Sustainable Design and Construction of the Fernald Preserve Visitors Center – 9433

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ABSTRACT

In September 2008, the Fernald Preserve Visitors Center was awarded the platinum certification level by the US Green Building Council (USGBC), the highest level achievable under the Leadership in Energy and Environmental Design New Construction and Major Renovations (LEED-NC) rating system. The Visitors Center, which is maintained and operated under the direction of the U.S. Department of Energy (DOE) Office of Legacy Management, is the first building in Ohio, the second DOE building and one of approximately 100 buildings worldwide to achieve platinum certification. As a sustainable building, the Visitors Center includes a ground source heat pump, a biotreatment wetland system, recycled construction materials, native and no-irrigation plants and numerous other components to reduce energy, electricity, and water consumption and to lessen the building's impact on the environment. The building's conceptual design was originally developed by the University of Cincinnati's College of Design, Architecture, Art and Planning (DAAP), with input from the community, and the building was designed and built by the Megen Construction Company-glaserworks team, under the direction of S.M. Stoller, Corporation, the Legacy Management contractor for the Fernald Preserve and the DOE Office of Legacy Management. The project required a committed effort by all members of the project team. This is the first sustainable building constructed as part of the cleanup of the environmental legacy of the Cold War. The Visitors Center's exhibits, reading room, and programs will help to educate the community about the Fernald Preserve's environmental legacy and show how our decisions affect the environment.

INTRODUCTION

The Fernald Preserve Visitors Center (Fig. 1) was designed and constructed as a sustainable building to reduce energy, electricity, and water consumption and to lessen the building's impact to the environment. The Visitors Center, which is maintained and operated under the direction of the U.S. Department of Energy (DOE) Office of Legacy Management, was awarded the Leadership in Energy and Environmental Design New Construction and Major Renovations (LEED-NC) platinum certification level by the US Green Building Council (USGBC), Platinum is the highest rating the USGBC awards. The Visitors Center was built by renovating an existing former Silos Project warehouse and contains an exhibits area, a resource room and a meeting room, as well as office space.

Fig. 1. Fernald Preserve Visitors Center

The Visitors Center was designed and constructed as a result the DOE Office of Environmental Management's commitment to developing an educational outreach program at the Fernald Preserve. The contamination that remained after the historical production of high-purity uranium metal was cleaned up in 2006. Because cleanup to levels acceptable for unrestricted use was not feasible, long-term legacy management is still necessary at the site to ensure that the selected remedy continues to protect human health and the environment.

The Office of Environmental Management and the Office of Legacy Management funded the Visitors Center. In 2006, the Office of Environmental Management turned over responsibility to the Office of Legacy Management, giving it the task of completing the design and construction of the facility. The Visitors Center serves as an institutional control; it informs the public of the Fernald Preserve's remediation, covering such topics as site restrictions, ongoing maintenance and monitoring, and residual risk, among others.

SUSTAINABLE BUILDING GOALS

The Visitors Center was designed and built as a sustainable building to meet existing DOE requirements, as specified in Executive Order 13423, in DOE Orders 450.1A and 430.2B, and as committed by DOE in the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (dated January 2006), which was signed by 18 other federal agencies. The Memorandum of Understanding includes a commitment to incorporate the following guiding principles:

- Employ integrated design principles
- Optimize energy performance

- Protect and conserve water
- Enhance indoor environmental quality
- Reduce environmental impact of materials.

During the Visitors Center planning stages , the Secretary of Energy, Samuel Bodman, announced the Transformational Energy Action Management initiative, The initiative set a goal that 15 percent of existing federal capital asset building inventory incorporate the guiding principles for federal leadership in high-performance and sustainable buildings, as specified in the Memorandum of Understanding. Ultimately, LEED gold certification (or a comparable designation) would be aspired to. Although the Visitors Center was designed when DOE did not yet require its new buildings to achieve LEED gold certification, LM saw the opportunity to:

- Set a high standard as an organization by striving for LEED gold certification, which was ultimately surpassed when the Visitors Center achieved the platinum certification.
- Align the design of the building with the overall mission of the Fernald Preserve: to be a community asset, foster wildlife habitat, and provide educational opportunities through environmental stewardship.
- Serve as a responsible steward of the environment and design a building with little impact on the environment.

As a sustainable building, the Visitors Center offers energy, economic, and environmental benefits that are substantially better than those of standard buildings. In addition, the building itself will be used as a learning tool in the educational program at the Fernald Preserve. Not only will it house educational exhibits and classroom space, but it will also teach visitors about sustainable buildings and encourage them to identify ways to help to reduce their impact on the environment.

PARTICIPANTS

The key participants who helped the project achieve the platinum certification included the following:

- The Office of Legacy Management, owner of the Fernald Preserve.
- The S.M. Stoller Corporation (Stoller), DOE's contractor that manages the Fernald Preserve, and oversaw the design and construction of the Visitors Center, the preparation and submission of documentation for several LEED credits and the quality review of all LEED application documentation.
- The University of Cincinnati's College of Design, Architecture, Art and Planning, the original developer of the conceptual design, which took into account input from the community, and the designer of the educational exhibits in the Visitors Center.
- Megen Construction Company-glaserworks, the design-build subcontractor team, which was responsible for preparing and submitting the LEED application documentation. Megen Construction Company was in charge of construction and of the preparation and submission of documentation for several LEED credits. Glaserworks was responsible for architectural design of the building, provided a LEED Accredited Professional architect, and was responsible for preparing and submitting information for several LEED credits, and the LEED application documentation.
- URS, the subcontractor that designed and installed the biotreatment wetland system.
- RPC Mechanical, the subcontractor that designed the heating, ventilating, and air-conditioning system and installed the ground source heat pump.

- Southwest Services, the subcontractor that provides green janitorial services.
- Water Quality Systems Incorporated, the subcontractor that designed and installed the landscaping.

BUILDING DESCRIPTION

The Fernald Preserves Visitors Center was formerly an onsite warehouse (Fig. 2). The warehouse was a pre-engineered metal building system, measuring 120 feet x 90 feet (10,800 square feet) with a 20 foot eave height. The warehouse underwent major renovation when the Visitors Center was constructed.

Fig. 2. Former Onsite Warehouse

The Visitors Center contains information on and context for the remediation of the Fernald site, including information on site restrictions, ongoing maintenance and monitoring, and residual risk. This information is available in the Visitors Center resource room, reading room and it also is presented in an engaging way, through a series of world-class educational exhibits. The Visitors Center also provides a meeting room, office space, and an atrium waiting area with views of the Fernald Preserve, including from which the on-site disposal facility, the groundwater treatment facility, and various wildlife habitats can be viewed. Two outdoor educational walking trails begin at the Visitors Center and the open space around the Visitors Center features plants native to the area. A primary goal of the Visitors Center is to perform an informational and educational function for the surrounding community. The information made available at the Visitors Center serves as an institutional control to maintain awareness of site history and conditions, and to help prevent unsafe disturbances to and uses of the site, as defined in the *Comprehensive Legacy Management and Institutional Controls Plan.*
More information regarding the Visitors Center, the evolution of its design, and the exhibits area is described in *The Fernald Preserve Visitors Center: The Fernald Experience—Revealing, Engaging, and Preserving* (WM'09 #39).

LEED PROCESS

LEED is a third-party certification program administered by the USGBC, of which DOE is a member, and is an internationally accepted benchmark for the design, construction and operation of high performance green buildings. The LEED Green Building Rating System™ encourages and accelerates the global adoption of sustainable green buildings and development practices through the creation and implementation of universally accepted tools and performance criteria. LEED promotes a whole-building approach to sustainability by recognizing performance, measured by the achievement of credits, in five key areas of human and environmental health and one area for innovation and design process:

- "Sustainable Sites" credits encourage preference to be given to sites and land use plans that limit the environmental impact on local ecosystems and enhance the health of the surrounding community.
- "Water Efficiency" credits encourage less and more efficient, water use, which in turn results in lower water use fees and lower volumes of sewage that requires energy and chemicals for treatment.
- "Energy and Atmosphere" credits address the amount of energy required and encourage using more benign forms of energy.
- "Materials and Resources" credits are designed to promote the use of building materials that reduce the network of extraction, processing and transportation steps required to process them that may pollute the environment and deplete natural resources.
- "Indoor Environmental Quality" credits specify building materials that release fewer and less harmful chemical compounds to reduce the exposure of building occupants to many potential air pollutants that come through the inhalation of indoor air.
- "Innovation and Design Process" credits offer an opportunity to employ innovative features with sustainability benefits that are not already incorporated into existing credits within the above five areas. Also, building performance that greatly exceeds those required in an existing LEED credit can be awarded an Innovation and Design Process credit.

Leaders from many different sectors—including building owners and end users, real estate developers, architects, designers, engineers, general contractors, product manufacturers, government agencies, and nonprofits—helped the USGBC establish the LEED-NC rating system. The system includes the opportunity to achieve one of four certification levels, depending on the number of credits that the USGBC awards a project (see box). The criteria for meeting each of the 69 possible credits, as well as the criteria for meeting the required prerequisites, are described in detail in the *Green Building Rating System For New Construction & Major Renovations*, version 2.2 (October 2005).

A project striving to achieve a particular certification level is encouraged by LEED practitioners to pursue a greater number of credits than the final target because generally projects are not awarded every credit they pursue. For example, a particular credit may not be awarded if the documentation the USGBC requires for it is not complete. Also, as a building is constructed, decisions may be made (inadvertently or deliberately, (e.g., to reduce costs, to address a design issue) that precludes a particular credit from being awarded.

SUSTAINABLE BUILDING ELEMENTS

The decisions made during the design and construction process for the Visitors Center and the commitment by all team members enabled DOE to surpass its goal of achieving gold certification and achieve platinum certification. The Visitors Center targeted 55 credits, 53 of which were ultimately awarded. A copy of the LEED checklist showing the specific credits earned by the Visitors Center is provided at the end of this paper.

The Visitors Center's key design and construction elements that helped to support LEED certification and that will reduce the building's affect on the environment include the following.

Sustainable Sites

- The *Erosion & Sedimentation Control Plan* was written and implemented to ensure compliance with Phase I and Phase II National Pollutant Discharge Elimination System requirements for

general construction, and to ensure the prerequisite credit for sustainable sites was met. Failure to meet the prerequisite credit would have caused any additional sustainable site credits to be denied.

- Selection of the site location was made to ensure that it was not on a prohibited site. This helped the project to achieve Sustainable Sites Credit 1, "Site Selection".
- A Brownfield site was selected for construction. Instead of constructing an entirely new building, DOE reused an existing building from when the DOE site was operational and did not require any additional development of land. This helped the project to achieve Sustainable Sites Credit 3, "Brownfield Redevelopment".
- An existing facility onsite was used rather than constructing a new building on previously undeveloped or unused land. This helped the project to achieve the Sustainable Sites Credit 5.1 and 5.2, Site Development, "Protect or Restore Habitat" and "Maximize Open Space".
- Bike racks and showers for cyclists, and hybrid car preferred parking spaces were installed for visitors to use encourages transportation vehicles that reduce pollution. These components helped the project to achieve Sustainable Sites Credits 4.1 and 4.2, "Alternative Transportation".
- A series of best management practices (e.g., vegetated filter strips, wetlands, and detention ponds) was used to reduce stormwater runoff from the roof and impervious surfaces. This helped the project to achieve Sustainable Sites Credits 6.1 and 6.2, Stormwater Design, "Quantity Control" and "Quality Control".
- Roofing materials with a high solar reflective index value were installed to reduce heat island effect. This helped the project to achieve Sustainable Sites Credit 7.1, "Heat Island Effect, Roof."
- Outside lighting was designed and installed to minimize illumination and direct light downward to reduce light pollution. This helped the project to achieve Sustainable Sites Credit 8, "Light Pollution Reduction".

Water Efficiency

- Sustainable landscaping for the building included the planting of native vegetation and water efficient plants, as well maximization of open space. The landscaping was specifically designed to eliminate the need for irrigation using potable water. Native plants from an 1819 land survey that provide high value to the wildlife habitat of the surrounding area, in the form of food and cover, were identified and selected. For example, common winterberry, a native shrub with fruit that is eaten by over 48 species of bird, was planted. A number of canopy trees that were planted, including sugar maple, red oak and American beech, to provide high wildlife value for both birds and mammals. The landscaping design helped to achieve the Water Efficiency Credits 1.1 "Water Efficient Landscaping, Reduce by 50%" and 1.2 "Water Efficient Landscaping, No Potable Use or No Irrigation", as well as Sustainable Sites 5.2 "Site Development, Maximize Open Space." Furthermore an additional Innovation and Design Process credit was awarded for doubling the amount of open space.
- Wastewater generation will be reduced while the local aquifer recharge is increased through the use of a biotreatment wetland system which treats 100 percent of wastewater from the building. The biotreatment wetland system is constructed of natural materials and has lower energy inputs than conventional wastewater treatment systems. Water treatment in constructed wetlands is primarily biological and occurs in the root zone of the wetland species. Plants provide a substrate (i.e., the roots of the plants) for microorganisms and oxygenate the system, in turn, an environment in which the microorganisms can metabolize pollutants is created. Other processes, such as plant uptake, sedimentation, precipitation, and filtration, occur within the wetland system and contribute to its overall treatment efficiency. A subsurface flow wetland (Fig. 3) was selected for the Visitors

Fig. 3. Installation of Subsurface Wetland Piping and Substrate

- Low-water use fixtures (e.g., low-flow toilets) will reduce the amount of water used by building occupants and visitors. This helped to achieve the Water Efficiency Credits 3.1, Water use Reduction, 20% and Water Efficiency Credits 3.2. “Water use Reduction, 30%.

Energy and Atmosphere

- If one element of the building had to be identified for helping to ensure the achievement of the platinum level, it would be the ground source heat pump (Fig. 4). A ground source heat pump takes advantage of the relatively stable temperature of the earth and surface water to provide heat during the winter (i.e., heat extracted from groundwater and surface water) and coolness during the summer (i.e., heat rejected to the groundwater and surface water). Energy use is expected to be reduced by more than 40 percent (as compared to traditionally constructed buildings) through the use of a ground source heat pump, as well as careful consideration in the design of the energy envelope of the building, including the windows, doors, insulation, walls and roofing. The ground source heat pump helped to achieve all of the 10 possible points for Energy and Atmosphere Credit 1, “Optimize Energy Performance”.

Fig. 4. Ground Source Heat Pump Installation

- Building systems were verified by an independent commissioning agent to ensure proper operations and energy efficiencies. Energy and Atmosphere Prerequisite Credit 1, “Fundamental Building Systems Commissioning” and EA Credit 4, “Enhanced Commissioning” were awarded.
- Energy and Atmosphere Credit 5, “Measurement and Verification” was pursued but not awarded. A measurement and verification plan was prepared, with plans to install a meter to monitor building electricity use and a meter was installed to monitor water usage.
- All of the power for the building is being purchased from renewable energy sources, which resulted in the awarding of Energy and Atmosphere Credit 6, “Green Power”.

Materials and Resources

- Recycling locations were established for building occupants and visitors to recycle paper, cardboard, metal, plastic, and glass and to and to ensure the prerequisite credit for sustainable sites was met. Having a designated recycling storage and collection centers ensured the prerequisite credit for materials and resources was met.
- Over 75 percent of the construction waste was recycled or reused. This helped to achieve two credits (Materials & Resources 2.1 and 2.2, Construction Waste Management, Divert 50% and 75%, respectively, from Disposal).
- Because most of the existing shell, floors and roof (over 75 percent) was retained, the project was able to attain Materials and Resources Credit 1.1, “Building Reuse, Maintain 75% of Existing Shell, Floors & Roof”. Also, where possible, materials from the existing building were reused in its renovation.
- The impact on natural resources was reduced by using recycled materials; salvaged, refurbished or reused materials; and rapidly renewable materials. The team’s goal was to include at least 10 percent of building materials from recycled sources and at least 20 percent obtained from sources from less than 500 miles away, to reduce the environmental affects of transportation and help to support the local economy. These amounts were more than doubled, with 23 percent recycled material content and 43 percent of materials sourced locally. These efforts helped to achieve

Materials and Resources Credits 4.1, “10% Recycled Content”; 4.2, “20% Recycled Content”; 5.1, “10% Regional Materials”; and 5.2, “20% Regional Materials.”

Indoor Environmental Quality

- Indoor air quality was improved, as compared to traditional buildings, by reducing the quantity of indoor air contaminants that are odorous, irritating and/or harmful, including volatile organic compounds by using carefully selected adhesives, sealants, paints, coatings and carpet. This helped to achieve Indoor Environmental Quality Credits 4.2, “Low-Emitting Materials Paints and Coatings”, 4.3 “Low-Emitting Materials Carpet Systems”, 4.4. “Low-Emitting Composite Wood and Agrifiber Products”, and Credit 5, “Indoor Chemical and Pollutant Source Control”. In addition, a bio-solvent printing ink was selected for the printed wall murals and wall-mounted panel displays that cover up to 70% of all wall surfaces in the exhibition. Indoor Environmental Quality Credits 4.1.”Low-Emitting Adhesives and Sealants”, was pursued, and these type of products were used in the construction, however one of the many submitted product data sheets failed to list VOC content and credit was denied.
- The design of the building also emphasizes an intangible, but important, connection between indoors and the outdoors through the introduction of daylight into, and views from the building. The placement of the offices along the outer wall, along with the design of the wide expanse of glass windows for the lobby area, allows a significant amount of light to enter the office area and the visitor lobby. Providing occupant spaces with daylight has been shown to improve worker comfort and health, reduce absenteeism, improve productivity and improve overall quality of life. This enabled the project to achieve Indoor Environmental Quality Credit 8.1, “Daylight & Views, Daylight 75% of Spaces.”

Innovation and Design Process

- A green cleaning program for the operations of the Visitors Center demonstrates a commitment to using environmentally preferable cleaning products and practices that reduce building occupants’ and maintenance personnel’s exposure to potentially hazardous chemical contaminants and resulted in the achievement of an “Innovation and Design Process” credit.
- The green educational outreach program includes the placement of educational signs throughout the building, which teaches visitors about the sustainable building elements and guided tours of the building. The program helped achieve an “Innovation and Design Process” credit.

LESSONS LEARNED

The key elements that enabled the Visitors Center to a sustainable building and to achieve LEED platinum certification included the following:

- The Office of Legacy Management was committed to pursuing LEED gold certification and set that as a goal for all contractors and subcontractors involved in the project. The Office of Legacy Management also provided support for surpassing that goal when it became evident that achieving platinum certification was a possible, based on the number of credits that could be attained.
- Stoller and Megen-glaserworks were committed to achieving and exceeding the goal established by The Office of Legacy Management.
- The University of Cincinnati’s College of Design, Architecture, Art and Planning incorporated sustainable design principles as early in the design process as possible by including them in the conceptual design.

- Early on, the Office of Legacy Management, Stoller and Megen-glaserworks agreed on which LEED points would be targeted. This was helpful particularly for those LEED points that are affected by multiple design elements. For such points, if just one of those elements is not designed with the considerations of the applicable LEED requirements, the achievement of the points is put in jeopardy.
- Stoller conducted a continual evaluation of how each of the steps in the planning, design, and construction processes could be enhanced to support the achievement of LEED certification.
- Stoller and Megen-glaserworks helped to ensure that the design of the building incorporated sustainable building principles and recognized that the principles needed to be applied in an integrated manner.
- Stoller built on the lessons learned from DOE's experience in constructing LEED certified buildings at other sites, including buildings at the National Renewable Energy Laboratory in Golden, Colorado, at which the Science and Technology Facility was awarded platinum certification in 2007, and the Oak Ridge National Laboratory, which has several LEED certified buildings, as well as a LEED silver and LEED gold building.
- Stoller and glaserworks conducted regular reviews of the design and construction process to identify, track, and manage the achievement of LEED credits. These reviews included an evaluation of the progress of the sustainable building elements against the LEED project checklist to determine the likelihood of achieving each point. This helped to ensure that subcontractors were continuing to construct the building according to the design in order to achieve particular LEED credits.
- Stoller did not take "no" for an answer when it came to whether a particular LEED credit could be achieved. Stoller continued to pursue various alternatives to achieve each possible credit.
- It was important for members of the project team to be educated regarding the sustainable building goals so that they understood the potential impacts of their respective decisions on the LEED certification process.
- To the extent possible, all LEED documentation was reviewed by more than one individual at Megen-glaserworks or Stoller to ensure that the documentation met the applicable LEED criteria and was accurate and complete.
- The USGBC provides an opportunity for projects to submit documentation for select credits after the completion of the design phase, but prior to the completion of construction, rather than at the end of the project. Stoller and Megen-glaserworks took advantage of this phased approach to submit documentation for as many LEED credits as possible early in the process so there would be more time available to address any issues raised during the USGBC review.

CONCLUSION

The achievement of platinum certification took a team of dedicated members. With the committed effort by all members of the project team, the Fernald Preserve Visitors Center is the first sustainable building constructed as part of the cleanup of the environmental legacy of the Cold War. The Visitors Center is a tribute to the successful cleanup of the Fernald Preserve and it serves as an institutional control by informing the public of the site's remediation. It will play an important role in educating the community regarding how our decisions affect the environment and on the environmental legacy of the Fernald Preserve.

LEED™ Checklist for the Fernald Preserve Visitors Center
Criteria: LEED for New Construction Version 2.2 (October 2005)

Points Awarded	Leed Requirements and Credits		Possible Points
Sustainable Sites (SS)			
Req	Prereq 1	**Erosion & Sedimentation Control**	LEED req
1	Credit 1	**Site Selection**	1
	Credit 2	**Development Density & Community Connectivity**	1
1	Credit 3	**Brownfield Redevelopment**	1
	Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
1	Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
1	Credit 4.3	**Alternative Transportation**, Low Emitting & Fuel Efficient Vehicles	1
	Credit 4.4	**Alternative Transportation**, Parking Capacity	1
1	Credit 5.1	**Site Development**, Protect or Restore Habitat	1
1	Credit 5.2	**Site Development**, Maximize Open Space	1
1	Credit 6.1	**Stormwater Design**, Quantity Control	1
1	Credit 6.2	**Stormwater Design**, Quality Control	1
	Credit 7.1	**Heat Island Effect**, Non-Roof	1
1	Credit 7.2	**Heat Island Effect**, Roof	1
1	Credit 8	**Light Pollution Reduction**	1
10	**Sustainable Sites Subtotal**		14
Water Efficiency (WE)			
1	Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
1	Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
1	Credit 2	**Innovative Wastewater Technologies**	1
1	Credit 3.1	**Water Use Reduction**, 20% Reduction	1
1	Credit 3.2	**Water Use Reduction**, 30% Reduction	1
5	**Water Efficiency Subtotal**		5
Energy & Atmosphere (EA)			
Req	Prereq 1	**Fundamental Building Systems Commissioning**	LEED req
Req	Prereq 2	**Minimum Energy Performance**	LEED req
Req	Prereq 3	**Fundamental Refrigerant Management**	LEED req
10	Credit 1	**Optimize Energy Performance**	1-10
	Credit 2	**On-Site Renewable Energy**	1-3
1	Credit 3	**Enhanced Commissioning**	1
1	Credit 4	**Enhanced Refrigerant Management**	1
	Credit 5	**Measurement & Verification**	1
1	Credit 6	**Green Power**	1
13	**Energy & Atmosphere Subtotal**		17
Materials & Resources (MR)			
Req	Prereq 1	**Storage & Collection of Recyclables**	LEED req
1	Credit 1.1	**Building Reuse**, Maintain 75% of Existing Shell, Floors & Roof	1
	Credit 1.2	**Building Reuse**, Maintain 95% of Existing Walls, Floors & Roof	1
	Credit 1.3	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1
1	Credit 2.1	**Construction Waste Management**, Divert 50% from Disposal	1

Points Awarded		Leed Requirements and Credits	Possible Points
1	Credit 2.2	**Construction Waste Management**, Divert 75% from Disposal	1
	Credit 3.1	**Materials Reuse**, 5%	1
	Credit 3.2	**Materials Reuse**, 10%	1
1	Credit 4.1	**Recycled Content**, 10% (post-consumer + 1/2 pre-consumer)	1
1	Credit 4.2	**Recycled Content**, 20% (post-consumer + 1/2 pre-consumer)	1
1	Credit 5.1	**Regional Materials**, 10% Extracted, Processed & Manuf Regionally	1
1	Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manuf Regionally	1
	Credit 6	**Rapidly Renewable Materials**	1
1	Credit 7	**Certified Wood**	1
8	**Materials & Resource Subtotal**		**13**
Indoor Environmental Quality (EQ)			
Req	Prereq 1	**Minimum IAQ Performance**	LEED req
Req	Prereq 2	**Environmental Tobacco Smoke** (ETS) **Control**	LEED req
1	Credit 1	**Outdoor Air Delivery Monitoring**	1
	Credit 2	**Increased Ventilation**	1
1	Credit 3.1	**Construction IAQ Management Plan**, During Construction	1
1	Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1
	Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1
1	Credit 4.2	**Low-Emitting Materials**, Paints & Coatings	1
1	Credit 4.3	**Low-Emitting Materials**, Carpet Systems	1
1	Credit 4.4	**Low-Emitting Materials**, Composite Wood & Agrifiber Products	1
1	Credit 5	**Indoor Chemical & Pollutant Source Control**	1
1	Credit 6.1	**Controllability of Systems**, Lighting	1
1	Credit 6.2	**Controllability of Systems**, Thermal Comfort	1
1	Credit 7.1	**Thermal Comfort**, Design	1
1	Credit 7.2	**Thermal Comfort**, Verification	1
1	Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1
	Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1
12	**Indoor Environmental Quality Subtotal**		**15**
Innovation & Design Process (ID)			
1	Credit 1.1	**Innovation in Design**: Green Cleaning Program	1
1	Credit 1.2	**Innovation in Design**: 100% Wastewater Treatment	1
1	Credit 1.3	**Innovation in Design**: Doubling of Open Space	1
1	Credit 1.4	**Innovation in Design**: Green Building Education Program	1
1	Credit 2	**LEED™ Accredited Professional**	1
5	**Innovation & Design Process Subtotal**		**5**
53			**69** Points

Certified 26-32 points **Silver** 33-38 points **Gold** 39-51 points **Platinum** 52-69 points