

Sustainable Design Collaborative, LLC

October 11, 2007

Sustainable Design Report Town of Cortlandt Youth Center

After a site visit, a meeting was conducted on October 4, 2007 at the Town Hall in Cortlandt to review the environmental features that should be incorporated into the planned, 5,000 square foot Youth Center. Used as a guide to organize the discussion was the Leadership in Energy and Environmental Design (LEED) Green Building Rating System for New Construction, Version 2.2. LEED is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. It was determined, however, that a formal LEED rating will not be sought for the project due to its scale and cost considerations. Therefore, "Targeted" and "Possible" designations in the Table below refer to general applicability to the Youth Center rather than precise adherence to LEED requirements.



In attendance were:

Laurie DeCicco	Project Manager
Richard DeSanza	Open Space Planner for the Town of Cortlandt.
Bill Bobenhausen	Sustainable Design Collaborative LLC
Jin Huang	Sustainable Design Collaborative LLC

LEED NC 2.2	TARGETED	T
	POSSIBLE	P
	N / A	0
	REQUIRED	REQ
SUSTAINABLE SITES	14 Available Points	
SS Prerequisite 1: Construction Activity Pollution Prevention		REQ
SS Credit 1: Site Selection		0
SS Credit 2: Development Density & Community Connectivity		0
SS Credit 3: Brownfield Redevelopment		0
SS Credit 4.1: Alternative Transportation: Public Transportation Access	T1	
SS Credit 4.2: Alternative Transportation: Bicycle Storage & Changing Rooms		0
SS Credit 4.3: Alternative Transportation: Low Emitting & Fuel Efficient Vehicles		0
SS Credit 4.4: Alternative Transportation: Parking Capacity		0
SS Credit 5.1: Site Development: Protect or Restore Habitat	T1	
SS Credit 5.2: Site Development: Maximize Open Space		P1
SS Credit 6.1: Stormwater Design: Quantity Control	T1	
SS Credit 6.2: Stormwater Design: Quality Control	T1	

5 Boulanger Plaza Hastings on Hudson New York 10706 T 914 478 4361 F 914 478 1361

Member: US Green Building Council

SS Credit 7.1: Heat Island Effect: Non-Roof	T1
SS Credit 7.2: Heat Island Effect: Roof	P1
SS Credit 8: Light Pollution Reduction	T1
TOTAL SS POINTS	T6 / P2
WATER EFFICIENCY	5 Available Points
WE Credit 1.1: Water Efficient Landscaping: Reduce by 50%	T1
WE Credit 1.2: Water Efficient Landscaping: No Potable Water Use or No Irrigation	T1
WE Credit 2: Innovative Wastewater Technologies	0
WE Credit 3.1: Water Use Reduction: 20% Reduction	P1
WE Credit 3.2: Water Use Reduction: 30% Reduction	P1
TOTAL WE POINTS	T2 / P2
ENERGY & ATMOSPHERE	17 Available Points
EA Prerequisite 1: Fundamental Commissioning of the Building Energy Systems	REQ
EA Prerequisite 2: Minimum Energy Performance	REQ
EA Prerequisite 3: Fundamental Refrigerant Management	REQ
EA Credit 1: Optimize Energy Performance (revised for projects registered after June 26, 2007)	T2 of 10
EA Credit 2: On-Site Renewable Energy	T1 of 3
EA Credit 3: Enhanced Commissioning	P1
EA Credit 4: Enhanced Refrigerant Management	P1
EA Credit 5: Measurement & Verification	P1
EA Credit 6: Green Power	T1
TOTAL EA POINTS	T4 / P3
MATERIALS & RESOURCES	13 Available Points
MR Prerequisite 1: Storage & Collection of Recyclables	REQ
MR Credit 1.1: Building Reuse: Maintain 75% of Existing Walls, Floors & Roof	0
MR Credit 1.2: Building Reuse: Maintain 90% of Existing Walls, Floors & Roof	0
MR Credit 1.3: Building Reuse: Maintain 50% of Interior Non-Structural Elements	0
MR Credit 2.1: Construction Waste Management: Divert 50% From Disposal	T1
MR Credit 2.2: Construction Waste Management: Divert 75% From Disposal	T1
MR Credit 3.1: Materials Reuse: 5%	T1
MR Credit 3.2: Materials Reuse: 10%	0
MR Credit 4.1: Recycled Content: 10% (post-consumer + 1/2 pre-consumer)	T1
MR Credit 4.2: Recycled Content: 20% (post-consumer + 1/2 pre-consumer)	P1
MR Credit 5.1: Regional Materials: 10% Extracted, Processed & Manufactured Regionally	P1
MR Credit 5.2: Regional Materials: 20% Extracted, Processed & Manufactured Regionally	P1
MR Credit 6: Rapidly Renewable Materials 2.5% of the total value of all building materials	T1
MR Credit 7: Certified Wood Use a minimum of 50% of wood-based materials which are FSC Certified	T1
TOTAL MR POINTS	T6 / P3
INDOOR ENVIRONMENTAL QUALITY	15 Available Points
EQ Prerequisite 1: Minimum IAQ Performance	REQ.
EQ Prerequisite 2: Environmental Tobacco Smoke (ETS) Control	REQ.
EQ Credit 1: Outdoor Air Delivery Monitoring	P1
EQ Credit 2: Increased Ventilation	P1
EQ Credit 3.1: Construction IAQ Management Plan: During Construction	P1
EQ Credit 3.2: Construction IAQ Management Plan: Before Occupancy	P1
EQ Credit 4.1: Low-Emitting Materials: Adhesives & Sealants	T1
EQ Credit 4.2: Low-Emitting Materials: Paints & Coatings	T1
EQ Credit 4.3: Low-Emitting Materials: Carpet Systems	T1
EQ Credit 4.4: Low-Emitting Materials: Composite Wood & Agrifiber Products	T1
EQ Credit 5: Indoor Chemical & Pollutant Source Control	T1

EQ Credit 6.1: Controllability of Systems: Lighting	P1
EQ Credit 6.2: Controllability of Systems: Thermal Comfort	P1
EQ Credit 7.1: Thermal Comfort: Design	P1
EQ Credit 7.2: Thermal Comfort: Verification	P1
EQ Credit 8.1: Daylight & Views: Daylight 75% of Spaces	P1
EQ Credit 8.2: Daylight & Views: Views for 90% of Spaces	P1
TOTAL EQ POINTS	T5 / P10
INNOVATION & DESIGN PROCESS	
	5 Available Points
ID Credit 1.1: Innovation in Design (Educational Signage)	T1
ID Credit 1.2 - 1.4: Innovation in Design	0
ID Credit 2: LEED Accredited Professional	T1
TOTAL ID POINTS	T5 / P0
GRAND TOTAL TARGETED POINTS	25
GRAND TOTAL POSSIBLE POINTS	20
GRAND TOTAL NOT APPLICABLE POINTS	24

Meeting Notes: 10.04.2007

SUSTAINABLE SITES:

T6 / P2

- **HOURS OF OPERATION**
 - School Year: 3PM to 11PM
 - Summer: All day until 11PM
 - Weekends: Assume six, mostly weekend special events
- **30 PARKING SPACES** currently on Plans. Perhaps eliminate the row of 7 spots near the basketball court. Could share parking with the Skate Park.
- **Suggest two parking spots painted 'Hybrid' (LEED Credit SS4.3) near entrance.**

SS Credit 5.2: Site Development: Maximize Open Space

P1

- Provide a high ratio of open space to development footprint to promote biodiversity. LEED would require definition of zoning requirements (as they might apply to the large Town property) to determine which option (1,2 or 3) would apply to the property.

SS Credit 6.1: Stormwater Management

P1

- The use of pervious pavers was discussed for the parking lot (although perhaps only for the spots themselves). The use of pervious concrete paving unit that allows water to permeate the soil has become increasingly important and many municipalities now require that rain and storm water runoff be controlled and retained. Various manufacturers make concrete permeable paving units which manage runoff while allowing moderate vehicular traffic. Recommendation is to consider the EcoGrid and Aqua-Loc products of the Hanover Architectural Products Company, 717-637-0500, www.hanoverpavers.com and similar products.











Grassy pavers at the Dia Center, Beacon, New York.

SS Credit 7.2: Heat Island Effect: Roof

P1

- Project Manager expressed the aesthetic preference for a relatively dark roof, particularly Ecostar's 'Majestic Slate' which is a rubber slate tile that is made of 100 percent recycled industrial rubber and plastic. The tiles are injection molded using a special formula that protects the integrity of the rubber. However, its SRI @ 14 would preclude achievement of equivalence with the LEED Credit requirements.
- Steep-Sloped Roofs (greater than 2:12) require an SRI (solar reflectance index) value equal to or greater than 29.
- Use of high albedo (light colored) shingles are required if this credit is to be achieved for the roofs as designed.

WATER EFFICIENCY: T2 / P2	
WE Credit 3.1 and 3.2: Water Use Reduction: 20%, 30% Reduction	P2
<ul style="list-style-type: none"> ➤ Consider selection of sensor operated lavatory faucets and waterless urinals. ➤ Waterless urinals do not require supply water plumbing or flush valves so the capital cost is typically below that of conventional fixtures. Leading manufacturers are: The Waterless Company; Falcon; Sloan; and Kohler. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>WATERLESS CO., Urinal</p> </div> <div style="text-align: center;">  <p>TOTO, Aquia Dual Flush</p> </div> <div style="text-align: center;">  </div> </div> <ul style="list-style-type: none"> ➤ Satisfaction of this percentage reduction would probably also require the use of dual flush toilets. ➤ Leading manufacturers of dual flush toilets are: Caroma, Sloan and Toto. 	
ENERGY & ATMOSPHERE: T4 / P3	
EA Prerequisite: Fundamental Commissioning	REQ.
<ul style="list-style-type: none"> ➤ Verify that the building's energy related systems are installed, calibrated and perform according to the owner's project requirements, basis of design, and construction documents. ➤ Begin the commissioning process promptly with a review of the HVAC system design. Recommendation made to contact James Dolan of O'Dea Lynch Abbatista Engineers in Hawthorne, NY at 914-747-2800. 	
EA Credit 2: On-Site Renewable Energy.	P1
<ul style="list-style-type: none"> ➤ Consider installation of sculptural canopy with roof of photovoltaics for the south side parking area. Perhaps also use PV for benches and lampposts (see photos). Ties into Grant Award for PV. <div style="display: flex; justify-content: space-around;">      </div>	
EA Credit 3: Enhanced Commissioning	P1
<ul style="list-style-type: none"> ➤ To be determined based upon Fundamental Commissioning process. 	
EA Credit 4: Enhanced Refrigerant Management	P1
<ul style="list-style-type: none"> ➤ Reduce ozone depletion and support early compliance with the Montreal Protocol while minimizing direct contributions to global warming. Should be achievable with most plausible HVAC options. 	
EA Credit 5: Measurement & Verification	P1
<ul style="list-style-type: none"> ➤ Provide for the ongoing accountability of building energy consumption over time. Practicality of achieving this Credit equivalence should be determined by the Project Engineer and Commissioning Agent. 	

MATERIALS & RESOURCES:		T6 / P3
<ul style="list-style-type: none"> ■ Prerequisite 1: A more public location for the recycling station should be established. ■ LEED Material Thresholds: For the Town of Cortlandt Youth Center, the use of environmentally preferable materials should be maximized generally as specified in the Interior Specifications and recommended herein. Under LEED, Materials & Resources Credits MR 3, 4, 5 and 6 require calculation procedures generally as follows to determine whether stipulated percentage requirements are met: <ul style="list-style-type: none"> Step 1 - Determine which option to use: <ul style="list-style-type: none"> • Default Material Value x 45%, or • Actual Material Value (excluding labor and equipment) Step 2 - Find the ratio: (Total Credit - Targeted Material Value) ÷ (Total Material Cost x .45) = <input style="width: 50px; border: 1px solid black;" type="text"/> % Step 3 - Find out whether the ratio is valid for the equivalence of LEED points for the particular Credit.. 		
MR Credit 2.1 and 2.2: CONSTRUCTION WASTE MANAGEMENT (divert 50% or 75% from disposal)		
<ul style="list-style-type: none"> ➤ The potential to apply these practices to a small 5000 square foot building to the level required for equivalence to the LEED credits is questionable. Contractor for project should practice cost-effective recycling to the highest degree practicable. 		
MR Credit 4.2: Recycled Content: 20% (post-consumer + 1/2 pre-consumer)		P1
<ul style="list-style-type: none"> ➤ Recycled products to be considered (including those referenced in the "Interior Specifications" ➤ Rubber flooring - needed for some spaces (i.e., Weight Room and Climbing & Workout Studio) but may adversely affect Indoor Air Quality. ➤ Roofing tiles - see SS Credit 7.2 ➤ Ceiling Tiles - All Armstrong ceilings contain recycled materials, and many consist of more than two-thirds recycled content. While a portion of the content is old scrap ceiling material, waste products from other industries are also used to manufacture new ceilings. Most of that waste is in the form of old newspapers and other newsprint, and a by-product of steel production called "mineral wool." Certainteed and other manufacturers also make recycled ceiling tiles. 		
MR Credit 5.1 and 5.2: Regional Materials: 10%, 20% Extracted, Processed & Manufactured Regionally		P1
<ul style="list-style-type: none"> ➤ Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% (based on cost) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value. ➤ Mechanical, electrical and plumbing components and specialty items such as elevators and equipment shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3-7. 		
MR Credit 6: Rapidly Renewable Materials		T1
<ul style="list-style-type: none"> ➤ Durability of the Cork Flooring for Activity area (45' x 50'): Commercial cork flooring is sealed with polyurethane, protecting the surface. Additional coats of finish are often applied about once every five years. Cork flooring has the potential to last for many years in areas which endure very heavy foot traffic – government buildings, urban churches, and other public buildings. The possible use of cork flooring was also discussed for the Kitchen. 		

INDOOR ENVIRONMENTAL QUALITY:		T5 / P10
<ul style="list-style-type: none"> ■ The particulars of EQ credits 3.1 through 4.4 were discussed due to their importance in assuring good indoor air quality. 		
EQ Credit 3.1: Construction IAQ Management Plan: During Construction		P1
<ul style="list-style-type: none"> ➤ Reduce indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants. 		
EQ Credit 3.2: Construction IAQ Management Plan: Before Occupancy		P1
<ul style="list-style-type: none"> ➤ Develop and implement an Indoor Air Quality (IAQ) Management Plan for the pre-occupancy phase as follows: Option 1 - Flush Out (by supplying outside air to dilute and reduce off-gassed contaminants); Option 2 - Air Quality Testing. 		
EQ Credit 4.1: Low-Emitting Materials: Adhesives & Sealants		T1
<ul style="list-style-type: none"> ➤ Materials shall comply with the requirements of South Coast Air Quality Management District (SCAQMD) Rule # 1168 with an effective date of July 1, 2005 and rule amendment date of January 7, 2005. 		
EQ Credit 4.2: Low-Emitting Materials: Paints & Coatings		T1
<ul style="list-style-type: none"> ➤ Paint: All interior paint should provide Green Seal and LEED Compliance. Manufacturers of such paints include: <ul style="list-style-type: none"> ▪ American Formulating and Manufacture (AFM), (Safecoat Enamels), (800) 239-0321, www.afmsafecoat.com ▪ Benjamin Moore, (Pristine Eco-Spec), (800) 344-0400, www.benjaminmoore.com ▪ The Glidden Company, (ProMaster), (800) 834-6077, www.glidden.com ▪ Pittsburgh Paints, (Pure Performance), (888) 774-7732, www.pittsburghpaints.com ▪ Sherwin-Williams, (Harmony), (800) 321-8194, www.sherwinwilliams.com 		
EQ Credit 4.3: Low-Emitting Materials: Carpet Systems		T1
<ul style="list-style-type: none"> ➤ All carpet installed in the building interior shall meet the testing and product requirements of the Carpet and Rug Institute's Green Label Plus program. Cushions (if any) shall meet CRI Green Label program. Adhesives shall be low VOC meeting requirements of EQ Credit 4.1. 		
EQ Credit 4.4: Low-Emitting Materials: Composite Wood & Agrifiber Products		T1
<ul style="list-style-type: none"> ➤ Composite wood and agrifiber products used on the interior of the building (defined as inside of the weatherproofing system) shall contain no added urea-formaldehyde resins. 		
EQ Credit 6.1: Controllability of Systems: Lighting		P1
<ul style="list-style-type: none"> ➤ Provide a high level of lighting system control by individual occupants or by specific groups in multi-occupant spaces (i.e., classrooms or conference areas) to promote the productivity, comfort and well-being of building occupants. 		
EQ Credit 6.2: Controllability of Systems: Thermal Comfort		P1
<ul style="list-style-type: none"> ➤ Provide a high level of thermal system control by individual occupants or by specific groups in multi-occupant spaces (i.e., classrooms or conference areas) to promote the productivity, comfort and well-being of building occupants. 		

EQ Credit 7.1: Thermal Comfort: Design	P1
<ul style="list-style-type: none"> ➤ Provide a comfortable thermal environment that supports the productivity and well-being of building occupants. Design HVAC systems and the building envelope to meet the requirements of ASHRAE Standard 55-2004. 	
EQ Credit 7.2: Thermal Comfort: Verification	P1
<ul style="list-style-type: none"> ➤ The intent of this Credit may not suit of project of this size and occupancy. If adopted, agree to implement a thermal comfort survey of building occupants within a period of six to 18 months after occupancy. This survey should collect anonymous responses about thermal comfort in the building including an assessment of overall satisfaction with thermal performance and identification of thermal comfort-related problems. Agree to develop a plan for corrective action if the survey results indicate that more than 20% of occupants are dissatisfied with thermal comfort in the building. This plan should include measurement of relevant environmental variables in problem areas in accordance with ASHRAE Standard 55-2004. Input from the HVAC designer and Commissioning Agent should be sought relative to this issue. 	
EQ Credit 8.1: Daylight & Views: Daylight 75% of Spaces	P1
<ul style="list-style-type: none"> ➤ To more successfully daylight the building there is a need for more window area especially on the South side of the project. The high glass serving the Activities Room should daylight it well. ➤ ONLY glazing area between 30" to 80" high in all 'regularly occupied' space counts. ➤ OPTION 1: Achieve a minimum glazing factor of 2% in a minimum of 75% of all regularly occupied areas. The glazing factor is calculated as follows: $\frac{\text{Window Area [SF]}}{\text{Floor Area [SF]}} \times \frac{\text{Window Geometry Factor}}{\text{Factor}} \times \frac{\text{Actual } T_{vis}}{\text{Minimum } T_{vis}} \times \frac{\text{Window Height Factor}}{\text{Factor}} = \text{Glazing Factor}$ ➤ Window areas from 2'6" to 7'6" are considered to be vision glazing. ➤ OPTION 2: COMPUTER SIMULATION ➤ OPTION 3: MEASUREMENT (after the project is completed) 	
EQ Credit 8.2: Daylight & Views: Views for 90% of Spaces	P1
<ul style="list-style-type: none"> ➤ Achieve direct line of sight to the outdoor environment via vision glazing between 2'6" and 7'6" above finished floor for building occupants in 90% of all regularly occupied areas. Determine the area with direct line of sight by totaling the regularly occupied square footage that meets the criteria: <ul style="list-style-type: none"> • In plan view, the area is within sight lines drawn from perimeter vision glazing. • In section view, a direct sight line can be drawn from the area to perimeter vision glazing. ➤ Achievement of this environmental feature is compromised by the large interior Activities Room if it is to be considered "regularly occupied". 	
INNOVATION & DESIGN PROCESS: T2 / P0	
<ul style="list-style-type: none"> ■ There are 4 potential ID points available for exemplary performance in some credits. (So far the following is recommended for the Youth Center.) 	
ID Credit 1.1: Innovation in Design	T1
<ul style="list-style-type: none"> ➤ Put 'SIGNAGE' in the project for 'Green Educational' purposes. 	