

LEED™ EB & GREEN HOUSE GAS ASSESSMENT

SPIEZLE ARCHITECTURAL GROUP, INC.

HEADQUARTERS OFFICE BUILDING

120 SANHICAN DRIVE

TRENTON, NEW JERSEY 08618

PRODUCED FOR:

SPIEZLE ARCHITECTURAL GROUP, INC.

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PRODUCED BY:

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DATE:

SEPTEMBER 18, 2008

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Executive Summary

Speizle Architectural Group, Inc. (SAG), a 100% employee owned company, has established the goals of certifying its existing 15,000sf headquarters building through the LEED EB green building rating system and of achieving carbon neutrality company wide by 2030. In order to assess the scope, cost, and extent of operational changes necessary to accomplish both goals, a committee was formed within the organization to review the LEED™ requirements and collect the necessary data for the green house gas assessment. The deliverables of this report are as follows:

- LEED™ EB Assessment
- LEED™ EB Implementation Plan and development of an implementation plan for LEED™ EB and coordination GHG plan
- Green House Gas Assessment.
- Review and recommendation for optimization of rebates available

A series of monthly progress meetings have been held since the beginning of the project in August 2007. During each meeting, updates have been presented to the committee with follow up recommendations to the executive committee for review and approval. Data on the property was collected as needed, including energy bills for the past year of operation, documentation of existing floor plans, elevations, reflected ceiling plans, lighting inventory, and energy modeling completed. Operational practices and policies were evaluated as determined to be relevant to the sustainability initiatives.

The resultant LEED™ EB and Green House Gas assessment and recommendations outlined in this report along with the consideration of possible costs and incentives were developed to determine the most cost effective measures in achieving a LEED Silver Certification and lay the foundation for a plan to implement green house gas (GHG) reductions over time to achieve the goal of carbon neutrality. As SAG pursues certification and GHG reductions, the ultimate strategies, technologies, and incentives available at the time may vary.

This report was submitted in draft form to SAG Executive Committee for review and comment. The completion of the EB Version 2 assessment rollover to EB Operations and Maintenance required additional time and effort. Comments and feedback from this may result in revisions and a final updated report.

LEED™ EB Version 2 Assessment

The LEED for Existing Buildings Rating System helps building owners and operators measure operations, improvements and maintenance on a consistent scale, with the goal of maximizing operational efficiency while minimizing environmental impacts. LEED for Existing Buildings addresses whole-building cleaning and maintenance issues (including chemical use), recycling programs, exterior maintenance programs, and systems upgrades. It can be applied both to existing buildings seeking LEED certification for the first time and to projects previously certified under LEED for New Construction, Schools, or Core & Shell.

Beginning July 1, 2008, all projects registering for LEED for Existing Buildings must do so under the LEED for Existing Buildings: Operations & Maintenance version. During this study, the Operations & Maintenance version on LEED was just being introduced and subsequently the new guidelines have been made available to the public. The new checklist and reference guide are still unavailable. As part of the appendix to this document, we have included the new Operations and Maintenance guidelines, a written explanation of the differences, and a checklist-style comparison of O&M vs. EB.

See Figure A in Appendix for LEED EB V2 Assessment.

As you will see from the EB V2 implementation plan included in the appendix, upon assessment of the facility, it is possible for the office building to achieve a GOLD certification with the appropriate investment in improvements. The major improvements needed are in the building envelope and operations such as recycling, green cleaning, and purchasing policies. In our initial analysis, it was thought to cost \$400,000 approximately to get our building up to LEED™ Gold certification. The primary cost for this is in replacing the single pane windows.

The single greatest challenge for SAG is the building energy performance. In order to be eligible for LEED EB certification, existing building must score a 69 in the Energy Star Portfolio Manager program. Given the energy data collected, SAG's office building scored a 16, as shown in figure B attached. Energy Star's portfolio manager rates building based on national averages of similar building types. The score of 16 for SAG means that based on the national average of office buildings, SAG's energy use is at the bottom of the pile and significant improvement is needed in how SAG uses energy in its building in order to even qualify for LEED certification. Unfortunately, the existing building envelope is solid masonry with single pane windows original to its 1960 construction. The total R value of the building envelope is not more than an R5 which is well below current code

requirements or similar buildings. This is the fundamental challenge of LEED EB, to bring the existing, dated, and often poorly designed, building up to current code and even to exceed it.

In order to determine if it was technically feasible to achieve the energy savings needed to meet the energy star score of 69 SAG conducted a detailed energy model of the building energy use. The results of the energy model are attached as Figure C. The results are based on the actual energy data collected from the past year, attached as Figure D. The results of the energy model show that with improvements in particular areas, the SAG office can achieve the kind of energy savings (approximately 41%) needed to attain an Energy Star score of 69. These areas include the following:

- Replace existing windows with 1", low-e insulated windows
- Remove space heaters (18 total) from staff work stations
- Reduce lighting levels from 50 foot candles/sf to 5 on average with task lighting at specific work areas for proper lighting levels.
- Change operating procedures to shut down copiers, printers, and computers at night on a regular basis. Plug loads were found to be an enormous load on the building even outside operating hours.
- Change HVAC controls to create more energy efficient set points and link lighting and HVAC to CO2 sensors to create demand side ventilation and air conditioning rather than temperature driven ventilation.

LEED™ EB Operations and Maintenance Assessment

After completing the LEED EB V2 assessment, USGBC issued a new rating system guideline for existing buildings known as LEED EB Operations and Maintenance. Comparing the preliminary analysis done above using the LEED EB Version 2 Scorecard and rating system with the new LEED EB Operations and Maintenance rating system, a new scorecard was created based on the new rating system. This scorecard has been rolled in to an implementation plan which is included in the appendix as figure E. The results of this revised assessment using the new LEED EB, O&M rating system were better than the results noted above from a point perspective. There are dramatic changes in the LEED EB rating system, though, between V2 and O&M. There are 19 new credits and 2 new pre-requisites in the O&M revision and a significant number of credits have either been deleted or significantly changed from the prior version making certification less costly to achieve. You will also notice that 34, instead of 32 points are required for certification now and this difference in points required ripples through all levels of certification.

The subsequent implementation plan, which includes costs as well, demonstrates the extent of changes to the LEED EB system via color coding. It also demonstrates approximately a 50% reduction in cost to achieve the same Gold certification level.

While there are credits identified with costs for this facility, if the Owner chose not to pursue those credits, they may still be able to achieve LEED certification. There are a number of pre-requisites that require attention as noted in the Implementation plan. The major concern was meeting Energy Star's portfolio manager requirements. A minimum score of 69 is needed to even be eligible for certification in the revised LEED EB rating system as well so equal attention to the energy conservation measures previously noted is needed. These included significant improvement in HVAC systems, lighting usage, and building envelope improvements to attain this goal. Unless the Energy Star score is improved, this facility will not qualify for LEED certification, despite appearing to have enough other points.

Rebates & Incentives

New Jersey Smart Start Buildings Program:

As SAG has decided to proceed with LEED™ EB certification on its existing facility, incentives and rebates available both through the State and Federal governments will significantly offset the initial costs estimated in the LEED Implementation Plan. These incentives can often improve the return on investment (ROI) substantially, depending upon the project type and specific costs.

New Jersey has a number of very aggressive incentive programs that address high performance HVAC equipment, lighting, building controls and renewable energy systems. A summary of the available incentives for the programs is noted below with additional information available online at www.njcleanenergy.com

For the scope outlined for this project, there is a new program called 'Pay for Performance' which was recently approved by New Jersey Board of Public Utilities (NJBPU). This program offers direct first cost rebates and incentives for building envelope improvements and efficient design including windows, insulation, and better roof construction. It is expected that these incentives will be available the first quarter of 2009.

Other available incentives that will assist with the cost of lighting, HVAC, controls, and renewable energy systems improvements are noted below.

Please note: pre-approval is required for almost all energy efficiency incentives. This means you must submit a Registration Form and an Application Form (and applicable worksheets) before any equipment is purchased (refer to www.njcleanenergy.com for exceptions). The following is a brief outline of the process and available incentives.

Getting Started: Register your project as soon as you know you will be doing a construction project, or replacing/adding equipment. Complete a

Registration Form and submit it to the Commercial/Industrial Market Manager. If you would like help in the design effort or in selecting equipment that is energy efficient, be sure to check the boxes for Technical Assistance and/or Design Support. (A Program Representative will contact you upon receipt of your registration form.)

Smart-Growth Eligibility: *Check to make sure your project is eligible for incentives.* Incentives for new construction are available only for projects in areas designated for growth in the NJ State Development and Redevelopment Plan. Customers, or their trade allies, can determine if a location is in a designated growth area by referring to the Smart Growth Locator available from the HMFA website or check the State Plan Quad PDF files available from the NJ Department of Community Affairs. Contact the Market Manager if you are uncertain about project eligibility. The Smart Growth policies will be implemented consistent with Board Orders as described more fully in the C&I Operational Procedure Manual.

Apply for pre-approval by submitting (along with a Registration Form) an Application for the type of equipment you have chosen to install. The application should be accompanied by a related Worksheet, where applicable, and a manufacturer's specification sheet for the equipment you are planning to install. Program representatives will review your application package and approve it, reject it, and/or advise you of upgrades in equipment that will save energy costs and/or increase your incentives.

Design Support for Larger Projects: For large projects (over 50,000 sq. ft.) that are in the conceptual stage, representatives from New Jersey SmartStart Buildings work with the design engineering team to ensure Comprehensive Design Support, an integrated approach that maximizes facility quality and energy efficiency. This three-step process incorporates Design Incentives to offset project engineering fees related to the analysis of premium-efficiency alternatives. New Jersey SmartStart Buildings offers incentives every step of the way:

- **Step 1:** Pre-design brainstorming sessions (\$1,000)
- **Step 2:** Design simulation and screening (\$7,500)
- **Step 3:** Detailed analysis of energy-efficiency measures
- **Step 4:** Incorporate measures into construction documents (\$5,000)

All parties to the Design Support (building owner, design team, and the Commercial/Industrial Market Manager) will complete and sign a Design Support Agreement.

For larger projects already beyond the conceptual stage, Modified Design Support is a streamlined process incorporating incentives and design support to encourage efficiency improvements for one or more electric end-use applications.

Projects participating in Comprehensive Design Support or Modified Design Support may qualify for an added bonus by installing multiple energy-efficient measures (two or more approved measures). This Multiple Measures Bonus provides up to an additional 10% of the total incentives for the individual energy-efficiency measures.

Register your project as early as possible in the Design Process by completing and delivering a Registration Form and checking the box for Design Support.

Technical Assistance for Smaller Projects: "No cost" services available for smaller projects (under 50,000 sq. ft.) and for projects past the preliminary design and bidding stages may include:

- Project review and screening for NJ SmartStart Buildings eligibility
- Suggestions for energy-efficiency measures
- Assistance with incentive applications

Support for Custom Energy-Efficiency Measures: Custom Measures allows program participants the opportunity to receive technical assistance to qualify, and receive an incentive for unique energy-efficiency measures that are not on the Prescriptive Equipment Incentive list, but are project/facility specific.

Incentives for Qualifying Equipment and Projects: *Financial incentives, including design, equipment, and the Multiple Measures Bonus, are limited to a maximum of \$200,000 per customer utility account. In other words, a building site with an electric and gas account are eligible for up to \$400,000 in incentives.*

In addition to design incentives, financial incentives for large and small projects are available. These incentives offset some — or maybe even all — of the added cost to purchase qualifying energy-efficient equipment, which provides significant long-term energy savings. Ranges of incentives are available for qualifying equipment (depending on type, size, and efficiency) in several categories.

For specific details on equipment requirements and financial incentives contact the Commercial/Industrial Market Manager.

Technologies include:

Lighting: The US Department of Energy estimates that lighting makes up 20-30% of total energy consumption for the average commercial building. Retrofitting to T-5 or T-8 high efficiency fixtures with electronic ballasts and installing lighting control systems are smart investments, resulting in reduced energy and demand costs and often enhancing the quality of lighting for better customer experiences and improved employee productivity.

HVAC (Heating, Ventilation, and Air Conditioning): HVAC refers to the equipment, distribution system, and controls that provide space conditioning for a commercial or industrial facility. HVAC systems are typically the primary energy consumers in commercial structures, accounting for approximately half of all the energy used in U.S. buildings. In addition to lowering energy and demand costs, high-efficiency HVAC systems can improve the health, comfort and productivity of building occupants. Incentives are available for high-efficiency equipment such as gas cooling and heating, electric chillers, ground-source or geothermal heating and cooling, and electric unitary systems

Motors & Drives: Premium efficiency motors can significantly reduce production process costs for many operations. Premium motors also run cooler and are better able to withstand variations in voltage. Financial incentives are available for both open drip-proof and totally enclosed fan-cooled motors depending on horsepower and speed. Incentives are also available for variable frequency drives which control the rotating speed of electric motors by applying a low frequency and voltage during motor startup and then ramping up to accelerate the load while limiting current. During shutdown, VFDs allow motors to ramp down at a controlled rate. These devices are very effective in producing energy savings in pump and fan applications.

Water Heating: Commercial, municipal, institutional, and industrial customers can also receive incentives for installing high-efficiency gas water heating in their facilities. The incentives cover smaller devices (50 gallons or less) with energy factors of at least .62, larger units exceeding AFUE levels of 84% or 85% depending on MBH capacity, and gas-fired water booster heaters.

Combined Heat and Power: Most CHP systems include a natural gas-fueled combined cycle combustion turbine to produce both steam and electricity from a single fuel source located on-site. These highly efficient technologies recover the heat that would otherwise be wasted during the generation of electricity and make use of that heat for commercial or industrial processes. This thermal energy may be used for direct heating, as a source for producing hot water or steam, or even for space conditioning and dehumidification.

Combined Heat & Power (CHP) Program

One of the goals of the State of New Jersey is to enhance energy efficiency through on-site power generation with recovery and productive use of waste heat, and to reduce existing and new demands to the electric power grid by providing financial incentives for Combined Heat & Power (CHP) installations.

Objective: Meet the objective of the New Jersey Clean Energy program to use energy efficiency, and clean distributed generation to provide reliability solutions for New Jersey. The program's goals are to reduce overall system peak demand and to encourage the use of emerging technologies.

Qualifying Customers: This program offers qualifying customers, contractors, and energy service companies incentives to purchase and install various types of CHP units. To qualify, the customer's facility must be located in New Jersey, and the customer must purchase electricity from the utility grid. Incentives are capped at \$1 million per project. Any portion of a customer's load that is committed to an interruptible or peak load reduction program is not eligible for incentives. However, these customers can seek incentives for generation capacity to cover their uncommitted load.

Currently, the application period for the 2007 CHP Program has closed and projects are currently being evaluated. The 2008 CHP Program is anticipated to begin in September. Contact the Commercial & Industrial Market Manager (TRC Energy Services) for more information and program requirements.

Alternative Fuel Vehicle Rebate Program

New Jersey's Alternative Fuel Vehicle Rebate Program is funded by \$500,000 in Congestion Mitigation and Air Quality Improvement (CMAQ) funding. This program is modeled on a rebate program funded by the U.S. Department of Energy (DOE) that was geared toward Clean Cities Program Stakeholders in North Jersey, Delaware, and the City of Philadelphia. The intent of this program is to encourage the acquisition of alternative fuel vehicles (AFVs) by local government entities throughout the State of New Jersey.

The following vehicles qualify:

1. Dedicated AFVs, or vehicles that are capable of operating only on an alternative fuel
2. Bi-fuel AFVs, or vehicles that can operate on an alternative fuel or a traditional fuel like gasoline, at the flip of a switch.
3. Hybrid-electric vehicles, which combine an electric motor with a separate gaseous or liquid fuel engine.
4. AFVs purchased after July 1, 2002 are eligible for the AFV Rebate Program.

The incremental costs of purchasing one or more AFVs, instead of gasoline or diesel-powered vehicles, or converting vehicles to operate using alternative fuel, are eligible for rebates, as follows:

Light Duty Vehicles (under 8,500 lbs.)

- Up to \$4,000 toward the incremental cost of a dedicated AFV or hybrid-electric vehicle
- Up to \$2,000 toward the incremental cost of a bi-fuel AFV

Medium Duty Vehicles (8,500-14,000 lbs.)

- Up to \$7,000 toward the incremental cost of a dedicated AFV or hybrid-electric vehicle
- Up to \$4,000 toward the incremental cost of a bi-fuel AFV

Heavy Duty Vehicles (over 14,000 lbs.)

- Up to \$12,000 toward the incremental cost of a dedicated AFV or hybrid-electric vehicle
- Up to \$6,000 toward the incremental cost of a bi-fuel AFV

New Jersey Clean Energy Program:

CORE REBATE PROGRAM

Attractive consumer incentives are available to residential and business customers to help reduce the cost of installing a renewable generation system – such as solar electric, wind, or sustainable biomass. These incentives, which defray the costs of installation, equipment, and interconnection, are paid incrementally based on the size of the system. Funds are limited and current funding for 2008 has been fully committed. New applications for 2009 are expected to begin acceptance later in the year. Checking the web site regularly for updates is advisable. However, depending on the financing scenario, these first cost incentives are often not the determining factor in moving forward with a sizable project.

SOLAR RENEWABLE ENERGY CERTIFICATES (SREC)

The New Jersey SREC Program provides an additional source of financing for clean, emission-free solar electricity. Through the program, New Jersey electric suppliers who are required to invest in a minimum amount of solar energy under New Jersey's Renewable Portfolio Standards (RPS) can buy SRECs from solar electric system owners – big and small. The current trading value of SRECs are approximately \$300 and this is estimated to double in the coming year. As an example, a 100KW system would generate 100 SRECs a year of \$30,000 in revenue through this market.

NJ CLEANPOWER CHOICE PROGRAM

The CleanPower Choice Program from the New Jersey Board of Public Utilities' Office of Clean Energy is a statewide program that allows you to choose clean, renewable sources of energy. CleanPower, supports the generation of renewable energy sources that diversify our energy supply and help create a healthier environment. Types of qualifying clean power include solar power, wind power, Low-impact or small hydro power, and Landfill gas power. Typical premium for clean power is approximately \$.02 kWh.

CLEAN ENERGY FINANCING

Low-interest loans and grants make it more affordable and cost effective to make investments in renewable energy systems and energy-efficient equipment. Financing programs are designed to help businesses, schools, and municipalities invest in the best-performing equipment, which will realize substantial energy cost savings today and in the future and deliver substantial environmental benefits.

SREC-ONLY PILOT PROGRAM

The SREC-Only Pilot Program is designed to enable New Jersey customer-generators to participate in the SREC market without participating in the CORE Program. The SREC-Only Pilot Program is intended to provide customers and project developers with more flexibility to choose to accelerate project development.

Federal Incentives:

Energy Efficient Commercial Buildings Tax Deduction:

The Energy Policy Act of 2005 established a tax deduction for energy efficient commercial buildings applicable to qualifying systems and buildings placed in service from January 1, 2006 through December 31, 2007. This tax deduction was subsequently extended through 2008 by Section 204 of the Tax Relief and Health Care Act of 2006 (H.R. 6111).

A tax deduction of \$1.80 per square foot is available to owners of new or existing buildings who install (1) interior lighting; (2) building envelope, or (3) heating, cooling, ventilation, or hot water systems that reduce the building's total energy and power cost by 50% or more in comparison to a building meeting minimum requirements set by ASHRAE Standard 90.1-2001. Energy savings must be calculated using qualified computer software approved by the IRS. Note that the eligible technologies listed above are provided as examples and do not represent an official list specified in the statute.

Deductions of \$0.60 per square foot are available to owners of buildings in which individual lighting, building envelope, or heating and cooling systems meet target levels that would reasonably contribute to an overall building savings of 50% if additional systems were installed.

The deductions are available primarily to building owners, although tenants may be eligible if they make construction expenditures. In the case of energy efficient systems installed on or in government property, tax deductions will be given to the person primarily responsible for the systems' design. Deductions are taken in the year when construction is completed.

Energy Efficient Commercial Buildings Tax Deduction:

Under the federal Modified Accelerated Cost-Recovery System (MACRS), businesses may recover investments in certain property through depreciation deductions. The MACRS establishes a set of class lives for various types of property, ranging from three to 50 years, over which the property may be depreciated. For solar, wind and geothermal property placed in service after 1986, the current MACRS property class is five years. For certain biomass property, the MACRS property class life is seven years. Eligible biomass property generally includes assets used in the conversion of biomass to heat or to a solid, liquid or gaseous fuel, and to equipment and structures used to receive, handle, collect and process biomass in a waterwall, combustion system, or refuse-derived fuel system to create hot water, gas, steam and electricity.

The federal Energy Policy Act of 2005 (EPAAct 2005) classified fuel cells, microturbines and solar hybrid lighting technologies as five-year property as well. The federal Economic Stimulus Act of 2008, enacted in February 2008, included a 50% bonus depreciation provision for eligible renewable-energy systems acquired and placed in service in 2008. To qualify for bonus depreciation, a project must satisfy these criteria:

- the property must have a recovery period of 20 years or less under normal federal tax depreciation rules;
- the original use of the property must commence with the taxpayer claiming the deduction;
- the property generally must be acquired during 2008; and
- the property must be placed in service during 2008 (or, in certain limited cases, in 2009).

If property meets these requirements, the owner is entitled to deduct 50% of the adjusted basis of the property in 2008. The remaining 50% of the adjusted basis of the property is depreciated over the ordinary depreciation schedule. The bonus depreciation rules do not override the depreciation limit applicable to projects qualifying for the federal business energy tax credit. Before calculating depreciation for such a project, including any

bonus depreciation, the adjusted basis of the project must be reduced by one-half of the amount of the energy credit for which the project qualifies.

For more information on the federal MACRS, see IRS Publication 946, IRS Form 4562: Depreciation and Amortization, and Instructions for Form 4562. The IRS web site provides a search mechanism for forms and publications. Enter the relevant form, publication name or number, and click "GO" to receive the requested form or publication.

Business Energy Tax Credit:

The federal Energy Policy Act of 2005 (H.R. 6) expanded the federal business energy tax credit for solar and geothermal energy property to include fuel cells and microturbines installed in 2006 and 2007, and to hybrid solar lighting systems installed on or after January 1, 2006. These provisions of the tax credit were later extended through December 31, 2008, by Section 207 of the Tax Relief and Health Care Act of 2006 (H.R. 6111). (A 10% credit was available to businesses that invested in or purchased solar or geothermal energy property prior to January 1, 2006.)

For eligible equipment installed from January 1, 2006, through December 31, 2008, the credit is set at 30% of expenditures for solar technologies, fuel cells and solar hybrid lighting; microturbines are eligible for a 10% credit during this two-year period. For equipment installed on or after January 1, 2009, the tax credit for solar energy property and solar hybrid lighting reverts to 10% and expires for fuel cells and microturbines. The geothermal credit remains unchanged at 10%.

The credit for fuel cells is capped at \$500 per 0.5 kilowatt (kW) of capacity. The maximum microturbine credit is \$200 per kW of capacity. No maximum is specified for the other technologies.

Solar energy property includes equipment that uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat. Hybrid solar lighting systems are those that use solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight. Geothermal energy property includes equipment used to produce, distribute, or use energy derived from a geothermal deposit. It does not include geothermal heat pumps. For electricity produced by geothermal power, equipment qualifies only up to, but not including, the electrical transmission stage. Energy property does not include public utility property, passive solar systems, or pool heating equipment.

To qualify, the original use of the equipment must begin with the taxpayer or it must be constructed by the taxpayer. The equipment must also meet any performance and quality standards in effect at the time the equipment is acquired. The energy property must be operational in the year in which the credit is first taken.

If the project is financed in whole or in part by subsidized energy financing or by tax-exempt private activity bonds, the basis on which the credit is calculated must be reduced. (The formula is described in the tax credit instructions.) Subsidized energy financing means "financing provided under a federal, state, or local program, a principal purpose of which is to provide subsidized financing for projects designed to conserve or produce energy." Therefore, a business must reduce the basis for calculating the credit by the amount of any such incentives received.

Recommendations

After reviewing the existing facility energy data, completing the initial Energy star portfolio manager inputs, conducting a thorough energy model of the existing conditions and proposed energy efficiency measures, and completion of the LEED EB analysis we are able to make the following recommendations:

1. The Existing SAG office building needs considerable improvements to meet Energy Star requirements based on the preliminary data entered in to the Portfolio Manager program and subsequent rating of 16 generated. As this is often the largest hurdle of existing facilities, the costs noted in the implementation plan for various points are nominal to achieve LEED certification compared to the short and long term benefits environmentally, socially, and economically.
2. The most significant hurdle for the facility will be bringing the building up to a minimum Energy Star 69 performance level. The current score of 16 is well below the national average for this type of facility. Major improvements of the building's HVAC, lighting, controls, and building envelop are needed as noted previously in this report. Without accomplishing this requirement, this facility can not be LEED certified at any level. SAG's employee commitment to achieving certification and incorporating these measures as part of their green house gas assessment and reduction, combined with a reasonable payback of 7 years or less on the \$250,000 investment indicates this endeavor as a solid investment.
3. Consideration to the multiple strategies and technologies outlined in the LEED Implementation Plan provided in the appendix must be given. Depending on the combination of these selected, the final scoring and rating for LEED certification will vary as will the cost for achieving certification. The most significant cost for the office building identified at this time is the purchase of new windows. This, however, will have a dramatic impact on operational costs and human comfort within the building that will also result in a higher valued building when done.

4. Costs associated with staff time to develop policies, train, and provide in-house monitoring or task performance associated with specific LEED requirements are not included in the current implementation plan costs. SAG has established a tracking mechanism via an internal timesheet methodology to assess the impact of LEED certification costs related to this on their staff time and utility.
5. Based on meetings with SAG's Committee on the environment (COTE), a preliminary schedule has been prepared outlining the major scope of renovation work needed. See figure F. It is anticipated that all major work can be completed before the next air conditioning season starts in 2009. To ensure the follow through with schedule and credit requirements, specific individuals have been assigned to manage each category and additional individuals responsible for individual credit requirements. This hierarchy ensures multiple levels of checking and responsibility within each category to ensure timely compliance and reporting.

SAG Green House Gas Assessment Methodology

Business Goals for GHG Participation and Development:

- Managing GHG risks and identifying reduction opportunities
 - Potential to lower operating costs by reducing consumption
- Public reporting and participation in voluntary GHG programs
 - Grandfathered if/when mandated programs are implemented for calculated base line GHG.
- Participating in GHG markets
 - Opportunity to sell GHG credits
- Recognition for early voluntary action
 - Good PR for potential Higher Education and Government clients
- Leverage/Cutting Edge in industry trends and technology

Methodology of establishing GHG Assessment and Action Plans

There are nine basic steps to developing a green house gas assessment and action plan, no matter how large the facility, campus, or country.

1. Set organizational Boundaries
 - a. Spieze is privately owned and responsible for 100% of its GHG emissions (as opposed to a company that owns multiple companies and may not be responsible for their investment emissions)
2. Set Operational Boundaries
 - a. Scope 1: Direct Emissions (from boilers, furnaces, vehicles, etc owned and operated by SGI onsite)¹
 - b. Scope 2: Electrical Indirect emissions (emissions from the generation of purchased electricity)²
 - c. Scope 3 (optional): Other Indirect Emissions (transportation, purchased materials, etc)

SGI GHG Boundaries:

Scope 1:

- Roof top mechanical equipment
- Furnace/Water heater
- Company Owned Vehicles

Scope 2:

- a. Energy purchased offsite for onsite use
 - Lighting
 - Computers/Plug Loads
 - HVAC
- b. Produced onsite (renewable or other)

¹ Business Development: Relates to Capital Projects clients may be considering

² Business Development: Relates to energy efficiency of new buildings as well as capital projects

Scope 3:

- a. Transportation (employee survey required)
 - Employee travel to and from office regularly
 - Employee travel to and from job sites/client
 - Air travel for business
 - b. Products Consumed
 - a. Paper
 - i. Plotter
 - ii. Standard
 - b. Glass/Aluminum/Plastic
3. Establish a base case year for comparison of reductions
2007 has been chosen for SAG baseline measurements and reduction. Accurate availability of data is important. Many initiatives are based on 1990 levels. This was the target year established by the Kyoto protocol. The definition of 'carbon neutral' does not mean producing absolutely no emissions. It is a target of reducing emission to the levels of 1990 or below within a given timeframe. Since SAG was a vastly different and significantly smaller company, with no credible data to establish a baseline measurement, SAG has chosen to assess its current emissions and set targets based on reducing the intensity level (see examples below) of their emissions by 40% below 2007 levels within 2 years and 10% each 2 years thereafter to achieve a 'carbon neutral' status by 2025.
 4. Calculate GHG
 5. Establish a process for managing and recalculating GHG on a regular basis
 6. Establish process of accounting for GHG reductions
 7. Report results
 8. Verify Results with accounting agency.
 9. Set a target for reductions

Examples include:

ABSOLUTE TARGETS

- Alcoa Reduce GHGs by 25 percent from 1990 levels by 2010, and 50 percent from 1990 levels over same period, if inert anode technology succeeds
- BP Hold net GHGs stable at 1990 levels through 2012
- DuPont Reduce GHGs by 65 percent from 1990 levels by 2010
- Ford Reduce CO₂ by 4 percent over 2003-2006 timeframe based upon average 1998-2001 baseline as part of Chicago Climate Exchange

- Intel Reduce PFCs by 10 percent from 1995 levels by 2010
- Johnson & Johnson Reduce GHGs by 7 percent from 1990 levels by 2010, with interim goal of 4 percent below 1990 levels by 2005
- Polaroid Reduce CO2 emissions 20 percent below its 1994 emissions by year-end 2005; 25 percent by 2010
- Royal Dutch/Shell Manage GHG emissions so that they are still 5 percent or more below the 1990 baseline by 2010, even while growing the business

INTENSITY TARGETS

- Holcim Ltd. Reduce by the year 2010 the Group average specific net CO2 emissions by 20 percent from the reference year 1990
- Miller Brewing Company Reduce GHGs by 18 percent per barrel of production from 2001 to 2006
- National Renewable Energy Laboratory Reduce GHGs by 10 percent per square foot from 2000 to 2005

COMBINED ABSOLUTE & INTENSITY TARGETS

- SC Johnson – GHG emissions intensity reduction of 23 percent by 2005, which represents an absolute or actual GHG reduction of 8 percent
- Lafarge – Reduce absolute gross CO2 emissions in Annex I countries 10 percent below 1990 levels by the year 2010. Reduce worldwide average specific net CO2 emissions 20 percent below 1990 levels by the year 2010

SAG Baseline Green House Gases:

Based on the scope outlined above, SAG conducted a detailed survey of its energy use and employee travel. Summary information is attached as follows:

1. Energy Star Portfolio Manager Results- Figure B
2. Annual Building Energy Use Data- Figure D
3. Green House Gas Protocol Forms;
 - a. Electricity Purchase- Figure G
 - b. Fuel Use- Figure H
 - c. Employee Commuting- Figure I

The summary of the detailed worksheets attached is noted below:

Source:	GHG (tons/yr)
Purchased Electric:	189.41
Consumed Fuels (gas):	46.52
<u>Employee Travel:</u>	<u>126.75</u>
Total CO2 Emissions	362.68

SAG Green House Gases Reduction Strategies:

The goals set by SAG include a 40% reduction below 2007 levels by 2010 and 10% every two years thereafter until we achieve a carbon neutral status by 2025. Based on the results of our Energy Star Portfolio analysis and subsequent green house gas baseline studies, a 40% reduction in GHG can only be achieved through a combination of measures. It will not be enough to cut our electric use, gas use, or commuting alone.

SAG conducted a detailed energy model of the building in order to determine two key points. First, can SAG achieve an Energy Star rating of 69 required by LEED EB to qualify for certification? Second, what specific methods can be employed, at what cost, and with what affect to reduce green house gas emissions to the goals set?

The result of the energy model showed a 41% reduction in energy use based on implementation of the following measures:

1. Replace single pane windows with new 1", Low-E, insulated windows.
2. Reduce lighting levels from 50 footcandles/sf to 5 and provide LED task lighting for specific areas and types of work.
3. Remove space heaters (total of 18) used by staff due to poor window performance.
4. Develop and Implement plug load reduction plan including turn off of all PCs, printers, copiers, and personal devices after hours and on weekends.
5. Install photo/motion sensors in all conference and public areas for lighting and HVAC control.
6. Adjust HVAC controls to optimize temperature set points and ventilation rates based on CO2 demand side ventilation.
7. Install a 10KW photovoltaic roof system

These measures will serve two purposes, qualifying SAG for LEED EB certification and meeting SAG's first GHG goal of a 40% reduction by 2010. Additional measures will be needed to meet the long term goals for GHG reduction. Significant improvements in the building insulation, HVAC equipment, and employee commuting are needed to realize further significant GHG reductions. It is anticipated that the 7 measures indicated above will qualify for significant incentives through the New Jersey Clean Energy Program. The following summarizes the projected Return on Investment.

Estimated Cost for Improvements:	\$265,000
Clean Energy Program incentives (50% est.)	(\$132,000)
Estimated Energy Savings (40% est.)	(\$30,000/yr)

Payback Period for Investment: 4.5 years*

**Based upon current energy prices*



FREQUENTLY ASKED QUESTIONS

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LEED® for Existing Buildings: Operations & Maintenance

What is LEED for Existing Buildings: Operations & Maintenance?

LEED for Existing Buildings: O&M is the revised tool for the ongoing operations and maintenance of existing buildings. The rating system identifies and rewards current best practices and provides an outline for building's to use less energy, water and natural resources; improve the indoor environment; and uncover operating inefficiencies. It is one tool within a suite of LEED assessment instruments developed by the USGBC to promote market transformation to sustainable building and operating practices.

What are the benefits of LEED for Existing Buildings: Operations & Maintenance?

LEED helps building owners and managers solve building problems, improve building performance, and maintain and improve this performance over time. LEED reduces cost streams associated with building operations, reduces environmental impacts, creates healthier and more productive employee workspaces, and provides public recognition for leadership in sustainability. The majority of requirements for LEED for Existing Building certification are operations and maintenance best practices. The process does not necessarily require any major upgrades; instead it promotes using performance records, testing and analysis and tracking resource use. LEED for Existing Buildings: O&M certification ensures your building is meeting its potential.

How is LEED for Existing Buildings: Operations & Maintenance different than other LEED certification systems?

The LEED for New Construction and Commercial Interiors Rating Systems focus largely on the construction and/or major renovation phase of a building. When the project is complete and the building is in operation, LEED for New Construction and Commercial Interiors have performed their intended task. The intent of LEED for Existing Buildings: O&M is to certify the operations and maintenance of the building and create a plan for ensuring high performance over time. The rating system captures both a building's physical systems (equipment, design, land use, etc.) and the way the building is occupied and operated by its managers (waste management, temperature monitoring, commuting programs, etc.).

A key goal of LEED for Existing Buildings: O&M is to institutionalize a process of reporting, inspection and review over the lifespan of the building. So when LEED is applied to new construction and commercial interiors, the one time act of renovating, constructing or tenant fit-out is certified. LEED for Existing Buildings: O&M certifies the completed and operated building as it functions on an ongoing basis.

What is the difference between LEED for Existing Buildings v2.0 and LEED for Existing Buildings: Operations & Maintenance?

The primary goal for revising the LEED for Existing Buildings Rating System was to reduce technical barriers to program participation, where warranted, and thereby to increase its market uptake. In the months prior to beginning the revisions process, a number of barriers to participation became apparent, including many concerns about the documentation burden, ambiguous language, overly burdensome prerequisites, the prescriptive nature of the credits and overlap with LEED for New Construction.

LEED for Existing Buildings: O&M includes Minimum Program Requirements, removal and additions of credits, referenced standards updates and expanded Water Efficiency and Green Cleaning sections. These changes do not affect the intent of the LEED for Existing Buildings Rating System, rather they are meant to clarify the intent and amplify the operations and maintenance scope of the rating system.

Please see the LEED for Existing Buildings: O&M webpage for an outline of rating system changes.

Who should use LEED for Existing Buildings: Operations & Maintenance?

LEED for Existing Buildings: O&M helps building owners and managers solve building problems, and improve building life cycle performance. LEED is used by everyone from facility managers to operations contractors. LEED applies to the spectrum of facilities ranging from those wanting to identify efficiency improvement opportunities and put in place sustainable policies to those facilities in need of significant system and operational improvements.

LEED for Existing Buildings: O&M requires three months of operational data for an initial certification; any building construction must be complete for at least a three month span before LEED certification can be pursued. Existing buildings undergoing substantial renovations are eligible to become certified under LEED for Commercial Interiors, Existing Buildings: O&M (upon completion of the renovation and three months of occupancy/operation) or New Construction. Comparing the requirements of LEED for Existing Buildings: O&M to other LEED rating systems will help you determine which rating system is better suited to your project type.

How do I know if LEED for Existing Buildings: O&M is right for my project?

USGBC encourages the project team to tally a potential point total using the rating system checklists for all possibilities. The project is a viable candidate for LEED certification if it can meet all prerequisites and achieve the minimum points required in a given rating system. If more than one rating system applies, then it is up to the project team to decide which one to pursue. If questions or concerns remain, please e-mail leedinfo@usgbc.org.

How often does a project need to recertify under LEED?

Re-certification of LEED is required at least once every five years, though buildings can re-certify annually. Annual certification might be beneficial in cases where building

operators want yearly feedback on building performance for performance reviews and budgets, or in cases where LEED certification scores are included in lease agreements as a metric for quality of delivered space. Applications for re-certification only require documentation of changes in policies and performance data that have occurred since initial certification.

Is there a minimum age for a building to participate in LEED for Existing Building Operations?

LEED for Existing Buildings: O&M requires buildings to be in operations for at least 12 continuous months before certifying.

Where can I get an updated copy of the LEED for Existing Building: Operations & Maintenance Rating System? It's available for download by going to [LEED for Existing Buildings Web page](#) and then following the link to the Rating System.

Helpful tips to get started:

1. Review the LEED rating system to assess credit potential
2. Set your target certification level: Certified, Silver, Gold, Platinum
3. Assess what equipment will need upgrades
4. Assign responsibility for credits and for writing green policies
5. Make a budget
6. Make a timeline to optimize work and process flow
7. Register project to take advantage of USGBC resources

How was LEED for Existing Building Operations developed?

The LEED for Existing Buildings Core Committee, a group of experts representing various facets of the industry, developed a draft of the rating system (LEED for Existing Buildings Pilot Program Rating System) with input from the LEED Steering Committee. Technical Advisory groups, the Technical and Scientific Advisory Committee, and representatives from all major sectors of the building industry also guided the development of LEED for Existing Buildings. The rating system was piloted in 100 buildings to ensure its practicality as a tool for achieving sustainability. Comments on the pilot rating system received from pilot participants and members of the public guided revisions to the draft system, and the USGBC membership approved a final, 'balloted' version of LEED for Existing Buildings in October of 2004.

What is the process for LEED certification?

LEED Certification steps:

1. Register eligible building via www.usgbc.org
2. Identify and implement operational improvements and equipment upgrades necessary to obtain certification

LEED for Existing Buildings
Frequently Asked Questions

3. Prepare your application by documenting building performance data and operational procedures
4. Submit certification application to the USGBC via LEED Online for review and provide any supplemental information deemed necessary by the reviewers
5. Receive a final LEED certification review from the USGBC

Is training available for LEED?

Yes, USGBC provides LEED for Existing Building Operations training workshops and online webinars. To view the dates and locations of LEED workshops, visit the [Workshop](#) section of the USGBC website. This is a searchable database, enabling you to find the workshop date, location and time that work for you.

Where can I get answers to additional LEED questions? Send emails to: leedinfo@usgbc.org.

6	15	50	21	Sustainable Sites				Possible Points	12
2	9	1	Water Efficiency				Possible Points	10	
23	7	Energy & Atmosphere				Possible Points	30		
1	9	6	3	Indoor Environmental Quality				Possible Points	19
5	2	Innovation in Operations				Possible Points	7		
				Materials & Resources				Possible Points	14

Same	Clr	Mod	New			
				Credit 1	LEED Certified Design and Construction	1
				Credit 2	Building Exterior and Hardscape Management Plan	1
				Credit 3	Integrated Pest Management, Erosion Control, and Landscape Management Plan	1
				Credit 4.1	Alternative Commuting Transportation - 10% Reduction	1
				Credit 4.2	Alternative Commuting Transportation - 25% Reduction	1
				Credit 4.3	Alternative Commuting Transportation - 50% Reduction	1
				Credit 4.4	Alternative Commuting Transportation - 75% Reduction or greater	1
				Credit 5	Reduced Site Disturbance - Protect or Restore Open Space	1
				Credit 6	Stormwater Management	1
				Credit 7.1	Heat Island Reduction - Non-Roof	1
				Credit 7.2	Heat Island Reduction - Roof	1
				Credit 8	Light Pollution Reduction	1

Same	Clr	Mod	New			
				Prereq 1	Minimum Indoor Plumbing Fixture and Fitting Efficiency	R
				Credit 1.1	Water Performance Measurement - Whole Building Metering	1
				Credit 1.2	Water Performance Measurement - Submetering	1
				Credit 2.1	Additional Indoor Plumbing Fixture and Fitting Efficiency - 10%	1
				Credit 2.2	Additional Indoor Plumbing Fixture and Fitting Efficiency - 20%	1
				Credit 2.3	Additional Indoor Plumbing Fixture and Fitting Efficiency - 30%	1
				Credit 3.1	Water Efficient Landscaping - Reduce Potable Water Use by 50%	1
				Credit 3.2	Water Efficient Landscaping - Reduce Potable Water Use by 75%	1
				Credit 3.3	Water Efficient Landscaping - Reduce Potable Water Use by 100%	1
				Credit 4.1	Cooling Tower Water Management - Chemical Management	1
				Credit 4.2	Cooling Tower Water Management - Non-Potable Water Source Use	1

Same	Clr	Mod	New			
				Prereq 1	Energy Efficiency Best Management Practices	R
				Prereq 2	Minimum Energy Efficiency Performance	R
				Prereq 3	Refrigerant Management - Ozone Protection	R
				Credit 1	Optimize Energy Performance	15
				Credit 2.1	Existing Building Commissioning - Investigation and Analysis	2
				Credit 2.2	Existing Building Commissioning - Implementation	2
				Credit 2.3	Existing Building Commissioning - Ongoing Commissioning	2
				Credit 3.1	Performance Measurement - Building Automation System	1
				Credit 3.2	Performance Measurement - System-Level Metering - 40%	1
				Credit 3.3	Performance Measurement - System-Level Metering - 80%	1
				Credit 4.1	Renewable Energy - On-site 3% / Off-site 25%	1
				Credit 4.2	Renewable Energy - On-site 6% / Off-site 50%	1
				Credit 4.3	Renewable Energy - On-site 9% / Off-site 75%	1
				Credit 4.4	Renewable Energy - On-site 12% / Off-site 100%	1
				Credit 5	Refrigerant Management	1
				Credit 6	Emmissions Reduction Reporting	1

Same	Clr	Mod	New			
				Prereq 1	Sustainable Purchasing Policy	R
				Prereq 2	Solid Waste Management Policy	R
				Credit 1.1	Sustainable Purchasing - Ongoing Consumables, 40%	1
				Credit 1.2	Sustainable Purchasing - Ongoing Consumables, 60%	1
				Credit 1.3	Sustainable Purchasing - Ongoing Consumables, 80%	1
				Credit 2.1	Sustainable Purchasing - Durable Goods, electric-powered equipment	1
				Credit 2.2	Sustainable Purchasing - Durable Goods, furniture	1
				Credit 3	Sustainable Purchasing - Facility Alterations and Additions	1
				Credit 4.1	Sustainable Purchasing - Reduced Mercury in Lamps 90 pp/lum-hr	1
				Credit 4.2	Sustainable Purchasing - Reduced Mercury in Lamps 70 pp/lum-hr	1
				Credit 5	Sustainable Purchasing - Food	1
				Credit 6	Solid Waste Management - Waste Stream Audit	1
				Credit 7.1	Solid Waste Management - Ongoing Consumables, 50%	1
				Credit 7.2	Solid Waste Management - Ongoing Consumables, 70%	1
				Credit 8	Solid Waste Management - Durable Goods	1
				Credit 9	Solid Waste Management - Facility Alterations and Additions	1

Same	Clr	Mod	New			
				Prereq 1	Outdoor Air Intruduction and Exhaust Systems	R
				Prereq 2	Environmental Tobacco Smoke (ETS) Control	R
				Prereq 3	Green Cleaning Policy	R
				Credit 1.1	IAQ Best Management Practices - IAQ Management Plan	1
				Credit 1.2	IAQ Best Management Practices - Outdoor Air Delivery Monitoring	1
				Credit 1.3	IAQ Best Management Practices - Increased Ventilation	1
				Credit 1.4	IAQ Best Management Practices - Reduce Particulates in Air Distribution	1
				Credit 1.5	IAQ Best Management Practices - Management for Facility Alterations and Additions	1
				Credit 2.1	Occupant Comfort - Occupant Survey	1
				Credit 2.2	Occupant Comfort - Occupant Controlled Lighting	1
				Credit 2.3	Occupant Comfort - Thermal Comfort Monitoring	1
				Credit 2.4	Occupant Comfort - Daylight and Views, 50% Daylight / 45% Views	1
				Credit 2.5	Occupant Comfort - Daylight and Views, 75% Daylight / 90% Views	1
				Credit 3.1	Green Cleaning - High Performance Cleaning Program	1
				Credit 3.2	Green Cleaning - Custodial Effectiveness Assessment, < 3	1
				Credit 3.3	Green Cleaning - Custodial Effectiveness Assessment, < 2	1
				Credit 3.4	Green Cleaning - Sustainable Cleaning Products and Materials, 30%	1
				Credit 3.5	Green Cleaning - Sustainable Cleaning Products and Materials, 60%	1
				Credit 3.6	Green Cleaning - Sustainable Cleaning Products and Materials, 90%	1
				Credit 3.7	Green Cleaning - Sustainable Cleaning Equipment	1
				Credit 3.8	Green Cleaning - Entryway Systems	1
				Credit 3.9	Green Cleaning - Indoor Integrated Pest Management	1

Same	Clr	Mod	New			
				Credit 1	Innovation in Operations	4
				Credit 2	LEED Accredited Professional	1
				Credit 3	Documenting Sustainable Building Cost Impacts	2

TABLE KEY

- No change from LEED for Existing Buildings v2.0
- Minor Changes: Clarification on requirements; update of referenced standard
- Significant Changes: Modification, deletion or addition to requirements
- New Credit (including prerequisites that became credits and vice versa)

SGI COTE LEED EB Assessment

Status	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost Impact?	Cost Detail
7	Sustainable Sites		Possible Points	14			
	Prereq 1	Construction Activity Pollution Prevention	0	Implement Erosion and Sedimentation Control Plan for any current and future projects. See NJDEP requirements. May need consultant.		\$0	
	Prereq 2	Age of Building	0	Building must be two years old.	Done	\$0	
1	Credit 1	Plan for Green Site & Building Exterior Management	1	Have in place over the performance period a low-impact site and green building exterior management plan that addresses the topics in notes attached.	SAG	\$0	Need to confirm current maintenance costs & any upcharge.
1	Credit 1.2	Plan for Green Site & Building Exterior Management	1	Have in place over the performance period a low-impact site and green building exterior management plan that addresses the topics in notes attached.	SAG	\$0	Need to confirm current maintenance costs & any upcharge.
1	Credit 2	High Development Density Building & Area (Location)	1	Occupy a building that has a density of at least 60,000 square feet of building floor space per acre located within an area with a density of at least 60,000 square feet of building floor space per acre (two-story downtown development).	Calculation needed to confirm SAG	\$0	
1	Credit 3.1	Alternative Transportation, Public Transportation Access	1	Building must be located within 1/2 mile of rail or 1/4 mile of 2 bus lines or provide shuttle access to one of the above.	SAG	\$0	
1	Credit 3.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1	sufficient for the greater of 1% of the building occupants. Add one shower/sex & 5 rack bike rack.	SAG	\$6,200	1 rack @ \$800; 2 36sf shower room conversions @ \$75/sf
1	Credit 3.3	Alternative Transportation, Low Emitting & Fuel Efficient Vehicles	1	Have a communication program in place that promotes the use of alternative fuel vehicles for building occupants. In addition, meet one of the options in notes. Need 2 spots.	SAG	\$450	Install 2 Preferred parking signs

SGI COTE LEED EB Assessment

Status	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost Impact?	Cost Detail
0	Credit 3.4	Alternative Transportation , Carpooling & Telecommuting	1 Option A: Provide preferred parking and implement/document programs and policies for car pools or van pools capable of serving 5% of the building occupants and add no new parking. Option B: Operate an occupant telecommuting program over the performance period that reduces commuting frequency by 20% for 20% or more of the building occupants and provides the necessary communications infrastructure in the building to accommodate telecommuting.	To Be Det. Calc needed	SAG	\$0	MAY BE achievable with calculations from Media Office.
0	Credit 4.1	Reduced Site Disturbance , Protect or Restore Open Space	1 Have in place over the performance period, native or adapted vegetation or other ecologically appropriate features: Cover a minimum of 50% of the site area excluding the building footprint.	NA			Cost & logistic prohibitive
0	Credit 4.2	Reduced Site Disturbance , Protect or Restore Open Space	1 Cover a minimum of 75% of the site area excluding the building footprint.	NA	SAG	\$0	Cost & logistic prohibitive
0	Credit 5.1	Stormwater Design , Quantity Control	1 Have measures in place on the site that mitigate at least 25% of the annual stormwater falling on the site.	NA	SAG		Cost & logistic prohibitive
0	Credit 5.2	Stormwater Design , Quality Control	1 Have measures in place on the site that mitigate at least 50% of the annual stormwater falling on the site.	NA	SAG		Cost & logistic prohibitive
1	Credit 6.1	Landscape & Exterior Design to Reduce Heat Islands , Non-Roof	1 Provide (from existing canopy or within five years of landscape installation) shade on at least 30% of non-roof impervious surfaces on the site, including parking lots, walkways, plazas, etc. Calcs needed.	Existing trees should be adequate to qualify.	SAG	\$0	
0	Credit 6.2	Landscape & Exterior Design to Reduce Heat Islands , Roof	1 Provide Energy Star roof for 75% of roof area or vegetated roof for 50%	NA	SAG	\$0	Cost to modify roof for green roof is prohibitive. Area of actual roof is small and covered with stone. If roof is replaced in future, consider energy star.
0	Credit 7	Light Pollution Reduction	1 Eliminate light trespass from the building and site, improve night sky access and reduce development impact	NA	SAG	\$0	Don't think window configuration will allow for this to be met.

SGI COTE LEED EB Assessment

Status	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost Impact?	Cost Detail
5	Water Efficiency		Possible Points	5			
	Prereq. 1	Minimum Water Performance	Reduce fixture potable water usage to a level equal to or below water use baseline, calculated as 120% of the water usage that would result if 100% of the total building fixture count were outfitted with plumbing fixtures that meet the Energy Policy Act of 1992 fixture performance requirements.	Calcs Needed. May need to upgrade.	SAG	\$0	
	Prereq. 2	Discharge Water Compliance	facility is not regulated by a NPDES Permit, this prerequisite is achieved.			\$0	
1	Credit 1.1	Water Efficient Landscaping , Reduce by 50%	No Permanent Irrigation System	Done	SAG	\$0	
1	Credit 1.2	Water Efficient Landscaping , No Potable Use or No Irrigation	No Permanent Irrigation System	Done	SAG	\$0	
1	Credit 2	Innovative Wastewater Technologies	Reduce use of potable water for building sewage conveyance by 50%, based on water use baseline calculated for WE Prerequisite 1. Install Waterless Urinals	In Progress	SAG	\$1,000	Manufacturer to provide units at no cost. 1 plumber day to swap
1	Credit 3.1	Water Use Reduction , 10% Reduction	Waterless Urinals or dual/low flush fixtures	In Progress	SAG	\$0	See above
1	Credit 3.2	Water Use Reduction , 20% Reduction	Install Dual flush handles on all toilets	In Progress	SAG	\$0	Manufacturer to provide units at no cost. 1 plumber day to swap

SGI COTE LEED EB Assessment

Status	Credit Description		Possible Points	Requirement/Strategy	Progress	Responsibility	Added Cost Impact?	Cost Detail
11	Energy & Atmosphere		23					
	Prereq 1	Existing Building Commissioning	0	Carry out a comprehensive existing building commissioning (see requirements in comments) OR Submit a 1- to 5-Year Plan for continuous improvement of these aspects of commissioning requirements 1-5 until all aspects are completed. During the implementation of the continuous improvement plan, demonstrate continuous improvement on a yearly basis until all aspects are completed. All low-cost and no-cost measures must be implemented in the first two years of the implementation program.		CxA	\$6,000	
	Prereq 2	Minimum Energy Performance Energy Star 60	0	Demonstrate that the building has achieved an EPA ENERGY STAR rating of at least 60 utilizing the EPA's Portfolio Manager tool for building types addressed by ENERGY STAR, OR For building types not addressed by ENERGY STAR, demonstrate that the building has energy performance equivalent to an ENERGY STAR rating of at least 60, as calculated using the alternate method described in the LEED-EB Reference Guide.	Calc required	SAG	\$0	
	Prereq 3	Ozone Protection	0	Zero use of CFC-based refrigerants in HVAC&R base building systems unless a third party (as defined in the LEED-EB Reference Guide) audit shows that system replacement or conversion is not economically feasible.		SAG	\$0	
1	Credit 1.1	Optimize Energy Performance, Energy Star 63	1	May qualify as is. Analysis needed.	Not Started	SAG	\$0	
1	Credit 1.2	Optimize Energy Performance, Energy Star 67 THIS IS A MINIMUM REQUIREMENT FOR CERTIFICATION	1	Insulation & Replace Windows likely needed or improved HVAC, controls, zoning.	Not Started	SAG	\$312,000	4,800sf x \$65/sf
0	Credit 1.3	Optimize Energy Performance, Energy y Star 71	1			MEP	\$0	
0	Credit 1.4	Optimize Energy Performance, ES75	1			MEP	\$0	
0	Credit 1.5	Optimize Energy Performance, ES79	1			MEP	\$0	
0	Credit 1.6	Optimize Energy Performance, ES83	1			MEP	\$0	

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Status	Credit Description			Requirement/Strategy	Progress	Responsible	Added Cost Impact?	Cost Detail
0	Credit 1.7	Optimize Energy Performance, ES87	1			MEP	\$0	
0	Credit 1.8	Optimize Energy Performance, ES91	1			MEP	\$0	
0	Credit 1.9	Optimize Energy Performance, ES95	1			MEP	\$0	
0	Credit 1.10	Optimize Energy Performance, ES99	1			MEP	\$0	
1	Credit 2.1	Renewable Energy, 3% onsite or offsite 15%	1	Onsite 3%	In Progress	SAG	\$34,000	Does not include SREC or energy savings
1	Credit 2.2	Renewable Energy, 6% onsite or 30% offsite	1	Purchase Green power	Not Started	SAG	\$3,000	
1	Credit 2.3	Renewable Energy, 9% onsite or 45% offsite	1	Purchase Green power	Not Started	SAG	\$3,000	
1	Credit 2.4	Renewable Energy, 12% onsite or 60% offsite	1	Purchase Green power			\$3,000	
1	Credit 3.1	Building Operation & Maintenance	1	Have in place a building operations and maintenance staff education program that provides each staff person primarily working on building maintenance with at least 24 hours of education each year. The program should provide information on building and building systems operation, maintenance and achieving sustainable building performance. Training must be of high quality and relevant to building operations and maintenance.	Not Started	CxA	\$1,500	
1	Credit 3.2	Building Operation & Maintenance	1	Have in place over the performance period a comprehensive Best Practices Equipment Preventative Maintenance Program that provides in-house resources or contractual services to deliver post-warranty maintenance.	Not Started	CxA	\$0	

SGI COTE LEED EB Assessment

Status	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost Impact?	Cost Detail
1	Credit 3.3	Building Operation & Maintenance	1	Have in place over the performance period a system for continuous tracking and optimization of systems that regulate indoor comfort and the conditions (temperature, humidity and CO2) delivered in occupied spaces. The system must include: • Continuous monitoring of system equipment performance and of the indoor environmental conditions delivered in the building. • Alarms for performance or conditions that require repair. • A system in place that delivers prompt repairs to problems identified.	Not Started	CxA	\$0
0	Credit 4	Additional Ozone Protection	1	• Do not operate base building HVAC, refrigeration or fire suppression systems that contain CFCs, HCFCs or Halons. Option B: Do not operate fire suppression systems that contain CFCs, HCFCs or halons, AND Reduce emissions of refrigerants from base building HVAC and refrigeration systems to less than 3% of charge per year over the performance period using EPA Clean Air Act, Title VI, Rule 608 procedures governing refrigerant management and reporting and reduce the leakage over the remainder of unit life to below 25%.	Not Started	MEP	\$0
0	Credit 5.1	Performance Measurement	1	Individual meters for equipment required	Not Started	MEP	\$0
0	Credit 5.2	Performance Measurement	1	Individual meters for equipment required	Not Started	MEP	\$0
0	Credit 5.3	Performance Measurement	1	Individual meters for equipment required	Not Started	MEP	\$0
1	Credit 5.4	Performance Measurement	1	Identify building performance parameters that reduce energy use and emissions.	GHG Reporting	SAG	\$0

SGI COTE LEED EB Assessment

Status	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost Impact?	Cost Detail	
1	Credit 6	Document Sustainable Building Costs	1	Document overall building operating costs for the previous five years (or length of building occupancy, if shorter), and track changes in overall building operating costs over the performance period. Document building operating cost and financial impacts of all of the aspects of LEED-EB implementation on an ongoing basis.	Not Started	SAG	\$0	
12	Materials & Resources		Possible Points	16				
	Prereq 1	Source Reduction & Waste Management	0	Labor cost to SAG to document existing waste stream.	Not Started	SAG	\$0	*8 hours SAG Labor
	Prereq 1.2	Source Reduction & Waste Management	0	Minimal cost to purchase collection containers.	Not Started	SAG	\$100	
	Prereq 2	Toxic Material Source Reduction	0	Labor cost to SAG to document existing mercury content in light bulbs	Not Started	SAG	\$0	*4 hours SAG Labor
1	Credit 1.1	Construction, Demolition & Renovation Waste Management - Divert 50%	1	Develop Waste Management Plan for future renovation projects	Not Started	SAG	\$0	*1 hours SAG Labor. Potential cost increase on future projects.
1	Credit 1.2	Construction, Demolition & Renovation Waste Management - Divert 75%	1	Develop Waste Management Plan for future renovation projects	Not Started	SAG	\$0	See Above.
1	Credit 2.1	Optimize Use of Alternative Materials - 10% of Total Purchases	1	Purchase office paper, office equipment, furniture, furnishings and building materials that meet the sustainability criteria. Potential cost increase for these type of products. Availability may vary (Triangle may not carry recycled content paper). We may need to investigate other sources for equipment, paper and supplies.	Not Started	SAG	\$2,000	Labor cost involved with tracking and locating this type of equipment and services.
1	Credit 2.2	Optimize Use of Alternative Materials - 20% of Total Purchases	1	**SEE ABOVE**	Not Started	SAG	\$2,000	
1	Credit 2.3	Optimize Use of Alternative Materials - 30% of Total Purchases	1	**SEE ABOVE**	Not Started	SAG	\$2,000	
0	Credit 2.4	Optimize Use of Alternative Materials - 40% of Total Purchases	1	**SEE ABOVE**	N/A		\$0	This is difficult to project, since the amount of paper, equipment and furniture to be purchased is not readily available. This is a place holder.
0	Credit 2.5	Optimize Use of Alternative Materials - 50% of Total Purchases	1	**SEE ABOVE**	N/A		\$0	
1	Credit 3.1	Optimize Use of IAQ Compliant Products - 45% of Annual Purchases	1	Specify and purchase low-VOC products, including paint, caulk, carpet, coatings, etc...	Not Started	SAG	\$0	Minimal cost, if any. We should be able to obtain these products at low cost or donated by vendors.
0	Credit 3.2	Optimize Use of IAQ Compliant Products - 90% of Annual Purchases	1	**SEE ABOVE**	N/A		\$0	

SGI COTE LEED EB Assessment

Status	Credit Description		Requirement/Strategy	Progress	Responsibility	Added Cost Impact?	Cost Detail	
1	Credit 4.1	Sustainable Cleaning Products & Materials - 30% of Annual Purchases	1	Use cleaning products that meet the Green Seal standard or California Code of Regulations for VOC levels; janitorial paper products shall meet the EPA requirements	Not Started	SAG	\$1,000	This may result in a minimal additional cost, and we will need to identify a cleaning company that is willing to use these products and assist in providing documentation of the materials used.
1	Credit 4.2	Sustainable Cleaning Products & Materials - 60% of Annual Purchases	1	**SEE ABOVE**	N/A		\$1,000	
0	Credit 4.3	Sustainable Cleaning Products & Materials - 90% of Annual Purchases	1	**SEE ABOVE**	N/A		\$0	
1	Credit 5.1	Occupant Recycling - Recycle 30% of the Total Waste Stream	1	Recycle paper, cardboard, glass, aluminum, batteries, light bulbs, metals, etc...	Not Started	SAG	\$1,500	Minimal Labor cost involved with assessing the current waste stream amounts. Cost for recycling will vary depending upon what services the local waste management and municipalities provide.
1	Credit 5.2	Occupant Recycling - Recycle 40% of the Total Waste Stream	1	**SEE ABOVE**	Not Started	SAG	\$0	
1	Credit 5.3	Occupant Recycling - Recycle 50% of the Total Waste Stream	1	**SEE ABOVE**	Not Started	SAG	\$0	
1	Credit 6	Additional Toxic Material Source Reduction - Reduced Mercury in Light B	1	Maintain the level of mercury in light bulbs purchased below 80 picograms per lumen hour for bulbs purchased.	Not Started	SAG	\$0	Minimal labor cost to assess and track the purchase of light bulbs.

SGI COTE LEED EB Assessment

Status	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost Impact?	Cost Detail	
10	Indoor Environmental Quality		Possible Points	22				
	Prereq 1	Outside Air Introduction & Exhaust Systems	0	Provide 10 CFM of fresh air per occupant or meet ASHRAE 62.1 requirements. Also, implement and maintain an HVAC System Maintenance Program and intermittent testing of the system.	To be verified. Company does have an HVAC maintenance program.	SAG	\$10,000	Cost is unknown. If system needs to be re-designed or modified to provide fresh air, changes to the equipment may be required.
	Prereq 2	Environmental Tobacco Smoke (ETS) Control	0	No smoking in the building, or within 25 feet of entrances	Complete	SAG	\$0	
	Prereq 3	Asbestos Removal or Encapsulation	0	Create an asbestos management plan and conduct testing of interior materials to create an inventory of where asbestos is located in the building.	Not Started	SAG	\$2,500	Hire an ACM Consultant to test materials throughout the building.
	Prereq 4	PCB Removal	0	Create a PCB inventory and management plan.	Not Started	SAG	\$2,000	Hire an Environmental Consultant to test materials throughout the building.
0	Credit 1	Outdoor Air Delivery Monitoring	1	Provide CO2 monitoring and control the outside airflow.	Not Started	MEP	\$0	Cost prohibitive
0	Credit 2	Increase Ventilation Effectiveness	1	Increase mechanical ventilation by 30% above ASHRAE 62.1 minimums, or diagram natural ventilation amounts. This will be difficult without major modifications or replacement of the existing HVAC Equipment or can be included into the proposed window replacement.	N/A		\$0	
1	Credit 3	Construction IAQ Management Plan	1	Protect absorptive materials during construction, replace filters, meet SMACNA Requirements	Not Started	SAG	\$2,500	2-week building flush out or air sampling program required for various chemicals in various locations.
1	Credit 4.1	Documenting Productivity Impacts - Absenteeism & Healthcare Cost Impacts	1	Document the history of absenteeism in the company and track changes in the pattern	Not Started	SAG	\$0	Labor cost involved with tracking the absenteeism.
0	Credit 4.2	Documenting Productivity Impacts - Other Productivity Impacts	1	Document levels of productivity and errors made over an established baseline.	N/A		\$0	Not sure if it is realistic to be able to monitor and assess productivity and the amounts of errors.
0	Credit 5.1	Indoor Chemical & Pollutant Source Control - Reduce Particulates in Air	1	Use of MERV 13 filters, routine changing of filters	N/A		\$0	Logistical & Cost Issue
0	Credit 5.2	Indoor Chemical & Pollutant Source Control - Isolation of High Volume Copy/Print/Fax Room	1	Isolating all copiers and printers to reduce exposure of building occupants to chemical	N/A			

SGI COTE LEED EB Assessment

Status	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost Impact?	Cost Detail	
0	Credit 6.1	Controllability of Systems , Lighting	1	Provide controllability of lighting controls for more than 50% of building occupants. This will require adding task lighting fixtures or modification/replacement to existing lighting fixtures.	Not Started	MEP	\$0	Could be cost prohibitive to purchase task lighting at all desks & Modifying the existing lighting system controls
0	Credit 6.2	Controllability of Systems , Thermal Comfort	1	Provide individual temperature control for more than 50% of building occupants.	N/A			Too cost prohibitive. Would require extensive re-design of the entire building's HVAC System.
0	Credit 7.1	Thermal Comfort Design , Comply with ASHRAE 55-1992	1		N/A			Not sure if the HVAC currently complies with the requirement and it may be cost prohibitive to make necessary modifications.
0	Credit 7.2	Thermal Comfort - Permanent Monitoring System	1		N/A			Tied in to Credit 7.1 (which is not applicable).
1	Credit 8.1	Daylight & Views - Daylight for 50% of Spaces	1		Complete		\$0	Building plan allows for the daylighting credit.
0	Credit 8.2	Daylight & Views - Daylight for 75% of Spaces	1		N/A			Building plan limits the applicability of the daylighting credit.
1	Credit 8.3	Daylight & Views - Views for 45% of Spaces	1		Complete		\$0	Building plan allows for the views credit.
0	Credit 8.4	Daylight & Views - Views for 90% of Spaces	1		N/A			Calcs needed to confirm.
1	Credit 9	Contemporary IAQ Practice	1	Develop an IAQ Plan in line with the EPA "Building Air Quality..." guide.	Not Started	MEP	\$0	Labor cost to set up IAQ Plan for the office
1	Credit 10.1	Green Cleaning - Entryway Systems	1	Install and maintain building entranceway systems (grilles, mats, etc...)	Not Started	SAG	\$3,000	Purchase and install grilles or mats at the building entrances.
0	Credit 10.2	Green Cleaning - Isolation of Janitorial Closets	1	Separate the janitor closet through use of negative air pressure, deck to deck partitions, plumbing drains, etc...	N/A			
1	Credit 10.3	Green Cleaning - Low Environmental Impact Cleaning Policy	1	Use of sustainable cleaning systems, products, training of maintenance personnel, etc...	Not Started	SAG	\$1,000	This may result in a minimal additional cost, and we will need to identify a cleaning company that is willing to use these products and methods and assist in providing documentation.
1	Credit 10.4	Green Cleaning - Low Environmental Impact Pest Management Policy	1		Complete		\$0	
1	Credit 10.5	Green Cleaning - Low Environmental Impact Pest Management Policy	1		Complete		\$0	since we do not use a pest management system, do we comply automatically?
1	Credit 10.6	Green Cleaning - Low Environmental Impact Cleaning Equipment Policy	1		N/A		\$500	Not likely that we will purchase compliant equipment for use by our janitorial staff or hire a cleaning company that uses compliant equipment.

SGI COTE LEED EB Assessment

Status	Credit Description		Possible Points	Requirement/Strategy	Progress	Responsible	Added Cost Impact?	Cost Detail
1	Innovation & Design Process		5					
0	Credit 1.1 Innovation in Upgrades, Operation & Maintenance		1					
0	Credit 1.2 Innovation in Upgrades, Operation & Maintenance		1					
0	Credit 1.3 Innovation in Upgrades, Operation & Maintenance		1					
0	Credit 1.4 Innovation in Upgrades, Operation & Maintenance		1					
1	Credit 2 LEED™ Accredited Professional		1	Jason Kliwinski				
	Totals & Certification Summary		85					
46				Total Potential Additional Costs			\$401,250	

Certified: 32-39 points, Silver: 40-7 points, Gold: 48-63 points, Platinum: 64-85

- O = Owner
- A= Architect
- C= Civil Engineer
- MEP= Mechanical/Electrical/Plumbing Engineer
- Y= Yes
- M= Maybe
- N= No

NOTE: In-house staff time/cost not included



Statement of Energy Performance FACILITY SUMMARY REPORT Spieze Architectural Group Headquarters

For 12-month Period Ending: March 31, 2008
Date Generated: July 29, 2008

This document was generated using EPA's Portfolio Manager system. All information shown is based on data provided by the Portfolio Manager account holder. Depending on the use of the SEP Facility Summary, building owners or managers may want to have a professional engineer (PE) verify that the underlying data is accurate. Blank space has been left intentionally on the SEP Facility Summary for a PE stamp.

120 Sanhican Dr.
Trenton, NJ 08618

Year Built: 1960
Gross Floor Area: (ft²) 15,000

Facility Space Use Summary

Office

Space Name	Gross Floor Area (ft ²)	Weekly operating hours	Workers on Main Shift	Number of PCs	Office Air-Conditioned	Office Heated
Office Headquarters	15,000	70	50	57	50% or more	50% or more

Energy Performance Comparison

Results	Current (03/31/2008)	Baseline (03/31/2008)	Delta	Target	Industry Average	ENERGY STAR
Energy Performance Rating	16	16	0		50	75
Energy Intensity (kBtu/ft ²)						
Site	134	134	0		90	66
Source	339	339	0		226	167
Energy Cost						
\$/year	65609	65609	0		43749	32361
\$/ft ² /year	4.37	4.37	0.00		2.91	2.16
CO ₂ Emissions (tons/year)	250	250	0		167	123

More than 50% of your building is defined as Office. Please note that your rating accounts for all of the spaces listed. If you cannot see a rating, you will be compared to the national average of Office.



TRACE® 700 Economic Summary

FIGURE C

By CSA

Project Information

Weather file Newark, New Jersey
 Project Name
 Location
 Building Owner
 User
 Company
 Comments

Alternative 1 - - Existing Conditions
 Alternative 2 - - Upgrade Glass R3 SHGC 38
 Alternative 3 - - Add R15 to walls, R30 to roof
 Alternative 4 - - All Upgrades

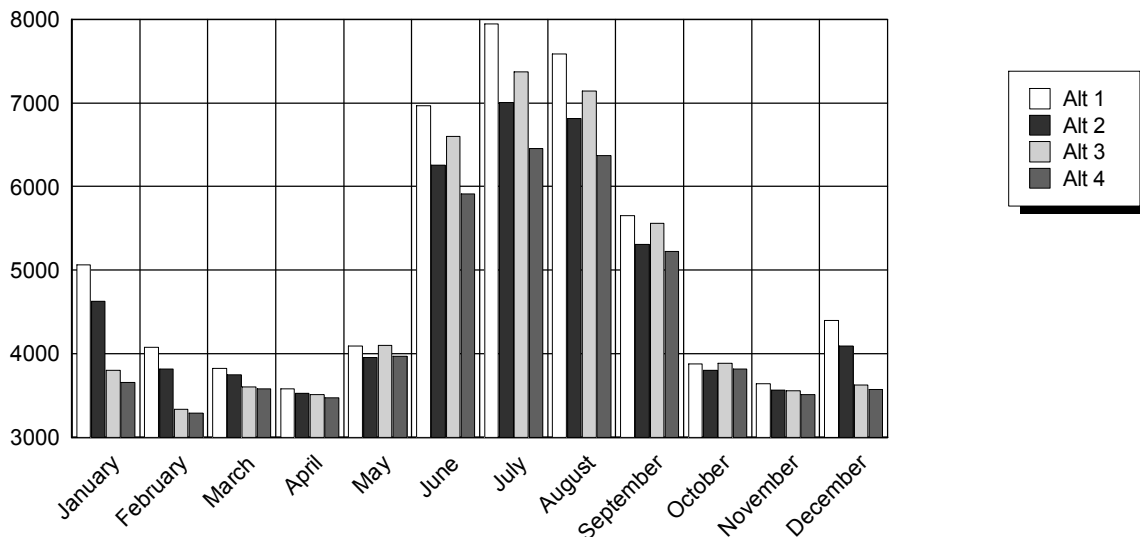
Economic Summary

Alternative Number	Installed Cost	First Year Util. Cost	Final Year Util. Cost	First Year Maint. Cost	Final Year Maint. Cost	Life Cycle Cost
1	226,800.00	60,692.07	106,423.91	0.30	0.30	861,063.37
2	311,850.00	56,484.60	99,046.09	0.30	0.30	902,143.36
3	368,550.00	56,076.36	98,330.24	0.30	0.30	954,577.06
4	368,550.00	52,808.45	92,599.93	0.30	0.30	920,425.79

Economic Comparison of the Alternatives

Alt. - Alt.	First Cost Difference	Simple Payback	Net Present Value	Life Cycle Payback	Internal Rate of Return
2 - 1	85,050.00	20.2 yrs	-41,079.98	Does not pay back	2.6 %
3 - 1	141,750.00	30.7 yrs	-93,513.69	Does not pay back	Does not pay back
4 - 1	141,750.00	18.0 yrs	-59,362.41	Does not pay back	3.8 %
3 - 2	56,700.00	138.9 yrs	-52,433.71	Does not pay back	Does not pay back
4 - 2	56,700.00	15.4 yrs	-18,282.43	Does not pay back	5.4 %
3 - 4	0.00	0.0 yrs	-34,151.28	0.0 yrs	Does not pay back

Monthly Utility Costs



Equipment Energy Consumption by Alternative

	Elect Cons. (kWh)	Gas Cons. (kBtu)	Percent of Total Energy	Total Building Energy (kBtu/yr)	Total Source Energy* (kBtu/yr)
Alternative: 1 - Existing Conditions					
Primary heating		333,024	16.3%	333,024	350,551
Cooling Compressor	79,390		13.3%	270,957	812,951
Tower/Cond Fans	7,648		1.3%	26,102	78,313
Other Clg Accessories	463		0.1%	1,580	4,740
Stand-alone Base Utilities		438,000	21.5%	438,000	461,053
Lighting	189,516		31.7%	646,819	1,940,652
Receptacles	94,758		15.9%	323,410	970,326
Totals**	371,775	771,024	100.0%	2,039,891	4,618,586
Alternative: 2 - Upgrade Glass R3 SHGC 38					
Primary heating		239,191	12.7%	239,191	251,780
Cooling Compressor	62,595		11.3%	213,638	640,978
Tower/Cond Fans	6,108		1.1%	20,848	62,549
Other Clg Accessories	486		0.1%	1,657	4,973
Stand-alone Base Utilities		438,000	23.3%	438,000	461,053
Lighting	189,516		34.3%	646,819	1,940,652
Receptacles	94,758		17.2%	323,410	970,326
Totals**	353,464	677,191	100.0%	1,883,563	4,332,311
Alternative: 3 - Add R15 to walls, R30 to roof					
Primary heating		78,363	4.5%	78,363	82,487
Cooling Compressor	71,230		13.9%	243,108	729,397
Tower/Cond Fans	6,993		1.4%	23,868	71,611
Other Clg Accessories	469		0.1%	1,602	4,805
Stand-alone Base Utilities		438,000	25.0%	438,000	461,053
Lighting	189,516		36.9%	646,819	1,940,652
Receptacles	94,758		18.4%	323,410	970,326
Totals**	362,967	516,363	100.0%	1,755,170	4,260,332
Alternative: 4 - All Upgrades					
Primary heating		52,598	3.2%	52,598	55,367
Cooling Compressor	55,031		11.3%	187,819	563,514
Tower/Cond Fans	5,523		1.1%	18,848	56,551
Other Clg Accessories	506		0.1%	1,726	5,179
Stand-alone Base Utilities		438,000	26.2%	438,000	461,053
Lighting	189,516		38.8%	646,819	1,940,652
Receptacles	94,758		19.4%	323,410	970,326
Totals**	345,333	490,598	100.0%	1,669,221	4,052,641

* Note: Resource Utilization factors are included in the Total Source Energy value.

FIGURE D

Month	PSEG Therms	PSEG Therm Cost	PSEG kWh	PSEG kWh Cost	Average kWh cost	
Apr-07			284.6	\$92.78		\$0.33 Unmetered use
Apr-07	817.5	\$1,103.49	24480	\$2,867.23	\$0.12	
May-07			262	\$90.80		\$0.35 Unmetered use
May-07	388.2	\$524.97	27750	\$3,219.19	\$0.12	
Jun-07			236	\$88.85		\$0.38 Unmetered use
Jun-07	249.85	\$342.51	34590	\$5,384.77	\$0.16	
Jul-07			252.4	\$90.85		\$0.36 Unmetered use
Jul-07	177.5	\$237.86	31260	\$5,401.83	\$0.17	
Aug-07			280	\$94.36		\$0.34 Unmetered use
Aug-07	157.7	\$199.38	30870	\$5,482.40	\$0.18	
Sep-07			308.0	\$96.63		\$0.31 Unmetered use
Sep-07	288	\$332.55	63660	\$11,100.79	\$0.17	
Oct-07			356.4	\$100.72		\$0.28 Unmetered use
Oct-07	346	\$407.11	28530	\$3,794.32	\$0.13	
Nov-07			378	\$103.30		\$0.27 Unmetered use
Nov-07	584.5	\$776.06	23790	\$2,988.41	\$0.13	
Dec-07			409.4	\$106.54		\$0.26 Unmetered use
Dec-07	1071.5	\$1,481.57	23310	\$2,967.04	\$0.13	
Jan-08			401.4	\$106.03		\$0.26 Unmetered use
Jan-08	1061	\$1,458.24	22830	\$2,894.18	\$0.13	
Feb-08			347.4	\$101.59		\$0.29 Unmetered use
Feb-08	1180	\$1,683.13	43170	\$5,555.88	\$0.13	
Mar-08			334	\$100.07		\$0.30 Unmetered use
Mar-08	868	\$1,332.96	22320	\$2,901.06	\$0.13	
Totals	7189.75	\$9,879.83	380409.6	\$55,729.62	\$0.15	
	718975000		1298337965		2,017,312,964.80	142586.4408

Total Annual Utility \$65,609.45

Renewable Energy

Offset		KW	kWh	Cost/kWh	Est. Cost	Achievable
EA CR 1.1	3%	11.4	11412.288	\$7.75	\$88,445.23	Yes
	6%	22.8	22824.576	\$7.75	\$176,890.46	No
	9%	34.2	34236.864	\$7.75	\$265,335.70	No
	12%	45.6	45649.152	\$7.00	\$319,544.06	No

Green Power

				Est. Cost/yr		
EA CR 1.1	25%		95102.4	\$0.02	\$1,902.05	Yes
CR 1.2	50%		190204.8	\$0.02	\$3,804.10	Yes
CR 1.3	75%		285307.2	\$0.02	\$5,706.14	Yes
CR 1.4	100%		380409.6	\$0.02	\$7,608.19	Maybe

Lighting Level Reductions

30000	3744	112320	\$16,454.77	Current Lighting load
450	3744	1684.8	\$246.82	Task lighting

SAG Office Building LEED EB O&M Assessment/Implementation Plan

Office	Credit Description		Possible Points	Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation
5	Sustainable Sites (PERRINO)		12					
	Prereq 1	Construction Activity Pollution Prevention						Pre-Requisite Deleted by O&M
	Prereq 2	Age of Building						Pre-Requisite Deleted by O&M
0	Credit 1	LEED Certified Design & Constuction	1	Show Project has been previously certified under NC, Schools, or Core & Shell				Projects are not previously LEED certified
1	Credit 2 (formerly CR1)	Building Exterior and Hardscape Management Plan (formerly Plan for Green Site & Building Exterior Management)	1	Have in place over the performance period a low-impact exterior management plan that significantly reduces harmful chemical use, energy waste, water waste, solid waste, or chemical runoff in each of five noted categories		Celeste	\$600	All five items must be addressed. May require different maintenance, crews, and chemicals. Policy adjustment required. Cost is for allowance of increased maintenance contract time and alternative products during performance period.
1	Credit 3 (formerly CR1.2)	Integrated Pest Management, Erosion Control, and Landscape Management Plan	1	Have in place over the performance period a low-impact exterior management plan that significantly reduces harmful chemical use, energy waste, water waste, solid waste, or chemical runoff in each of five noted categories		Celeste	\$600	All four items must be addressed, including requirements of CR 3.9. May require different landscape crews and practices. Cost for different cleaning products and staff time during the performance period unknown..
	Credit 2	High Development Density Building & Area (Location)						Deleted by O&M
	Credit 3.1	Alternative Transportation, Public Transportation Access		Building must be located within 1/2 mile of rail or 1/4 mile of 2 bus lines or provide shuttle access to one of the above.				Deleted by O&M
	Credit 3.2	Alternative Transportation, Bicycle Storage & Changing Rooms		Maintain bike storage and shower capacity that is sufficient for the greater of 1% of the building occupants. Add one shower/sex & 5 rack bike rack.				Deleted by O&M
	Credit 3.3	Alternative Transportation, Low Emitting & Fuel Efficient Vehicles		Have a communication program in place that promotes the use of alternative fuel vehicles for building occupants. In addition, meet one of the options in notes. Need 2 spots.				Deleted by O&M

SAG Office Building LEED EB O&M Assessment/Implementation Plan

Office	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation	
2	Credit 4.1-4.4 (formerly 3.4)	Alternate Commuting Transportation (formerly Alternative Transportation, Carpooling & Telecommuting)	4	Reduce commuting round trips made by regular building occupants using single-occupancy conventionally fueled vehicles. For the purpose of this credit this may include telecommuting, compressed workweeks, mass transit, walking, bicycling, carpools, vanpools, & low emitting of fuels efficient or alternate-fuel vehicles. 1 point is awarded for 10%, 25%, 50%, & 75% reductions in commuting trips.		Perrino	\$0	Requires policy change internally and provision for storage and changing facilities for bicycles. Reducing commuting and job site travel via conventional methods could result in reduced operating costs and reimburseable expenses therefore no additional cost is associated with these credits. Company zip car, hybrid, etc for staff use should be considered.
0	Credit 5 (formerly CR 4.1)	Reduced Site Disturbance, Protect or Restore Open Space	1	Have in place over the performance period, native or adapted vegetation or other ecologically appropriate features: Cover a minimum of 25% (formerly 50%) of the site area excluding the building footprint. For urban areas, green roofs covering 5% of site may be used to earn this credit			\$0	Determined to be impractical
0	Credit 4.2	Reduced Site Disturbance, Protect or Restore Open Space	0					Deleted by O&M
0	Credit 6 (formerly 5.1)	Stormwater Design, Quantity Control	1	Have measures in place on the site that mitigate at least 15% of the annual stormwater falling on the site for the average weather year & 2 year, 24hour design storm. (formerly 25%)				Detailed analysis by Civil Eng needed. Likely to be impractical
0	Credit 5.2	Stormwater Design, Quality Control	0					Deleted by O&M
1	Credit 7.1 (formerly 6.1)	Landscape & Exterior Design to Reduce Heat Islands, Non-Roof	1	Provide (from existing canopy or within five years of landscape installation) shade on at least 50% (formerly 30%) of non-roof impervious surfaces on the site, including parking lots, walkways, plazas, etc.		Jason	\$0	Existing tree canopy will likely qualify for credit. Calculation needed.
0	Credit 7.2 (formerly 6.2)	Landscape & Exterior Design to Reduce Heat Islands, Roof	1	Provide Energy Star roof for 75% of roof area or vegetated roof for 50%			\$0	Existing roof is ballasted with stone and will be largely covered with PV.

SAG Office Building LEED EB O&M Assessment/Implementation Plan

Office	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation	
0	Credit 8 (formerly 7)	Light Pollution Reduction	1	Eliminate light trespass from the building and site, improve night sky access and reduce development impact.		Perrino	\$3,000	All non-emergency built-in lighting with a direct line of sight to any openings in the building envelope must be automatically controlled to turn off during all after hours. Costs to install timer, occupancy sensor estimated.
7	Water Efficiency (LEMMON)		Possible Points	10				
	Prereq. 1	Minimum Indoor Water Performance		Reduce fixture potable water usage to a level equal to or below water use baseline, calculated as 120% of the water usage for systems built in 1994 later or 160% for systems built earlier that would result if 100% of the total building fixture count were outfitted with plumbing fixtures that meet the UPC 2006 (formerly Energy Policy Act of 1992) fixture performance requirements.		Lemmon	\$0	Calculations of all fixtures are needed to confirm. No additional anticipated cost is associated with this.
	Prereq. 2	Discharge Water Compliance						Deleted by O&M
1	Credit 1.1	Water Performance Measurement (formerly Efficient Landscaping, Reduce by 50%)	1	Meter potable water use in building		Lemmon	\$0	It is believed by Owner that this already exists. If a new meter is needed the costs would likely be around \$10K to install
0	Credit 1.2	Water Performance Measurement (formerly Efficient Landscaping, Reduce by 100%)	1	Meet CR 1.1 and meter one of more of the following: Irrigation, Indoor plumbing fixture, Colling Towers, domestic hot water, other process water.			\$0	Local water meter at one or more of these items is likely relatively expensive and impractical
3	Credit 2	Additional Indoor Plumbing Fixture & Fitting Efficiency (formerly Innovative Wastewater Technologies)	3	Reduce use of potable water for building fixtures 10%, 20%, or 30% for one point each below calculated baseline in pre-requisite		Lemmon	\$0	Switching to dual flush valves and waterless urinals will obtain 3 credits likely. Fixture costs to swap out urinals and toilets absorbed as demonstration costs by manufacturer.
3	Credit 3 (formerly 3.1)	Water Efficient Landscaping (formely Water Use Reduction, 10% Reduction)	3	Reduce potable water use for irrigation by 50%, 75%, or 100% and earn 1 point for each.		Lemmon	\$0	No irrigation system

SAG Office Building LEED EB O&M Assessment/Implementation Plan

Office	Credit Description			Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation
0	Credit 4.1	Cooling Tower Water management: Chemical Management	1	Develop and implement water management plan that addresses chemical treatment, bleed-off, biological control, and staff training			\$0	Current HVAC system and type unknown. This credit may not be applicable to our HVAC systems. To be confirmed.
0	Credit 4.2	Cooling Tower Water management: Nonpotable Water Source Use	1	Use makeup water that consists of 50% nonpotable water.			\$0	Possibility depends on findings of credit above.
12	Energy & Atmosphere (TONY) Possible Points			30				
	Prereq 1	Energy Efficiency Best Management Practices-- Planning, Documentation, & Opportunity Assessment (formerly Existing Building Commissioning)		Document current sequence of operations, Develop a building operating plan, Develop a system narrative, Create a narrative of preventative maintenance plan, Conduct an energy audit meeting ASHRAE Level 1 walk through.		Joe/Tony	\$0	Formerly required full commissioning. This pre-req. requires documentation of existing conditions and a policy/plan.
	Prereq 2	Minimum Energy Performance Energy Star rating of 69		Demonstrate that the building has achieved an EPA ENERGY STAR rating of at least 69 utilizing the EPA's Portfolio Manager tool for building types addressed by ENERGY STAR		Tony	\$215,000	Current Score is 16. New windows and building insulation needed as well as improved HVAC and lighting controls. Building energy model under way to confirm results of action.
	Prereq 3	Ozone Protection		Zero use of CFC-based refrigerants in HVAC&R base building systems unless a third party (as defined in the LEED-EB Reference Guide) audit shows that system replacement or conversion is not economically feasible.		Joe N.	\$0	Confirmation of refrigerant use in all HVAC equipment is needed, including inventory and maintenance plan of same.
1	Credit 1.1	Optimize Energy Performance, Energy Star 67	1	Existing building has insulated windows and relatively modern HVAC systems. Minimum performance is likely.		Tony	\$0	See pre-req. 2 above.
1	Credit 1.2	Optimize Energy Performance, Energy Star 69 THIS IS A MINIMUM REQUIREMENT FOR CERTIFICATION	1			Tony	\$0	
0	Credit 1.3	Optimize Energy Performance, ES71	1				\$0	
0	Credit 1.4	Optimize Energy Performance, ES73	1				\$0	
0	Credit 1.5	Optimize Energy Performance, ES75	1				\$0	
0	Credit 1.6	Optimize Energy Performance, ES77	1				\$0	
0	Credit 1.7	Optimize Energy Performance, ES79	1				\$0	
0	Credit 1.8	Optimize Energy Performance, ES81	1				\$0	

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Office	Credit Description			Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation
0	Credit 1.9	Optimize Energy Performance, ES83	1				\$0	
0	Credit 1.10	Optimize Energy Performance, ES85	1				\$0	
0	Credit 1.11	Optimize Energy Performance, ES87	1				\$0	
0	Credit 1.12	Optimize Energy Performance, ES89	1				\$0	
0	Credit 1.13	Optimize Energy Performance, ES91	1				\$0	
0	Credit 1.14	Optimize Energy Performance, ES93	1				\$0	
0	Credit 1.15	Optimize Energy Performance, ES95+	1				\$0	
2	Credit 2.1	Existing Building Commissioning- Investigation and Analysis	2	Develop a retrocommissioning, recommissioning, or ongoing commissioning plan for the building energy-use systems OR Conduct ASHRAE Level II energy survey and analysis.		Tony	\$0	Development of a commissioning plan is requires SAG to hire a trained commissioning consultant, we anticipate their fees being recouped within the first year of increased efficiencies. Our HVAC contractor may provide or have already
2	Credit 2.2	Existing Building Commissioning- Implementation	2	Implement no or low cost operational improvements and create capital plan for major retrofits; provide training for management; demonstrate observed or anticipated financial costs & benefits of measures implemented; Update building operating plan as necessary.		Tony	\$0	Regular maintenance and implementation of reasonable measures along with documentation of operational improvements are within regular operations Cost of improvements are included in Pre-requisite above.
2	Credit 2.2	Existing Building Commissioning- Ongoing Commissioning	2	Implement an ongoing commissioning program that includes planning, system testing, verification, corrective action response, ongoing measurement & documentation		Joe N.	\$1,500	Review of Maintenance agreement with HVAC vendor needed. This may already be getting done.
0	Credit 3.1 (formerly 5.1)	Performance Measurement: Building Automation (formerly Building Operation & Maintenance)	1	Have in place a BAS system that monitors and controls heating, cooling, ventilation, and lighting at a minimum.		Tony/Joe N.	\$0	Capability of existing building BAS is unknown to meet this credit. Lighting is not currently controled in any way. Cost of
0	Credit 3.2 & 3.3 (formerly 5.2 & 3)	Performance Measurement: System-Level Metering (formely Building Operation & Maintenance)	2	Develop breakdown of energy use in the building. Based on analysis employ system level metering covering at least 40% or 80% of total expected annual energy consumption.			\$0	Cost of submetering is likely very prohibitive.

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Office	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation	
1	Credit 4.1 (formerly 2.1)	Renewable Energy , 3% onsite or offsite 25%	1	Provide either onsite renewable energy for the stated percentage of total electric usage or purchase renewable energy offsite as noted.		Paul	\$34,000	Proposed rooftop PV system will cover this credit.
1	Credit 4.2 (formerly 2.2)	Renewable Energy , 6% onsite or 50% offsite	1	Provide either onsite renewable energy for the stated percentage of total electric usage or purchase renewable energy offsite as noted.		T. Lee	\$0	Purchase of Greenpower is economical and should be cost neutral with efficiency improvements over current operating costs.
1	Credit 4.3 (formerly 2.3)	Renewable Energy , 9% onsite or 75% offsite	1	Provide either onsite renewable energy for the stated percentage of total electric usage or purchase renewable energy offsite as noted.		T. Lee	\$0	Purchase of Greenpower is economical and should be cost neutral with efficiency improvements over current operating costs.
0	Credit 4.4 (formerly 2.4)	Renewable Energy , 12% onsite or 100% offsite	1	Provide either onsite renewable energy for the stated percentage of total electric usage or purchase renewable energy offsite as noted.		T. Lee		Likely not cost neutral
0	Credit 5 (formerly 4)	Additional Ozone Protection	1	<ul style="list-style-type: none"> Do not operate base building HVAC, refrigeration or fire suppression systems that contain CFCs, HCFCs or Halons. Option B: Do not operate fire suppression systems that contain CFCs, HCFCs or halons, AND Reduce emissions of refrigerants from base building HVAC and refrigeration systems to less than 3% of charge per year over the performance period using EPA Clean Air Act, Title VI, Rule 608 procedures governing refrigerant management and reporting and reduce the leakage over the remainder of unit life to below 25%. 			\$0	Replacement of HVAC equipment likely making this credit unfeasible in that case.
	Credit 5.1	Performance Measurement						Deleted by O&M
	Credit 5.2	Performance Measurement						Deleted by O&M
	Credit 5.3	Performance Measurement						Deleted by O&M
	Credit 5.4	Performance Measurement						Deleted by O&M
1	Credit 6	Emissions Reduction Reporting (formerly Document Sustainable Building Costs)	1	Identify building performance parameters that reduce energy use & emissions. Quantify reductions and report them to a formal tracking process.		Ricardo D.	\$0	GHG plan in progress

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Office	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation
11	Materials & Resources (STEVE S.)		Possible Points	14			
	Prereq 1	Sustainable Purchasing Policy (formerly Source Reduction & Waste Management)	0	Create an Environmentally Preferable Purchasing policy addressing requirements of MR 1, for items within building management's control. Additionally, extend EPP to include one of the following: Durable Goods, Facility Alterations & Additions, and/or reduced mercury in lamps.			Purchase of some products may be slightly more expensive than conventional products. Additional research and practice records are needed to confirm cost impacts if any.
	Prereq 2 (formerly 1.2)	Solid Waste Management Policy (formerly Source Reduction & Waste Management)	0	Create an waste management policy addressing requirements of MR 7, 8, & 9 as well as all mercury-containing lamps, for items within building management's control.			Waste Management/recycling is typically a cost savings of significant amounts. Depending on what Hartz is currently paying for this, the order of magnitude of saving could be as high as 50%.
	Prereq 2	Toxic Material Source Reduction					
1	Credit 1.1-1.3	Sustainable Purchasing: Ongoing Consumables (formerly Construction, Demolition & Renovation Waste Management - Divert 50%)	3	Develop a sustainable purchasing program covering low cost per unit materials used and replaced through the course of business such as paper, envelopes, toner, binders, batteries, etc. for 40%, 60%, or 80% respectively.			Items include 10% postconsumer and/or 20% postindustrial materials, 50% rapidly renewable material, 50% harvested & processed within 500 miles, 50% FSC content, rechargeable batteries. Implementing in tenant spaces may be issue. Poliy and supplier agreements require modification Our major purposes are plotter paper and copy paper. Purchase log to be developed.
0	Credit 1.2	Construction, Demolition & Renovation Waste Management - Divert 75%					

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Office	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation	
2	Credit 2.1 & 2.2 (formerly CR 2.1-2.5)	Sustainable Purchasing: Durable Goods (formerly Optimize Use of Alternative Materials)	2	Develop a sustainable purchasing program covering higher cost per unit materials used and replaced infrequently during the course of business or may require capital program outlays to purchase electric powered equipment (2.1) or furniture (2.2) Qualifying electric equipment includes office equipment, appliances, power adapters, and audio visual equipment. Items must either be energy star rated or replace conventional gas powered equipment. Qualifying furniture include 10% postconsumer and/or 20% postindustrial materials, 70% material content salvaged, 50% rapidly renewable material, 50% harvested & processed within 500 miles, 50% FSC content		Celeste	\$0	Incremental cost of policy is unknown at this time.
	Credit 2.2	Optimize Use of Alternative Materials - 20% of Total Purchases						
	Credit 2.3	Optimize Use of Alternative Materials - 30% of Total Purchases						
	Credit 2.4	Optimize Use of Alternative Materials - 40% of Total Purchases						
	Credit 2.5	Optimize Use of Alternative Materials - 50% of Total Purchases						
1	Credit 3 (formerly CR 3.1 & 3.2)	Sustainable Purchasing: Facilities Alterations (formerly Optimize Use of IAQ Compliant Products - 45% of Annual Purchases)	1	Develop a sustainable purchasing program covering materials for renovations, demolitions, refits, and new construction additions. Includes base building elements permanently or semipermanently attached such as walls, doors, windows, paneling, insulation, etc.		Susan E.		Qualifying materials must include 10% postconsumer and/or 20% postindustrial materials, 70% material content salvaged, 50% rapidly renewable material, 50% harvested & processed within 500 miles, 50% FSC content
	Credit 3.2	Optimize Use of IAQ Compliant Products - 90% of Annual Purchases						
1	Credit 4.1 & 4.2	Sustainable Purchasing: Reduced Mercury in Lamps (formerly CR6)	2	Develop a lighting purchasing plan that specifies maximum levels of mercury in mercury containing fixtures purchased for the building and associated grounds. 90% of purchased lamps must comply with target of 90 picograms or less per fixture		Paul	\$0	Reduction of limit to 70 picograms earns credit 4.2. Detailed lighting inventory is needed to confirm current status and levels of mercury.
	Credit 4.1	Sustainable Cleaning Products & Materials - 30% of Annual Purchases						

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Office	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation	
	Credit 4.2	Sustainable Cleaning Products & Materials - 60% of Annual Purchases						
	Credit 4.3	Sustainable Cleaning Products & Materials - 90% of Annual Purchases						
1	Credit 5	Sustainable Purchasing: Food (formerly Occupant Recycling - Cr 5.1-5.3)	1	Purchase 25% of total combined food and beverage purchases during performance period that meet one of criteria: Either USDA Organic Certified, Food Alliance Certified, Rainforest Alliance Certified, Protected Harvest Certified, Fair Trade or Marine Stewardship Council Blue Eco-Label OR/AND produced within 100 mile radius		Celeste		Our current staff lunch and learn, picnic, and office parties can easily incorporate this credit. Policy needs to be developed and implemented.
1	Credit 6	Solid Waste Management: Waste Stream Audit (formerly Occupant Recycling)	1	Conduct waste stream audit of building's entire ongoing consumable waste stream. Use audit to establish a baseline types and amounts of waste making up stream. Identify opportunities for increased recycling and waste diversion.		Celeste	-\$1,500	In progress with ESGM. Has resulted in annual savings.
	Credit 5.3	Occupant Recycling - Recycle 50% of the Total Waste Stream						
	Credit 6	Additional Toxic Material Source Reduction - Reduced Mercury in Light Bulbs						
2	Credit 7.1 & 7.2	Solid Waste Management- Ongoing Consumables	2	Compost, recycle, or reuse 50% of ongoing consumables for credit 7.1 or 70% for credit 7.2		Celeste	\$0	Waste recycling policy in place. Total recycling impany needed from ESGM. 70% expected from prior operations.
1	Credit 8	Solid Waste Management- Durable Goods	1	Reuse or recycle 75% of durable goods waste stream during performance period		Celeste	\$0	Computers, copiers, etc qualify. Recent replacement of 2 copiers and their reuse should be documented.
1	Credit 9	Solid Waste Management- Facility Alterations	1	Divert 70% of waste by volume from facility alterations and additions		Brian E.	\$0	recycling of waste during renovations needs to be managed and documented. ESGM to be involved.

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Office	Credit Description			Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation
15	Indoor Environmental Quality (JOHN WRIGHT) Possible Points 19							
	Prereq 1	Outside Air Introduction & Exhaust Systems	0	Supply at least the outdoor air rate required by ASHRAE 62.1 2007 OR if infeasible, modify or maintain existing system to provide 10 cfm per person		John W.		1. Demonstrate compliance through measurements taken at each system. 2. Implement and maintain an HVAC maintenance program. 3. Test and maintain the operation of all building exhaust systems.
	Prereq 2	Environmental Tobacco Smoke (ETS) Control	0	Option A: Prohibit smoking in the building and designate area 25' away from building outside. Option B: Prohibit smoking in building except in designated areas and provide negative pressure in those areas. Option C: is for residential only.		John W.		
	Prereq 3	Green Cleaning Policy (formerly Asbestos Removal or Encapsulation)	0	Have in place a green cleaning policy for building and site		Celeste		
	Prereq 4	PCB Removal						
1	Credit 1	IAQ Best Management Practices: IAQ Management Program	1	Develop and Implement an IAQ Management program based on EPA's IAQ Building Education and Assessment Model (BEAM) EPA reference number 402-C-01-001, December 2002		John W.		requirements are unknown at this time.
1	Credit 1.2	IAQ Best Management Practices: Outdoor Air Delivery Monitoring (formerly CR1)	1	Install permanent monitoring system that provides feedback on ventilation system performance for at least 80% of building's total outdoor air intake flow serving occupied spaces.		John W.		this formerly required CO2 monitoring...current BAS system may meet criteria for current requirement. Our space is not classified as dense occupancy so CO2 monitoring is no longer required.
0	Credit 1.3	IAQ Best Management Practices: Increased Ventilation (formerly CR2)	1	Increase outdoor air flow rates by 30% above minimum required by ASHRAE 62.1 2007		John W.		Not readily achievable with existing equipment
0	Credit 1.4	IAQ Best Management Practices: Reduced Particulates in Air Distribution (formerly CR 5.1 indoor chemical & pollutant source control)	1	Have in place MERV 13 or greater filtration media for all outside air intakes and inside air recirculation returns. Establish and follow a regular maintenance and replacement schedule.				Not readily achievable with existing equipment

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Office	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation
1	Credit 1.5	IAQ Best Management Practices: Management for Facility Alterations and Additions (formerly CR 3)	1	Develop and implement IAQ management plan for the construction and pre-occupancy phases.			Follow SMACNA IAQ guidelines during construction and conduct a space flush out prior to occupancy.
1	Credit 2.1 (formerly 4.1)	Occupancy Comfort: Occupancy Survey (formerly Documenting Productivity Impacts - Absenteeism & Healthcare Cost Impacts)	1	Implement an occupant comfort survey to collect anonymous responses on thermal comfort, acoustics, indoor air quality, light levels, building cleanliness, etc representing at least 30% of occupants.			Document survey results and corrective actions.
	Credit 4.2	Documenting Productivity Impacts - Other Productivity Impacts					
	Credit 5.1	Indoor Chemical & Pollutant Source Control - Reduce Particulates in Air					
	Credit 5.2	Indoor Chemical & Pollutant Source Control - Isolation of High Volume Copy/Print/Fax Room					
1	Credit 2.2 (formerly 6.1)	Occupant Comfort: Occupant controled lighting (formerly Controllability of Systems, Lighting)	1	For at least 50% of occupants, use lighting controls that enable adjustment to suit the task needs and preferences of individuals for 50% of all individual workstations and for 50% of multioccupant space in building.			Retrofit of work stations with task lighting by manufacturer will meet this credit. Further investigation is needed and consultation with manufacturer rep.
0	Credit 2.3 (formerly 6.2, 7.1, & 7.2)	Occupant Comfort: Thermal Comfort Monitoring (formerly Controllability of Systems, Thermal Comfort)	1	Have in place continous tracking and optimization controls for building systems that regulate indoor comfort and conditions in occupied spaces. Comfort criteria must meet ASHRAE 55-2004.			Continuous monitoring of air temp and humidity, periodic testing of air speed and radiant temperature (hand held devices are permitted), alarms for conditions that require system adjustment or repair, procedures in place to deliver prompt adjustments or repairs in response to reported problems. Likely impractical
	Credit 7.1	Thermal Comfort Design, Comply with ASHRAE 55-1992					
	Credit 7.2	Thermal Comfort - Permanent Monitoring System					
1	Credit 2.4 (formerly 8.1 & 8.3)	Daylight & Views - Daylight for 50% of Spaces	1	Achieve a 2% dalylight factor for 50% of all spaces occupied for critical tasks OR achieve direct line of sight to vision glazing for 45% of all occupied spaces.			Calcs to be performed to confirm daylighting OR views.
1	Credit 2.5 (formerly CR 8.2 & 8.4)	Daylight & Views - Daylight for 75% of Spaces	1	Achieve a 2% dalylight factor for 75% of all spaces occupied for critical tasks OR achieve direct line of sight to vision glazing for 90% of all occupied spaces.			Calcs to be performed to confirm daylighting OR views.
	Credit 8.3	Daylight & Views - Views for 45% of Spaces					

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Office	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation
	Credit 8.4	Daylight & Views - Views for 90% of Spaces					
1	Credit 3.1 (formerly 10.3)	Green Cleaning: High Performance Cleaning Program	1	Establish program for the performance period that addresses the following: appropriate staffing plan, training of personnel in proper recycling and disposal of cleaning chemicals, dispensing equipment and packaging, use of chemical concentrates with proper dilution, use of sustainable cleaning materials, use of cleaning equipment meeting EQ 3.6, and use of sustainable hard floor and carpet care products meeting EQ credit 3.3-3.5			Policy statement and implementation needed.
	Credit 9	Contemporary IAQ Practice					
2	Credit 3.2 & 3.3	Green Cleaning: Custodial Effectiveness Assessment	2	Conduct audit in accordance with APPA Leadership in Educational Facilities "Custodial Staffing Guidelines" to determine the appearance level of facility			CR 3.2 requires a score of 3 or less. CR 3.3 requires a score of 2 or less.
2	Credit 3.4-3.6	Green Cleaning: Purchase of Sustainable Cleaning Products and Materials	3	Implement sustainable purchasing for cleaning materials and products, disposable janitorial products, and trash bags.			A point is awarded for each 30% of total annual purchases by cost that meet at least one of following: Cleaning products- Greenseal GS-37, Environmental Choice CCD-110, 146, or 148 ; disinfectants, floor polish, and strippers- Greenseal GS40, Env. Choice CCD 112, 113, 114, 147, Calif. Regulations for VOCs; disposable janitor products- EPA comprehensive procurement guide, Greenseal GS-09 & 01, CCD 082 & 086; Hand soaps- Greenseal GS41, CCD 104, no antimicrobial agents. Our cleaning staff are committed. In-house purchasing policy needed.
	Credit 10.2	Green Cleaning - Isolation of Janitorial Closets					

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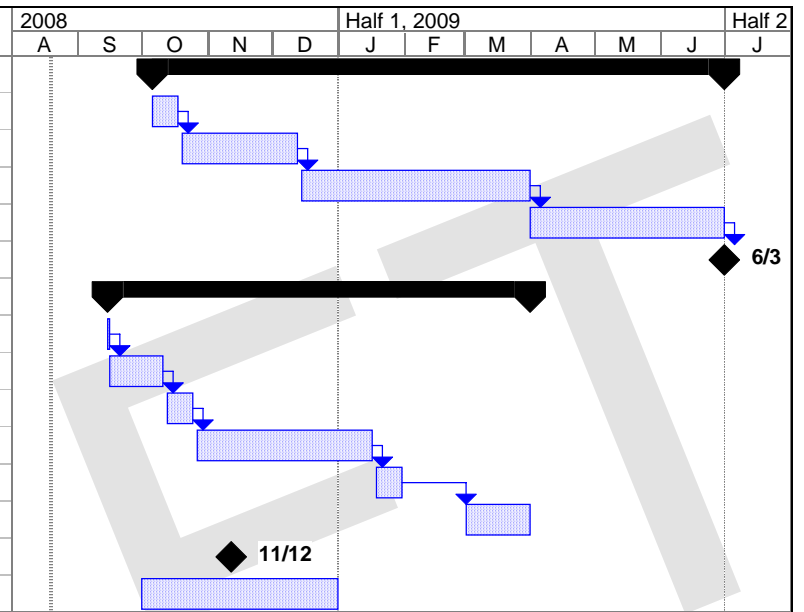
Office	Credit Description		Requirement/Strategy	Progress	Responsible	Added Cost	Comments/Cost Explanation
	Credit 10.3	Green Cleaning - Low Environmental Impact Cleaning Policy					
	Credit 10.5	Green Cleaning - Low Environmental Impact Pest Management Policy					
1	Credit 3.7 (formerly 10.6)	Green Cleaning - Low Environmental Impact Cleaning Equipment Policy	1	Implement use of equipment that reduces building contaminants and reduces environmental impact		Celeste	\$0 Cleaning company to comply
1	Credit 3.8 (formerly 10.1)	Green Cleaning - Entryway Systems	1	Provide at least 10' of entryway system (grilles, grates, or mats) at all public entries and cleaning strategies to maintain them.		Roger V.	\$0 included in lobby renovation budget
1	Credit 3.9 (formerly 10.4 & 10.5)	Green Cleaning - indoor Integrated Pest Management	1	Develop, Implement, and maintain IMP plan.		Celeste	Detailed review of current practices needed and cost to change policy and methods.
2	Innovation & Design Process (Paul G.) Possible Points		4				
1	Credit 1.1	Innovation in Upgrades, Operation & Maintenance	1	to be determined		Paul G.	
1	Credit 1.2	Innovation in Upgrades, Operation & Maintenance	1	to be determined		Paul G.	
0	Credit 1.3	Innovation in Upgrades, Operation & Maintenance	1				
0	Credit 1.4	Innovation in Upgrades, Operation & Maintenance	1				
	Credit 2	LEED™ Accredited Professional					
Totals & Certification Summary			Total Points	89			
52				Total Estimated Potential Additional Costs		\$253,200	

Certified: 34-42 points, Silver: 43-50 points, Gold: 51-67 points, Platinum: 68-92

- New Credit
- Modified Credit
- Deleted Credit
- Needs attention to qualify for LEED

NOTE: In-house staff time/cost not included

ID	Task Name	Duration	Start	Finish	Predecessors	2008					Half 1, 2009					Half 2	
						A	S	O	N	D	J	F	M	A	M	J	J
1	Window Replacement	192 days	Mon 10/6/08	Tue 6/30/09													
2	Window Drawings & Contract	10 days	Mon 10/6/08	Fri 10/17/08													
3	Window Shop Drawings	40 days	Mon 10/20/08	Fri 12/12/08	2												
4	Window Fabrication	77 days	Mon 12/15/08	Tue 3/31/09	3												
5	Window Installation	65 days	Wed 4/1/09	Tue 6/30/09	4												
6	Removal of individual heaters	0 days	Tue 6/30/09	Tue 6/30/09	5												
7	PV Panels	142 days	Mon 9/15/08	Tue 3/31/09													
8	NJCEP Application	1 day	Mon 9/15/08	Mon 9/15/08													
9	PV Design	19 days	Tue 9/16/08	Fri 10/10/08	8												
10	PV Contract	10 days	Mon 10/13/08	Fri 10/24/08	9												
11	PV Shops & Fabrication	60 days	Mon 10/27/08	Fri 1/16/09	10												
12	PV Permit	10 days	Mon 1/19/09	Fri 1/30/09	11												
13	Installation of PV's	22 days	Mon 3/2/09	Tue 3/31/09	12												
14	Upgrade/modification of HVAC Controls	0 days	Wed 11/12/08	Wed 11/12/08													
15	Lighting Upgrades	66 days	Wed 10/1/08	Wed 12/31/08													



Project: Project1 Date: Tue 8/19/08	Task		Milestone		External Tasks	
	Split		Summary		External Milestone	
	Progress		Project Summary		Deadline	

FIGURE F

Indirect CO₂ Emissions from Purchased Electricity

Color Key

User entry cells

Automatic calculation

Note: Grey colored cells are protected to prevent formulas being inadvertently deleted. To unprotect the worksheet, select Protection from the Tools menu followed by

* Please ensure that emission factor units in column B are consistent with activity data units in column A.

Year: 2007			
	A*	B*	C
Facility / source description	Activity Data: Electricity, Heat, and/or Steam Purchase	CO ₂ emission factor	Indirect CO ₂ emissions in metric tons
			$C = A * B / 1,000,000$
	kWh	grams CO ₂ / kWh	metric tons CO ₂
SAG Office / source 1	380409.60	497.90	189.41
Facility / source 2			0.00
Facility / source 3			0.00
Facility / source 4			0.00
Facility / source 5			0.00
Facility / source 6			0.00
Facility / source 7			0.00
Facility / source 8			0.00
Facility / source 9			0.00
Facility / source 10			0.00
Step 4: Sum CO ₂ emissions (in metric tons):			189.41

Direct CO₂ Emissions from Fuel Use in Facilities

Color Key:

Standard label
User entry cells
Automatic calculation

Note: Grey colored cells are protected to prevent formulas being inadvertently deleted. To unprotect the worksheet, select Protection from the Tools menu followed by Unprotect Sheet. No password is required.

* Please ensure that emission factor units in column D are consistent with activity data units in column B.

Year: 2007		A	B*	C	D*	E	F
Source description	Fuel type	Quantity of fuel consumed	Unit	CO ₂ emission factor	kg CO ₂ / unit	CO ₂ emissions in kg	CO ₂ emissions in metric tons
Boiler & Chiller	Gas	7189.75	therm	6.47	5.47	E=AxC 46,517.7	46.52
						0.0	0.00
						0.0	0.00
						0.0	0.00
						0.0	0.00
						0.0	0.00

Step 4: Sum CO₂ emissions: 46.52

Note: You can find emissions factors on the EFs_Fuels page.

**CO₂ Emissions from Employee Commuting:
Activity Data (Fuel Use) for Car Travel**

Color Key:

Standard label
User entry cells
Automatic calculation

Note: Grey colored cells are protected to prevent formulas being inadvertently deleted. To unprotect the worksheet, select Protection from the Tools menu followed by Unprotect Sheet. No password is required.

Note: No data (aside from year) should need to be entered into this worksheet, as it will automatically be pulled from the "Staff Commuting Survey" worksheet. However, if new rows were added to the "Staff Commuting Survey" worksheet, new rows will need to be added to this worksheet as well. This can be done by highlighting the entire row of a blank row by clicking on the row number, then right-click and select "insert". Once new rows are inserted, you may need to copy down the formulae from the original rows in this worksheet to the new rows in this worksheet to ensure that data is properly transferred from the "Staff Commuting Survey" worksheet to this worksheet. To copy down the formulae, you may need to unprotect this worksheet by clicking on "Tools", "Protection", and then "Unprotect Sheet".

TABLE 1

Year: 2008						
Step 2.2a	Step 2.2b		Step 2.2c		Step 2.2d	
A	B	C	D	E	F	G
Staff ID	Total car miles traveled in a week	Total car miles traveled in a year	Fuel economy (Miles per Gallons)	Quantity of fuel used (Gallons)	Number of occupants in the car	Fuel used per person (Gallons)
NJA	77.10	3438.66	21.00	163.75	1.00	163.75
RB	120.10	5524.60	21.00	263.08	1.00	263.08
MJB	316.10	14098.06	23.00	612.96	1.00	612.96
PEB	96.40	4299.44	25.00	171.98	1.00	171.98
AWC	173.50	7738.10	21.00	368.48	1.00	368.48
HJC	120.50	5374.30	35.00	153.55	1.00	153.55
SED	309.00	14214.00	30.00	473.80	1.00	473.80
BME	85.10	3795.46	19.00	199.76	1.00	199.76
MPE	309.70	13812.62	20.00	690.63	1.00	690.63
DMF	97.90	4366.34	28.00	155.94	1.00	155.94
ENG	354.60	15815.16	29.00	545.35	1.00	545.35
PCG	110.20	4914.92	27.00	182.03	1.00	182.03
MEG	211.40	9428.44	24.00	392.85	1.00	392.85
SPH	234.70	10467.62	21.00	498.46	1.00	498.46
TJ	239.90	10699.54	25.00	427.98	1.00	427.98
DLK	201.90	9287.40	28.00	331.69	1.00	331.69
JTK	129.80	5789.08	21.00	275.67	1.00	275.67
RCK	236.00	10525.60	18.50	568.95	1.00	568.95

ASK	548.80	25244.80	30.00	841.49	1.00	841.49
TDL (Laren)	318.10	14632.60	25.00	585.30	1.00	585.30
JKL	114.30	5097.78	20.00	254.89	1.00	254.89
TDL (Lee)	341.20	15217.52	26.00	585.29	1.00	585.29
TJL	194.10	8656.86	17.70	489.09	1.00	489.09
MCL	51.30	2287.98	34.00	67.29	1.00	67.29
CM	67.70	3019.42	12.70	237.75	1.00	237.75
JLM	219.70	9798.62	31.00	316.08	1.00	316.08
JVN	42.90	1913.34	22.40	85.42	1.00	85.42
ABO	251.90	11234.74	18.00	624.15	1.00	624.15
TSP	118.20	5437.20	19.00	286.17	1.00	286.17
KAS	330.80	14753.68	28.00	526.92	1.00	526.92
SGS	346.30	15444.98	30.00	514.83	1.00	514.83
TCS	85.80	3826.68	24.00	159.45	1.00	159.45
SRS	43.50	2001.00	18.00	111.17	1.00	111.17
NTS	150.20	6698.92	27.00	248.11	1.00	248.11
LJT	20.10	896.46	23.00	38.98	1.00	38.98
LKU	149.20	6863.20	25.00	274.53	1.00	274.53
RGV	226.40	10097.44	19.00	531.44	1.00	531.44
TSW	105.50	4705.30	20.00	235.27	1.00	235.27
TRW	319.30	14240.78	27.00	527.44	1.00	527.44
JFW	32.00	1427.20	26.00	54.89	1.00	54.89
MK	177.20	6520.96	30.00	217.37	1.00	217.37

Step 2.2e: Total Fuel Used

14290.22

TABLE 2

Year: 2008		Step 3.1a		Step 3.1b		Step 3.1c	Step 3.1d
Mode of Transportation	Type of fuel used	Quantity of fuel used (annual)	Unit	CO ₂ emission factor	Unit	CO ₂ emissions in kg	CO ₂ emissions in metric tons
			(type gallon or litre)			E=AxC	F=E/1,000
Car	Gasoline/Petrol	14290.22	gallon	8.87	kg CO ₂ /gallon	126754.26	126.75

Step 3.1e: Sum CO₂ Emissions

126.75