms and shared group spaces. A narrative has also been provided describing the project's thermal control strategy with a description of the type and location of individual controls.

		Thermal Comfort: Design	Credit 7.1-Version 2.2
0	0	**Thermal Comfort: Verification**	Credit 7.2-Version 2.2
1	0	**Daylighting & Views: Daylight 75% of Spaces**	Credit 8.1-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project has achieved a minimum 2% glazing factor in 75% of all regularly occupied spaces. Calculations to support this claim have also been provided.

1	0	**Daylighting & Views: Views for 90% of Spaces**	Credit 8.2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that the project has provided direct line of sight views from a minimum of 90% of all regularly occupied areas. Copies of applicable project drawings highlighting the direct line of sight through exterior windows have been provided as required.

Earned	Denied		
5	0	Innovation & Design Process	Possible Points 5
1	0	**Innovation in Design**	Credit 1.1-Version 2.2

Design Application 2/5/2008

The project team has submitted a proposal for an ID credit for exemplary performance of WEc3, due to the achievement of a water use reduction greater than 40%. A narrative outlines the intent, requirements and design approach.

1	0	**Innovation in Design**	Credit 1.2-Version 2.2

Design Application 2/5/2008

The project team has submitted a proposal for an ID credit for exemplary performance of WEc2. A narrative outlines the intent, requirements and design approach.

1 | 0

Innovation in Design

Credit 1.3-Version 2.2

Design Application 2/5/2008

The project team has submitted a proposal for an ID credit for exemplary performance of WEc3, due to the achievement of a 50% reduction in water use. A narrative outlines the intent, requirements and design approach. However, the project team has already submitted a proposal for an ID credit for WEc3 (for 40% reduction in water use).

TECHNICAL ADVICE:
Although the project team is to be commended for achieving a water use reduction that is greater than 50%, it is not possible to earn more than one Innovation in Design credit for a single design strategy.

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The project team has submitted an alternate proposal for ID credit for exemplary performance of EAc6. A narrative outlines the intent, requirements, and design approach.

1 | 0

Innovation in Design

Credit 1.4-Version 2.2

Design Application 2/5/2008

The project team has submitted a proposal for an ID credit for exemplary performance of SSc5.2. A narrative outlines the intent, requirements and design approach.

1 | 0

LEED Accredited Professional

Credit 2-Version 2.2

Design Application 2/5/2008

The LEED Submittal Template has been provided verifying that a LEED AP has been a participant on the project development team. A copy of the LEED AP award certification for Mark Rostafin has been included as required.

Earned	Denied	Administrative Requirements	Possible Points: 0
0	0		