

2015

Sustainable Facilities Fellow

Alix Israel
Connecticut College

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Recommended Citation

Israel, Alix, "Sustainable Facilities Fellow" (2015). *Architectural Studies Integrative Projects*. Paper 72.
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The views expressed in this paper are solely those of the author.

ALIX ISRAEL

SENIOR INTEGRATIVE PROJECT:
INTERNSHIP

ARCHITECTURAL STUDIES
CONNECTICUT COLLEGE
2015



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COLLEGE

Alix Israel
Senior Integrative Project:
Internship

Architectural Studies
Connecticut College
2015

Sustainable Facilities Fellow

- Fall 2013 – present
- Part of the Resource Management Team in the Office of Sustainability

The Office of Sustainability

- Established in 2013
- Now includes eight senior fellows that support groups of students working in the areas of resource management, communications, community collaboration, and the New London County Food Policy Counsel
- Includes participation in a two-credit course, an Applied Sustainability Seminar

The Steel House

- The Office of Sustainability is currently based out of the Steel House, a prefabricated house created in 1933 by General Houses Inc., located in Chicago, for the first director of the Lyman Allyn
- It was acquired by the college in 1949, and last used in 2004 as faculty housing

Job Description

“The Sustainable Facilities Fellow will support the Office of Sustainability in working collaboratively with people throughout the community to help expand the College’s existing commitments and efforts related to new construction, major renovations and building maintenance”

Internship Objectives:

- a. Support the implementation and execution of the Sustainable Building Policy, the Sustainable Building Practices, and the Sustainable Operations Practices that I assisted in creating
- b. Collaborate with Custodial Services to formalize Sustainable Cleaning Program's and implement them on campus
- c. Support projects that the Office of Sustainability is involved in on new construction and major renovations
- d. Work towards creating groups that monitor performance of new and existing buildings and increase sustainability of each building;
- e. Support the Office of Sustainability, promote events and recognition on campus

	Resources for the Steel House		
Item	Cost/Unit	# of Items	Total Item Cost
Office Supplies			
Stapler	4.64	2	9.28
Staples	1.7	2	3.4
Carton of Paper	219.08	1	219.08
Scissors	11.5	2	23
Pens (dozen)	7.49	4	29.96
Pencils (dozen)	2.27	4	9.08
Post-Its (dozen)	9.88	3	29.64
Folders	7.89	2	15.78
White Board	86.45	1	86.45
Paper Clips	5.7	2	11.4
	Subtotal		437.07
Kitchen Supplies			
French Press	79.95	1	79.95
Set of Pots and Pans	249	1	249
Baking Sheets	6.99	2	13.98
Baking pans	5.99	3	17.97
Mugs	1.99	10	19.9
Glasses	4.99	10	49.9
Plates	4.95	12	59.4
Bowls	6.95	12	83.4
Silverware (20 piece)	19.99	3	59.97
Cutting Board	47	2	94
Knife Set (4)	9.99	1	9.99
Food Processor	70	1	70
Tea Kettle	19.99	1	19.99
	Subtotal		827.45
Décor Supplies			
Curtains			0
Standing Lights	119	3	357
Majesty Palm Plant	19.99	2	39.98
Rubber Tree	16.98	2	33.96
Pothos Plants	13.58	2	27.16
Bean Bag Chairs	205	5	1025
	Subtotal		1483.1



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Thermal Comfort Occupant Survey

Background:

1. How long have you worked in this building?
 - a. Less than 1 year
 - b. 1-2 years
 - c. 3-5 years
 - d. More than 5 years
2. How long have you worked at your present work space?
 - a. Less than 3 months
 - b. 4-8 months
 - c. 9-12 months
 - d. More than 1 year
3. In a typical work week, how many hours do you spend in your work space?
 - a. 10 or less
 - b. 11-30 hours
 - c. More than 30 hours
4. How would you describe the work you do?
 - a. Mostly administrative support
 - b. Technical
 - c. Professional
 - d. Managerial/supervisory
 - e. Other

First Steps: Sustainable Building Policy

Connecticut College ***DRAFT***

Sustainability Strategic Plan

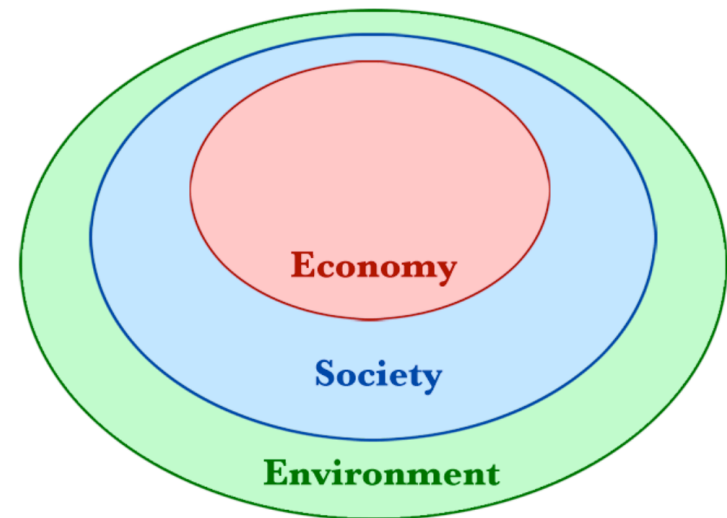
2012 – 2020



Connecticut College ***DRAFT***

Sustainability Implementation Plan

2012 – 2020





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Sustainable Building Policy

In order to reduce its environmental impact, promote social responsibility, improve the quality of the residential and work environments, and maintain its position as a leader in modeling sustainability, Connecticut College will implement the following for new buildings and major renovations (>\$1 million):

Use Leadership in Energy and Environmental Design (LEED) sustainable building guidelines, particularly focusing on the following, where feasible:

- Consider sustainable building materials and recycled materials, sustainable cleaning products and maintenance methods;
- Consider energy efficient systems for heating, cooling, lighting and; consider the use of alternative sources of energy;
- Install water-conserving systems and products and plant native, low maintenance plants;
- Improve indoor air quality through the use of appropriate building materials, ventilation and filtration systems.

In applying this policy, the College will:

- Include a representative from the Office of Sustainability in design and construction processes in order to promote sustainable building objectives. At the conclusion of construction the building will be tested and inspected to confirm that the installed systems meet the project specifications.
- Strive to ensure that building operation and maintenance is appropriate to keep the building within the “sustainable building” frame of reference, using the LEED Existing Buildings: Operations and Maintenance (EBOM)¹ as a reference. A representative group of campus community members will be established to monitor the performance of all new buildings relative to the “sustainable building” frame of reference.
- Throughout the project, strive to use life cycle cost benefit analyses to project environmental, societal and fiscal payback of building components.
- With participation from the Office of Sustainability, maintain a list of projects (as part of the College’s facility improvement plan) that are designed to improve energy efficiency, reduce greenhouse gas emissions and promote social responsibility.
- Through the Office of Sustainability, in collaboration with any relevant department, be responsible for securing necessary departmental resources to implement this policy.

¹ EBOM is a U.S. Green Building Council program that provides guidelines to institutions looking to develop a plan that ensures high performance in building operations and maintenance over time. For more information: <http://new.usgbc.org/>



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Sustainable Building Practices

The following standards apply to all new construction, renovation, remodeling, and improvement projects (>\$1 million).

Construction and Major Renovation

Before engaging in any new construction or renovation project, the College is committed to fully assessing the need for construction activity to take place. Creative reuse of facilities and the extensive use of renovations in place of new construction have been a hallmark of Connecticut College's building strategy and will continue to be emphasized as a sustainable strategy for space utilization.

Initial Requirements

- All projects shall include relevant sustainable design and operations language in all requests for proposals (RFPs) where applicable, including architects, consultants, commissioning agents, and general contractors.
- In order to assure that sustainability will be a central component throughout any construction process, a representative of the Office of Sustainability will be included on design and construction teams.
- An Office of Sustainability representative shall be included in the following project activities:
 - Serve as a member of the project team
 - Initial sustainability discussions during project programming phase
- A report describing initial sustainability goals/objectives (as well as final decisions; see "Project Completion" below) will be produced. This report shall be cataloged and available online. The following shall be reviewed as the project team determines these goals:
 - Potential for energy reductions and other sustainability benefits in site design and programming
 - Applicability of various sources to produce renewable energy or other sustainability-related technologies
 - Landscape style and irrigation technology

Programming Phase

The project team shall engage in the following activities:

- Develop budget goals, including energy objectives
- Identify design concepts with significant sustainability impacts (such as site selection, building orientation, energy management, etc.)
- Keep the College community informed of new projects as appropriate

Schematic Design/Design Development

All projects shall include relevant sustainability objectives and other sustainable design and operations language in the Project Charter, when produced.

The project team will:

- Use life cycle cost analysis to compare design alternatives and the impacts of building systems, including the following systems (at a minimum):
 - Mechanical: heating, ventilation, and air conditioning (HVAC) equipment and controls, energy sources

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- Electrical: lighting sources and controls
- Envelope: roofing, insulation/mass, glazing
- Renewables: energy generation, alternative materials

Project design shall include the following:

- Use Leadership in Energy and Environmental Design (LEED) protocols and College requirements to ensure sustainable practices are followed whenever possible. Best practices should be taken to save on initial costs and operating costs, and the design team shall strive for a minimum of Leadership in Energy and Environmental Design: New Construction (LEED-NC) Silver certification. Furthermore, project teams shall try to exceed this goal whenever possible through achievable design strategies.
- A detailed energy model and exploration of opportunities to increase the efficiency and overall use of facilities under consideration will be developed. Included in the effort will be a discussion of potential renewable energy applications (including solar photovoltaic, solar hot water heating, geothermal, or other relevant options) to offset facility energy use.
- The development of a solid waste management plan that details how construction and demolition wastes will be handled in a manner that reduces landfill wastes and emphasizes reuse, recycling, and reclamation. Upon completion of the project, contractor(s) shall be required to submit a final waste management report indicating quantities of waste sent to landfill, recycled, reused, salvaged, and donated, along with a breakdown of materials in each category and, whenever possible, the destination of these materials.
- Minimize the effects of an increase in non-renewable energy use and carbon emissions for any additional square- footage. The evaluation should include programmatic, aesthetic, and first and life cycle cost considerations.
- The use of Labs21² development standards will be considered for relevant laboratory projects.
- Evaluate materials for reuse/donation during a walk through before the existing facilities are cleaned out. The walk through shall include a complete evaluation of furniture, fixtures and equipment.
- Ongoing monitoring and communication – all new and renovated facilities shall include a comprehensive plan for building measurement and verification, ongoing commissioning activities, and a communication/education program with occupants, including meaningful monitoring of building resource use, generation of on-site energy, etc.

During the design development phase, the project team shall update all relevant documents.

Construction

The project team shall review the impact of construction change orders on sustainability goals.

Project Completion

Project teams will produce a report detailing the following:

- Sustainability-related project features
- A review of initial sustainability goals and objectives and final outcomes
- Any life cycle cost analyses that were conducted
- Solid waste management impacts

This report shall be cataloged and available online. Additionally, project contractor(s) will supply a report of waste management, as described above in the Schematic Design/Design Development section.

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Sustainable Operations Practices

These practices are provided to reduce the environmental, social and fiscal impacts caused by operating and maintaining facilities (including water, energy, and chemical use, the generation of a wide variety of wastes, and the purchase of materials). The practices apply to operations and maintenance activities in all campus facilities. The majority of facility maintenance and operation falls within Facilities Management; however, other offices and departments throughout the College should follow these practices.

Implementation and Performance Measurement

Individual departments and offices, particularly those within Facilities Management, are responsible for ensuring that their activities follow these practices. The Office of Sustainability and the Sustainability Steering Committee will support compliance and performance over time as part of their regular sustainability assessment and reporting activities. These bodies will also assist offices and departments with issues including compliance, exceptions to practices, and outreach and training activities. These practices shall be made available to relevant staff members and posted publicly on the Connecticut College Sustainability website. The College recognizes that in certain extraordinary circumstances, these practices may not provide necessary services or level of control. In those instances, departments involved will use their discretion in choosing operations and maintenance materials and activities that minimize environmental, societal and economic impacts.

Practices

All buildings, facilities, and sites on campus shall be maintained and operated as follows:

- Every facility certified under Leadership in Energy and Environmental Design (LEED) shall maintain LEED Existing Buildings: Operations and Maintenance (EBOM) certification or equivalent practices, with the goal of a certification level equal to its initial LEED-NC (New Construction) certification level. New or renovated facilities without LEED-NC certification shall also pursue LEED-EBOM certification or equivalent practices.
- All new and renovated facilities, with or without LEED-EBOM certification, shall have an operations and maintenance plan that provides guidelines for compliance with the practices described here.
- All buildings shall be operated in compliance with established schedules and set points for heating, ventilation, and air conditioning (HVAC), lighting, and other major electrical and mechanical systems, when those established practices exist.
- Facilities Management and the Office of Sustainability shall conduct a building-level review of energy, water and other resource use and performance biannually, with depth of analysis dependent on available data and metering technology.
- The College shall engage in retro-commissioning, monitoring-based commissioning, and energy audit activities as specified in the Connecticut College Sustainability Plan.
- The College shall take advantage of utility rebate programs whenever practical.

Grounds and Hardscape Management

The College strives to use best management practices to reduce impacts on the surrounding site and natural area, including mitigation of potential impacts resulting from chemical, energy, and water use, and waste generation. The Sustainable Land Management Policy should be consulted for more information.

The College shall:

- Replace conventional equipment with lower-impact alternatives when practical.
- Choose equipment to minimize or recycle wastes.

- Maintain drainage facilities, including clearing of downspouts, gutters, roof drains, and other drainage issues.
- Assess loose soil, drainage issues, and other risks during wet periods.
- Manage organic waste on campus hardscape as defined in the Waste and Recyclable Management Plan.
- Use seeding and mulching, when appropriate, to manage erosion.

Cleaning

Building cleaning is a vital process in maintaining the College's facilities. The following guidelines will be used to minimize any undesired effects (environmental, social, economic):

- Buildings, sidewalks, and other hardscape shall be cleaned only as often as needed to maintain health, safety and appearance.
- Cleaning products, including water, shall be used efficiently to reduce cost, resource use, environmental impact and impact on health.
- The College will develop a Sustainable Cleaning Program consisting of a cleaning plan for each facility. Each plan will include specification of products, equipment, procedures and cleaning frequencies that are designed to use best management practices, as affordable, to provide good environmental stewardship.
- The College has determined that Green Seal-Certified Products are, in general, the preferred options, with exceptions made on a case-by-case basis.

Building Maintenance

The College will follow best management practices using available technologies to minimize harmful environmental impacts, such as:

- Minimize use of chlorofluorocarbons (CFC) refrigerants.
- Reduce wasteful use of water and other resources.

Waste and Recyclable Management


Facilities Management will develop and implement a waste and recyclable management program by building and for the entire campus with input from the Office of Sustainability. This includes management of wastes such as ongoing consumables, durable goods, and the wastes associated with regular operations, maintenance, construction, and demolition activities.

Indoor Environmental Quality

In order to foster healthy and productive environments within buildings on campus, the College will use the following guidelines when using items that can affect indoor air quality, where applicable:

- Adhesives and sealants will have volatile organic compound (VOC) contents that are within Environmental Protection Agency (EPA) guidelines
- Paints and coatings have VOC emissions not exceeding VOC and chemical component limits of EPA guidelines
- Non-carpet floor finishing meets the requirements of Green Seal -37
- Carpet meets requirements of Carpet and Rug Institution (CRI) Green Label Plus Carpet Testing Program and carpet cushion meets requirements of CRI Green Label Testing Program
- Composite panels and agri-fiber products contain no added urea-formaldehyde resins

Working With EBOM

 LEED 2009 for Existing Buildings: Operations & Maintenance				Project Name _____ Date _____				
Project Checklist								
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		Sustainable Sites	Possible Points: 26	Materials and Resources, Continued				
Y ? N				Y ? N				
<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	LEED Certified Design and Construction	4	<input type="checkbox"/>	Credit 6	Solid Waste Management—Waste Stream Audit	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 2	Building Exterior and Hardscape Management Plan	1	<input type="checkbox"/>	Credit 7	Solid Waste Management—Ongoing Consumables	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 3	Integrated Pest Mgmt, Erosion Control, and Landscape Mgmt Plan	1	<input type="checkbox"/>	Credit 8	Solid Waste Management—Durable Goods	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 4	Alternative Commuting Transportation	3 to 15	<input type="checkbox"/>	Credit 9	Solid Waste Management—Facility Alterations and Additions	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 5	Site Development—Protect or Restore Open Habitat	1				
<input type="checkbox"/>	<input type="checkbox"/>	Credit 6	Stormwater Quantity Control	1	Indoor Environmental Quality Possible Points: 15			
<input type="checkbox"/>	<input type="checkbox"/>	Credit 7.1	Heat Island Reduction—Non-Roof	1	<input type="checkbox"/>	Prereq 1	Minimum IAQ Performance	
<input type="checkbox"/>	<input type="checkbox"/>	Credit 7.2	Heat Island Reduction—Roof	1	<input type="checkbox"/>	Prereq 2	Environmental Tobacco Smoke (ETS) Control	
<input type="checkbox"/>	<input type="checkbox"/>	Credit 8	Light Pollution Reduction	1	<input type="checkbox"/>	Prereq 3	Green Cleaning Policy	
Water Efficiency Possible Points: 14				<input type="checkbox"/>	Credit 1.1	IAQ Best Mgmt Practices—IAQ Management Program	1	
Y	<input type="checkbox"/>	Prereq 1	Minimum Indoor Plumbing Fixture and Fitting Efficiency		<input type="checkbox"/>	Credit 1.2	IAQ Best Mgmt Practices—Outdoor	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	Water Performance Measurement	1 to 2	<input type="checkbox"/>	Credit 1.3	IAQ Best Mgmt Practices—Increased Ventilation	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 2	Additional Indoor Plumbing Fixture and Fitting Efficiency	1 to 5	<input type="checkbox"/>	Credit 1.4	IAQ Best Mgmt Practices—Reduce Particulates in Air Distribution	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 3	Water Efficient Landscaping	1 to 5	<input type="checkbox"/>	Credit 1.5	IAQ Mgmt Plan—IAQ Mgmt for Facility Alterations and Additions	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 4	Cooling Tower Water Management	1 to 2	<input type="checkbox"/>	Credit 2.1	Occupant Comfort—Occupant Survey	1
Energy and Atmosphere Possible Points: 35				<input type="checkbox"/>	Credit 2.2	Controllability of Systems—Lighting	1	
Y	<input type="checkbox"/>	Prereq 1	Energy Efficiency Best Management Practices		<input type="checkbox"/>	Credit 2.3	Occupant Comfort—Thermal Comfort Monitoring	1
Y	<input type="checkbox"/>	Prereq 2	Minimum Energy Efficiency Performance		<input type="checkbox"/>	Credit 2.4	Daylight and Views	1
Y	<input type="checkbox"/>	Prereq 3	Fundamental Refrigerant Management		<input type="checkbox"/>	Credit 3.1	Green Cleaning—High Performance Cleaning Program	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	Optimize Energy Efficiency Performance	1 to 18	<input type="checkbox"/>	Credit 3.2	Green Cleaning—Custodial Effectiveness Assessment	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.1	Existing Building Commissioning—Investigation and Analysis	2	<input type="checkbox"/>	Credit 3.3	Green Cleaning—Sustainable Cleaning Products, Materials Purchases	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.2	Existing Building Commissioning—Implementation	2	<input type="checkbox"/>	Credit 3.4	Green Cleaning—Sustainable Cleaning Equipment	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.3	Existing Building Commissioning—Ongoing Commissioning	2	<input type="checkbox"/>	Credit 3.5	Green Cleaning—Indoor Chemical and Pollutant Source Control	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 3.1	Performance Measurement—Building Automation System	1	<input type="checkbox"/>	Credit 3.6	Green Cleaning—Indoor Integrated Pest Management	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 3.2	Performance Measurement—System-Level Metering	1 to 2	Innovation in Operations Possible Points: 6			
<input type="checkbox"/>	<input type="checkbox"/>	Credit 4	On-site and Off-site Renewable Energy	1 to 6	<input type="checkbox"/>	Credit 1.1	Innovation in Operations: Specific Title	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 5	Enhanced Refrigerant Management	1	<input type="checkbox"/>	Credit 1.2	Innovation in Operations: Specific Title	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 6	Emissions Reduction Reporting	1	<input type="checkbox"/>	Credit 1.3	Innovation in Operations: Specific Title	1
Materials and Resources Possible Points: 10				<input type="checkbox"/>	Credit 1.4	Innovation in Operations: Specific Title	1	
Y	<input type="checkbox"/>	Prereq 1	Sustainable Purchasing Policy		<input type="checkbox"/>	Credit 2	LEED Accredited Professional	1
Y	<input type="checkbox"/>	Prereq 2	Solid Waste Management Policy		<input type="checkbox"/>	Credit 3	Documenting Sustainable Building Cost Impacts	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	Sustainable Purchasing—Ongoing Consumables	1	Regional Priority Credits Possible Points: 4			
<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.1	Sustainable Purchasing—Electric-Powered Equipment	1	<input type="checkbox"/>	Credit 1.1	Regional Priority: Specific Credit	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.2	Sustainable Purchasing—Furniture	1	<input type="checkbox"/>	Credit 1.2	Regional Priority: Specific Credit	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 3	Sustainable Purchasing—Facility Alterations and Additions	1	<input type="checkbox"/>	Credit 1.3	Regional Priority: Specific Credit	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 4	Sustainable Purchasing—Reduced Mercury in Lamps	1	<input type="checkbox"/>	Credit 1.4	Regional Priority: Specific Credit	1
<input type="checkbox"/>	<input type="checkbox"/>	Credit 5	Sustainable Purchasing—Food	1	Total Possible Points: 110			

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

Project Name:
Project Team:
Date:

LEED EBOM Project Checklist

Completed	Required	Recommended	Optional	Goal Type	Description	Points	Ranking by difficulty 1-3 system, relatively easy, labor intensive/students or physical plants, impossible (needs a consultant)	Technical knowledge and skills necessary	Value and payback judgement
Sustainable Sites									
				LEED Certified Design and Construction	What is the current LEED certification status of the building?				
				Building Exterior and Hardscape Management Plan	Create and implement a site management policy that employs best management practices to reduce harmful chemical use, energy waste, water waste, air pollution, solid waste, and/or chemical runoff for operational elements on the building and grounds				
				Integrated Pest Management, Erosion Control, and Landscape Management Plan	Use an IPM plan, follow local and EPA standards for erosion control, use mulch or compost waste for landscaping, and use organic fertilizers only when needed.				
				Alternative Commuting Transportation	Conduct a transportation survey yearly to calculate the amount of reduction, ideally demonstrating at least a 10% reduction of single-occupant commuting trips that are made by regular building occupants. Alternative transportation strategies that contribute to this reduction include human-powered conveyances (e.g. walking or biking), public transit, telecommuting, rideshare options, compressed workweeks, carpools, and green				
				Site Development—Protect or Restore Open Habitat	Have in place native or adapted vegetation on 25% of the total site area (including the building footprint) or maintain double off-site area				
				Stormwater Quantity Control	Establish and implement an stormwater management plan with a monitoring system that with an annual inspection, reduces the mitigation of 15% of stormwater				
				Heat Island Reduction—Non-Roof	Reduce warmer temperatures caused by the retention of solar heat on constructed surfaces. Have 50% of the nonroof hardscaped surfaces meet sustainability criteria, or have 50% of parking spaces on the site under cover. Implement a maintenance program that ensures all high-reflectance paving surfaces are cleaned at least every				
				Heat Island Reduction—Roof	Use either roofing materials with the minimum required SRI equal for a minimum of 75% of the roof area, or a vegetated roof for a minimum of 50% of the roof area, or both. Implement a maintenance program that ensures all high-reflectance roof surfaces are cleaned at least every three years to maintain good				
				Light Pollution Reduction	Strive to keep the building and site lighting as close to the building as possible to reduce the sky glow and impact on nocturnal environments. Additionally, assess possibilities to reduce the glare to improve nighttime visibility				
Water Efficiency									
				Minimum Indoor Plumbing Fixture and Fitting Efficiency	Determine the different types of fixtures installed, if their product data sheets are available, and the date of the initial plumbing completion or any major renovations. From this the minimum water usage standards can be determined. Assess how much potable water is consumed, and if necessary modify fixtures that do not				
				Water Performance Measurement	Have permanently installed water meters that measure the total potable water, gray water, and reclaimed water on a weekly basis				
				Additional Indoor Plumbing Fixture and Fitting Efficiency	Record meter data for one year to establish a water-use baseline. For projects with at least 80% of fixtures and fittings metered, show a reduction from the baseline year of meter data				
				Water Efficient Landscaping	From a baseline of typical regional irrigation system, reduce the use of potable water by 50%-100%, and doing so will drastically reduce landscape costs				
				Cooling Tower Water Management	For cooling towers and evaporative condensers, conduct a potable water analysis within five years of submission for certification to show reduced consumption				
Energy and Atmosphere									
				Energy Efficiency Best Management Practices	Show proof of a Building Operations Plan that was completed during construction of the building or upon beginning of LEED EBOM analysis process. Conduct an energy audit that meets both the requirements of the ASHRAE preliminary energy use analysis and an ASHRAE Level 1 walk-through assessment identified in the				
				Minimum Energy Efficiency Performance	Meter the building's energy use for a full 12 months of continuous operation and achieve the levels of efficiency set forth in the goals established for the project. Each building's energy performance must be based on actual metered energy consumption for both the LEED project building(s) and all comparable				
				Fundamental Refrigerant Management	Do not use chlorofluorocarbon (CFC)-based refrigerants in heating, ventilating, air-conditioning, and refrigeration (HVAC/R) systems unless a third-party audit shows that system replacement or conversion is not				
				Optimize Energy Efficiency Performance	Improve energy use so that the building has an Energy Star Rating greater than 71 or the overall energy efficiency is at least 7.1% better than the national average				
				Existing Building Commissioning—Investigation and Analysis	Evaluate the current performance of the project building against the performance specifications in the current facilities requirements and the operations and maintenance plan. Identify the systems and components in the facility to be investigated and analyzed as part of the existing building commissioning or ASHRAE Level II energy auditing process. Provide a breakdown of estimated resource use for each of these				

Further Learning- March 2015



Building '15

- Trade show
 - Opportunities to talk to firms and local architecture schools
 - Booths with sustainable building technology and experts in the field

Building '15

- Seminars
 - A variety of different talks to choose from
 - The two I went to were on water management and sustainable building initiatives at Hampshire College

What I Learned

- A holistic approach to sustainable building
- Communication skills
- Policy/grant writing
- LEED and the pros/cons

Final Steps

- Sustainable Building Policy, Practices, and Operations were approved by the Facilities and Land Management and scheduled for review on the agenda of a Senior Administration Meeting in late May

THE END! Questions?