South Seattle Community College
Bachelor of Applied Science in
Sustainable Building Science Technology

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Form C: South Seattle Community College
Bachelor of Applied Science in Sustainable Building Science Technology

COVER SHEET
NEW DEGREE PROGRAM PROPOSAL

Program Information

Program Name: Sustainable Building Science Technology

Institution Name: South Seattle Community College

Degree: B.A. Applied Science Level: Bachelor Type: Science
(e.g. B.S. Chemistry) *(e.g. Bachelor)* *(e.g. Science)*

CIP Code: 03.0198 Environmental Technology

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Chief Academic Officer _____ Date _____

Proposal criteria
Please respond to all 10 areas listed in proposal criteria Form D

Form D: South Seattle Community College
Bachelor of Applied Science in Sustainable Building Science Technology

Criteria 1. Curriculum Demonstrates Baccalaureate Level Rigor

Describe curriculum including: (1) program learning outcomes; (2) program evaluation criteria and process; (3) course preparation needed by students transferring with a technical associate degree; (4) general education components; and (5) course work needed at junior and senior levels in the BAS

(1) Program learning outcomes.

Baccalaureate level rigor. South Seattle Community College is one of the four original pilot colleges selected to offer an applied baccalaureate degree in Washington State. The program received a Commendation from the NWCCU after South's baccalaureate accreditation visit in 2009. South began offering classes in 2007, and the program has achieved a completion rate of more than 90 percent in program coursework and more than 90 percent in job placement. We have incorporated much of what we learned in developing and implementing our first baccalaureate level degree into this new and third program.

The Bachelor of Applied Science in Sustainable Building Science Technology (BAS SBST) program proposal and curriculum have been reviewed by two industry experts, Joel Loveland, Professor of Architecture and Director, Integrated Design Lab, College of Built Environment, University of Washington and John Reynolds, ACSA Distinguished Professor of Architecture, Emeritus, University of Oregon and current board president of Energy Trust of Oregon. The reviews reflected support of the program based on documented need for the program from the employer and student demand sides, the rigor of the curriculum, and student support services. Many of their suggestion have been or will be incorporated into the program design and course curriculum.

"The proposed curriculum introduces the array of subjects with enough rigor, depth and cross-course integration of learning outcomes that a graduate should be able to enter the field as a productive employee, building on this general degree foundation in a concentration that the graduate will find personally rewarding." ~Joel Loveland

John Reynolds identified topics to add to the curriculum and more clearly define course objectives. His comments have been added to the course outlines and both evaluations will be included with faculty notes when they are hired.

The South Seattle Community College team working on the BAS SBST carefully reviewed the evaluations performed by Joel Loveland and John Reynolds and identified four key areas for change in the program proposal. They are (1) three missing curriculum topics, (2) course title edits for clarification, (3) importance of field trip experiences and (4) faculty load and compensation. Each of these is addressed in the appropriate sections throughout the proposal.

Based on the work that has been done and in support of this degree, the Puget Sound Regional Council has funded South Seattle Community College $79,699 to develop internships as part of the Washington Clean Energy Partnership Project. The notice of intent (Forms A and B) received no concerns from the universities in terms of competition or other potential issues.

BAS Sustainable Building Science Technology program goals. The BAS Sustainable Building Science Technology program provides formal education to enhance strategies for career development and advancement. The program goals are to:

- Meet industry demand. Beginning in 2008 with the original skills panel held by the Seattle King County Workforce Development Council, industry has requested and driven the demand for a degree in sustainable building science technology.
- Offer a degree program of which there currently is not in Washington State.
- Create an affordable educational pathway for individuals currently working in industry to complete a bachelor degree program without having to leave the state or resign from a job.
- Provide an opportunity for journey-workers in the trades to advance their careers.
- Provide an avenue for individuals currently working in industry to gain skills that will allow them to become more effective professionals in building science.
- Offer the opportunity for people working in sustainable building science technology to broaden and advance their skills.
- Prepare employees who can fill the critical unmet demand for sustainable building science technology professionals.
- Develop a well-regarded bachelor degree program that will create a conduit for graduates who wish to enter a master's degree program.
- Contribute to the attainment of the state's higher education and regional economic development goals in a high-growth industry by creating a better career ladder for individuals that are currently working as sustainable building science technology professionals.

Program learning outcomes for the BAS Sustainable Building Science Technology are listed below and their distribution in specific courses is outlined in Table 1.

Sustainable building science technology Learning Outcomes

1) **Systems** - Understand all operation and systems unique to sustainable buildings (old and new)
2) **Analysis** - Analyze, define and validate solutions
3) **Project management** - Deliver industry specific solutions from analysis
4) **Communications** - Utilize effective communication forum and techniques to facilitate all aspects of sustainable building management. Read, write, present.
5) **Leadership** – Develop and lead a team of various personalities and skills
6) **Team skills** - Work in a team and know how to collaborate, build functional work groups and take responsibility for outcomes
7) **Critical thinking** - Be able to anticipate, identify, troubleshoot, analyze, solve problems and lead a project
8) **Business skills** – Accounting, budgeting, real cost/return on investment, cost effectiveness and life cycle cost
9) **Technical (building)** – Measure, diagnose and understand building system interactions and summarize results in order to compare to standards or specifications.
10) **Operations and maintenance** – Understand and analyze building profiles and identify opportunities for improving performance
11) **Planning and design** - Calculate, develop and understand codes and standards for construction of sustainable energy efficient buildings

12) **Construction** – Understand components and drive the process of quality construction including safe work environments, documentation, contractors/sub-contractors, building options and inspection
13) **Building science principles** - Demonstrate working knowledge of building science/building physics/operating principles and their relationships to each other across disciplines
14) **Financial skills** - Ability to prepare project budget, cost estimate, cost benefit analysis
15) **Computer skills** - Demonstrate proficiency with MS Word, Excel, PowerPoint, electronic communication and other widely accepted software with specific intention of acquiring the ability to collect and analyze commonly available instruments, such as power analyzers, thermal imager and HVAC equipment.
16) **Social value ethics and need** - Create and maintain a professional environment based on values and ethics.
17) **Data management** - Use computer programs used in building industries and quality assurance to make fact based decisions

Table 1 – Program Learning Outcomes for Sustainable building science technology Bachelors of Applied Science

Courses	Systems	Analysis	Project Management	Communications	Leadership	Team Skills	Critical Thinking	Business Skills	Technical (Building)	Operations and Maintenance	Planning and Design	Construction	Building Science	Financial Skills	Computer Skills	Social Value, Ethics and Need	Data Management
SBST 301 - Building Science	X	X		X			X		X				X			X	
SBST 302 - Building Components	X						X		X	X	X		X			X	
SBST 321 - Building Codes	X	X					X		X	X	X	X	X			X	
SBST 322 - Energy Analysis and Auditing	X	X		X			X		X	X	X	X	X	X	X	X	X
SBST 331 - Financing Energy Efficiency	X	X					X	X	X	X			X	X	X	X	X
SBST 332 - Building Energy Codes in WA	X	X		X			X		X	X	X	X	X		X	X	
SBST 333 - Building Cont. for Energy Efficiency	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SBST 401 - Utility Rates	X	X					X		X	X	X	X	X	X	X	X	X
SBST 402 – Lighting	X	X	X	X			X		X	X	X	X	X	X	X	X	X
SBST 421 - Energy Policy		X	X	X	X		X	X								X	
SBST 422 - Facilities Management	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X
SBST 431 - Professional Communication			X	X	X	X	X								X	X	
SBST 432 - Fiscal Management			X	X	X	X	X	X						X	X	X	X

Note: Course numbers are place holders, actual course numbers will change based on college course catalogue.

Each one of the program outcomes is addressed in multiple courses as demonstrated by the above matrix. In addition, the capstone course will provide an opportunity for students to self-identify the level of each program outcome attained. Further opportunities for program outcome attainment will come during the internship where students will identify program outcomes they plan to develop. Additionally, the portfolio class will give students a chance to identify program outcomes that they may have already achieved.

Student learning outcomes. South Seattle Community College's mission to help students meet their life-long goals, understand how students learn, and document how well students are learning infuses all aspects of assessment, instruction, and student interaction throughout the college community. South has a rich history of connecting program outcomes to its ongoing evaluation system. Since 1992, South has assessed the effectiveness of educational programs as part of a campus-wide institutional effectiveness effort to improve teaching and learning by setting goals/outcomes, developing assessment measures, and measuring progress toward these goals/outcomes. To complement the college-wide improvement process, all instructional programs are based on college-wide Student Learning Outcomes (SLOs) and program outcomes.

Student Learning Outcomes represent the knowledge and abilities every student graduating with a certificate or degree from South will have. Students will achieve these outcomes as well as specific program outcomes for their academic or technical area of study.

- **Communication**
  - Read and listen actively to learn and communicate.
  - Speak and write effectively for academic and career purposes.

- **Computation**
  - Use arithmetic and other basic mathematical operations as required by the program of study.
  - Apply quantitative skills for academic and career purposes.

- **Human Relations**
  - Use social interactive skills to work in groups effectively.
  - Have knowledge of the diverse cultures represented in our multicultural society.

- **Critical Thinking and Problem-Solving**
  - Think critically in evaluating information, solving problems and making decisions.

- **Technology**
  - Select and use appropriate technological tools for academic, and career tasks.

- **Personal Responsibility**
  - Uphold the highest standard of academic honesty and integrity.
  - Respect the rights of others in the classroom, online and in all other school activities.
  - Attend class regularly, complete assignments on time and effectively participate in classroom and online discussions, group work and other class-related projects and activities.
  - Abide by appropriate safety rules in laboratories, shops and classrooms.

- **Information Literacy**
  - Independently access and evaluate information from a variety of appropriate sources.
  - Have knowledge about legal and ethical issues related to the use of information.
  - Use information effectively and ethically for a specific purpose.

Table 2 – Student Learning Outcomes for Sustainable building science technology Bachelors of Applied Science

Courses	Communication	Computation	Human Relations	Critical Thinking	Technology	Personal Responsibility	Information Literacy
SBST 301 -Building Science	X	X		X	X	X	X
SBST 302 - Building Components and Systems	X	X		X	X	X	X
SBST 321 - Building Codes in WA				X		X	X
SBST 322 - Energy Analysis and Auditing	X	X		X	X	X	X
SBST 331 - Financing Energy Efficiency		X		X	X	X	X
SBST 332 - Building Energy Codes in WA	X	X		X		X	X
SBST 333 - Building Controls for Energy Efficiency		X		X	X	X	X
SBST 401 - Utility Rates, Regs and Economics		X		X	X	X	X
SBST 402 – Lighting	X	X	X	X	X	X	X
SBST 421 - Energy Policy	X	X	X	X	X	X	X
SBST 422 - Facilities Management	X	X	X	X	X	X	X
SBST 431 - Professional Communication	X	X	X	X	X	X	X
SBST 432 - Fiscal Management for Facility Managers	X	X	X	X	X	X	X

Note: Course numbers are place holders, actual course numbers will change based on college course catalogue.

(2) Program evaluation criteria and process.

Program evaluation criteria. The BAS in sustainable building science technology program evaluates the knowledge, skills and abilities of a successful building science professional based on industry standards that include codes, safety, sustainability and municipal, state and federal building guidelines.

Program evaluation process. Every three years each professional technical program engages in an occupational program review that is conducted by an external evaluation team of industry professionals. The vice president for instruction appoints the external consultant to analyze data and serve as facilitator of the program review team. The external consultant facilitates an internal review two weeks prior to the external visiting day. The internal review is with the division dean, faculty of the program, the director of institutional research, and the dean of workforce education. Data and curriculum are reviewed and a SWOT analysis is conducted. The external visiting team consists of the consultant, the department dean, the director of planning and research, program faculty, former students from the program being reviewed, industry professionals and a member of the technical advisory committee. The team studies extensive information on program outcomes, course outlines, certificate and degree requirements as well as the results of the SWOT analysis and research and statistical data from the office of planning and research. The review team produces an *Occupational Program Review* report. The results of the review, which includes an improvement plan, are shared with the dean and faculty who have the opportunity to analyze the research data and to respond to the recommendations and observations made by the review team. The entire program review is then shared with the vice president for instruction, who makes recommendations, as appropriate.

For the BAS Sustainable building science technology degree, South will use its very successful existing BAS assessment tools and strategies, including the ACT survey for students receiving a four-year degree. South will use the occupational program review process and include other four-year institutions, to enhance the BAS assessment with faculty and administrators by selecting three to five appropriate program outcomes and measures. South will survey employers and internship site supervisors to ensure its SLOs and program outcomes help students develop the skills and knowledge needed by industry. Students will also have the opportunity to evaluate the program outcomes during their capstone course in their senior year. In addition to these evaluation processes, the BAS program will also create and maintain a comprehensive advisory committee of industry professionals to ensure the program is meeting workforce demands. Job placement and advancement are also important measures of program success. The program will provide job search and placement support through the WorkSource center, and will track graduate employment status with a database.

(3) Course Preparation Needed by Students Transferring with a Technical Associate Degree. All applicants to the BAS Sustainable building science technology program must have acquired an AAS-T degree with a minimum of 25 quarterly general education credits, which includes college-level: algebra (5 credits), English composition (5 credits), general psychology (5 credits), arts and humanities electives (5 credits), and natural world electives (5 credits). Additionally applicants who have completed a 6000 hour apprenticeship program and those entering directly from industry will be successful applicants. If and journey worker has not completed the general education requirements of an AA degree, that candidate may be accepted on a conditional basis that that course work be completed.

(4) General education components. In addition to the preparatory courses needed by students transferring with a technical associate degree, the 25 credits of general education components of the BAS in Sustainable building science technology program will ensure that Washington State DTA requirements are met by all students. These classes include:

ENGL&	102	Composition II	5
PHYS&	100	Physics	5
CMST&	220	Public Speaking	5
Bus	210	Business and Economic Statistics	5
VPLA		Elective	5

(5) Coursework needed at junior and senior levels in BAS.

SBST	301	Building Science	3
SBST	302	Building Components and Systems	2
SBST	314	Portfolio	1
SBST	315	Workforce Experience Practicum	10
SBST	321	Building Codes in Washington State	2
SBST	322	Energy Analysis and Auditing	3
SBST	325	Internship	10
SBST	331	Financing Energy Efficiency and Renewable Energy	2
SBST	332	Building Energy Codes in Washington State	3
SBST	333	Building Controls for Energy Efficiency	4
SBST	401	Utility Rates, Regulation and Economics	2
SBST	402	Lighting	3
SBST	421	Energy Policy	3
SBST	422	Facility Management	4
SBST	431	Professional Communication	4
SBST	432	Fiscal Management for Facility Managers	3
SBST	489	Capstone	1

Program sequence. When designing the program sequence for BAS Sustainable Building Science Technology external review recommendations were taken into consideration. “Course in finance, facilities management, and energy policy **(LEED)** create a sound conceptual foundation for the degree. Course in codes, building technologies and energy utility structure add substance to the conceptual framework. This traditional classroom learning plan in combination with on-the-job learning via required internships offers a finely crafted diversity of learning methods. The year of required internships will link these integrated learning outcomes with an operational understanding in the building industry.” (Loveland, J.)

Students enrolling in the BAS Sustainable building science technology program will be able to complete the coursework over two years. The program is intended to be structured using a cohort model. The following program sequence tables reflect this model. See appendix B for detailed course outline information. **The course outlines reflect recommendations made by evaluator John Reynolds and include topics missing from earlier drafts. Both evaluations will be passed on to hired faculty as notes for further course revisions and incorporation of field trip experiences.**

Table 3

Two-year sequence

QUARTER 1		
SBST 301	Building Science	3
SBST 321	Building Codes in Washington State	2
SBST 302	Building Components and Systems	2
SBST 322	Energy Analysis and Auditing	3
ENGL& 102	Composition II	5
	Total Credits	**15**

QUARTER 2		
SBST 331	Financing Energy Efficiency and Renewable Energy	2
SBST 332	Building Energy Codes in Washington State	3
SBST 333	Building Controls for Energy Efficiency	4
SBST 325	Internship	1
PHY& 100	Physics	5
	Total Credits	**15**

QUARTER 3		
SBST 422	Facilities Management	4
SBST 401	Utility Rates, Regulation and Economics	2
SBST 402	Lighting	3
SBST 325	Internship	1
BUS 210	Business and Economic Statistics	5
	Total Credits	**15**

QUARTER 4		
SBST 421	Energy Policy	3
SBST 431	Professional Communication	4
SBST 325	Internship	3
SS	Social Science Elective	5
	Total Credits	**15**

QUARTER 5		
SBST 432	Fiscal Management for Facility Managers	3
SBST 314	Portfolio	1
SBST 489	Capstone	1
SBST 325	Internship	5
CMST& 220	Public Speaking	5
	Total Credits	**15**

QUARTER 6		
SBST 315	Workforce Experience Practicum *	10
	(*Credits earned by work experience documentation)	
VPLA	**VPLA Elective**	5
	Total Credits	**15**

Summary of Credits

Quarter 1	15
Quarter 2	15
Quarter 3	15
Quarter 4	15
Quarter 5	15
Quarter 6	15
Total Credits	**90**

Criteria 2. Qualified Faculty

Provide a profile, including education credentials, of anticipated faculty that will support the program for each year (junior and senior). Include faculty needed to cover the technical course work, general education courses and electives. In addition, provide the total faculty FTE allocated to the program.

Faculty and administrators responsible for technical courses must meet certification requirements for professional and technical administrators and instructors in the Washington Administrative Code.

(1) Credentials of anticipated faculty that will support the program for each year. The Sustainable building science technology program is designed to accommodate approximately 25 students per year for upper division courses. South has budgeted 1.33 faculty FTE for this program and plans to offer on average 10 upper division credits per quarter **to be taught by subject matter experts and industry leaders**. The other 5 credits each quarter are general education **and will be taught by existing college faculty**. One full time faculty with a 15 credit load and 5 credits per quarter of release time will be required to deliver all upper division courses during the academic year. In addition, 10 credits may be offered in the summer that could be taught by a part time faculty or the full time faculty as an overload. The full time faculty will need to have the skills to teach all of the classes, and will have the ability to use adjuncts and current full time faculty to teach some of the classes. This degree program is in a new and emerging field that is growing. Adjunct faculty and industry experts will be vital to the success of this program. **Through our advisory committee and industry contacts a strong network is in place to identify these experienced potential candidates.**

Both reviewers expressed concern regarding faculty salary and responsibilities and were concerned that 1.33 FTE would not provide the coverage needed for this program. The model proposed is consistent with regional universities and an additional stipend of $10,000 is available for internship coordination, advising and curriculum development so that the actual faculty salary is $70,000 and comparable to regional universities and in line with our federation contract. It is also important to note that university faculty load requires publication which is calculated into their faculty load and while this is encouraged at South Seattle Community College, it is not considered part of their assignment. Faculty development and research grants are available for publications.

We expect the non-traditional student and first-generation would be coming to us with some college experience or they would not qualify for the degree program. Unique to these applied degrees, the role of faculty will include a substantial amount of experiential learning. The BAS faculty will be the student advisors for all things related to the program. Financial aid and other student services related questions will be from the administrative team and student services. The faculty qualifications could include a doctoral degree in education if the undergraduate degrees were directly related to SBST.

The number of students is driven by our desire to have a cohort based model. In year two with the addition of a new junior class there are two cohorts serving a total of 45 -50 students. The college will add faculty as required to support the number of students attending and be consistent with our negotiated contract. We too believe the need will be strong and we will grow as the field develops. However, we do not want to be overextended in our first few years of operations.

The following is a sample job description:

POSTION RESPONSIBILITIES

- Teaching upper division Sustainable building science technology courses. Some of the courses may include: Building Controls for Energy Efficiency, Utility Rates, Regulations and Economics, Energy Policy, Fiscal Management for Facility Managers
- Curriculum development
- Student advising
- Connect with business partners to help students find jobs and keep the curriculum current with industry standards
- Recruiting students from high schools, colleges, industry and the general public
- Using on-line learning to develop and deliver classes
- Support student internships

MINIMUM QUALIFICATIONS, SKILLS and ABILITIES

- Masters degree in sustainable building science or related field
- Two years recent experience in building science
- Applicants must also have at least three years teaching experience and the ability to communicate knowledge and skills both in written and oral form to a diverse group of students
- Experience using on-line and instructional technology to deliver courses
- Experience developing curriculum

PREFERRED QUALIFICATIONS

- Doctoral degree in related field
- Experience working in a diverse environment
- Experience with industry teaching and administration
- Teaching or administrative experience at a four-year institution

REPORTING

Faculty positions report administratively to the Executive Dean of the Georgetown Campus of South Seattle Community College and on to the Vice President of Instruction, who reports to the college President.

Table 4
Faculty Credential Requirements

Name	Degree	Rank	Status	Effort In Program	Potential Courses Taught
TBD (recruiting to begin once program is approved)	Ph. D or Ed. D or M. A/S	Faculty/Coordinator	Full Time	66percent / Teaching 33%/ Coordination	All 300 and 400 level SBST Courses
Existing Instructors in AA transfer area	Ph. D/Ed. D or M. A/S	Faculty (General Education)	Full Time	50%	All General Education Courses

TBD	Ph. D/Ed. D or M. A/S	Part Time Faculty or Full Time overload	Part Time/Full Time	33%	300 and 400 level SBST Courses as appropriate to technical expertise

(2) Faculty needed to cover technical coursework, general education courses and electives. Additionally, the 100 and 200 level general education courses will be taught by our existing transfer faculty and budgeted in that division. This is the same general education delivery process as our hospitality management and teach tech bachelors programs. All faculty in the program will meet or surpass the following requirements:

- Scholarship and technical skill that represents appropriate study, training, and skills necessary to deliver postsecondary sustainable building science technology curriculum at the baccalaureate level
- Expertise as a practitioner as evidenced by reports of former associates and supervisors
- A demonstrable understanding and acceptance of the role to be played as a partner in an educational enterprise serving the best interests of the students
- A demonstrable understanding and acceptance of the mission, role, and character of the college
- The ability to perform assigned duties in a manner consistent with the goals of South Seattle Community College and the community and technical college system
- Personal characteristics that contribute to the ability to promote the welfare of the students, the college, the Seattle District, and the state of Washington. In addition faculty will need to demonstrate a commitment to working with South's diverse student body

(3) Faculty and administrators will meet certification requirements for Washington Administrative Code. All faculty and administrators will meet certification requirements for WAC 131-16-80 and WAC 131-16-91. All faculty will have access to the Seattle District faculty development grants as well as a host of professional development activities.

Faculty in this program will need to be well versed in all types of teaching including on-line, hybrid, face to face, classroom, shop, and labs. They will need to be able to model appropriate teaching practices while providing immediate feedback. The instructor will also have a significant internship component to manage and will be expected to visit each site, talk with mentors, and review teaching, facilities and on-line capabilities. A significant stipend and travel allowance has been budgeted for this activity.

The new full time faculty will be recruited from a wide range of sources including national scholarly publications, local and regional newspapers, industry programs and diversity-oriented media.

Criteria 3. Student Enrollment

Provide enrollment projections for each year over the next five years. Describe how the program will serve place-bound working adults. Describe how you will recruit and facilitate student articulation and transition from regional community and technical colleges with similar programs.

(1) Enrollment projections for each year over the next five years:

Table 5 - *Enrollment Projections*

	Year 1	Year 2	Year 3	Year 4	Year 5
	2012-13	2013-14	2014-15	2015-16	2016-17
Students Enrolled (Headcount) Cohort II begins year 2	25	50	50	50	50

(2) Serving place-bound working adults. The BAS in Sustainable building science technology degree targets students who might not otherwise have the opportunity to attend a four-year college. Community college students frequently have jobs that provide limited flexibility for educational advancement, and they may face family circumstances or transportation challenges that limit their educational options. These factors create a unique need for this program in King County, an urban metropolitan area that serves a diverse community of adults. These classes follow the state apprenticeship model where state and regional joint apprenticeship training councils (JATCs) provide training where students travel for class on evenings and weekends or may be provided in a block training model. For many courses, students may utilize online LMS programs to actively engage with the instructor and their peers while taking part in distance learning i.e. during general education, Building Energy Codes in Washington, internship and portfolio courses.

Additionally, keeping students “local” will capture and cultivate local talent and increase the chances that these students will seek positions within our local community. The BAS in Sustainable building science technology program will therefore both serve place-bound adults and provide training for a stronger workforce in Washington State. South Seattle is located within driving distance of nearly half of the State’s population and is part of the largest community college district in Washington. The program will be oriented in a hybrid model in order to reduce commute time while ensuring appropriate face-to-face time for students and faculty.

***(3) Articulations*.** South Seattle Community College will work with all of the community and technical colleges across the state to ensure proper articulation of technical programs. In addition, the college will work with industry specific agreements and articulations with universities and technical colleges both local and nation-wide. **Currently Allison Pugh from Edmonds Community College, Shana Peshek from the Construction Center of Excellence at Renton Technical College, and Barbara Hins-Turner with the Pacific Northwest Center of Excellence for Clean Energy at Centralia Community College serve on the SBST BAS Technical Advisory Committee and articulation agreements are in process with these**

colleges. It is expected that articulation agreements with other college will be pursued once the degree program is approved by the SBCTC.

South will continue work to increase AAS-T options for students which are better suited for articulation and reduce unnecessary repeating of general education courses. Agreements from several higher education institutions and local businesses have been developed in preparation for this proposal. These agreements will form the foundation for formal articulation agreements once the BAS degree program in Sustainable building science technology is approved. Faculty and administrators will evaluate potential additional agreements on an annual basis. Every three years, faculty members and administrators will evaluate all articulation agreements to ensure students will have appropriate skills to be successful in the program.

Criteria 4. Selective Admissions Process, if used for the Program, Consistent with an Open Door Institution

Describe the selection and admission process. Explain efforts that will be used to assure that the program serves as diverse a population as possible.

(1) Selection and admissions process.

Admissions requirements. To be eligible for admission into the BAS program, each student must meet the following requirements:

- Relevant Washington State (or comparable from another state) AAS-T degree with a minimum of 25 quarterly general education credits, which includes college-level: math (5 credits), English composition (5 credits), general psychology (5 credits), arts and humanities electives (5 credits), and natural world electives (5 credits)

Example of Relevant AAS-T Degree Areas:

- Multi-trades AAST from South Seattle Community College or another community or technical college
- Apprenticeship in the Building or Energy Trades of at least 6,000 hours
- Four-year degree programs in Environmental Engineering
- Bates – Facilities Maintenance Engineer
- Bellingham Technical College – Electrical Technology
- Big Bend – Industrial Electrical Technology
- Cascadia – Environmental Technologies and Sustainable Practices
- Centralia – Energy Technology Power Options, Multi-Occupational Trades and the Pacific Northwest Center of Excellence for Clean Energy
- Edmonds – Energy Management, Construction Management
- Grays Harbor – Energy Technology Power Operations
- Lake Washington Technical – Energy and Science Technology
- North Seattle – HVAC, Architectural and Drafting, Electronics, Industrial Controls
- Peninsula College – Energy Technology Power Operations
- Renton – Construction Management and the Construction Center of Excellence
- Shoreline – Energy Technology

- Wenatchee Valley College – Environmental Systems Energy Technology Power Operations
- Other related areas of study may be reviewed and accepted by the BAS committee

Priority will be given to students with a Washington State AAS-T degree. Students with a Washington State Associate of Arts-Transfer or Associate of Science-Transfer degree may also be admitted to the program permitting that they meet the three-year minimum work experience requirement. Students entering under these degrees will still need to complete all upper-division courses, earn a minimum of 180 college-level credits, and will be required to work with the BAS Committee to develop appropriate substitutions for lower-division general education requirements.

The cumulative Grade Point Average (GPA) requirement is 2.5 for full and provisional admission into the program and must be maintained while in the program. The student must also be registered for a minimum of 10 Sustainable building science technology (SBST) credits each quarter to be considered as active.

Admissions process. Admission to the program is competitive. Meeting the minimum requirements does not guarantee admission as the number of qualified applicants may exceed the number of enrollment spaces available. Applications must be postmarked by a specific deadline during each academic year in order to receive priority consideration for enrollment.

The application includes the following:

- A completed application form (see Appendix C)
- A non-refundable application fee of $35. 00. Checks should be made payable to "South Seattle Community College – Sustainable building science technology"
- Official (sealed) transcripts from a regionally accredited college demonstrating completion of an Associate of Applied Science-Transfer (AAS-T) degree or equivalent
- A completed "Prior Work Experience Petition" demonstrating a minimum of 3 years of work experience in a professional industry
- Two letters of recommendation on appropriate letterhead from individuals who personally know your work (such as your current or past supervisor), that discusses your contributions to your workplace and how he/she believes you will benefit from completion of the BAS program. If you are applying for this program immediately after completing an associate degree program, the letters of recommendation may be from your instructors. **All letters of recommendation should be on appropriate company letterhead (if possible) and include contact information*
- A personal statement (minimum of 400 words, maximum of 600 words) discussing your work experience; your personal and professional goals; advanced certifications you already possess; any specific or unique attributes that you will bring to the program; any personal or imposed challenges or hardships you have overcome in pursuing your educational or work goals; or any other special considerations that you believe will make you a good candidate for the program

Admissions status. Students may who have not met all of the requirements to be fully admitted may also be admitted to the BAS, Sustainable Building Science Technology program under one of the following conditions:

- ***Provisional Admission:*** Students who are within 25 quarter credits of completing their two-year degree including the program entry requirements may be admitted provisionally into the program if space is available. Once students have completed their two-year degree including the program entry requirements, they will be granted full admission into the program.
- ***Probationary Admission:*** Students with a cumulative GPA below 2. 5 may be admitted under probationary status. Students must maintain a cumulative GPA of 2.5 or higher for the first 30 quarter credits and then petition to the BAS committee for full admittance.
- ***Non-Matriculated:*** Students not officially accepted into the program may take up to 15 SBST credits with prior faculty approval. Once admitted to the program, those classes will be applied towards the individual's degree.

Admissions criteria. To be fully admitted into the program, in addition to the 2.5 GPA requirement and the two-year technical degree with the noted 25 credits of general education courses potential students must also successfully compete the admissions application. In addition potential students will be evaluated by the admissions committee using the following criteria.

South Seattle Community College believes a quality education requires a student body that has a diversity of experiences, cultures and talents. Faculty, staff and students all contribute to the college environment and experience therefore admissions cannot only be about the grades and test scores. The BAS Sustainable Building Science Technology program strives to create a student body in which being a member would be an education in itself.

Admission to the program is competitive. Meeting the minimum requirements does not guarantee admission as the number of qualified applicants may exceed the number of enrollment spaces available each year. Applications must be postmarked by the posted due date in order to receive priority consideration for enrollment.

Additionally, priority will be given to students with a Washington state AAS-T degree and that have a minimum of 25 quarterly general education, college-level credits in: math (5 credits), English composition (5 credits), general psychology (5 credits), arts and humanities electives (5 credits), and natural world electives (5 credits).

Admission will be offered to as many highly qualified students as space allows. When an application is reviewed, the admissions team as an example may consider the following factors:

- Currently working or seeking work in the sustainable building science field
- Hold building trades safety certifications
- Course preparation for the program
- Well-defined career goals
- Plan for timely completion of the program
- Level of academic achievement including cumulative GPA
- Academic or artistic awards and achievements, community service, work experience or industry certifications
- Improved grades after an extended absence from college or evidence of a new maturity in approaching college work
- Cultural awareness

- Perseverance in attaining higher education in spite of personal adversity, disability, or economic disadvantage

The final weighting process will be reviewed by the Seattle Community College's Assistant Attorney General.

(2) Efforts to assure that the program is serving a diverse population. South is well-placed to provide baccalaureate-level education to those who need it most. Reflecting national trends, Seattle's workforce is becoming more diverse and the racial and ethnic groups that are the least educated are the fastest growing. In South King County, minority populations have increased in number over the last decade at a faster rate than the general population.

This unprecedented wave of immigrants and refugees has greatly increased the demand for ESL programs and services at South. The number of South's students whose primary language is not English (35 languages in all) has more than doubled in recent years. The composition of South's student body reflects local demographics. The proportion of South's students that are members of ethnic minorities, 47 percent, makes South one of the most diverse community colleges in Washington State. Nearly 50 percent of South's students are first-generation college students; 36 percent are low-income, and five percent are disabled.

The college has made it a priority to achieve excellence in its ability to serve its diverse population and these efforts have led to successful outcomes, especially in completion and retention rates. South Seattle Community College has the highest proportion of students of color (50.9 percent) who graduate with degrees or certificates in Washington State. Improving the retention of African American students is a priority. In 2008, the college was designated as a federally recognized Asian American and Native American Pacific Islander Serving Institution.

South is strongly engaged with surrounding communities and businesses, and is a leader in regional initiatives associated with education, community improvement and economic development. For example, the college is the convener of the Puget Sound Industrial Excellence Center, an innovative partnership that provides extensive educational and training services for businesses and teaches individuals entrepreneurship skills. These connections with industry and the community are especially relevant to the proposed BAS Sustainable Building Science Technology program. The institution is poised to draw on its many relationships and its reputation for success to build broad industry and community engagement in support of the BAS degree program.

South is actively engaged within the building and sustainable communities in Seattle and King County. South has received multiple local and federal grants in green building science and sustainability initiatives. The Georgetown campus is directly involved with 25 apprenticeship training programs, most of which are in the building trades or energy industries.

See Appendix D to view a comprehensive outreach plan created to ensure that the BAS, Sustainable Building Science Technology program is marketed to diverse populations.

Criteria 5. Appropriate Student Services Plan

Describe services that will be needed by the students admitted to the degree program and the college plan for providing those services. Include a description of financial aid services and academic advising for students admitted into the program.

South's expertise is in empowering students with varied backgrounds to be successful. We will apply many of the same approaches we have used with success in other programs such as our BAS in Hospitality Management degree. Much of the student support will take place through classroom-based strategies. We will organize the program using a cohort model and will encourage students to work together as a group. A cornerstone approach will be to encourage students to use their varied backgrounds as resources for their classmates. Furthermore, we will encourage study groups and will assign work to teams. All classes will involve strong elements of group participation. South will also offer support services including academic advising, drop-in tutoring, one-on-one tutoring and ESL instruction (see Appendix E).

In addition to classroom strategies, South will implement an adequate and appropriate student services plan to meet the needs of students enrolled in the new BAS program. The program has budget for a program manager to provide online and face-to-face student support. In addition the plan builds on South's existing comprehensive Student Services Department and E-Learning Departments. South has continually demonstrated commitment to significantly increasing the achievement and success of students. Recent student support initiatives include the development of the Asian American and Pacific Islander Higher Education Resource Center[1] and a revised pre-advising website[2]. A new Pathway to Completion initiative will institute intrusive advising and an early alert system. These initiatives are focused on increasing retention, completion, placement and transfer rates and are critical to supporting South's student services plan.

Concurrently, the BAS Sustainable Building Science Technology program will create and maintain a robust Web site that provides students with one-stop access to important information including the student handbook.

Students will receive additional assistance from a faculty advisor who will be assigned to them at the beginning of the program. Each faculty advisor will work individually with each student to provide them with the tools they need to be successful. Furthermore, students will be able to improve their academic skills by accessing campus resources such as the writing center and tutoring programs.

(1) Student financial aid services. South will offer comprehensive financial aid services to students in the Sustainable Building Science Technology program which is outlined in the student handbook. The Financial Aid Department will continue to ensure that third- and fourth-year students will receive equitable treatment in determining Federal and State aid eligibility.

In addition, the BAS, Sustainable Building Science Technology program intends to hire a .25 FTE to the financial aid staff to support this program. This staff member will specifically be assigned to helping students navigate VA requirements, process FASFA paperwork in a timely

[1] See http://aapiherc.southseattle.edu/

[2] See http://www.southseattle.edu/pre-advising/

manner and assist students in completing scholarship applications offered both internally and through external agencies.

Furthermore, the South Seattle Community College Foundation will make its existing scholarships, emergency grants and childcare grants available to students in the Sustainable Building Science Technology program and also proposes to raise additional endowed funds to support scholarships that are dedicated to the program. The board has indicated its willingness to establish preferences for underserved minorities if needed to assist with recruitment and retention. The Foundation currently awards more than $200,000 a year in scholarships, $15,000 in emergency grants, and $3,000 in childcare grants.

(2) Academic advising. Each student will meet with program faculty and program support staff to ensure appropriate advising. As mentioned, the program has been developed in a cohort model so students will know their schedule well in advance.

Currently, South's academic advisors use disciplinary expertise to counsel students wanting to transfer to the BAS programs. Faculty advisors will meet with each student individually. It should be noted that current department staff have extensive experience advising students in two-year programs and ensuring their successful transfer to four-year programs throughout the state. South has a strong tutoring program with dedicated writing and math labs. Students with these needs will be directed to the appropriate support program.

Criteria 6. Appropriate Staff and Administration

Describe the administrative and staff FTEs allocated to the program.

(1) Administrative and staff FTE allocation. This program will have 2.38 FTE for administration and student support. With 50 students in the program this achieves a high ratio for direct support.

The 50% administrative position support the time and effort provided by the Executive Dean for the program. This has been adequate for the other BAS programs offered by Seattle Community Colleges. If additional staffing in this area is required, the Executive Dean and the Vice President for Instruction will reevaluate and make appropriate changes as needed. **All staffing is consistent with Seattle Community College District policies and meets (or exceeds) all Northwest Accreditation standards.**

Table 6 - *Administrative and staff FTE allocation*

Administrative Activity (25 Students)	Percent of full time
Faculty Coordination (Release time)	.33
Executive Dean	.10
Library	.25
IT Support	.25
Exempt Administrator/Student Support Administrator	.5
Internship Support	.5
Clerical Support	.2
Financial Aid Support	.25
TOTAL	2.38

(2) Description of program administrators and staff.

Faculty Coordination (release time, .33 FTE). Staff will be assigned or hired to provide support for the development of the SBST BAS degree. Advisory committee, marketing, coordination, planning and student advising will be a part of this role.

Executive dean (.10 FTE). The executive dean of the program will be Dr. Holly L. Moore. Holly is a nationally recognized educational leader with more than 30 years of executive and faculty experience. She received her Doctorate in Educational Leadership from Seattle University; a Masters in Special Education from the University of Washington; and a Bachelors in Speech from California State University.

Her broad professional experience spans early, elementary, community college and university education. Currently, Dr. Moore is the executive dean of the Georgetown Campus of South Seattle Community College. Dr. Moore has been a strong advocate for apprenticeship education and linking this training to post-secondary degrees and certificates that build careers for a lifetime.

In addition to her role as a college president, she has held several leadership positions vice-president of economic development, assistant vice-president of academic affairs, academic division chair and an executive director of a foundation. Her experience also involves a tenured faculty position in education as well as university and public school teaching.

Library support staff (.25 FTE). Library support is also key for high quality baccalaureate level education. We have added a significant 10 hours per week to support library resources. In addition to providing direct support for baccalaureate level students these hours will be used to identify, purchase and maintain appropriate library resources for the program.

IT support staff (.25 FTE). A key element for learning is access to technology. We have added a significant 10 hours per week to support technology.

Exempt administrator/student support administrator (.33 FTE). The administrator for this program is responsible for the admissions process, helps students with financial aid issues, organizes student clubs, coordinates with the faculty for program scheduling, budgeting and provides general support for students.

Internship support staff (.5 FTE). One of the most important administrative functions will be facilitation of internships. Many current research studies indicate that high quality internships are key to student learning and job placement. This body of work is amply budgeted and may be conducted by the faculty or someone selected by the Executive Dean that has the skills to assess learning, set up mentors at the intern site, is familiar with technologies, understands learning facilities (e. g. classroom, shop, and lab layout), and safety.

Clerical support staff (.2 FTE). Clerical support will be provided by the Georgetown division support staff. This will include producing payroll documentation, room scheduling, minutes at meetings and budget support.

Financial aid support staff (.25 FTE). A key element with the high tuition rate will be financial aid support. We have added a significant 10 hours per week to support students financial aid and processes.

Criteria 7. Commitment to Build and Sustain a High Quality Program

Provide a financial plan for the first five years of program operation. This plan should include (1) types of funds to be used to support the program; (2) projected program expenses; (3) appropriate facilities to be used; (4) equipment, technology, and instructional resources needed for the program. Document the college's ability to sustain the program over time.

Funding to South Seattle Community College for its Sustainable Building Science Technology baccalaureate in applied science has begun in 2012/13 **with a one-time allocation from the college of $94,000 plus $22,950 in grant funding from the Puget Sound Regional Council (PSRC) totaling $116,950 for the planning year. During year one of the program the college will make an allocation of $73,005 plus $56,740 in grant funding from the PSRC** and tuition will make up the $264,533 in revenue for the program. In subsequent years the revenue sources will be funds collected from student tuition and fees. Tuition is calculated for 10 credits of upper division courses at $7,364 per year with an annual increase of two percent. In addition the budget forecasts one out-of-state student per cohort. Traditionally the college has received additional grant to fund emerging programs. A forecast for grant support is not reflected in this budget**, however the college is working with WSU Energy Program to secure additional resources.**

Seattle Community Colleges has demonstrated the capacity and resources to build and sustain quality baccalaureate programs of study. The Sustainable Building Science Technology BAS degree follows a long line of other high-quality programs. South Seattle Community College, Georgetown Campus has demonstrated a commitment to this area of study through the development of courses based on industry demand.

The financial plan for the SBST BAS program proposal is provided in table 7 and includes projections of all costs, expenditures and revenue streams to support the proposal. The proposed budget is sufficient to fund the necessary activities to build and sustain a program that will meet or exceed accreditation standards.

South Seattle Community College projects the expenses to be $116,950 for the planning year, $337,538 for year one and $360,014 for year two when a second cohort is added. **Overages will be covered by local funds or grants.** Costs level off the following year only increasing due to cost of living increases in salaries.

Table 7 – Sustainable Building Science Technology BAS Budget

Internship Coordinator (.5)	$ -	$ 24,000	$ 24,720	$ 25,462	$ 26,225	$ 27,012	
Clerical	$ -	$ 7,000	$ 7,210	$ 7,426	$ 7,649	$ 7,879	
Financial Aid Assistant (.25)	$ -	$ 11,250	$ 11,588	$ 11,935	$ 12,293	$ 12,662	
Subtotal	$ 50,333	$ 172,250	$ 207,418	$ 213,640	$ 220,049	$ 226,651	
Benefits @ 35%	$ 17,617	$ 60,288	$ 72,596	$ 74,774	$ 77,017	$ 79,328	
Total Staff	$ 67,950	$ 232,538	$ 280,014	$ 288,414	$ 297,066	$ 305,978	
**Note, salaries after year 1 reflect 3% cost of living increase*							
Item							
Contracted Services	$ 45,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	
Goods & Services	$ 3,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	
Travel (Professional Development)	$ 1,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	
Equipment	$ -	$ 35,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	
Marketing	$ -	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	
Software	$ -	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	
Instructional Research		$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	
Library Materials	$ -	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	
Total Items	$ 49,000	$ 105,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	
Grand Total Expenses	**$ 116,950**	**$ 337,538**	**$ 360,014**	**$ 368,414**	**$ 377,066**	**$ 385,978**	
REVENUE		25 students	50 students	50 students	50 students	50 students	
Tuition and Fees @ $7364 per year with 2% increase annually	$ -	$ 176,736	$ 360,541	$ 367,752	$ 375,107	$ 382,609	
Out of state students (1 per year , per cohort, with 7% increase)	$ -	$ 27,048	$ 57,882	$ 61,934	$ 66,269	$ 70,908	
Student Lab Fee ($8 per credit, up to $80 max per quarter)	$ -	$ 4,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	
Puget Sound Regional Council	**$ 22,950**	**$ 56,749**					
Local Funds	**$ 94,000**	**$ 73,005**					
Grand Total Revenue	**$ 116,950**	**$ 337,538**	**$ 430,423**	**$ 441,686**	**$ 453,376**	**$ 465,517**	
Difference	$ -	$ -	$ 70,410	$ 73,272	$ 76,310	$ 79,539	

Year zero represents the 2012/13 planning year and the $94,000 allocated for development of proposal to the State Board of Community and Technical Colleges. Year one begins program development with plans to begin offering courses during the 2013/14 academic year. It is expected that by year four the initial investment will be recouped by the college and the SBST will be a sustaining program of the college.

(1) Types of funds to be used to support the program. South has a demonstrated capacity to make a long-term commitment of resources to build and sustain a high quality program. The financial plan for the Sustainable Building Science Technology Program proposal, includes projections of all costs, expenditures, and revenue streams to support the proposal. The proposed budget is sufficient to fund the activities necessary to build and sustain an outstanding program.

Long term support for the program will come from student tuition and fees and college allocation of state FTE. Over the past five years tuition has increased an average of 10 percent, based on the history of tuition increases we have forecasted a conservative 2 percent annual increase along with a 3 percent projected annual increase in all salaries. Our projected enrollment is for 24 in-state students and one non-resident who will pay non-resident tuition.

- **(2) Projected program expenses.** Direct costs for year one of program delivery to 25 students will be at $337,538 and moving to $385,978 at year five. The increase is due primarily to a forecasted 3 percent annual increase in salaries. The intent is to offer a high quality program that meets the needs of the students and the college by providing robust funding in all necessary categories. This program will be in the same division as our current Bachelor's degree offering many opportunities to synergize in areas such as marketing and student development. Our experience with offering one of the first BAS degrees at a community college in Washington has helped us determine a realistic budget.

  Aligning with the budget on page 27, below is a narrative explanation of each line item. In addition South Seattle Community College will continue to seek external funding to develop and expand the program. A Technical Advisory Committee is already in place and has established two subcommittees to address Curriculum and Internships as well as Recruitment and Scholarships. Members have already taken leadership roles in reaching out to the sustainable building science community. Discussions are happening with the WSU Energy Program on funding partnerships as well.

1. FT Faculty - $60,000 will be allocated during year one to faculty for curriculum development and attendance at advisory committee meetings during the program development year. Full-time faculty will continue in following years and the budget reflects a three percent cost of living increase each year.
2. PT Faculty - During year two a second part-time faculty will be added to support the program for two cohorts of students. Part-time faculty will continue in following years and the budget reflects a 3 percent cost of living increase each year.
3. Faculty Coordination – Staff (.33) will be assigned or hired to provide support for the development of the SBST BAS degree. Advisory committee, marketing, coordination, planning and student advising will be part of the role of this person or people.
4. Executive Dean (.10) – The executive dean provides oversight of the SBST BAS.

5. Library – Beginning year one library staff hours will be dedicated to the project. A (.25) portion of time for the faculty librarian will be funded to facilitate materials selection and acquisition associated with expansion of the library to support the baccalaureate degree as well as work directly with SBST BAS students.
6. IT Support – Beginning year one information technology staff will be dedicated to the project. A (.25) portion of time for IT support will be funded to facilitate computer needs of faculty and students.
7. Exempt Admin/Student Support – During the program development year an exempt administrator (.33) will be hired to facilitate partnership with apprenticeship programs and community partners. During year one this position will transition to a part-time (.5) advisor to help support students.
8. Internship Coordinator – The part-time (.5) internship coordinator will be hired at the beginning of year one of operations.
9. Clerical – A part time (.2) clerical support person will be hired during year one of operations.
10. Financial Aid Assistant – A part-time (.25) financial aid assistant will be dedicated to the SBST BAS students beginning in year one.
11. Benefits – Benefits are calculated at 35 percent.
12. Contracted Services – Contracted services include program development dollars for the initial scope and sequence of the courses during the program development year. It is expected that subject matter experts will continue to be needed throughout the program because sustainable building science technology is an emerging field.
13. Goods and Services – Goods and services include desk supplies and teaching and learning materials for the program.
14. Travel (Professional Development and Internship Supervision) – Travel includes registration, hotel and travel expenses to conferences for faculty and staff professional development. Local travel will also be required to supervise student internships.
15. Equipment – Equipment includes computer resources and industry specified equipment.
16. Marketing – Outreach costs include brochures, college fairs, networking, Web site development etc.
17. Software – Industry specified software and licenses.
18. Instructional Research – An instructional research fund for faculty.
19. Library Materials – Acquisition of databases, journals, etc. to support the SBST BAS program. The materials budget was developed under consultation with our library staff and is in line with other BAS programs in the district. As needs are identified additional resources will be provided.
20. Tuition - The college forecasts enrollment at 25 students in year one and 50 students in year two. Class caps will be at 30 and it is expected that cohorts will fluctuate based on expected attrition and enrollment throughout the academic year. Tuition is calculated at $7,364 per year with an annual increase of 2 percent.
21. Out of state students – Due to the emerging nature of this field it is expected that the college will draw from outside the state. The budget reflects one out-of-state student per cohort.
22. Lab fees – Lab fees are calculated at $8 per credit up to $80 per quarter.

23. Puget Sound Regional Council – South Seattle Community College was awarded a grant for $79,699 to develop internships in sustainable building science technology. Internships are a critical component to the SBST BAS degree.
24. **Local funds – Local college funds will be invested during planning year and year one of the program.**

(3) Appropriate facilities to be used. The Georgetown campus has experienced a complete renovation over the past several years and is located close to SeaTac Airport and I-5 making it very easy for commuter students to attend class in that location. The campus houses specialized labs including a safety training lab, diversified manufacturing and sustainable buildings labs. The newest building, The Colin Education Center, is LEED Silver certified making it an excellent building to be used during auditing instruction.

The Sustainable Building Science Technology program is designed for working adults and delivery will be structured to meet the needs of people who are not available during the high volume 8 a.m. - 2 p.m. class times. The hybrid nature of this program is designed to reduce the demand for students to be on campus thus reducing the facility demands. Sustainable Building Science Technology course will be offered at non-traditional times further reducing peak demand for facility space. For several years, South has had significant experience in offering distance bachelors completion degrees with Eastern Washington University. In addition South has a teaching and learning classroom with the most current software for distance group interaction. The Seattle District has a world class television studio that can be utilized to make high quality demonstration videos and support instruction.

(4) Equipment, technology and instructional resources needed. South Seattle Community College is part of the Seattle Community College District which is the second largest higher education entity in the State of Washington only the University of Washington is larger. We have a vast array of instructional resources including curriculum development grants, on-line course development grants, $5,000 for instructional research, a full time faculty development coordinator, TV Studio, multiple teaching and learning centers as well as access to Washington On-line and a host of Web based lecture capture and conferencing software, ITV rooms, and distance learning coordinators. In addition an equipment budget of $10,000 per year has been established for this program and $20,000 has been allocated to the library for student resources.

Criteria 8. Program Specific Accreditation

Indicate whether the institution will seek specialized program accreditation. If so, describe plans for accreditation and identify appropriate accrediting body.

The college will not seek specialized program accreditation.

Criteria 9. Pathway Options beyond Baccalaureate Degree

Describe opportunities and articulation agreements for the place-bound BAS graduates to continue their education onto a graduate (Master's) degree program.

Building Science is an emerging field. The individuals currently engaged in this work have primarily learned on the job. As energy and building codes change to make our buildings more sustainable, more and more educated people will be needed. However there are currently no Bachelor's degree programs in this field, or no Master's degrees. We will continue to work with the states regional universities and colleges as programs emerge to ensure students can continue their education in graduate degree programs.

We are now in discussion with WSU Energy Program and The Evergreen State College around related advanced degree options, e.g. environmental policy and professional degrees.

Criteria 10. External Expert Evaluation of Program

The Institution will select two external experts to review the program. In a separate document, provide copies of external evaluators' reports or letters. Summarize the institution's responses and subsequent modifications to the proposal based upon evaluator's recommendations. Attach a short bio of the evaluators.

South Seattle Community College selected two external experts to review the program. The two primary reviewers are

Responses and program modifications based on evaluators recommendations

APPENDIX

Appendix A: Internship Agreement

South Seattle Community College

Internship Training Agreement and Learning Objectives Contract

Student Information

Name: _____ **Student I. D. Number:** _____

Address: _____ **City:** _____ **State:** _____ **Zip:** _____

Phone: _____ **Email:** _____

I agree to work as shown below and to uphold the commitment of hours and service I establish in my partnership with the sponsoring employer. I will work toward the established learning objectives as outlined in this contract and I will keep the Program Administrator informed of any changes in my work or school status. I realize that if placed in a paid internship position by the college, I am not able to file an unemployment claim against my employer at the end of the placement.

In addition, I hereby release the Seattle District of Community Colleges, its officers, employees, and agents from and against any and all claims or damages arising out of or in connection with the Internship Program and participation therein.

Student Signature: _____ **Date:** _____

Employer Information

Company Name: _____

Address: _____ **City:** _____ **State:** _____ **Zip:** _____

Supervisor Name: _____ **Title:** _____

Phone: _____ **Fax:** _____ **Email:** _____

Wages per Hour (if applicable): $_____ **Hours per Week:** _____

Internship Start Date: _____ **Internship End Date:** _____

The employer is responsible for determining the student's eligibility to participate in an internship which includes background verification. The employer reserves the right to discharge the student for just cause. However, if a problem arises after the student secures an internship, the college requests that the employer consults with the Program Administrator and student prior to such action. The school may also terminate the agreement if the training site no longer accommodates educational requirements after due consultation with the employer and student. Appropriate safety instruction will be provided by the employer. The employer shall evaluate the student in writing on a form provided by the college at the end of the student's internship. The employer will comply with Federal and State Labor and Industry regulations and will not reduce or replace the hours of any regular employee at the worksite. The above employer does not discriminate on the basis of race, color, religion, national origin, gender, sexual orientation, age, marital status, or disability.

In addition, the employer indicated above agrees to waive any and all claims that may arise against the Seattle District of Community Colleges, its officers, agents, or employees in connection with the Internship Program and participation therein.

Employer Signature: _____ **Date:** _____

Faculty Approval

I give the above student permission to participate in an internship. I will work with the student and employer to define appropriate learning objectives. I will contact or visit the internship site at least 1 time per quarter to determine the student's progress and address any questions or concerns as they arise.

Faculty Signature: _____Date: _____

Learning Objectives

Work with your internship site supervisor and faculty mentor to complete a minimum of four learning objectives in the worksheet below. These objectives should be relevant to your internship position and tied to the program learning outcomes listed below.

Sustainable Building Science Technology Learning Outcomes

1) **Systems** - Understand all operation and systems unique to sustainable buildings (old and new)
2) **Analysis** - Analyze, define and validate solutions
3) **Project management** - Deliver solutions from analysis
4) **Communications** - Utilize effective communication forum and techniques to facilitate all aspects of sustainable building management. Read, write, present.
5) **Leadership** – Develop and lead a team of various personalities and skills
6) **Team skills** - Work in a team and know how to collaborate, build functional work groups and take responsibility for outcomes
7) **Critical thinking** - Be able to anticipate, identify, troubleshoot, analyze, solve problems and lead a project
8) **Business skills** – Accounting, budgeting, real cost/return on investment, cost effectiveness and life cycle cost
9) **Technical (building)** – Measure, diagnose and understand building system interactions and summarize results in order to compare to standards or specifications.
10) **Operations and maintenance** – Understand and analyze building profiles and identify opportunities for improving performance
11) **Planning and design** - Calculate, develop and understand codes and standards for construction of sustainable energy efficient buildings
12) **Construction** – Understand components and drive the process of quality construction including safe work environments, documentation, contractors/sub-contractors, building options and inspection
13) **Building science principles** - Demonstrate working knowledge of building science/building physics/operating principles and their relationships to each other across disciplines
14) **Financial skills** - Ability to prepare project budget, cost estimate, cost benefit analysis
15) **Computer skills** - Demonstrate proficiency with MS Word, Excel, PowerPoint, electronic communication and other widely accepted software with specific intention of acquiring the ability to collect and analyze commonly available instruments, such as power analyzers, thermal imager and HVAC equipment.
16) **Social value ethics and need** - Create and maintain a professional environment based on values and ethics.
17) **Data management** - Use computer programs used in building industries and quality assurance to make fact based decisions

OBJECTIVE #1

1) **What would you specifically like to know or be able to do by the end of your internship?**

   _____
   _____

2) **What will you do to accomplish this goal? (provide two specific actions)**
   - _____
   - _____

3) **How will you and others know you've accomplished your goal? Be specific.**

   _____
   _____

4) **Describe why this objective is important to you and what program learning outcome(s) it achieves?**

   _____
   _____

OBJECTIVE #2

1) **What would you specifically like to know or be able to do by the end of your internship?**

   _____
   _____

2) **What will you do to accomplish this goal? (provide two specific actions)**
   - _____
   - _____

3) **How will you and others know you've accomplished your goal? Be specific.**

   _____
   _____

4) **Describe why this objective is important to you and what program learning outcome(s) it achieves?**

   _____
   _____

OBJECTIVE #3

1) **What would you specifically like to know or be able to do by the end of your internship?**

   _____
   _____

2) **What will you do to accomplish this goal? (provide two specific actions)**
   - _____
   - _____

3) **How will you and others know you've accomplished your goal? Be specific.**

   _____

   _____

4) **Describe why this objective is important to you and what program learning outcome(s) it achieves?**

   _____

   _____

OBJECTIVE #4

1) **What would you specifically like to know or be able to do by the end of your internship?**

   _____

   _____

2) **What will you do to accomplish this goal? (provide two specific actions)**
   - _____
   - _____

3) **How will you and others know you've accomplished your goal? Be specific.**

   _____

   _____

4) **Describe why this objective is important to you and what program learning outcome(s) it achieves?**

   _____

   _____

Appendix B: Course Outlines

_____SOUTH SEATTLE COMMUNITY COLLEGE_____
Sustainable Building Sciences Department

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science
COURSE TITLE:	Building Science
COURSE NUMBER:	SBST 301
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	3
LECTURE HOURS:	33
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval.

COURSE DESCRIPTION:
Provides an overview of the principles of Building Science and how it is applied to the design, operation and maintenance of buildings and their systems, the interaction of those systems, and the careers that use and are impacted by these principles and their applications.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Communication – Students will demonstrate the ability to converse through classroom, on-line and written communication. Demonstrate reading and listening skills necessary to understand and communicate an understanding of complex principles.
2. Computation – Students will use basic mathematical and quantitative skills to measure assess air pressure, air flow and humidity as it applies to building science.
3. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.
4. Technology – Students will learn to use appropriate technological tools for measuring and analyzing data needed to solve problems.
5. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.
6. Information Literacy – Students will access and evaluate information from a variety of sources and contexts including interviews and research.

PROGRAM OUTCOMES:

1. Systems – understand operations and systems unique to sustainable buildings.
2. Analysis – analyze, define and validate solutions.
3. Communications – utilize effective communication during interviews and presentations.
4. Critical thinking – identify, analyze and solve problems.
5. Technical – measure, diagnose and understand building system interactions.
6. Building science – demonstrate working knowledge of building science and relationships across disciplines.
7. Social value, ethics and need – create and maintain a professional environment based on values and ethics.

GENERAL COURSE OBJECTIVES:

1. Students will gain an understanding of the principles of Building Science, including the physics of heat flow, pressure and moisture transfer and how they interact with buildings and their psychrometric systems.
2. Students will solve problems related to the interaction of Building Science principles and how those apply to design, operation and maintenance of buildings and their systems.
3. Students will learn about, research and discuss jobs that are related to or would benefit from an understanding of Building Science and learn from energy professionals how their jobs employ Building Science.

TOPICAL OUTLINE	APPROX HOURS
1. Overview of Building Science	2
2. Heat flow-principles, calculation and measurement	2
3. Air pressure-principles, calculation and measurement	2
4. Air flow measurement principles, tools, operation, and measurement	2

5. Humidity-principles, calculation, measurement and psychometrics 2
6. Practical application of building science principles and problems 2
7. Resources for building science information 1
8. Complex building science issues, examples and problems 4
9. Preparation for identification, analysis and reporting of building science issues 1
10. Class presentations of building science issues 4
11. Professions related to Building Science applications and implications 2
12. Presentations by local building science professionals and employers 4
13. Preparation for interviewing and reporting on building science professionals 1
14. Class presentations on interviews with building science professionals 4

APPROX. HOURS:
33

Originated by: Ken Eklund
4/15/13

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science Technology
COURSE TITLE:	Building Components and Systems
COURSE NUMBER:	SBST 302
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	2
LECTURE HOURS:	22
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval and be taking or have taken the Building Science course.

COURSE DESCRIPTION:
Provides an overview of building components and space conditioning and lighting systems, their interactions, and the building science issues surrounding and impacting them.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Communication – Students will demonstrate the ability to converse through classroom, on-line and written communication. Demonstrate reading and

listening skills necessary to understand and communicate an understanding of complex principles.
2. Computation – Students will use basic mathematical and quantitative skills, compile information and develop reports.
3. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.
4. Technology – Students will learn to use appropriate technological tools for measuring and analyzing data needed to solve problems.
5. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.
6. Information Literacy – Students will access and evaluate information from a variety of sources and contexts including interviews and research.

PROGRAM OUTCOMES:

1. Systems – understand operations and systems unique to sustainable buildings.
2. Critical thinking – identify, analyze and solve problems.
3. Technical – measure, diagnose and understand building system interactions.
4. Operations and maintenance – understand and analyze building profiles and identify opportunities for improving performance.
5. Planning and design – calculate, develop and understand codes and standards for construction of sustainable energy efficient buildings.
6. Building science – demonstrate working knowledge of building science and relationships across disciplines.
7. Social value, ethics and need – create and maintain a professional environment based on values and ethics.

GENERAL COURSE OBJECTIVES:
At the end of the course the student will:

1. Understand how building envelopes and their components are assembled, and their impact on and response to energy, pressure and moisture flows.
2. Understand basic space conditioning, lighting, PV systems and control systems and how they interact with each other and the building envelope.
3. Understand how occupant comfort and productivity are affected by building envelope, space conditioning, lighting, acoustics and control systems.

TOPICAL OUTLINE	APPROX HOURS
1. Building envelope components	2
2. Overview of building space conditioning systems	2
3. Basic control strategies and systems	2
4. Overview of lighting systems and controls	2
5. Daylighting impacts and considerations	2
6. Case studies in building envelopes design, maintenance and issues	2
7. Case studies in systems design, operation, maintenance and issues	2

8. Case studies in control systems design, programming and issues 2
9. Field studies-audit, analysis and reporting on envelope and systems preparation 1
10. Conduct field study and discuss results 3
11. Maintenance and management overview 2

APPROX. HOURS:
22

Originated by: Ken Eklund
4/15/13

_____SOUTH SEATTLE COMMUNITY COLLEGE_____
Sustainable Building Science Technology Department

COURSE OUTLINE
Lauren Hadley
May 15, 2013

DEPARTMENT:	Sustainable Building Science Technology Department
CURRICULUM:	Sustainable Building Science Technology
COURSE TITLE:	Professional Portfolio
COURSE NUMBER:	SBST 314
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	1
LECTURE HOURS:	11
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval.

COURSE DESCRIPTION:
This course will require students to document prior work experience by developing an E-portfolio and will culminate in receiving Workforce Experience Practicum credit.

STUDENT LEARNING OUTCOMES ADDRESSED:
1. Communication – Students will demonstrate the ability writing skill through the development of a work experience portfolio.
2. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving necessary to document prior learning including theory and practical application.

3. Information Literacy – Students will access and evaluate information from a variety of sources and contexts, and will demonstrate how to access Information Literacy remotely.

PROGRAM OUTCOMES:

1. Understand operations and systems of buildings
2. Analyze building data to define and validate solutions
3. Deliver sustainable solutions from analysis
4. Communicate sustainable building practices
5. Perform management functions
6. Build functional workgroups
7. Solve problems through analysis
8. Understand cost analysis and life cycle costs
9. Understand building system interaction
10. Understand building profiles and areas for improvement
11. Understand codes and standards for construction of sustainable buildings
12. Understand the process of quality construction and a safe work environment
13. Demonstrate knowledge of building science principles
14. Prepare project budget, cost estimate and cost benefit analysis
15. Learn to adapt new technologies
16. Create and maintain a professional environment
17. Use data to make fact based decisions

GENERAL COURSE OBJECTIVES:

The student will:

1. Articulate their educational goals.
2. Identify Program Outcomes attained.
3. Recognize college-level learning.
4. Identify and document prior learning experiences.
5. Categorize experiences into college disciplines.
6. Determine if prior learning is of a creditable nature.
7. Compile a portfolio to determine the awarding of credit (Maximum of 25% of the degree sought).
8. Submit portfolio to appropriate campus personnel for evaluation.

TOPICAL OVERVIEW	APPROX HOURS
1. Course Overview	1
2. Review Portfolio Development Process	4
3. Document Prior Learning Experiences	2
4. Create Portfolio Outline	3
5. Finalize and Review Portfolio	1

APPROX. HOURS:

11

Originated by: Lauren Hadley

5/15/13

_____SOUTH SEATTLE COMMUNITY COLLEGE_____
Sustainable Building Science Technology Department

COURSE OUTLINE
Lauren Hadley
May 15, 2013

DEPARTMENT:	Sustainable Building Science Technology Department
CURRICULUM:	Sustainable Building Science Technology
COURSE TITLE:	Work Experience Practicum
COURSE NUMBER:	SBST 315
TYPE OF COURSE:	Vocational
COURSE LENGTH:	Variable
CREDIT HOURS:	Non-Variable 10
LECTURE HOURS:	0
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	Variable
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval.

COURSE DESCRIPTION:
Credits earned will be based on the successful completion of the Professional Portfolio course (SBSTT 314). Students must have demonstrated 2-5 years of relevant work experience in their area of interest.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Personal Responsibility – Demonstrate the ability to be timely, responsible for tasks assigned as well as working independently, value one's own skills and abilities and value intellectual inquiry and ethical behavior.

SBST 315 – Work Experience Practicum
5/15/13

STUDENT LEARNING OUTCOMES ADDRESSED (Cont.):

2. Human Relations – Use social interactive skills to work in groups effectively. Recognize the diversity of cultural influences and values of peers and colleagues.
3. Communication – Demonstrate effective oral and written communication between co-workers and supervisors in the work setting.
4. Technology – Students will select and use appropriate technological tools to demonstrate knowledge within their field of interest.

GENERAL COURSE OBJECTIVES:

1. To evaluate prior work experience and how it relates to the BAS Sustainable Building Science Technology program and the student's future career goals.

TOPICAL OUTLINE:

1. Work with South Seattle Community College BAS Sustainable Building Science Technology faculty/staff to identify an appropriate Work Experience Practicum
2. Complete the Prior Work Experience Credit Petition
3. Provide 2-5 years of approved and documented work experience

APPROX. HOURS:
Variable

Originated by: Lauren Hadley
5/15/13

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science Technology
COURSE TITLE:	Building Codes in Washington State
COURSE NUMBER:	SBST 321
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	2
LECTURE HOURS:	22
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval and have taken Building Science and Building Components and Systems.

COURSE DESCRIPTION:
Provides an overview of building components

STUDENT LEARNING OUTCOMES ADDRESSED:

7. Communication – Students will demonstrate the ability to converse through classroom, on-line and written communication. Demonstrate reading and listening skills necessary to understand and communicate an understanding of complex principles.
8. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.

9. Technology – Students will learn to use appropriate technological tools for measuring and analyzing data needed to solve problems.
10. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.

PROGRAM OUTCOMES:

8. Manage learning environments
9. Develop outcomes, assessments and curricula
10. Provide student instruction
11. Create and maintain a professional environment
12. Learn to adapt new technologies

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

4. Understand the history of building codes, the role of interest groups and need for them
5. Understand the family of building codes and the context for building energy codes
6. Be aware of all codes that impact building design, operation and maintenance
7. Be able to identify code issues

TOPICAL OUTLINE	APPROX HOURS
15. History of building codes (include PNW & State)	2
16. Scope of building codes (structural, electrical, plumbing, etc.)	2
17. Code development & adoption of codes used in Washington State	2
18. International Codes Council and Washington State	1
19. Jurisdiction for code adoption and enforcement in Washington State	1
20. Enforcement options and perspective of enforcement agencies	1
21. Building structures—code, requirements & compliance methods	2
22. Glazing systems—code, requirements & compliance methods	1
23. Mechanical systems—code, requirements & compliance methods	2
24. Plumbing—code, requirements & compliance methods	2
25. Electrical—code, requirements & compliance methods	2
26. Fire—code, requirements & compliance methods	2
27. Appliance efficiency standards—source & relation to Washington code	2

APPROX. HOURS:

22

Originated by: Ken Eklund
4/15/13

_____SOUTH SEATTLE COMMUNITY COLLEGE_____
Sustainable Building Sciences Department

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science
COURSE TITLE:	Energy Analysis and Auditing
COURSE NUMBER:	SBST 322
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	3
LECTURE HOURS:	33
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval and have taken or are currently enrolled in the Building Science and Building Components and Systems courses.

COURSE DESCRIPTION:
Teaches energy auditing and analysis skills of commercial buildings.

STUDENT LEARNING OUTCOMES ADDRESSED:
1. Communication – Students will demonstrate the ability to converse through classroom, on-line and written communication. Demonstrate reading and listening skills necessary to understand and communicate an understanding of complex principles.

2. Computation – Students will use basic mathematical and quantitative skills to measure assess air pressure, air flow and humidity as it applies to building science.
3. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.
4. Technology – Students will learn to use appropriate technological tools for measuring and analyzing data needed to solve problems.
5. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.
6. Information Literacy – Students will access and evaluate information from a variety of sources and contexts including interviews and research.

PROGRAM OUTCOMES:

1. Systems – understand operations and systems unique to sustainable buildings.
2. Analysis – analyze, define and validate systems.
3. Communications – utilize effective communication techniques to facilitate all aspects of sustainable building management.
4. Critical thinking – identify, analyze and solve problems.
5. Technical – measure, diagnose and understand building system interactions.
6. Operations and maintenance – understand and analyze building profiles and identify opportunities for improving performance.
7. Planning and design – calculate, develop and understand codes and standards for construction of sustainable energy efficient buildings.
8. Construction – understand components that drive the process of construction.
9. Building science – demonstrate working knowledge of building science and relationships across disciplines.
10. Financial skills – calculate building baseload and savings with improvements.
11. Computer skills – demonstrate ability to use commonly available instruments and interpret findings in audits and reports.
12. Social value, ethics and need – create and maintain a professional environment based on values and ethics.
13. Data management – use computer programs used in building industries and quality assurance to make fact based decisions.

GENERAL COURSE OBJECTIVES:
At the end of the course the student will:

1. Understand and have experience in auditing commercial buildings, lighting and conditioning systems.
2. Understand and have experience in analyzing building heat loss and gain, lighting output, and heating and air conditioning air and hydronic flows and capacities.

TOPICAL OUTLINE	APPROX HOURS
1. Overview of auditing buildings	3
2. Calculating heat flow	1
3. Researching component values (R, U, SHGC, etc.)	1
4. Identification and auditing of lighting types	2
5. Measuring and calculating lighting values	1
6. Methods and tools for auditing envelope, lighting and equipment	2
7. Researching equipment efficiencies	1
8. Calculating and measuring equipment energy use	2
9. Pump efficiency—understanding pump system optimization	2
10. Motor efficiency—understanding motor efficiencies and optimization	2
11. Fans, noise and ductwork—an overview	1
12. Auditing comfort—interviews, surface temperatures, air movement, noise	2
13. Practical problems in calculating energy use of a building and systems	2
14. Presentation by expert auditor	2
15. Audit campus building during class	2
16. Report findings and review in class—include comfort as a finding	2
17. How to calculate building baseload and savings with improvements	2
18. Review project building audit and calcs in class	3

Software: There are several tools for auditing and analysis of building energy use. For residential buildings software includes the one used by the Northwest Power and Conservation Council in its planning and analysis produced by Ecotope, Inc. called SEEM, and a less accurate program used for rating buildings called REMRATE produced by Architectural Energy Corporation. For nonresidential buildings the software of choice is ProCost which comes free as it is or is available with various commercial interfaces. It is a complex program that requires an engineering level background or experience to use properly.

APPROX. HOURS:
33

Originated by: Ken Eklund
4/15/13

_____SOUTH SEATTLE COMMUNITY COLLEGE_____
Sustainable Building Science Technology Department

COURSE OUTLINE
Lauren Hadley
May 15, 2013

DEPARTMENT:	Sustainable Building Science Technology Department
CURRICULUM:	Sustainable Building Science Technology
COURSE TITLE:	Sustainable Building Science Technology Internship
COURSE NUMBER:	SBST 325
TYPE OF COURSE:	Vocational
COURSE LENGTH:	Variable
CREDIT HOURS:	Variable 1 to 10
LECTURE HOURS:	0
LAB HOURS:	0
OTHER HOURS:	300 (in Classroom)
CLASS SIZE:	Variable
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval.

COURSE DESCRIPTION:
The Sustainable Building Science Technology Internship provides students with the opportunity to observe, reflect and practice sustainable building science technology techniques in a technical, post-secondary environment. Each student will find a building science placement in their field of interest and work with a site supervisor to develop and deliver relevant curriculum. The student's site supervisor and college faculty advisor will evaluate the internship.

SBST 325 – Sustainable Building Science Technology Internship
5/15/13

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Personal Responsibility – Demonstrate the ability to be timely, responsible for tasks assigned as well as working independently, value one's own skills and abilities and value intellectual inquiry and ethical behavior.
2. Human Relations – Use social interactive skills to work in groups effectively. Recognize the diversity of cultural influences and values of peers, colleagues, and students overall.
3. Communication – Demonstrate effective oral and written communication between co-workers and supervisors in the work setting.
4. Critical Thinking and Problem Solving – Demonstrate the ability to analyze and interpret technical and other industry related data and information related to the Sustainable Building Science Technology field.
5. Technology – Students will select and use appropriate technological tools to investigate different segments of the field.
6. Information Literacy – Access and evaluate information from a variety of resources, including research in the library, various websites searches, reading textbooks, and peer discussion. Students will be sharing their information through formal and informal class discussion.

GENERAL COURSE OBJECTIVES:
At the end of the course the student will:

1. Apply those theories, concepts and skills acquired in the classroom in an actual work environment
2. Interact effectively with individuals and groups
3. Learn work related success strategies
4. Adapt to work place practices and exhibit appropriate professional comportment, including attitude and appearance.
5. Develop specific goals and four types of learning objectives:
   a. Career orientation objectives
   b. Skills application and development objectives
   c. Human relations objectives
   d. Critical thinking and problem solving objectives

TOPICAL OUTLINE:

1. Work with South Seattle Community College Career Center staff and BAS Sustainable Building Science Technology faculty/staff to identify an appropriate internship site
2. Clarify career and educational goals
3. Attend seminars as required by internship site personnel
4. Develop good work habits
5. Provide 300 (in Classroom) hours of approved and documented internship experience

APPROX. HOURS:
300 (in Classroom)

Originated by: Lauren Hadley
5/15/13

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science
COURSE TITLE:	Financing Energy Efficiency and Renewable Energy
COURSE NUMBER:	SBST 331
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	2
LECTURE HOURS:	22
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval and must have taken Energy Auditing and Analysis.

COURSE DESCRIPTION:
Provides an overview of energy economics.

STUDENT LEARNING OUTCOMES ADDRESSED:
1. Computation – Students will use basic mathematical and quantitative skills, compile information and develop reports.
2. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.
3. Technology – Students will learn to use appropriate technological tools for measuring and analyzing data needed to solve problems.

4. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.
5. Information Literacy – Students will access and evaluate information from a variety of sources and contexts including interviews and research.

PROGRAM OUTCOMES:

1. Systems – understand operations and systems unique to sustainable buildings.
2. Analysis – analyze, define and validate systems.
3. Critical thinking – identify, analyze and solve problems.
4. Business skills – use accounting, budgeting, real cost, cost effectiveness and life-cycle cost to evaluate building options.
5. Technical – measure, diagnose and understand building system interactions.
6. Operations and maintenance – understand and analyze building profiles and identify opportunities for improving performance.
7. Building science – demonstrate working knowledge of building science and relationships across disciplines.
8. Financial skills – calculate building baseload and savings with improvements.
9. Computer skills – demonstrate ability to use commonly available instruments and interpret findings in audits and reports.
10. Social value, ethics and need – create and maintain a professional environment based on values and ethics.
11. Data management – use computer programs used in building industries and quality assurance to make fact based decisions.

GENERAL COURSE OBJECTIVES:
At the end of the course the student will:

1. Understand economic concepts such as rate of return, cost/benefit and life cycle cost
2. Understand how rate of return, cost/benefit and life cycle cost are calculated
3. Understand concepts of cost-effectiveness from customer and utility perspectives
4. Understand the availability and structure of utility incentive and subsidies programs
5. Understand the potential availability of tax incentives

TOPICAL OUTLINE	APPROX HOURS
1. Introduction to energy economics	2
2. Perspectives on energy efficiency—customer versus utility	2
3. Measures of benefit—rate of return and cost/benefit ratio, discount rates	2
4. Life cycle cost	2
5. Investment planning—putting it all together	2
6. Total resource cost calculation	2
7. Utility least cost planning	2
8. The Regional Power Plan and Initiative 937	2

9. Utility incentive programs and customer decision making 2
10. Tax incentives—deductions, credits and customer decision making 2
11. Evaluating and prioritizing energy efficiency options 2

APPROX. HOURS:
22

Originated by: Ken Eklund
4/15/13

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science
COURSE TITLE:	Building Energy Codes in Washington State
COURSE NUMBER:	SBST 332
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	3
LECTURE HOURS:	33
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval and have taken or are currently enrolled in Building Science, Building Systems and Energy Analysis and Auditing.

COURSE DESCRIPTION:
Provides an overview of building energy codes in Washington State.

STUDENT LEARNING OUTCOMES ADDRESSED:
1. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.
2. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.

3. Information Literacy – Students will access and evaluate information from a variety of sources and contexts including interviews and research.

PROGRAM OUTCOMES:

1. Systems – understand operations and systems unique to sustainable buildings.
2. Analysis – analyze, define and validate solutions.
3. Critical thinking – identify, analyze and solve problems.
4. Technical – measure, diagnose and understand building system interactions.
5. Operations and maintenance – understand and analyze building profiles and identify opportunities for improving performance.
6. Planning and design – calculate, develop and understand codes and standards for construction of sustainable energy efficient buildings.
7. Construction – understand components that drive the process of construction.
8. Building science – demonstrate working knowledge of building science and relationships across disciplines.
9. Social value, ethics and need – create and maintain a professional environment based on values and ethics.

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Know the source and history of building energy codes including ACEEE rankings of WA, OR, ID and AK..
2. Understand building energy codes and their application to building operations and maintenance.
3. Be able to identify and resolve code issues.

TOPICAL OUTLINE	APPROX HOURS
1. The history of energy codes and reasons for them (focus on PNW and State)	2
2. Energy code sources, development and adoption	2
3. Relationship of energy codes to other codes	2
4. Structure and differences of residential and nonresidential energy codes	2
5. Prescriptive compliance methods for residential and nonresidential codes	2
6. Trade off compliance methods for residential and nonresidential codes	2
7. Performance compliance for residential and nonresidential codes	2
8. Using compliance tools for code compliance	2
9. Lighting standards for residential and nonresidential structures	2
10. Examples of nonresidential compliance for envelope and equipment	4
11. Additional standards: LEED, Energy Star and Portfolio Manager	4
12. Green, stretch and voluntary standards	2
13. Difference between State and City of Seattle nonresidential energy codes	2
14. Presentation of code compliance projects	3

Software: For residential energy code compliance use ResCheck; for nonresidential code compliance use ComCheck. Both are available online from U.S. DOE.

APPROX. HOURS:
33

Originated by: Ken Eklund
4/15/13

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science Technology
COURSE TITLE:	Building Controls for Energy Efficiency
COURSE NUMBER:	SBST 333
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	4
LECTURE HOURS:	44
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval and have taken Energy Auditing & Analysis.

COURSE DESCRIPTION:
Provides an overview of building components

STUDENT LEARNING OUTCOMES ADDRESSED:

11. Communication – Students will demonstrate the ability to converse through classroom, on-line and written communication. Demonstrate reading and listening skills necessary to understand and communicate an understanding of complex principles.
12. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.

13. Technology – Students will learn to use appropriate technological tools for measuring and analyzing data needed to solve problems.
14. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.

PROGRAM OUTCOMES:

13. Manage learning environments
14. Develop outcomes, assessments and curricula
15. Provide student instruction
16. Create and maintain a professional environment
17. Learn to adapt new technologies

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

8. Understand central and equipment specific control system functions
9. Have basic skills in auditing control systems including logic and sensors
10. Understand issues in programming for energy efficiency while meeting needs for occupant control, comfort and performance
11. Have basic skills in programming EMS, DDC and BAS

TOPICAL OUTLINE	APPROX HOURS
28. Overview: Controls for Energy Efficiency, EMS & BAS	4
29. Programming—general concepts & practices	6
30. Onboard controls for all equipment & functions	6
31. Central controls for all equipment & functions	4
32. Auditing equipment, existing controls and program, & sensors	6
33. Programming for efficiency for the whole system & sub systems	6
34. Control audit of mid-size facility with expert	6
35. Issues of comfort and function	3
36. Specific equipment: Economizers, Chillers, Boilers, etc.	3

APPROX. HOURS:
44

Originated by: Ken Eklund
4/15/13

Software: Specific, proprietary software in general use for Energy Management Systems EMS), Direct Digital Control (DDC) and Building Automation Systems (BAS).

Equipment: PC for central software, access to actual system for observation and learning, access to specific equipment controls including air source heat recovery, cooling towers, water heaters, boilers, chillers, evaporative coolers, optimum start, reset, air compressors, pumps, lights, and plumbing systems.

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science
COURSE TITLE:	Utility Rates, Regulation and Economics
COURSE NUMBER:	SBST 401
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	2
LECTURE HOURS:	22
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval and have taken Financing Energy Efficiency.

COURSE DESCRIPTION:
Provides an overview of utility rate structure.

STUDENT LEARNING OUTCOMES ADDRESSED:
1. Computation – Students will use basic mathematical and quantitative skills, compile information and develop reports.
2. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.
3. Technology – Students will learn to use appropriate technological tools for measuring and analyzing data needed to solve problems.

4. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.
5. Information Literacy – Students will access and evaluate information from a variety of sources and contexts including interviews and research.

PROGRAM OUTCOMES:

1. Systems – understand operations and systems unique to sustainable buildings.
2. Analysis – analyze, define and validate systems.
3. Critical thinking – identify, analyze and solve problems.
4. Technical – measure, diagnose and understand building system interactions.
5. Operations and maintenance – understand and analyze building profiles and identify opportunities for improving performance.
6. Planning and design – calculate, develop and understand codes and standards for construction of sustainable energy efficient buildings.
7. Construction – understand components that drive the process of construction.
8. Building science – demonstrate working knowledge of building science and relationships across disciplines.
9. Financial skills – calculate building baseload and savings with improvements.
10. Computer skills – demonstrate ability to use commonly available instruments and interpret findings in audits and reports.
11. Social value, ethics and need – create and maintain a professional environment based on values and ethics.
12. Data management – use computer programs used in building industries and quality assurance to make fact based decisions.

GENERAL COURSE OBJECTIVES:
At the end of the course the student will:

1. Understand utility rate structures for residential and commercial customers and impact of PF systems.
2. Understand energy and demand charges.
3. Be capable of factoring utility energy and demand charges into energy efficiency and controls investments, programming and return on investment calculations.

TOPICAL OUTLINE	APPROX HOURS
1. Utility rates overview	2
2. Reading and understanding commercial gas and electric rate schedules	2
3. Energy intensity and identification of savings potential	2
4. Comparing different energy costs and options	2
5. Demand structure and billing analysis	2
6. Load shifting to minimize or avoid demand charges	2
7. Using submeters to identify and quantify loads	2
8. Low cost systems for energy and demand monitoring	2
9. Utility regulation or rate policy decision process	2

10. Using utility rate information to plan efficiency and control investments 2
11. Combined heat and power in the context of utility rates and regulation 2

APPROX. HOURS:
22

Originated by: Ken Eklund
4/15/13

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science
COURSE TITLE:	Lighting
COURSE NUMBER:	SBST 402
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	3
LECTURE HOURS:	33
LAB HOURS:	6
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval and have taken Building Energy Codes.

COURSE DESCRIPTION:
Provides an overview of building lighting systems.

STUDENT LEARNING OUTCOMES ADDRESSED:
1. Communication – Students will demonstrate the ability to converse through classroom, on-line and written communication. Demonstrate reading and listening skills necessary to understand and communicate an understanding of complex principles.
2. Computation – Students will use basic mathematical and quantitative skills, compile information and develop reports.

3. Human Relations – use social interactive skills.
4. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.
5. Technology – Students will learn to use appropriate technological tools for measuring and analyzing data needed to solve problems.
6. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.
7. Information Literacy – Students will access and evaluate information from a variety of sources and contexts including interviews and research.

PROGRAM OUTCOMES:

1. Systems – understand operations and systems unique to sustainable buildings.
2. Analysis – analyze, define and validate systems.
3. Project Management – deliver solutions from analysis.
4. Communications – utilize effective communication techniques to facilitate all aspects of sustainable building management.
5. Critical thinking – identify, analyze and solve problems.
6. Technical – measure, diagnose and understand building system interactions.
7. Operations and maintenance – understand and analyze building profiles and identify opportunities for improving performance.
8. Planning and design – calculate, develop and understand codes and standards for construction of sustainable energy efficient buildings.
9. Construction – understand components that drive the process of construction.
10. Building science – demonstrate working knowledge of building science and relationships across disciplines.
11. Financial skills – calculate building baseload and savings with improvements.
12. Computer skills – demonstrate ability to use commonly available instruments and interpret findings in audits and reports.
13. Social value, ethics and need – create and maintain a professional environment based on values and ethics.
14. Data management – use computer programs used in building industries and quality assurance to make fact based decisions.

GENERAL COURSE OBJECTIVES:
At the end of the course the student will:

1. Be able to operate lighting systems effectively, safely, legally and economically while pleasing a variety of people
2. Understand how systems work, interact with other systems, in particular with heating and cooling, and how they are controlled
3. Know which resources to access to answer questions and provide information on new options
4. Know the basics of lighting audits
5. Know when and how to hire an expert consultant

TOPICAL OUTLINE	APPROX HOURS
1. Purpose of lighting and a brief history of lighting	3
2. Language of lighting, acronyms, and basic calculations	3
3. Lighting quality and applications	3
4. Lighting equipment	4
5. Daylighting	3
6. Lighting controls	4
7. Codes, laws and regulations affecting lighting	2
8. Energy savings strategies	2
9. Lighting system maintenance	3
10. Keeping up/finding help	1
11. Planning an upgrade	2
12. Lab: six hours of basic audit and recommendations	3

APPROX. HOURS:
33

Originated by: Ken Eklund
4/15/13

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science
COURSE TITLE:	Energy Policy
COURSE NUMBER:	SBST 421
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	3
LECTURE HOURS:	33
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval and have taken Utility Rates.

COURSE DESCRIPTION:
Provides an overview of energy policy.

STUDENT LEARNING OUTCOMES ADDRESSED:
1. Communication – Students will demonstrate the ability to converse through classroom, on-line and written communication. Demonstrate reading and listening skills necessary to understand and communicate an understanding of complex principles.
2. Computation – Students will use basic mathematical and quantitative skills, compile information and develop reports.
3. Human Relations – use social interactive skills.

4. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.
5. Technology – Students will learn to use appropriate technological tools for measuring and analyzing data needed to solve problems.
6. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.
7. Information Literacy – Students will access and evaluate information from a variety of sources and contexts including interviews and research.

PROGRAM OUTCOMES:

1. Analysis – analyze, define and validate systems.
2. Project Management – deliver solutions from analysis.
3. Communications – utilize effective communication techniques to facilitate all aspects of sustainable building management.
4. Leadership – develop and lead a team of various personalities and skills.
5. Critical thinking – identify, analyze and solve problems.
6. Business skills – understand accounting, budgeting, real cost, cost effectiveness and life-cycle cost.
7. Social value, ethics and need – create and maintain a professional environment based on values and ethics.

GENERAL COURSE OBJECTIVES:
At the end of the course the student will:

1. Understand the context in which decisions are made that impact energy prices, energy use, and facility design and operation.
2. Understand basic energy policy formation at the federal, regional and state and local levels and impact on energy use and cost.
3. Understand the institutions and laws that shape energy policy at all levels.
4. Understand the major issues that drive policy.
5. Understand Energy subsidies and incentives.
6. Understand the major current energy policy conflicts and the risks they create.
7. Understand technical and financial impacts of energy policy.

TOPICAL OUTLINE	APPROX HOURS
1. Overview of federal, regional, state and local energy policy	3
2. Federal institutions that impact policy—DOE, FERC, EPA, DOA	3
3. Federal laws that impact policy—PURPA, NAECA, En Policy Acts, etc.	3
4. BPA—a federal, regional institution: history, WPSS, Power Act	3
5. Northwest Power and Conservation Council and Regional Technical Forum	2
6. Regional power plans-#6 and #7 in process	2
7. State utility regulation	2
8. Washington State Initiative 937 and utility energy efficiency acquisition	2
9. The Washington State Building Codes Council and State Energy Code	2

10. Local interests and local issues 1
11. Nongovernmental organizations (NGOs) that impact energy policy 1
12. Issues that drive policy, and the risks created by policy conflict 3
13. Examples of conflicts resolved by lawsuits with long-term implications 2
14. Class presentations of research assignments on policy 4

APPROX. HOURS:
33

Originated by: Ken Eklund
4/15/13

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science
COURSE TITLE:	Facility Management
COURSE NUMBER:	SBST 422
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	4
LECTURE HOURS:	44
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval and have taken Energy Auditing and Analysis, Controls, Financing Energy Efficiency, and have taken or are currently enrolled in Utility Rates.

COURSE DESCRIPTION:
Provides an overview of facilities management.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Communication – Students will demonstrate the ability to converse through classroom, on-line and written communication. Demonstrate reading and listening skills necessary to understand and communicate an understanding of complex principles.

2. Computation – Students will use basic mathematical and quantitative skills, compile information and develop reports.
3. Human Relations – use social interactive skills.
4. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.
5. Technology – Students will learn to use appropriate technological tools for measuring and analyzing data needed to solve problems.
6. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.
7. Information Literacy – Students will access and evaluate information from a variety of sources and contexts including interviews and research.

PROGRAM OUTCOMES:

1. Systems – understand operations and systems unique to sustainable buildings.
2. Analysis – analyze, define and validate systems.
3. Project Management – deliver solutions from analysis.
4. Communications – utilize effective communication techniques to facilitate all aspects of sustainable building management.
5. Leadership – develop and lead a team of various personalities and skills.
6. Team skills – work in a team and know how to collaborate, build functional work groups and take responsibility for outcomes.
7. Critical thinking – identify, analyze and solve problems.
8. Business skills – use accounting, budgeting, real cost, cost effectiveness and life-cycle cost to develop an audit.
9. Technical – measure, diagnose and understand building system interactions.
10. Operations and maintenance – understand and analyze building profiles and identify opportunities for improving performance.
11. Building science – demonstrate working knowledge of building science and relationships across disciplines.
12. Financial skills – calculate building baseload and savings with improvements.
13. Computer skills – demonstrate ability to use commonly available instruments and interpret findings in audits and reports.
14. Social value, ethics and need – create and maintain a professional environment based on values and ethics.
15. Data management – use computer programs used in building industries and quality assurance to make fact based decisions.

GENERAL COURSE OBJECTIVES:
At the end of the course the student will:

1. Understand the responsibilities of a facilities manager
2. Understand the basics of personnel management
3. Possess basic leadership and training skills
4. Possess an understanding of the tools used for facilities management
5. Have some experience in facilities management

TOPICAL OUTLINE	APPROX HOURS
1. Facilities management introduction and overview	2
2. Relating to staff and building users	2
3. Personnel management introduction	3
4. Leadership basics and applied to facility management	3
5. Training basics and applied to facility management	3
6. Legal and practical aspects of hiring, firing and managing	3
7. Mandatory policies: sexual harassment training, drug free workplace, etc.	3
8. Working with unions, Davis Bacon, contractors and other situations	3
9. Safety—programs, documentation (MSDS), and insurance	3
10. Maintenance overview	2
11. Use of computerized maintenance management systems (CMMS)	2
12. Tracking and maintaining mechanical systems	3
13. Use of Building Automation System for security and energy management	3
14. Custodial—standards, training, resources	3
15. Tenants—lease basics, considerations	3
16. Grounds—maintenance and standards—water efficiency and environment	3

Software: CMMS system. Suggestion is to survey client companies and see what systems they use.

BAS System: Suggestion to have several Building Automation Systems provided by national vendors who are used by the program client companies.

Commercial Energy Star and Washington State: Portfolio Manager from U.S. EPA

APPROX. HOURS: 44

Originated by: Ken Eklund
4/15/13

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science
COURSE TITLE:	Professional Communication
COURSE NUMBER:	SBST 431
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	4
LECTURE HOURS:	44
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval and have taken Facilities Management.

COURSE DESCRIPTION:
Provides an overview of professional communication in the building science industry.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Communication – Students will demonstrate the ability to converse through classroom, on-line and written communication. Demonstrate reading and listening skills necessary to understand and communicate an understanding of complex principles.

2. Computation – Students will use basic mathematical and quantitative skills, compile information and develop reports.
3. Human Relations – use social interactive skills.
4. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.
5. Technology – Students will learn to use appropriate technological tools for measuring and analyzing data needed to solve problems.
6. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.
7. Information Literacy – Students will access and evaluate information from a variety of sources and contexts including interviews and research.

PROGRAM OUTCOMES:

1. Project Management – deliver solutions from analysis.
2. Communications – utilize effective communication techniques to facilitate all aspects of sustainable building management.
3. Leadership – develop and lead a team of various personalities and skills.
4. Team skills – work in a team and know how to collaborate, build functional work groups and take responsibility for outcomes.
5. Critical thinking – identify, analyze and solve problems.
6. Computer skills – demonstrate ability to use commonly available instruments and interpret findings in audits and reports.
7. Social value, ethics and need – create and maintain a professional environment based on values and ethics.

GENERAL COURSE OBJECTIVES:
At the end of the course the student will:
1. Understand core communication issues.
2. Understand the issues involved in relating to different groups of people.
3. Have experience in conscious communication.

TOPICAL OUTLINE	APPROX HOURS
1. What is communication and why it is vital to achieving goals	1
2. Assessment of communication strengths and growth opportunities	2
3. Basic communication skills	4
4. Speech communication skills	4
5. Interpersonal and group communication skills	4
6. Listening competencies	4
7. Body language, wordless communication	1
8. Texting, email and electronic media—use and issues	2
9. Articulate personnel performance goals and objectives	2
10. Communicating with personnel from interviews to coaching to evaluation	3

11. Communicating with management from explaining to advising to reporting 3
12. Communicating with building users, vendors, consultants and contractors 3
13. Writing proposals 3
14. Writing job descriptions and evaluations 3
15. Writing reports 2
16. Presentations—creating and delivering 3

APPROX. HOURS: 44

Originated by: Ken Eklund
4/15/13

COURSE OUTLINE
Ken Eklund, Washington State University Energy Extension Program
April 15, 2013

DEPARTMENT:	Sustainable Building Sciences Department
CURRICULUM:	Sustainable Building Science
COURSE TITLE:	Fiscal Management for Facility Managers
COURSE NUMBER:	SBST 432
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	3
LECTURE HOURS:	33
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval and have taken Facilities Management.

COURSE DESCRIPTION:
Provides an overview of fiscal management for facility managers.

STUDENT LEARNING OUTCOMES ADDRESSED:
1. Communication – Students will demonstrate the ability to converse through classroom, on-line and written communication. Demonstrate reading and listening skills necessary to understand and communicate an understanding of complex principles.
2. Computation – Students will use basic mathematical and quantitative skills, compile information and develop reports.

3. Human Relations – use social interactive skills.
4. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to apply principles to reach solutions.
5. Technology – Students will learn to use appropriate technological tools for measuring and analyzing data needed to solve problems.
6. Personal Responsibility – Students will demonstrate the value of life-long learning. Be motivated and able to continue learning and adapt to change. Take pride in gaining the ability to understand and solve complex problems.
7. Information Literacy – Students will access and evaluate information from a variety of sources and contexts including interviews and research.

PROGRAM OUTCOMES:

1. Systems – understand operations and systems unique to sustainable buildings.
2. Analysis – analyze, define and validate systems.
3. Project Management – deliver solutions from analysis.
4. Communications – utilize effective communication techniques to facilitate all aspects of sustainable building management.
5. Leadership – develop and lead a team of various personalities and skills.
6. Team skills – work in a team and know how to collaborate, build functional work groups and take responsibility for outcomes.
7. Critical thinking – identify, analyze and solve problems.
8. Business skills – use accounting, budgeting, real cost, cost effectiveness and life-cycle cost to develop an audit.
9. Technical – measure, diagnose and understand building system interactions.
10. Operations and maintenance – understand and analyze building profiles and identify opportunities for improving performance.
11. Building science – demonstrate working knowledge of building science and relationships across disciplines.
12. Financial skills – calculate building baseload and savings with improvements.
13. Computer skills – demonstrate ability to use commonly available instruments and interpret findings in audits and reports.
14. Social value, ethics and need – create and maintain a professional environment based on values and ethics.
15. Data management – use computer programs used in building industries and quality assurance to make fact based decisions.

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Understand the essentials of fiscal management.
2. Be capable of basic budget function and management.
3. Be aware of how to work with the organization’s fiscal officer.
4. Understand MS Excel and how to use it for fiscal management.
5. Be aware of the organization’s accounting software and processes.
6. Understand how a business plan can help achieve goals.
7. Know the basics of contracting and subcontracting.

8. Know the basics of costing and purchasing.
9. Understand basic statistics and their relevance to fiscal management.
10. Know how to track finances and create financial reports.

TOPICAL OUTLINE	APPROX HOURS
1. Overview of fiscal management	2
2. Budgets—function, creation, review	3
3. Budget management—indirect, benefits, personnel, training, etc.	3
4. Collaboration and communication with financial officer	1
5. MS Excel—how it can assist fiscal management and how to use it	3
6. Accounting software—understanding it and assisting financial officer	2
7. Developing and using a business plan for energy management	3
8. Contracting and subcontracting	4
9. Cost analysis for equipment—life cycle, return on investment	3
10. Developing solicitation with specifications, analyzing and selecting bids	4
11. Basic statistics and practical use in energy and fiscal management	3
12. Financial tracking and reporting	2

APPROX. HOURS: 33

Originated by: Ken Eklund
4/15/13

_____SOUTH SEATTLE COMMUNITY COLLEGE_____
Sustainable Building Science Technology Department

COURSE OUTLINE
Lauren Hadley
May 15, 2013

DEPARTMENT:	Sustainable Building Science Technology Department
CURRICULUM:	Sustainable Building Science Technology
COURSE TITLE:	Sustainable Building Science Technology Capstone
COURSE NUMBER:	SBST 489
TYPE OF COURSE:	Hybrid
COURSE LENGTH:	Variable
CREDIT HOURS:	1
LECTURE HOURS:	11
LAB HOURS:	0
OTHER HOURS:	0
CLASS SIZE:	30
PREREQUISITES:	Student must be enrolled in the BAS Sustainable Building Science Technology program or have instructor approval.

COURSE DESCRIPTION:
This project-based course will be offered during the student's last quarter of study and will draw on all previous classes and internship experiences.

STUDENT LEARNING OUTCOMES ADDRESSED:
1. Communication – Students will demonstrate the ability to converse through classroom, on-line and written communication. Demonstrate reading and listening skills necessary for describing outcomes attained through the SBST program.
2. Computation – Students will identify computation skills attained in the SBST program.

3. Human Relations – Students will identify human relation skills learned in the SBST program.
4. Critical Thinking and Problem-Solving – Students will adapt critical thinking skills and problem solving to develop program synopsis.
5. Technology – Students will select and use appropriate technological tools to deliver program synopsis.
6. Personal Responsibility – Students will identify the value of life-long learning through program synopsis.
7. Information Literacy – Students will access and evaluate information from a variety of sources and contexts, and will demonstrate how to access Information Literacy remotely.

PROGRAM OUTCOMES:

18. Understand operations and systems of buildings
19. Analyze building data to define and validate solutions
20. Deliver sustainable solutions from analysis
21. Communicate sustainable building practices
22. Perform management functions
23. Build functional workgroups
24. Solve problems through analysis
25. Understand cost analysis and life cycle costs
26. Understand building system interaction
27. Understand building profiles and areas for improvement
28. Understand codes and standards for construction of sustainable buildings
29. Understand the process of quality construction and a safe work environment
30. Demonstrate knowledge of building science principles
31. Prepare project budget, cost estimate and cost benefit analysis
32. Learn to adapt new technologies
33. Create and maintain a professional environment
34. Use data to make fact based decisions

GENERAL COURSE OBJECTIVES:

The student will:

1. Develop a final project report that describes how all program outcomes and student learning outcomes have been achieved and how they will be applied in future endeavors.
2. Evaluate the SBST program and program outcomes.
3. Create a curriculum vita.

TOPICAL OUTLINE	APPROX HOURS
1. Course Overview	1
2. Review program outcomes	3
3. Review student learning outcomes	3
4. Develop Resume/Curriculum Vita	3
5. Evaluate program	1

APPROX. HOURS:
11

Originated by: Lauren Hadley
5/15/13

BACHELOR OF APPLIED SCIENCE IN SUSTAINABLE BUILDING SCIENCE TECHNOLOGY

APPLICATION PACKET

This is an application for admission to the Bachelor of Applied Science (BAS) in Sustainable Building Science Technology program. If you have questions or concerns, please contact us at any time.

Contact Name:
Phone:
Fax:
Email:

APPLICATION CHECKLIST

Admission to the program is competitive. Meeting minimum requirements does not guarantee admission as the number of qualified applicants may exceed the number of available enrollment spaces.

- **Student Identification (SID) Number** – If you have never attended South Seattle Community College (SSCC), North Seattle Community College (NSCC), or Seattle Central Community College (SCCC):
  - Go to **http://tinyurl. com/sscc-online-app** and apply to South Seattle Community College online. Once you apply to the College, you will be given a SID number to use on your BAS application form
    - *You can skip this step if you already have a SID number from SSCC, NSCC, or SCCC*
- **A completed application form** (enclosed)
- **A completed "Prior Work Experience Petition"** (enclosed)
- **A non-refundable check for $35. 00**, payable to "South Seattle Community College BAS, SBST" *(This fee covers your application to SSCC, transcript evaluation and your individualized program plan)*. Include your SID number on the check.
- **Official transcripts** from a regionally accredited college demonstrating completion of an Associate - Transfer degree **AND** an "Incoming Academic Transcript Evaluation Request" form (enclosed).
  - *Note: unofficial transcripts including opened official transcripts will not be accepted. Students who have attended SSCC, NSCC, or SCCC do not need to order official transcripts but a "Transcript Evaluation Request" form is still required*
- **Two letters of recommendation** from individuals who personally know your work (such as your current or past supervisor), that discuss your contributions to your workplace and how he/she believes you will benefit from completion of the BAS program. If you are applying for this program immediately after completing an associate degree program, the letters of recommendation may be from your instructors on college letterhead. *All letters of recommendation must include the recommender's name and contact information.*
- **A personal statement** (minimum of 400 words, maximum of 600 words) discussing your work experience; your personal and professional goals; advanced certifications you already possess; any specific or unique attributes that you will bring to the program; any personal or imposed challenges or hardships you have overcome in pursuing your educational or work goals; or any other special considerations that you believe will make you a good candidate for the program.
- **Review the financial aid website at http://southseattle. edu/finaid/forms. htm** and submit your FASFA at **http://www. fafsa. ed. gov**. Financial aid applications are typically due 4-6 months prior to your start date.

All application materials must be addressed to:

South Seattle Community College
6000 16th Ave SW – TEC140
Seattle, Washington 98106-1499

South Seattle Community College

BAS, SUSTAINABLE BUILDING SCIENCE TECHNOLOGY APPLICATION FORM

IMPORTANT NOTES:

1. **Please type or print legibly with a black or blue pen**
2. **Enclose the application fee of $35. 00. Checks should be made payable to "*South Seattle Community College, BAS-SBST*" *(*do not mail cash)**

SECTION 1 - PERSONAL INFORMATION

First Name	Middle Initial	Last Name		
Address, including apartment number		City	State	Zip Code
Day Phone	Cell Phone	Evening Phone		
Date of Birth (mm/dd/yyyy)		Gender ☐ Male ☐ Female		
E-mail Address		Previous Names 1. 2.		
Social Security Number --- ---	Note: Your social security number is confidential and, under a federal law called the Family Educational Rights and Privacy Act, the college will protect it from unauthorized use and/or disclosure. In compliance with state/federal requirements, disclosure may be required for the purposes of state and federal financial aid, Hope/Lifetime Learning tax credits, academic transcripts, assessment or accountability research.			
Student Identification Number (SID) --- ---	If you do not already have an SID number, go to **http://tinyurl. com/sscc-online-app** and apply online. Once you finish the online application, you will be given an SID number.			

SECTION 2 – COLLEGE ENROLLMENT HISTORY, COURSE PLANS, WORK EXPERIENCE

Year and quarter you plan to start ? _____ QUARTER, 20_____	Are you the first generation in your family to attend college? ☐ Yes ☐ No		
College, vocational, or technical school attended	City and State	Years attended (YY) From: To:	Did you graduate? ☐ Yes, Year _____ ☐ No
College, vocational, or technical school attended	City and State	Years attended (YY) From: To:	Did you graduate? ☐ Yes, Year_____ ☐ No
College, vocational, or technical school attended	City and State	Years attended (YY) From: To:	Did you graduate? ☐ Yes, Year_____ ☐ No

List any additional colleges and vocational/technical schools on a separate sheet of paper and attach. Please have official transcripts sent to SSCC as directed in the application checklist.

Current degree(s) held, certification(s), and *briefly* list work experience List any additional degrees, certificates, or positions on a separate sheet of paper and attach.		
Degree / Certificate / Position	*Granting institution or organization / Place of employment*	*Date degree or certificate received / Dates of employment*

SECTION 3 - RESIDENCY INFORMATION

Please read this notice before responding to the questions in this section:

Effective July 1, 2003, Washington State law changed the definition of "resident student. " The law makes certain students, who are not permanent residents or citizens of the United States, eligible for resident student status - and eligible to pay resident tuition rates - when they attend public colleges and universities in this state. *The law does not make these students eligible to receive need-based state or federal financial aid.* To qualify for resident status, students must complete an affidavit/declaration/certification if they are not permanent residents or citizens of the United States but have met one of the following conditions:

Condition One: (a.) Resided in Washington State for three years immediately prior to receiving a high school diploma, and (b.) Completed the full senior year at a Washington high school, and (c.) Continuously resided in the state since earning the high school diploma.

Condition Two: (a.)·Completed the equivalent of a high school diploma, and (b.) Resided in Washington State for the three years immediately before receiving the equivalent of the diploma, and (c.) Continuously resided in the State since earning the equivalent of a high school diploma.

NOTE: If you meet one of the above conditions and would like to pay resident tuition rates, contact South Seattle Community College and request a copy of the 1079 residency form.

Residency Questions for Tuition Purposes:

1. Have you lived continuously in the State of Washington for the past 12 months? ☐ Yes ☐ No If no, how long have you lived continuously in the state of Washington? _____ months	**2.** Were you claimed for federal income tax purposes by your mother, father, or your legal guardian in the current calendar year? ☐ Yes ☐ No In the past calendar year? ☐ Yes ☐ No If **YES**, has your parent or legal guardian lived continuously in the Washington State for the past 12 months? ☐ Yes ☐ No
3. Will a public or private non-federal agency/institution outside the state of Washington provide you with financial assistance to attend college? (answer yes only if your eligibility for this assistance is based on being a resident of that state) ☐ Yes ☐ No	**4.** Are you active duty military stationed in Washington or an active member of the Washington National Guard? ☐ Yes ☐ No Are you the spouse or dependent of either (a) an active duty military person stationed in Washington, or (b) an active member of the Washington National Guard? ☐Yes **(COPY OF ORDERS TO WASHINGTON AND MILITARY ID REQUIRED)** ☐ No

SECTION 4 - RACE AND CITIZENSHIP INFORMATION

Providing this information is voluntary

1. Which race do you consider yourself to be? Check all that apply:

☐ African American (872)
☐ Alaska Native (015)
☐ American Indian (597)
☐ Native Hawaiian (653)
☐ Chinese (605)
☐ Filipino (608)
☐ Japanese (611)
☐ Vietnamese (619)
☐ White (800)
☐ Other Pacific Islander (681)
☐ Other Asian (621)
☐ Other Race (specify): _____

2. Are you of Spanish/Hispanic/Latino ethnicity? ☐ No

☐ Yes, Mexican, Mexican American, Chicano (722)
☐ Yes, Puerto Rican (727)
☐ Yes, Cuban (709)
☐ Yes, other Spanish, Hispanic, or Latino (Please specify):

_____

3. Are you a U. S. citizen? ☐ Yes ☐ No - If not U. S. citizen, what is your country of citizenship _____

If not a U. S. citizen, what is your visa status? **(SUBMIT A COPY OF YOUR DOCUMENTATION WITH APPLICATION)**

☐ International student (with F or M visa)
☐ Visitor
☐ Temporary Resident. Alien Number: _____
☐ Immigrant/Permanent Resident. Alien Number:
☐ Refugee/Parolee or Conditional Entrant. Alien Number: _____
☐ Other – Explain: _____

SECTION 5 – OTHER

Check all that apply

How did you hear about the Bachelor of Applied Science in Hospitality Management program at South Seattle Community College?

☐ Family / Friend ☐ Radio ☐ College Schedule ☐ Mobile Advertisement ☐ College Advisor ☐ Instructor ☐ Other: _____

I certify to the best of my knowledge that all statements on this form are true.

Signature:_____ Date:_____

South Seattle Community College

PRIOR WORK EXPERIENCE PETITION

This petition for prior work experience is only valid for perspective students applying to the Bachelor of Applied Science in Sustainable Building Science Technology program at South Seattle Community College.

APPLICANT INFORMATION

Name:			
Address:		**City, State, Zip:**	
Phone:		**Email:**	
Name of Program:	BAS, Sustainable Building Science Technology		
Total Years of Industry Experience:			

EMPLOYMENT INFORMATION

Please provide all requested information below for each company you have worked at over the past 3-5 years. If your supervisor at the time of employment is no longer with the company, please indicate the current Human Resources contact. If you have worked for more than 4 companies over the past 2-5 years, please attach a separate piece of paper and include it in your application.

1) SITE SUPERVISOR INFORMATION

Company Name:			
Address:		**City, State, Zip:**	
Supervisor Name:		**Title:**	
Supervisor Phone:		**Email:**	

EMPLOYMENT INFORMATION CONTINUED

2) SITE SUPERVISOR INFORMATION

Company Name:			
Address:		**City, State, Zip:**	
Supervisor Name:		**Title:**	
Supervisor Phone:		**Email:**	

3) SITE SUPERVISOR INFORMATION

Company Name:			
Address:		**City, State, Zip:**	
Supervisor Name:		**Title:**	
Supervisor Phone:		**Email:**	

4) SITE SUPERVISOR INFORMATION

Company Name:			
Address:		**City, State, Zip:**	
Supervisor Name:		**Title:**	
Supervisor Phone:		**Email:**	

PROOF OF EXPERIENCE

In order to verify your prior work experience, you must provide proof of hours worked. To do this, you can (1) provide original timesheets, (2) provide original paystubs, (3) provide Federal tax forms, or (4) provide a letter on company letterhead from Human Resources indicating your dates of employment.

SITE SUPERVISOR VERIFICATION

Each supervisor listed in section 2 must sign below unless a written letter on company letterhead is provided.

I certify that the above applicant has represented their years of employment accurately and honestly.

As a result of their experience, I recommend that the applicant be considered for admission to the Bachelor of Applied Science in Sustainable Building Science Technology program at South Seattle Community College.

I understand that if necessary, I may need to provide additional verification of the applicant's work experience to the program administrator at South Seattle Community College.

1) Supervisor Name (print): _____

Site Supervisor Signature: _____Date: _____

2) Supervisor Name (print): _____

Site Supervisor Signature: _____Date: _____

3) Supervisor Name (print): _____

Site Supervisor Signature: _____Date:_____

4) Supervisor Name (print): _____

Site Supervisor Signature: _____Date:_____

APPLICANT VERIFICATION

I certify that the information provided on this application is true and complete to the best of my knowledge. I understand that in order to be eligible for acceptance into the program, proof of prior work experience must be a minimum of 3-5 years within the same industry.

I authorize investigation of all statements contained herein as may be necessary in arriving at a decision of admission to the program. If needed, I grant the above employer/site supervisor permission to release information regarding proof of my work experience to South Seattle Community College.

I hereby understand and acknowledge that South Seattle Community College reserves the right to not admit me into the Bachelor of Applied Science in Sustainable Building Science Technology program if I do not meet the minimum requirements for eligibility and/or I cannot provide the necessary documentation for proof of experience.

In the event that I am admitted into the program, I understand that false or misleading information given in this Prior Work Experience Petition will be disclosed to the administration in

my program of study and disciplinary action will be taken, which may include but not be limited to termination from the program. I understand, also, that I am required to abide by all rules and regulations of the Bachelor of Applied Science in Sustainable Building Science Technology program and South Seattle Community College.

Student Name (print): _____

Student Signature: _____**Date:** _____

************OFFICE USE ONLY************

The above applicant has provided sufficient documentation of 3-5 years of work experience in their field.

Date of verification: _____

Authorized Signature: _____

_SOUTH SEATTLE COMMUNITY COLLEGE_____

Credentials Evaluation

INCOMING ACADEMIC TRANSCRIPT EVALUATION REQUEST

1. SECTION A –Program of Study

☐ Associate of Arts Degree (**AA**) ☐ Associate of Science Degree (**AS**)

☐ Bachelor of Applied Science Hospitality Management (**BAS-HMG**)

☒ Bachelor of Applied Science Sustainable Building Science Technology (**BAS-SBST**)

☐ Two Year Professional/Technical Program (includes Associate of Applied Science)
Indicate specific program (**DO NOT LEAVE BLANK)** _____

☐ Professional/Technical **Certificate**
Indicate specific program (**DO NOT LEAVE BLANK)** _____

2. SECTION B

YOUR NAME: _____ **TODAY'S DATE:** _____

PREVIOUS NAME
(if applicable):_____

YOUR E-MAIL
ADDRESS:_____

ADDRESS: _____
Number and Street **Apt. #**

_____
City **State** **Zip**

DAYTIME TELEPHONE: _____**STUDENT ID NUMBER:** _____

Request is for evaluation from the following schools:

1. _____
2. _____
3. _____
4. _____

Are these transcripts on file at SSCC? Yes ☐ No ☐ If no, date ordered: _____
Are you, or have you ever been a student at SSCC? Yes ☐ No ☐

Appendix D: Marketing Plan

Major Target Markets	Outreach Tactics
Currently Enrolled South Seattle Community College Students	Utilize Postcards, campus website, program website, faculty, advisors, job fairs, and transfer fairs
Previously enrolled students and graduates of South Seattle Community College	Utilize Postcards, WorkSource Center, Job fairs, and direct emails
Current faculty in Washington State	Engage WEC list serve, Faculty Unions, AFT, AJAC program website, SBCTC Faculty Development
Asian American, Native American, Pacific Islanders	Collaborate with AANAPISI (Asian American, Native American, Pacific Islander Serving Institution) Grant program, scholarships awarded through the Foundation at South Seattle Community College
Other traditionally underserved populations including gender diversity	Collaborate with WorkSource centers on South and North Campus, campus Cultural Centers and Diversity Offices across the State, Seattle King County Workforce Development Center, Washington State Labor Council Diversity Committee, Apprenticeship and Non-tradition Education for Women (ANEW), Dislocated Homemaker programs Women's Centers, targeted scholarships, Seattle Colleges ABE, Career Link, and Continuing Education programs
People employed in business and industry	Engage with Association of Washington Businesses, Seattle Chamber of Commerce, McKinstry, CBRE, MacDonald Miller, Boeing, Microsoft, Washington State Labor Council, City of Seattle Office of Economic Development, Trade Unions, Seattle/King County Building Trades, AGC, Port of Seattle, Department of Corrections, standard Web and media recruiting, Technical Advisory Committee, Rossoe, Anderson Roofing, MDC Tacoma, King County Housing Authority, Conservation Services Group, Snohomish Electric, The Northwest Environmental Training Center, Advanced Energy Management Inc., City of Seattle, Puget Sound Electric, WSU Energy Program, Sustainable Works, RDH Building Engineering, BEE Consulting, OAC Services, Finishing Trades NW, Bechtel Coating and Supply, O'Brien and Co., WW Stationary Engineers, Casault Engineering, ArchEcology,

	Ferguson Construction, Seattle 2030, Seattle Housing Authority, Puget Sound Energy, CleanTech Open, Puget Sound Regional Council, Emerald Cities, Northwest Energy Efficiency Council, Red Dot Corporation, Ecotope, Innovate Washington, Batt+Lear, GLY Construction, Seattle City Light, Puget Sound Electrical JATC, GSA, Construction Industry Training Council, Construction Center of Excellence, Community Power Works, Johnson Controlls, Rushing Company, L and I, Build It Smart, Fluid, State Labor Union, State Apprenticeship Council, PNCCCE Center of Excellence, Construction Center of Excellence, Port of Seattle, Puget Sound Regional Council,
Veterans	Collaborate with WorkSource centers at South and North campus, Joint Base Lewis McCord, Everett, Bangor, Puget Sound Navel Shipyards, National Guard, King County Veterans Services
African Community	Engage with African American Community Health Network, BABES – YWCA, CAIR-Washington, Center for Multicultural Health, Center for Wellbeing for Africans in America, Center Park (for physically/mentally challenged and their caregivers), East African Community Services, Eastside Multiethnic Center (refugee services), Eritrean Community Center, Eritrean Community in Seattle and Vicinity (ESL and citizenship classes), Ethiopian Community Mutual Association, Ethiopian Muslims Association of Seattle, Gondar Mutual Association of Seattle, Horn of Africa Services (HOAS) New Holly, Jefferson Terrace, Neighborhood House-Highpoint, New Vision Recovery Program - men's shelter, NW Immigrant Rights Project (law), Oromo Community Organization, POCAAN, Refugee Women's Alliance, Beacon Hill, Refugee Women's Alliance, Rainier Vista, and Riverton Place - men's shelter Got Green Electricians Minority Caucus YWCA Works
Building Science/Sustainability Membership Organizations	Northwest EcoBuilding Guild ASHRAE, AIA, ACI, NW Building Inspections, ECOSS,NEEC

Bachelor of Applied Science in Sustainable Building Science Technology

Student Handbook

For more information about the Bachelor of Applied Science (BAS) degree in Sustainable Building Science Technology, please contact the BAS program office at (206) 934-6853.

Table of Contents

Introduction

Welcome to South Seattle Community College (South) and the Bachelor of Applied Science (BAS) in Sustainable Building Science Technology (Sustainable Building Science Technology) program. This program prepares students who have completed an apprenticeship program, a two-year technical degree or approved associate degree and have 2-5 years of related work experience for building science positions at Community and Technical Colleges.

This 90-credit degree program offers industry professionals a pathway to becoming a skilled Building Science Professional. The program emphasizes upper-division coursework that focuses on the complexities of building science, energy codes, building codes and facility management. Students will learn how to shift their focus from teaching purely for content mastery to student-centered learning and leadership.

Importance of your student handbook

Your success is important to us. We have developed this handbook to guide you by providing you with specific information on curriculum, policies and expectations of the program. ***Each student is responsible for studying this handbook and understanding its contents***. In general, the BAS program follows policies and rules established by South. As this is a unique program offered by the College, please note that some BAS policies may differ from standard College policies. You are responsible for complying with instructor syllabi and this handbook.

About the Bachelor of Applied Science Programs

History

In late 2005, the Washington State Legislature approved the development of applied baccalaureate degree programs to be offered at Washington Community and Technical Colleges. The purpose of this initiative was to expand access to bachelor degree education in order to better serve the State's workforce needs. By April 2006, the State Board for Community and Technical Colleges selected South to be one of four colleges that would pilot the development of BAS programs.

Due to South's reputation in providing excellent training programs in numerous professional industries, the College determined that it was best suited start this new endeavor by offering a Bachelor of Applied Science degree in the area of Hospitality Management. Enrollment in South's first BAS program began in fall 2007 and in fall 2009 South received accreditation as a four-year degree granting institution from the Northwest Commission on Colleges and Universities (NCCU).

Since receiving accreditation from NCCU, the BAS in Teach Tech was approved in November 2012 and South's staff and local business and community leaders have created this third BAS in Sustainable Building Science Technology.

South Seattle Community College - Student Learning Outcomes

Student Learning Outcomes represent the knowledge and abilities every student graduating with a certificate or degree from South will have. Students will achieve these outcomes as well as specific program outcomes for their academic or technical area of study.

- **Communication**
  - Read and listen actively to learn and communicate.
  - Speak and write effectively for academic and career purposes.

- **Computation**
  - Use arithmetic and other basic mathematical operations as required by the program of study
  - Apply quantitative skills for academic, and career purposes.

- **Human Relations**
  - Use social interactive skills to work in groups effectively
  - Have knowledge of the diverse cultures represented in our multicultural society.

- **Critical Thinking and Problem-Solving**
  - Think critically in evaluating information, solving problems and making decisions.

- **Technology**
  - Select and use appropriate technological tools for academic, and career tasks

- **Personal Responsibility**
  - Uphold the highest standard of academic honesty and integrity.
  - Respect the rights of others in the classroom, online and in all other school activities.
  - Attend class regularly, complete assignments on time and effectively participate in classroom and online discussions, group work and other class-related projects and activities.
  - Abide by appropriate safety rules in laboratories, shops and classrooms.

- **Information Literacy**
  - Independently access and evaluate information from a variety of appropriate sources.
  - Have knowledge about legal and ethical issues related to the use of information.
  - Use information effectively and ethically for a specific purpose.

BAS, Sustainable Building Science Technology - Program Goals

The BAS, Sustainable Building Science Technology program provides formal education to enhance strategies for career development and advancement. The program goals are to:

- Meet industry demand. Beginning in 2008 with the original skills panel held by the Seattle King County Workforce Development Council, industry has requested and driven the demand for a degree in Sustainable Building Science Technology.
- Offer a degree program of which there currently is not in Washington State.
- Create an affordable educational pathway for individuals currently working in industry to complete a bachelor degree program without having to leave the state or resign from a job.
- Provide an opportunity for journey-workers in the trades to advance their careers.
- Provide an avenue for individuals currently working in industry to gain skills that will allow them to become more effective professionals in building science.

- Offer the opportunity for people working in Sustainable Building Science Technology to broaden and advance their skills.
- Prepare employees who can fill the critical unmet demand for Sustainable Building Science Technology professionals.
- Develop a well-regarded bachelor degree program that will create a conduit for graduates who wish to enter a master's degree program.
- Contribute to the attainment of the state's higher education and regional economic development goals in a high-growth industry by creating a better career ladder for individuals that are currently working as Sustainable Building Science Technology professionals.

Curriculum to support the above goals will utilize the following instructional areas:

1. General education courses with the breadth, depth and rigor typical of programs at the four-year level
2. Upper division coursework in building science, controls, codes and facility management
3. Internship opportunities that build on classroom work and develop a network of professionals
4. A capstone course that will emphasize the practical application of theory in the working environment

People to Contact

The BAS program office is located at the Georgetown Campus in the Colin Education Center (Building C). The program manager can be reached at the number below. Each classroom instructor will provide their contact information at the beginning of each quarter.

Program Manager: (206) 934-6853

Accreditation Status

South Seattle Community College is accredited to offer two-year and four-year degrees by the Northwest Commission on Colleges and Universities.

Getting Started (and Finished)

Application Process

Admission to the program is competitive. Meeting the minimum requirements does not guarantee admission as the number of qualified applicants may exceed the number of enrollment spaces available. Applications must be postmarked by a specific date of each academic year in order to receive priority consideration. The application includes the following:

- A completed application form. (Students may obtain an application form by contacting the BAS office at (206) 934-6853)
- A non-refundable application fee of $35. 00. Checks should be made payable to "South Seattle Community College – Sustainable Building Science Technology"
- Official (sealed) transcripts from a regionally accredited college demonstrating completion of an Associate of Applied Science-Transfer (AAS-T) degree or equivalent
- A completed "Prior Work Experience Petition" demonstrating a minimum of 2 years of work experience in the building trades, building science careers or facilities management

- Two letters of recommendation on appropriate letterhead from individuals who personally know your work (such as your current or past supervisor), that discusses your contributions to your workplace and how he/she believes you will benefit from completion of the BAS program. If you are applying for this program immediately after completing an associate degree program, the letters of recommendation may be from your instructors. ***All letters of recommendation should be on appropriate company letterhead (if possible) and include contact information***
- A personal statement (minimum of 400 words, maximum of 600 words) discussing your work experience; your personal and professional goals; advanced certifications you already possess; any specific or unique attributes that you will bring to the program; any personal or imposed challenges or hardships you have overcome in pursuing your educational or work goals; or any other special considerations that you believe will make you a good candidate for the program

Please mail all completed application materials to:

BAS, Sustainable Building Science Technology Program
South Seattle Community College, Georgetown Campus
6737 Corson Ave S, Building C
Seattle, WA 98108

Admissions Requirements

To be eligible for full admission into the BAS program, each student must meet the following requirements:

- Washington state AAS-T degree with a minimum of 25 quarterly general education credits, which includes college-level: math (5 credits), English composition (5 credits), general psychology (5 credits), arts and humanities electives (5 credits), and natural world electives (5 credits)

Relevant AAS-T Degree areas:

- Multi-trades AAST from South Seattle Community College or another community or technical college
- Apprenticeship in the Building or Energy Trades
- Four-year degree programs in Environmental Engineering
- Bates – Facilities Maintenance Engineer
- Bellingham Technical College – Electrical Technology
- Big Bend – Industrial Electrical Technology
- Cascadia – Environmental Technologies and Sustainable Practices
- Centralia – Energy Technology Power Options, Multi-Occupational Trades and the Pacific Northwest Center of Excellence for Clean Energy
- Edmonds – Energy Management, Construction Management
- Grays Harbor – Energy Technology Power Operations
- Lake Washington Technical – Energy and Science Technology
- North Seattle – HVAC, Architectural and Drafting, Electronics, Industrial Controls
- Peninsula College – Energy Technology Power Operations
- Renton – Construction Management and the Construction Center of Excellence
- Shoreline – Energy Technology
- Wenatchee Valley College – Environmental Systems Energy Technology Power Operations

- Other related areas of study may be reviewed and accepted by the BAS committee

Priority will be given to students with a Washington state AAS-T degree. Students with a Washington state Associate of Arts-Transfer or Associate of Science-Transfer degree may also be admitted to the program permitting that they meet the 2-year minimum work experience requirement. Students entering under these degrees will still need to complete all upper-division courses, earn a minimum of 180 college-level credits, and will be required to work with the BAS Committee to develop appropriate substitutions for lower-division general education requirements.

The cumulative Grade Point Average (GPA) requirement is 2. 5 for full and provisional admission into the program and must be maintained while in the program. The student must also be registered for a minimum of 10 Sustainable Building Science Technology (SBST) credits each quarter to be considered as active.

Admissions Status

Students may be admitted to the BAS, Sustainable Building Science Technology program under one of the following conditions:

1. ***Full Admission:*** Students will be fully admitted to the program when all admission requirements have been completed and accepted by the BAS Committee
2. ***Provisional Admission:*** Students who are within 25 quarter credits of completing their two-year degree including the program entry requirements may be admitted provisionally into the program if space is available
3. ***Probationary Admission:*** Students with a cumulative GPA below 2. 5 may be admitted under probationary status. Students must maintain a cumulative GPA of 2. 5 or higher for the first 30 quarter credits and then petition to the BAS committee for full admittance

Non-matriculated students: Students not officially accepted into the program may take up to 15 SBST credits with prior faculty approval. Once admitted to the program, those classes will be applied towards the individual's degree

Cohort/Course Delivery

The BAS, Sustainable Building Science Technology program is cohort oriented and begins each winter quarter. This means that all BAS students will be in the same peer group for the duration of the program. All program specific SBST classes will be delivered in a hybrid, online and face-to-face format. Students must be able to meet the BAS course delivery schedule in order to participate.

Advising and Registration

All BAS, Sustainable Building Science Technology students will be automatically registered for their SBST classes each quarter. Students are responsible for registering for any remaining general education coursework necessary for graduation. If students have questions about what general education classes they need to take, call the BAS program office at (206) 934-6853.

Each student must develop an educational plan with the Division Chair or Program Manager to ensure that they can complete the program in a timely manner.

Financial Aid

Financial aid is available to all eligible students, including Federal, State and institutional grant funds, such as the Pell Grant, WA State Need Grant or Work Study. To determine whether you are eligible for financial aid, you will need to complete the Free Application for Federal Student Aid (FAFSA).

To find out more information about financial aid, please visit the South financial aid website at http://www. southseattle. edu/finaid/ and check with the Financial Aid office in the Robert-Smith Building (RSB), room 53 or at (206) 934-5317.

Scholarships

There are thousands of scholarships available for current and prospective students to further their education. Visit http://bit. ly/scholarships4teachers for more information on the types of scholarships available.

The Foundation Office at South also offers scholarships to current students. For more information, visit their website at http://southseattle. edu/foundation/foumain. htm or call (206) 934-5393. The Foundation Office is located in the Robert-Smith Building (RSB), room 101.

Veteran Affairs

The Veteran Affairs Office offers assistance regarding veteran-entitled benefits, such as, preparing VA application forms and documentation required by the Department of Veterans Affairs. We also provide assistance in documenting military training for college credit. More information on Veteran Educational Benefits please visit http://www. gibill. va. gov/ or call (206) 934-5811. The Veteran Affairs Office at South is located in the Robert-Smith Building (RSB), room 53.

Tuition Waivers

Students enrolled in the BAS, Sustainable Building Science Technology program are not eligible to receive a Washington State tuition waiver.

Program Costs

Tuition and fees for courses offered in the BAS program have the same tuition structure as other Washington state regional baccalaureate degree granting colleges. A current tuition and fees schedule can be found online at http://southseattle. edu/services/tuition. htm

Graduation Requirements

Any student in the BAS program who has met the following criteria may apply for graduation by meeting with the Division Chair or Program Manager. The Division Chair or Program Manager will sign your application for graduation. You must apply for graduation at least ***one quarter*** before you graduate. In order to participate in the commencement ceremony you must submit your graduation attendance form before the third Friday in May. You may obtain a graduation packet in the Registration Office located in the Robert-Smith building. For more information regarding graduation go to: http://www. southseattle. edu/resources/grad. htm.

Graduation Criteria

- Completion of 60 upper-division quarter credits in the BAS, Sustainable Building Science Technology program with a 2. 0 grade or better in each course
- A minimum total of 180 college-level credits earned from transfer and BAS degree programs
- A minimum South cumulative GPA of 2. 0

Policies

Leave of Absence

Our goal is to have you complete your bachelor degree in a timely and efficient manner. Every admitted student is required to progress through Sustainable Building Science Technology (SBST) classes as illustrated in the Curriculum Map in order to maintain active status in the program.

If there is an extenuating circumstance that prohibits you from meeting this obligation, you must submit a written request to the Division Chair or Program Manager to apply for a one quarter leave. Please contact the Division Chair or Program Manager at least one month before you plan to return in order to maintain priority registration status.

If you are unable to resume your studies after one quarter, you will lose your status as a matriculated student. If you are in danger of being dropped from the program, it is recommended that you meet with the Division Chair or Program Manager immediately. On a space available basis, it may be possible to gain readmission to the program by petitioning for re-enrollment.

Satisfactory Progress and Grading

Students must receive a grade point of 2. 0 or higher in order to successfully pass all PTE classes. If a grade point of 2. 0 or higher is not achieved, the student will be required to re-take the class. In addition, students must maintain an overall cumulative GPA of 2. 0 to remain in the program. Each instructor will identify his/her grading procedure in the syllabus presented at the start of every course. If you have questions about the instructor's grading policy, please speak directly with the instructor.

Probation and Dismissal

Students that do not adhere to academic and conduct related expectations may be placed on probation, dismissed from the program or dismissed from the College. For a full description of student misconduct, refer to the Washington Administrative Code, WAC 132F-121-110. More information regarding student discipline, probation and dismissal can be found in the South student handbook.

Grievances

The following departments at South are available to support students with grievances:

- **Dean of Student Life** – Available to talk about concerns or issues
  Jerry M. Brockey Student Center (JMB), room 122 ▪ (206) 934-6749
- **Counseling and Advising Services** – Provides academic, career and personal counseling
  RSB, room 43 ▪ (206) 934-5387

- **Diversity and Retention Office** – Provides guidance and advice for all students
  RSB, room 158 ▪ (206) 934-6455
- **Student Success Services** – Provides academic support services for students who are first generation, low-income (per Federal guidelines), or physically disabled
  RSB, room 67 ▪ (206) 934-5326
- **Educational Support Services** – Provides academic support, community resources and physical accommodations for eligible students
  RSB, room 12 ▪ (206) 934-5137

Equal Opportunity Statement and Accommodations

South Seattle Community College is committed to the concept and practice of equal opportunity for all its students, employees, and applicants in education, employment, services and contracts, and does not discriminate on the basis of race or ethnicity, color, age, national origin, religion, marital status, sex, gender, sexual orientation, disabled veteran status, or presence of any physical, sensory, or mental disability, except where a disability may impede performance at an acceptable level. Reasonable accommodations will be made for known physical or mental limitations for all otherwise qualified persons with disabilities.

Course of Study Information

A complete list of the courses offered can be found on the South Web site.

As the program continues to grow, there may be changes made to courses offered; check the program website to see what new courses have been added. If you would like to suggest a course to be developed, please speak with the Division Chair or Program Manager.

BAS, Sustainable Building Science Technology Program Outcomes

1) **Systems** - Understand all operation and systems unique to sustainable buildings (old and new)
2) **Analysis** - Analyze, define and validate solutions
3) **Project management** - Deliver solutions from analysis
4) **Communications** - Utilize effective communication forum and techniques to facilitate all aspects of sustainable building management. Read, write, present.
5) **Leadership** – Develop and lead a team of various personalities and skills
6) **Team skills** - Work in a team and know how to collaborate, build functional work groups and take responsibility for outcomes
7) **Critical thinking** - Be able to anticipate, identify, troubleshoot, analyze, solve problems and lead a project
8) **Business skills** – Accounting, budgeting, real cost/return on investment, cost effectiveness and life cycle cost
9) **Technical (building)** – Measure, diagnose and understand building system interactions and summarize results in order to compare to standards or specifications.
10) **Operations and maintenance** – Understand and analyze building profiles and identify opportunities for improving performance
11) **Planning and design** - Calculate, develop and understand codes and standards for construction of sustainable energy efficient buildings
12) **Construction** – Understand components and drive the process of quality construction including safe work environments, documentation, contractors/sub-contractors, building options and inspection

13) **Building science principles** - Demonstrate working knowledge of building science/building physics/operating principles and their relationships to each other across disciplines
14) **Financial skills** - Ability to prepare project budget, cost estimate, cost benefit analysis
15) **Computer skills** - Demonstrate proficiency with MS Word, Excel, PowerPoint, electronic communication and other widely accepted software with specific intention of acquiring the ability to collect and analyze commonly available instruments, such as power analyzers, thermal imager and HVAC equipment.
16) **Social value ethics and need** - Create and maintain a professional environment based on values and ethics.
17) **Data management** - Use computer programs used in building industries and quality assurance to make fact based decisions

Curriculum Sequence

The curriculum sequence on the following pages outlines an approximate schedule for course offerings. However, as the program grows, courses may be added to meet student needs. Please check with the program office for the most current curriculum map.

1 Year Sequence

QUARTER 1		
SBST 301	Building Science	3
SBST 321	Building Codes in Washington State	2
SBST 302	Building Components and Systems	2
SBST 322	Energy Analysis and Auditing	3
ENGL& 102	Composition 2	5
	Total Credits	**15**

QUARTER 2		
SBST 331	Financing Energy Efficiency and Renewable Energy	2
SBST 332	Building Energy Codes in Washington State	3
SBST 333	Building Controls for Energy Efficiency	4
SBST 325	Internship	1
PHY& 100	Physics	5
	Total Credits	**15**

QUARTER 3		
SBST 422	Facilities Management	4
SBST 401	Utility Rates, Regulation and Economics	2
SBST 402	Lighting	3
SBST 325	Internship	1
BUS 210	Business and Economic Statistics	5
	Total Credits	**15**

QUARTER 4		
SBST 421	Energy Policy	3
SBST 431	Professional Communication	4
SBST 325	Internship	3
SS	Social Science Elective	5
	Total Credits	**15**

QUARTER 5		
SBST 432	Fiscal Management for Facility Managers	3
SBST 314	Portfolio	1
SBST 489	Capstone	1
SBST 325	Internship	5
CMST& 220	Public Speaking	5
	Total Credits	**15**

QUARTER 6		
SBST 315	Workforce Experience Practicum *	10
	(*Credits earned by work experience documentation)	
VPLA	**VPLA Elective**	5
	Total Credits	**15**

Summary of Credits

Quarter 1	15
Quarter 2	15
Quarter 3	15
Quarter 4	15
Quarter 5	15
Quarter 6	15
Total Credits	**90**

Internships

Students are required to complete and document 500 hours of industry experience.

Student Services

As a student at South Seattle Community College, you are eligible for all services offered by the college. The fees you pay entitle you access to student computer labs, the library, disability resource center, student clubs and programs, reading and writing labs, the career center, and all other South services. Please refer to the online South Student Handbook at http://www. southseattle. edu/resources/ for a complete list of services and activities.

Disability Support Services

RSB, Room 12 ▪ (206) 934-5137 ▪ TDD (206) 934-5845
http://www.southseattle.edu/disability-support/default.aspx
South Seattle Community College believes in the inclusion of persons from a wide variety of cultural and ethnic backgrounds, persons of varying ages, and persons who have disabilities. With the passage of the Rehabilitation Act of 1973 and the American Disabilities Act in 1990, an increasing number of individuals with disabilities are graduating from college, becoming employed, and fulfilling their career goals. The college is committed to making each student's time at South a successful and rewarding experience.

South complies with all Federal and Washington state laws related to disability access and does not discriminate in service or employment. The president of the college has assigned authority to the Educational Support Services office for reviewing student's documentation and determining what, if any, reasonable and appropriate accommodations will be provided by the college to ensure equal access for all students.

All college programs and buildings are accessible. METRO buses serve the campus and are equipped with wheelchair lifts.

Additional Resources

Washington State Relay Service:
Voice: 1-800-833-6384
TDD: 1-800-833-6388
Telebraille: 1-800-833-6385

Bookstore

JMB ▪ (206) 934-5338
http://southscc1. bkstore. com
The bookstore carries required and recommended textbooks and supplies for courses. In addition, the bookstore sells basic school and art supplies, greeting cards, stationery, and a wide variety of other books including children's books and books in Spanish, a wide array of reference books, South clothing, backpacks, candy, magazines, beauty aids, and educational-priced software.

Help With Your Studies

Tutoring
RSB, Room 12 ▪ (206) 934-5137
http://www.southseattle.edu/tutoring/tutor-center.aspx
We offer informal tutoring services to students who request additional aid in mastering a subject area, the tutoring program goal is to help students be successful in their courses. Students who wish to apply for a tutor must fill out a "Request for Tutor" form (available in the Tutor Center), have their instructor sign the form, and return it to the Center; however, the tutoring center cannot guarantee that a tutor will be available for every subject area. Tutors are assigned to students on a first-come, first-serve basis. All tutorial appointments take place on campus.

Math and Science Tutoring Center (MAST)
RSB, Room 18 ▪ (206) 934-5137
http://www.southseattle.edu/tutoring/mast.aspx
This is a warm, friendly place where course assistance is available for anyone having difficulties in math, at no charge; MAST is also a quiet place to study. Credit is available for students who use MAST on a regular basis.

Collaborative Learning and Instruction Center (C. L. I. C.)
RSB, Room 66 ▪ (206) 934-5326
http://www.southseattle.edu/tutoring/clic.aspx
Student Success Services' Collaborative Learning and Instruction Center (CLIC) is a friendly place where you can get help with all aspects of your studies. Come in and work with our experienced teaching staff in English, Math, Writing and other coursework. New computers and a variety of resources are available. Students are welcome to use CLIC anytime, for specific help, or as a regular place to study.

Writing Center
Library (LIB), Room 205 ▪ (206) 934-5137
http://www.southseattle.edu/tutoring/writing-center.aspx
Writing assistance is provided to all students. The Writing Center is staffed with peer writing assistants and instructors who are available for half-hour conferences. Students are encouraged to come to the Writing Center if they are having difficulty understanding writing assignments, brainstorming, focusing, organizing, editing and other problems. As many of the BAS classes include a research component, it is *highly* recommended that students utilize this resource. Computers are available for student use and are equipped with software for word processing, grammar skills, reading comprehension, and vocabulary development.

Computer Labs
http://www.southseattle.edu/computerlabs/
All users must have a login and password (updated quarterly) to use the computers in the computer labs on campus. Users are required to show their current student ID at the Computer Lab in the Informational Commons, and read and sign the Acceptable Use of Information Technology document prior to being given a login and password. This initiative is funded in part by the Student Universal Technology Fee (UTF). Computers in all our labs and classrooms run on a PC platform.

Open Labs (hours vary by lab):
- Library Commons (LIB), (206) 934-5394

- MAST (RSB 18), (206) 934-5137
- CLIC (RSB 66), (206) 934-5326
- Student Lounge (JMB 135), (206) 934-5332
- Computer Lab (TEC 125)

Library/Instructional Resource Center

LIB ▪ (206) 934-5395
http://libguides.southseattle.edu/home
The library houses a collection of appropriate books, pamphlets, periodicals, and audiovisual materials and subscribes to a number of Internet-accessible electronic databases. All databases may be accessed from campus; remote access is also available using your last name and SID. The library staff provides assistance and information to students to help them locate needed materials. In addition to library services, the Instruction Resource Center offers group study rooms, a pay-per-use copy machine, film previewing, non-graphic calculator check out, access to the Internet, as well as to library collections from North Seattle and Seattle Central Community Colleges. The library also houses the Information Commons (open computer lab) and the Copy Center.

Describe curriculum including: (1) program learning outcomes; (2) program evaluation criteria and process; (3) course preparation needed by students transferring with a technical associate degree; (4) general education components; and (5) course work needed at junior and senior levels in the BAS

The combination of the AAS -T degree general education requirements with the additional focused two years of study at the Junior and Senior level as proposed is an excellent structure on

Evaluation of South Seattle Community College's Proposed Degree in
Sustainable Building Science Technology

June 5, 2013

Prepared by:
John S. Reynolds FAIA
Professor of Architecture, Emeritus
University of Oregon

Part I. Name and Intent

"Building Science"

This includes a very large range of subjects. This program chooses to include those subjects that include significant energy consumption. Thus structures, acoustics, water supply and waste, electricity generation/distribution, and communication systems appear to be minimized. Yet these excluded subjects can greatly influence building energy performance.

I will refer to opportunities to include these subjects in my comments on specific courses.

"Sustainable"

A building that is labeled "sustainable" is distinguished by its attempts to reduce the consumption of imported energy, to use the resources on the site provided by the climate [sun, wind, rain, cool air, groundwater, air and ground temperature], and to reduce the burden on society from its waste products.

The great majority of today's buildings do not make special efforts to meet these objectives. This produces tension for a proposed program such as this one. Is the primary intent:

A: to produce graduates immediately capable of energy management in the great majority of existing buildings in the Seattle area?

Or B: to produce graduates primarily readied for the "new wave" that includes carbon footprint calculations, building-integrated photovoltaics, rainwater harvesting, seasonal shading, natural ventilation, day lighting, occupant behavioral energy efficiency, green roofs for runoff control, phase change materials and other energy storage strategies?

Either option is to be accomplished in a 2-year program that serves place-bound students using a hybrid classroom-home study approach. These students must have some

experience in a related field, perhaps primarily construction; or to have completed a 2-year preparatory program, of which there are many and varied examples.

SBST BAS Forms A and B emphasize the needs of "green buildings" and reference many firms and design standards associated with high-performance buildings. The intent is clear: meet the needs of this new wave of buildings, including those older buildings remodeled to improve performance.
However, from Forms C and D, I sense that option A is closer to your intent. The more detailed the program description, the less emphasis on sustainable content? Were Forms A and B prepared by the same team as Forms C and D?

The closer your coursework to option A, the less applicable is the word "sustainable." This suggests either re-examining your choice of a name, or more specific attention to sustainability in your course descriptions.

But if your intent is closer to option B, you are fortunate to have a growing range of resources unique to the Seattle area. The Bullitt Foundation Building is one of the first office buildings in the world to reach for the Living Building Challenge, championed by the Seattle-headquartered Cascadia Green Buildings Council and the International Living Future Institute. The University of Washington has a nationally known energy-design program. Seattle area and other Pacific Northwest architecture and engineering firms are doing leading-edge work in the above-listed sustainability frontiers.

I did not find class "field trips" listed, either as an overall educational strategy, or in any of the detailed course descriptions. Such events are a great opportunity to build on your "cohort" approach, and to expand your "hybrid" approach beyond typical class settings. I encourage you to formally incorporate and budget for these educational opportunities, taking advantage of Seattle's unparalleled collection of examples.

Part II. Faculty and Budget

I struggle to comprehend how 1.33 FTE will provide coverage of this program. Table 4 indicates that 50% of the teaching load is to be met with existing instructors in AA transfer area. But none of that faculty teaches your SBS courses, instead the 30 hours of non-SBE coursework in contrast to the 60 hours of SBS courses? If so, then you allocate 89% teaching load [Faculty/Coordinator on a 66% teaching expectation, plus a part-time faculty at 23%] for 60 hours [including internship] of your core coursework.

It is unreasonable enough to expect an 89% teaching effort to provide 10 credit hours per term, spread over four courses. It is beyond reasonable to in addition expect your Faculty/Coordinator, at 33% load, to adequately develop curriculum, advise students, facilitate placement for internships and then support those internships, and recruit

students. These are non-traditional students, and about half are first-generation college enrollees.

Moreover, "Students will receive additional assistance from a faculty advisor who will be assigned to them at the beginning of the program. Each faculty advisor will work individually with each student to provide them with the tools they need to be successful." You describe an additional 2.28 FTE in such support, but it seems inevitable that the SBS faculty will be involved as well; as I student, I'd seek out the professor before the adviser for guidance in my field of study.

This teaching and administrative load threatens to produce burnout, with resulting instability and associated replacement expense in a new and promising program.

Your preferred qualifications for Faculty/Coordinator include a doctoral degree in a related field. If that field is education, that may be reasonable. But in the field of building science, that may be counterproductive. Building Science doctoral degrees encourage specialization; the object is to know a great deal about a rather narrow subject. The faculty position you describe is quite the opposite: to know enough about a very wide range of subjects.

Table 7 indicates that in the first year, the Faculty/Coordinator will receive $60,000 plus 35% benefits. I do not believe this is adequate for a teaching and administrative position, especially given your extensive expectations.

Table 7 also provides no extra funds for library or software additions in the first year. Perhaps your library already is well stocked with high-performance building references, but I would expect a new program to have substantial start-up requests.

I repeat my recommendation of field trips; these should have an associated budget item.

Part III. Coursework
In general, I found these course descriptions to be almost devoid of specific "sustainable" content. Especially puzzling was the absence of renewable energy. My comments are inserted *in italics* within partial course descriptions.

Topics Missing:

Net-Zero Buildings and Photovoltaics: The concept of net-zero, its impact on utility services and rates.
Components such as building-mounted PV arrays, building-integrated PV [including skylights, windows, spandrels and awnings], and the balance-of system including inverters, net meters and battery banks.

Domestic Hot Water Systems: Opportunities for heat recovery, strategies for energy efficiency, solar water heating systems, heat pump water heating, integration with building space-heating systems.

Water and Waste: There is great interest in rainwater retention and harvesting, graywater treatment and use, xeriscape, and other water conservation strategies. The only mention I found was in the Facility Maintenance course, and it seemed very minor.

Comments by Course:

SBS 301 Building Science
GENERAL COURSE OBJECTIVES:

1. Students will gain an understanding of the principles of building science, including the physics of heat flow, pressure and moisture transfer and how they interact with buildings and their systems.

This emphasis on psychrometrics should include the major heat sources of electric lighting and solar gain. These can tip the balance from a primarily-cooling need to primarily-heating, and are thus basic influences to be recognized early!

2. Students will solve problems related to the interaction of building science principles and how those apply to design, operation and maintenance of buildings and their systems.

At this initial stage, introduce the impact of structural system choice, net-zero and PV design, and occupant behavior.

3. Students will learn about, research and discuss jobs that are related to or would benefit from an understanding of Building Science and learn from energy professionals how their jobs employ Building Science.

Although this course introduces students to the program and student retention is important, the lectures seem too heavy on job opportunities, at the expense of needed depth in both objectives #1 and #2.

SBS 302 Building Components and Systems
GENERAL COURSE OBJECTIVES:
At the end of the course the student will:

1. Understand how building envelopes and their components are assembled, and their impact on and response to energy, pressure and moisture flows.

"Sustainability" includes passive solar heating, with emphasis on south glass, shading, and thermal mass. Also includes passive cooling, with emphasis on shading, thermal mass, night ventilation and natural ventilation. All this in just a few hours of class? Needs more time!

2. Understand basic space conditioning, lighting and control systems and how they interact with each other and the building envelope.

Here, a second and more detailed look at PV systems in appropriate.

3. Understand how occupant comfort and productivity are affected by building envelope, space conditioning, lighting and control systems.

An opportunity to introduce acoustics, often the least-satisfied component on occupant surveys because of open-office planning. Also to discuss occupant control vs computer control and its impact on both energy use and occupant satisfaction. Good to see 4 hrs field studies included here.

SBS 321 General Building Codes

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Understand the history of building codes and need for them.

Include the role of interest groups in code revisions; it introduces energy policy issues.

2. Understand the family of building codes and the context for building energy codes.

Good opportunities for conflict discussions, such as fire code vs. natural ventilation by stack effect, and fire code vs. exposed thermal mass surfaces such as steel frame and deck.

3. Be aware of all codes that impact building design, operation and maintenance
4. Be able to identify code issues

SBS 322 Energy Auditing and Analysis

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Understand and have experience in auditing commercial buildings, lighting and conditioning systems.

Heating/cooling comfort is included, but what about lighting? Will glare be measured, or just foot-candles?

2. Understand and have experience in analyzing building heat loss and gain, lighting output, and heating and air conditioning air and hydronic flows and capacities.

"Auditing comfort" is very important, will likely need more than 2 hours? Very little time is devoted to heat flow calculating and component values. A lot of time is devoted to pump and motor efficiency. "Sustainability" requires attention to passive systems as well: air flow at natural rates, thermal mass heat storage and release. Good to see "noise" included, will there be some acoustic calculating and measuring involved? Good to see a visit to campus building for auditing.

SBS 331 Financing Energy Efficiency

Title change: add " and Renewable Energy"

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Understand economic concepts such as rate of return, cost/benefit and life cycle cost
2. Understand how rate of return, cost/benefit and life cycle cost are calculated
3. Understand concepts of cost-effectiveness from customer and utility perspectives

4. Understand the availability and structure of utility incentive programs
5. Understand the potential availability of tax incentives

Surely, PV and solar water systems will be included?! While discussing utility avoided cost, some history of the cost of oil, gas and uranium resources should be included. With "incentives," include a discussion of the subsidies given to all forms of energy production.

SBS 332 Building Energy Codes in Washington State

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Know the source and history of building energy codes.

Include ACEEE rankings of WA, OR, ID, AK to show influence of energy policy on energy codes. Include other NGO influence as well; those fighting for and against stricter codes.

2. Understand building energy codes and their application to building operations and maintenance.
3. Be able to identify and resolve code issues.

A particular strength when historic buildings and energy codes collide.

SBS 333 Building Controls for Energy Efficiency

Title change: add " and Renewable Energy"

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Understand central and equipment specific control system functions
2. Have basic skills in auditing control systems including logic and sensors
3. Understand issues in programming for energy efficiency while meeting needs for comfort and performance.

Include issues of occupant control with resulting satisfaction, such as demonstrated examples of higher summer indoor temperature comfort with natural ventilation systems. Discuss role of building manager in supervising occupant behavior, i.e. opening windows. It isn't all about computer controls in passive systems. Solar heated water systems often influence occupants to shift times for clothes washing, for example.

4. Have basic skills in programming EMS, DDC and BAS

SBS 401 Utility Rates, Regulation and Economics

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Understand utility rate structures for residential and commercial customers.
2. Understand energy and demand charges.
3. Be capable of factoring utility energy and demand charges into energy efficiency and controls investments, programming and return on investment calculations.

This is the most obvious place for a section on PV systems and their influence on utility services. The discussion of load shifting should include options for occupant behavior as well as electrical controls.

SBS 402 Lighting

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Be able to operate lighting systems effectively, safely, legally and economically while pleasing a variety of people.

History of lighting will start with daylighting, and I recommend that daylighting be moved earlier in the lecture sequence. Time is needed for shading device discussions, including deciduous vegetation.

2. Understand how systems work, interact with other systems and how it is controlled.

Include lighting's pivotal role in determining whether heating or cooling is the dominant issue. Discuss the potential conflict between shading devices and daylight quantity. Include glare, and color temperature, not just lighting quantity.

3. Know which resources to access to answer questions and provide information on new options
4. Know the basics of lighting audits
5. Know when and how to hire an expert consultant

SBS 421 Energy Policy

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Understand the context in which decisions are made that impact energy prices, energy use, and facility design and operation.
2. Understand basic energy policy formation at the federal, regional and state and local levels and impact on energy use and cost.
3. Understand the institutions and laws that shape energy policy at all levels.
4. Understand the major issues that drive policy.
5. Understand the major current energy policy conflicts and the risks they create.
6. Understand technical and financial impacts of energy policy.

This looks comprehensive. Energy subsidies and incentives both need to be included. Because "Examples of conflicts resolved by lawsuits with long-term implications" is a lecture topic, "conflicts solved by voter action" should be included also.

SBS 422 Facility Management

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Understand the responsibilities of a facilities manager
2. Understand the basics of personnel management
3. Possess basic leadership and training skills
4. Possess an understanding of the tools used for facilities management
5. Have some experience in facilities management

I realize that this is primarily concerned with managing employees. But strategies for dealing with occupants, particularly in passive system buildings, are important strengths to be developed. One 2-hour session seems inadequate. I was pleased to finally see a mention of water conservation.

SBS 431 Professional Communication
SBS 432 Fiscal Management
I have no suggestions for changes to these course outlines.

Part IV. Summary

Forms A and B present a strong case for a baccalaureate degree in sustainable building science. Forms C and D have neither the tone nor the specifics to support the ambitions expressed in A and B, so more attention to course structure and content is needed. Given the wide range of topics involved – an even wider range if my comments are included – I do not believe that 1.33 FTE is adequate. I believe that the Seattle area is uniquely excellent as a setting for such a program, and encourage you to proceed.

Thank you for the opportunity to comment on your proposal.

John S Reynolds FAIA
ACSA Distinguished Professor of Architecture, Emeritus
University of Oregon

UNIVERSITY OF WASHINGTON
INTEGRATED DESIGN LAB
DEPARTMENT OF ARCHITECTURE
100 NE NORTHLAKE WAY
SUITE 100
SEATTLE, WA 98105
COLLEGE OF BUILT ENVIRONMENTS

June 5, 2013

Dr. Malcolm Grothe
Executive Dean, Technical and Workforce Education
South Seattle Community College
Mailstop: 4TC140
1500 Harvard Ave.
Seattle, WA 98122

Dear Dean Grothe,

I have carefully reviewed the proposal for the Bachelor of Applied Technology in Sustainable Building Science Technology to be offered by South Seattle Community College. This letter provides the requested assessment. My overall evaluation of this program is extremely positive. I find the proposed Bachelor of Applied Science (BAS) to be a well-designed program. Based on the research conducted via industry-driven workshops and the letters of support received, the BAS in Sustainable Building Science technology will satisfy a strong need in the Seattle and central Puget Sound region and will be a tremendous asset to the campus, the state of Washington, and the Pacific Northwest. Programs such as the proposed BAS degree are much needed and are continuing to increase as a desired means of delivering a bachelor's degree to a unique and place-bound potential student body. My overall recommendation is that the program should be approved and implemented.

This report includes an overview of my background an analysis and commentary of the baccalaureate program, the general curriculum and class structure. It also includes my review of the proposals nine applicable criteria for success.

Personal Background
I have worked in the field of sustainable building planning, design, construction and facility operations for more than 40 years. I am currently the Mithun/Russell Chair of Sustainability, Professor of Architecture and Director of the Integrated Design Lab (IDL) at the University of Washington, College of Built Environments (CBE) where I have taught in the building sciences since 1980. The IDL is a self-supporting outreach arm of the CBE where we provide sustainable-building technical assistance, research and traditional and non-traditional education offerings to the regional, State, national and international building industry.

Degree Performance Criteria:

Criteria 1. Curriculum Demonstrates Baccalaureate Level Rigor

Describe curriculum including: (1) program learning outcomes; (2) program evaluation criteria and process; (3) course preparation needed by students transferring with a technical associate degree; (4) general education components; and (5) course work needed at junior and senior levels in the BAS

The combination of the AAS -T degree general education requirements with the additional focused two years of study at the Junior and Senior level as proposed is an excellent structure on

which to build a four-year degree program for the identified place-bound and financially stressed student population. The proposed degree seems to carefully fit the SSCC mission to be easily available non-traditional baccalaureate students.

The BAT degree consists of four general areas of credit: general education credits, upper-division general credits, technical credits (including a class capstone project and portfolio class), and internship credits. The outcomes of this BAT curriculum will prepare an individual for entry into the sustainable building industry. These courses appear to be carefully designed to teach SBST students to critically assess problems from multiple technical and financial perspectives, manage people, provide leadership, and communicate their analysis. The outcomes for the 300 and 400 level course overlap and integrate to align the entire degree program with its larger goals.

I strongly support the research and findings reported in the Washington State Board for Community and Technical Colleges (SBCTC) Forms A and B, "Statement of Need", and as proposed and documented in SBCTC Form D. As sustainable building science is a very broad course of study, it's impossible to transfer a deep understanding across all subjects. The proposed curriculum introduces the array of subjects with enough rigor, depth and cross-course integration of learning outcomes that a graduate should be able to enter the field as a productive employee, building on this general degree foundation in a concentration that the graduate will find personally rewarding.

Most classes are described as hybrid courses, assuming some distribution between traditional lectures and on-line remote learning. This seems to be an excellent general idea, but as these are new course and the faculty have yet to be hired, there is little specificity to this general planning. The first general review of the curriculum implementation should take a special look at this hybrid integration. While the course-by-course proposed primary method of learning is traditional or didactic, the layering of SSCC student learning outcomes with SBST program learning outcomes seems carefully considered, planned and presented.

Courses in finance, facilities management and energy policy create a sound conceptual foundation for the degree. Courses in codes, building technologies and energy utility structure add substance to the conceptual framework. This traditional classroom learning plan in combination with on-the-job learning via required internships offers a finely crafted diversity of learning methods. The year of required internships will link these integrated learning outcomes with an operational understanding in the building industry.

Criteria 2. Qualified Faculty

Provide a profile, including education credentials, of anticipated faculty that will support the program for each year (junior and senior). Include faculty needed to cover the technical course work, general education courses and electives. In addition, provide the total faculty FTE allocated to the program.

Faculty and administrators responsible for technical courses must meet certification requirements for professional and technical administrators and instructors in the Washington Administrative Code.

While the proposed program is being created out of whole cloth, a completely new program, the writing of the course descriptions by Ken Eklund, a greatly respected educator and the building science team leader for the Washington State University Energy Extension program gives great substance to the proposed classes and content. The proposed faculty and administrative credentialing seems reasonable and achievable given the excellent resources in the region and the potential support of the sustainable building science industry in Seattle.

Criteria 3. Student Enrollment

Provide enrollment projections for each year over the next five years. Describe how the program will serve place-bound working adults. Describe how you will recruit and facilitate student articulation and transition from regional community and technical colleges with similar programs.

Given the success of the sustainable building advisor program in Puget Sound and the overwhelming interest of individuals working in a wide variety of aligned jobs, without the opportunity to focus on sustainability, there is a large potential student body for the proposed degree. This is best evidenced by the input of industry focus groups and regional analysis by several key public agencies. The potential number of students seems to be identified conservatively at 25 students per year, or 50 concurrent students over the two-year offering. A compelling reason for my support of the potential size of the program is the utter lack of a similar offering in Puget Sound and the State of Washington. The program seems a perfect fit between traditional two-year AAS degrees and the less applied or more theoretical architecture, real estate, construction management and engineering opportunities at the major four-year-plus degree granting institutions in the State. The only competition that I can think of is the highly respected Institute for Sustainable Practices at Lane Community College in Eugene, Oregon.

Criteria 4. Selective Admissions Process, if used for the Program, Consistent with an Open Door Institution

Describe the selection and admission process. Explain efforts that will be used to assure that the program serves as diverse a population as possible.

South Seattle and Southern King County includes some of the most racially and ethnically diverse census tracts in the State of Washington. The location of SSCC is a large indicator of the potential for the diversity of the program enrollees. Many of the non-traditional four-year degree students are of more limited income and are more place-bound. These demographic characteristics seem to align to support the potential for a diverse student population in the degree.

Criteria 5. Appropriate Student Services Plan

Describe services that will be needed by the students admitted to the degree program and the college plan for providing those services. Include a description of financial aid services and academic advising for students admitted into the program.

SSCC has a strong history in supporting place-bound students and students with limited financial assets. There is no reason to believe that this program wouldn't take advantage of the services in place at SSCC.

Criteria 6. Appropriate Staff and Administration

Describe the administrative and staff FTEs allocated to the program.

Administrative leadership seems clear, but difficult to interpret what other duties will consume a majority of her time. A half-time administrator for what is identified as 21 students seems a quite heavy. I'm not sure why this number of students isn't 50. I agree, the most labor intensive activity here is internship development. This allocation seems appropriate, at least to start. This should be come much easier as time passes and the reputation of the students and program gains visibility. There does seem to be more staff or administrative FTE than faculty teaching.

Criteria 7. Commitment to Build and Sustain a High Quality Program

Provide a financial plan for the first five years of program operation. This plan should include (1) types of funds to be used to support the program; (2) projected program expenses; (3) appropriate facilities to be used; (4) equipment, technology, and instructional resources needed for the program. Document the college's ability to sustain the program over time.

I have no doubt that SSCC is committed to make this program happen. They have found the resources both internally and externally to plan and propose the program. I'm concerned that given the demand for people in this field, that the $60,000 projected for 1 FTE of full-time faculty in unrealistic. It is projected that the cost of the faculty will be just over 25% of the total cost of the program. This also seems unrealistic.

Criteria 8. Program Specific Accreditation

Indicate whether the institution will seek specialized program accreditation. If so, describe plans for accreditation and identify appropriate accrediting body.

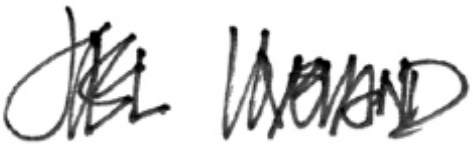
This criteria seems to be not applicable since the college will not seek specialized program accreditation.

Criteria 9. Pathway Options beyond Baccalaureate Degree

Describe opportunities and articulation agreements for the place-bound BAS graduates to continue their education onto a graduate (Master's) degree program.

Students who find fulfillment in the degree either through their post-graduate work experience or through the academic coursework might pursue advanced degrees at local higher education institutions in fields such as engineering, architecture, construction management or real estate. Advanced degrees are available at several universities in the Seattle area.

Respectfully submitted,



Joel Loveland
Professor of Architecture and Director, Integrated Design Lab
College of Built Environment, University of Washington

Appendix G: External Reviewer Resumes

J O H N S . R E Y N O L D S , F . A . I . A .

Department of Architecture
University of Oregon
Eugene, Oregon 97403-1206
(541) 346-3642
jreyn@uoregon.edu

2495 Mission Avenue
Eugene Oregon 97403-1882

(541) 344-9440

EDUCATION

Master in Architecture, Massachusetts Institute of Technology, 1967.
Bachelor of Architecture (Highest Honors), University of Illinois, Urbana, 1962.

Professor Emeritus of Architecture, since 1998. Faculty member since 9/67.
University of Oregon, Eugene, Oregon.
Teaching responsibilities have included Architectural Design, Environmental Control Systems, and advanced seminars in Passive Cooling, Passive Solar Heating, and Acoustics.

Registered Architect, Oregon. (Massachusetts, 1967-1980)
Principal 5/78-11/94. Equinox Design, Inc., Eugene, Oregon.
Consultation in environmental control systems with Pacific Northwest architectural firms since 1968.

RESEARCH

Monitoring and analysis of performance of the Emerald People's Utility District office building; 1988 to present. Passive solar heating and passive cooling. Twenty three electricity sub-meters support detailed end-use accounting. Self funded.

Monitoring and analysis of passive cooling performance of courtyard buildings in Andalucía and in western Mexico, beginning in December 1981 (sabbatical leave), resuming August 1994 (self funded) and again in August 1995 (University of Oregon Faculty Summer Grant), followed by sabbatical leave, and Graham Foundation Grant, 1996-97 .

Principal Investigator, 3/93-12/94. Design for Photovoltaics, curriculum development project sponsored by AIA/ACSA Research Council, under contract with National Renewable Energy Laboratory, Photovoltaics Division.

Sabbatical Leave, 9/88-12/88. Fulbright Grant, teaching bioclimatic architecture [in Spanish] and continued study of passive cooling, in Tucumàn, Argentina.

Sabbatical Leave, 9/81-3/82. A study of passive cooling in Colima, Mexico.

Fulbright Grant in Architecture, 9/63-9/64. Rome and Florence, Italy. Study of the work of Giovanni Michelucci and extensive travel.

PUBLICATIONS: BOOKS

Courtyards: Aesthetic, Social, and Thermal Delight. ,John Wiley & Sons, 2002.

Mechanical and Electrical Equipment for Buildings, 11th Edition (Walter Grondzik, Alison Kwpk, Benjamin Stein, John S.Reynolds), John Wiley & Sons, New York, 2009. (Also 6th, 7th 8th ,,9th and 10th editions.)

Solar Heat Technologies: Fundamentals and Applications, in Volume 7, "Passive Solar Buildings," the chapter on "Design Tools." MIT Press, Cambridge 1992.

InsideOut: Design Procedures for Passive Environmental Technologies , 2nd Edition, (G.Z. Brown, Bruce Haglund, Joel Loveland, John S. Reynolds, M. Susan Ubbelohde), John Wiley & Sons, New York, 1992.

PUBLICATIONS: RECENT ARTICLES

"Chair's Corner" series of 900-word articles in each issue of Solar Today magazine, beginning March-April 2007 through November-December 2009.

"Recent Developments in US Energy Policy", J.P. Ross, John Reynolds; Solar World Congress 2007, Beijing, China, 2007.

"Oasis in the Desert: Passive Heating and Cooling for the Paleo Center, Oregon Paleo Lands Institute, Fossil, Oregon" John Rowell, Jenny Young, and John Reynolds; Proceedings of the 29th Annual Passive Solar Conference, Portland, OR, American Solar Energy Society, 2004.

"Designer and Occupant: Roles in Residential Courtyard Cooling", ACSA Technology Conference, Portland, OR, October 2002.

"Five Cool Courtyards," Cooling Frontiers Symposium, Arizona State University College of Architecture, October 2001.

"Courtyard Cooling: Proportion vs. Proaction," Proceedings of the 26th Annual Passive Solar Conference, Washington DC, American Solar Energy Society, 2001.

"Advanced Technical Education in the New Millennium: The Academy of Architectural Sciences, a New Post Graduate Virtual University", Jeffrey Cook, Ralph Knowles, Murray Milne, John Reynolds. Association of Collegiate Schools of Architecture (ACSA) International Science and Technology Conference, University of Montreal, June, 1999.

PROFESSIONAL PRACTICE

Emerald People's Utility District Office Building/Operations Center, Eugene, Oregon, 1986. WE Group PC and Equinox Design, Inc. A 24,000 ft^2 office building, 10,000 ft^2 vehicle storage, and 8,000 ft^2 vehicle maintenance facility. Passively solar heated , cooled by night ventilation of mass, daylighting. User participation in preliminary design.

Cottage Restaurant, Cottage Grove, Oregon, 1979-81. Equinox Design, Inc. 2,400 ft^2 Building design Incorporates approximately 1,200 ft^2 additional seasonally tempered outdoor eating space, 2,400 ft^2 Indoor space features passive solar heating and cooling, incorporating direct solar gain, wind-gravity ventilation, and daylighting.

Community Center and Fire Hall, Deadwood, Oregon, 1979-80. Equinox Design, Inc. 6,400 ft^2 of public buildings accommodating a fire hall, meeting hall, and roofed volleyball court, for a rural community in the Coast Range of Western Oregon. Project was designed using a participatory design process in a series of public design meetings. Fire Hall constructed using community logged and milled timber and volunteer labor force. Buildings passively solar heated and cooled using direct gain, masonry thermal storage and water thermal storage walls. Design assistance and construction is funded in part by the U.S. Department of Energy, Passive Solar Commercial Buildings Design Assistance and Demonstration Program. Fire Hall completed 1982.

CONSULTING PROJECTS

Paleo Center, Fossil, Oregon; 2003. Rowell Brokaw Architects, Eugene, OR. Renovation of Wheeler County High School into a visitor/research center for paleontology. Expansion and renovation of Fossil School, K-8 to become K-12. Daylighting, passive solar heating, and passive cooling.

The Nature Conservancy, Jim Castle Applied Research Center, Sycan Marsh, Oregon; 1995. Pedersen & Pedersen Architects, Klamath Falls OR. A 4,000 ft^2 off-the-grid office and research building with caretaker apartment. PV, solar water heating, passive solar heating with wood back-up, passive cooling, and daylighting.

Assisted Living Facility, Cottage Grove Oregon, 1994. Ronald Grimes, Architect, Medford, OR. This 36.000 ft^2 facility was planned to allow south sun in almost every room, and to permit a large number of mature trees to remain on the site, some within large courtyards. The circulation spaces feature extensive daylight and views.

Oregon Public Utilities Commission Office Building, Salem ,Oregon, 1990-91. Unthank Poticha Waterbury Architects, Eugene, OR, Daylighting for an extensive remodel of an existing 90,000 ft^2 department store originally without daylight, into a state office building.

Eugene Water & Electric Board Office Building, Eugene, Oregon, 1986-87. WE Group Architects, Daylighting and shading devices.

Oregon High Desert Museum, Bend, Oregon; 1979. Robert Hyde and Associates, Architects, Bend,OR. Design critique, thermal analyses, performance predictions, design development recommendations for 5,100 ft^2 of office and exhibit space.

CURRENT AND RECENT SERVICE

Board member, Energy Trust of Oregon, since 2000; currently President. Funding energy efficiency and renewable energy projects in the service territories of Portland General Electric, PacifiCorp, Northwest Natural Gas, and Cascade Natural Gas; about $160,000,000 annually.

Board member, American Solar Energy Society, 2005 through 2011, including Chair. Also 1984-1990, Vice Chair 1985-1987

Board member, International Solar Energy Society, 2006-2008 and 2010-2012.

External Reviewer, Hong Kong Research Council, 2005-present

PRIOR SERVICE

Keynote Speaker, Seminar on Sustainability in Rain Sun Wind, Petra Christian University, Surabaya, Indonesia, August 2007.

Guest Speaker, Energy Industry Study Program, US Energy Information Agency, Washington DC, September 2007.

Delegation member, Oregon Energy Consultants, to Thai Government, Bangkok, August 2005.

Associate Editor, Solar Energy Journal, Florida Solar Energy Center, 2002 – 2008.

Member, Energy Committee, Building Codes Structures Board, State of Oregon, 1999- 2001.

Evaluator, Departmental Assessment Council, University of São Paulo, Brazil, April 1996

Resource Person, Uniform Architect Registration Examination Committee, NCARB, Washington, D.C., November l994- April 1995; July 1982-November l987; July 1977-September 1981.

President, Society of Building Science Educators, 1992-1994

Member, Architectural Graphic Standards Task Force, AIA, Washington DC, 1992, 1993

Energy Conservation Board, State of Oregon, appointed by Governor Neil Goldschmidt, l989-l993.

Council member, AIA/ACSA Architectural Research Council, 1986-88.

Board of Directors, Solar Energy Association of Oregon, October 1983-1989, President, 1984-6.

Commissioner, Oregon Alternate Energy Development Commission, and the Solar Conservation Task Force, appointed by Governor Victor Atiyeh, 1979-80.

Board of Directors, the Solar Lobby, Washington, D.C., June 1978-December 1981.

Board of Directors, Pacific Northwest Solar Energy Association, March 1978-September 1981; President, 1980-81.

.Speaker, American Public Power Association Seminar for Board Members, Anaheim, California, June 1976.

Governor's Energy Advisory Committee, appointed by Oregon Governor Tom McCall, September 1973-December 1974.

M.I.T. Corporation Visiting Committee member, School of Architecture and Urban Planning, Cambridge, Massachusetts, 1972-75.

Commissioner (publicly elected 11/72), Eugene Water and Electric Board, Eugene, Oregon, January 1973 - December 1976.

HONORS

Fellow, Cascadia Chapter, US Green Buildings Council, June 2009.

James Haecker Award for Distinguished Leadership in Architectural Research; Architectural Research Center Consortium, June 2006.

Fellow, American Institute of Architects, May 2003.

Fellow, American Solar Energy Society, June 2000.

Honor Award, Portland AIA, Architecture + Energy Competition, June 1999: Emerald People's Utility District Headquarters.

ACSA Distinguished Professor, March 1998, Association of Collegiate Schools of Architecture.

Passive Pioneer Award, May 1997, American Solar Energy Society.

Graham Foundation for Advanced Studies in the Fine Arts. "Hispanic Courtyards: Esthetic Social and Technical Roles in Buildings". 1995-96.

AFFILIATIONS

American Institute of Architects
American Solar Energy Society
International Solar Energy Society
Society of Building Science Educators
Solar Oregon
US Green Buildings Council, Cascadia Chapter

Joel Loveland, 2012-13 Biographical Brief

My professional life is densely filled with research, practice, teaching and service to the University and community. These activities can be most clearly framed through my research role as principal investigator and Director of the University of Washington, College of Built Environment's Integrated Design Lab (IDL).

In my role as a principal research investigator and Director of the activities of the Integrated Design Lab my primary goal has been the long-term stability of the creative and nationally respected work of the IDL. This is an especially critical time since for the last year I have been carefully planning towards retiring at age 66, January 13, 2015 and turning these IDL activities over to the three faculty partners at the Lab, Chris, Rob and Heather. As of May 2013, I'm overseeing the hand-off and the expansion of our funded activities for public agencies such as the United States Department of Energy (US.DOE), the National Science Foundation (NSF), the United States Environmental Protection Agency (US.EPA) and the Lawrence Berkeley National Laboratory; and private non-profit agencies such as the Northwest Energy Efficiency Alliance (NEEA) and the New Buildings Institute (NBI); and for design firms such as the Miller Hull Partnership, ZGF Architects, Lake Flato Architects and Kiernan Timberlake.

I alone and with my Lab partners have presented various aspects of the health design and building performance work in three National conferences and seven national meetings, and at numerous regional meetings in the last 18 months. This work in high performance design is leading national architectural and engineering design professionals. I was the co-author of a peer-reviewed large manuscript, "The Advanced Energy Design Guide for Large Hospitals, Achieving 50% Energy Savings Toward a Net-Zero Energy Building" and three peer-reviewed papers. As an outgrowth of our work on school projects we have built a best-energy efficiency practices in K-12 schools planning, design, construction and operations. We currently have 27,000,000 sq. ft. of Puget Sound schools in our energy performance database. These efforts in energy efficiency and my role in ASHRAE and IES daylighting and energy in buildings committees has allowed me the opportunity to participate on the National Technical Committee for the Collaborative for High Performance Schools (CHPS).

IDL Projects have won nine AIA Committee on the Environment (AIA COTE) honor awards in the last eleven years. Currently we are working on daylighting and energy efficiency projects in Texas, Georgia and South Carolina for Lake Flato Architects, at the University of California in San Diego for ZGF Architects, in Pomona, California for EHDD Architects and in April we will begin work with Kiernan Timberlake on the University of Pennsylvania Hospital. After six years of hard work, the most energy efficient large hospital in the Pacific Northwest opened this last summer in Issaquah, secondly, the most energy efficient small hospital in the Pacific Northwest opened this last summer in Friday Harbor.

Lastly, I was given the first life-time achievement BetterBricks award by the Northwest Energy Efficiency Alliance and appointed the University of Washington Mithun Russell Chair of Sustainability.

CURRICULUM VITAE:

Name: **Joel Eugene Loveland**
Department: Architecture, Landscape Architecture (Adjunct)
Present Rank: Professor with Tenure; Architecture

EDUCATION

1984 Master of Arts in Architecture and Urban Planning
Thesis: Algorithmic Design, Decision Making in Energy Conscious Design
University of California at Los Angeles, Los Angeles, CA

1974 Bachelor of Architecture
Thesis: Design of a School of Architecture, the Use of a Space Grammar to Assess Educational and Spatial Goals and Performance
Arizona State University, Tempe, AZ

EMPLOYMENT

2012 Mithun/Russell Professor of Sustainability
College of Built Environments
University of Washington, Seattle WA

2005 Professor with Tenure
Department of Architecture
University of Washington, Seattle, WA

1998 Visiting Associate Professor
Department of Architecture
University of Oregon, Eugene, OR

1989-2005 Associate Professor with tenure
Department of Architecture
University of Washington, Seattle, WA

1988-1989 Research Associate Professor
Department of Architecture
University of Washington, Seattle, WA

1986-1988 Research Assistant Professor
Department of Architecture
University of Washington, Seattle, WA

1983-1986 Assistant Professor
Department of Architecture
Iowa State University, Ames, IA

1980-1983 Assistant Professor
Department of Architecture
University of Washington, Seattle, WA

HONORS:

Mithun/Russell Professorship in Sustainability
College of Built Environments, University of Washington
2012 BetterBricks Life-Time Achievement Award (the first time this award has been given)
Northwest Energy Efficiency Alliance, BetterBricks
2011 AIA National C.O.T.E. Top Ten Green Building Award
Lott Alliance, Olympia
(Project team members as daylighting research consultants)
Miller Hull Partnership
2011 National Healthcare Design Award of Honor
Seattle Children's Bellevue Clinic
(Project team members as sustainability, energy efficiency, research consultants)
NBBJ
2011 AIA Northwest and Pacific Region Design Award of Merit
Kenmore Library
(Project team members as daylighting research consultants)
Weinstein A+U
2011 Seattle AIA Honor Award
Lott Alliance, Olympia
(Project team members as daylighting research consultants)
Miller Hull Partnership
2011 Seattle AIA Commendation Award
Gray Middle School, Tacoma
(Project team members as daylighting research consultants)
Mahlum Architects

CURRICULUM VITAE:

Name: **Joel Eugene Loveland**
Department: Architecture, Landscape Architecture (Adjunct)
Present Rank: Professor with Tenure; Architecture

2011 Seattle AIA Commendation Award
Kenmore Library
(Project team members as daylighting research consultants)
Weinstein A+U
2010 Seattle AIA Merit Award
Seattle Children's Bellevue Clinic and Surgery Center
(Project team members as energy performance research consultants)
NBBJ
2010 Seattle AIA Commendation
Rainier Vista Boys & Girls Club and Rainier Valley Teen Center
(Project team members as daylighting research consultants)
Weinstein AU
2010 Seattle AIA Citation
University of Washington West Campus Student Housing
(Project team members as daylighting research consultants)
Mahlum
2010 Northwest and Pacific Region AIA Design Awards, Honor Award
Bainbridge High School
(Project team members as daylighting research consultants)
Mahlum
2010 IES Puget Sound Chapter , Honor Award
Integrated Design Lab, Lighting Design
2009 AIA C.O.T.E. National Top-Ten Green Building
"Terry Thomas Building"
(Project team members as daylighting research consultants)
Stantec Engineering and Weber Thompson Architects
2009 Northwest and Pacific Region AIA Design Awards, Honor Award
The Terry Thomas Office Building, Seattle, WA
(Project team members as daylighting research consultants)
Weber Thompson, Seattle, WA
2009 Northwest and Pacific Region AIA Design Awards, Merit Award
Douglass-Truth Branch, Seattle Library**,** Seattle, WA
(Project team members as daylighting research consultants)
Schacht Aslani Architects, Seattle, WA
2009 Northwest and Pacific Region AIA Design Awards, Citation Award
Hillsdale Branch Library**,** Portland, OR
(Project team members as daylighting research consultants)
THA Architects, Portland, OR

2008 **AIA Honor Award**
Seattle Public Libray, Montlake Branch, Seattle, WA
Weinstein AU Architects
Daylighting Research Consultants

2008 **AIA Honor Award**
EX3 Ron Sandwith Teen Center, Federal Way, WA
Weinstein AU Architects
Daylighting Consultants
Daylighting Research Consultants

2008 **AIA Award of Merit**
Kitsap County Administration Building, Port Orchard, WA
Miller Hull Partnership
Daylighting Research Consultants

2008 **AIA Commendation**
Terry Thomas Building, Seattle, WA
Weber Thompson
Daylighting Research Consultants

2006 **AIA C.O.T.E. National Top-Ten Green Building**
Ballard Library & Neighborhood Center, Seattle, WA
Bohlin Cywinski Jackson
Daylighting Research Consultants

CURRICULUM VITAE:

Name: **Joel Eugene Loveland**
Department: Architecture, Landscape Architecture (Adjunct)
Present Rank: Professor with Tenure; Architecture

2006	**AIA C.O.T.E. National Top-Ten Green Building** Ben Franklin Elementary School, Kirkland, WA Mahlum Architects Daylighting Research Consultants
2005	**AIA C.O.T.E. National Top-Ten Green Building** Seminar Two, The Evergreen State College, Olympia, WA Mahlum Architects Daylighting Research Consultants
2004	**AIA C.O.T.E. National Top-Ten Green Building** Pierce County Environmental Services Center, Tacoma, WA The Miller Hull Partnership Daylighting Research Consultants
2004	**Washington Governors Award for Sustainable Practices** Daylighting Lab Services
2004	**Sustainable Industries Journal Top 25 Sustainable Design Practitioner**
2003	**AIA C.O.T.E. National Top-Ten Green Building** The Fisher Pavillion, Seattle, WA The Miller Hull Partnership Daylighting Research Consultants
2002	**AIA C.O.T.E. National Top-Ten Green Building** Puget Sound Environmental Learning Center, Bainbridge Island, WA Mithun Architecture Daylighting Research Consultants
2002	**ILDA Lighting Design Honor Award with Brian Hood Lighting**, Yarrow Bay Residence, Olson Sundberg Kundig Allen Architects
1998	**Baker Chair of Lighting, University of Oregon,** Spring Quarter Residence, 1998
1998	**AIA Honor Award** Temple B-Nai Torah, Bellevue, WA Olson Sundberg Architects
1998	**AIA Honor Award** Frye Art Museum, Seattle, WA Olson Sundberg Architects
1994	**AIA Honor Award** Campus Activities Building, Evergreen State College Olson Sundberg Architects, Seattle, WA
1994	**AIA Honor Award** Jaechs Residence, Kirkland Olson Sundberg Architects, Seattle, WA
1994	**AIA Honor Award** Art Studios Addition II, Evergreen State College Carlson Ferrin Architects
1993	**AIA Honor Award, Pacific Northwest Design + Energy Awards** Campus Activities Building, Evergreen State College Olson Sundberg Architects, Seattle, WA
1990	**AIA Award of Merit** Overlake Park Presbyterian Church Olson Sundberg Architects, Seattle, WA
1989	**Award of Merit, Seattle Chapter AIA** Evergreen University Art Studios, Miller Hull Architects, Seattle, WA

SCHOLARSHIP: Published Scholarship, Books

2013	Christopher Meek and Kevin Van Den Wymelenberg, **forward by Joel Loveland**, Daylighting Design in the Pacific Northwest, published by University of Washington Press, 2013
1992	Haglund, B and J. Loveland with GZ Brown, JR Reynolds and S. Ubbelohde, INSIDEOUT: Design Procedures for Passive Environmental Technologies, published by Wiley Publishers, New York, New York,

CURRICULUM VITAE:

Name: **Joel Eugene Loveland**
Department: Architecture, Landscape Architecture (Adjunct)
Present Rank: Professor with Tenure; Architecture

1987 "Modeling Purpose, Scale and Budget," "Reflectances," "Light Leaks" and "Construction of a Mirror-Box Artificial Sky" in Simulating Daylight with Architectural Models, edited by Marc Schiller, Published by the Daylighting Network of North America, Los Angeles,California,

Papers presented, invited lectures and panels

2013 "High performance Hospitals for Energy Efficiency, Two Approaches", **(invited half-day workshop)**, American Society of Heating Refrigerating and Air Conditioning Engineers Annual Conference, Denver, CO, June, 2013
2013 "High Performance Hospital Design", **(invited all-day workshop)**, Kiernan Timberlake, April, 2013
2013 "Targeting 100!", **(invited presentation)**, Arizona Chapter of the Society of Hospital Engineers, April, 2013
2013 "Design with Climate, Meeting the 2030 Challenge", Workshop 4; Minnesota AIA+2030 Workshop Series Two; **(Invited ½ day workshop),** February, 2013
2013 "Design with Climate Workshop"; **(Invited all-day workshop),** February, 2013
2013 "Integrated Design, Meeting the 2030 Challenge", Workshop 1; Seattle AIA+2030 Workshop Series Four; **(Invited ½ day workshop),** January, 2013
2012 "Targeting 100!", **(Invited lecture)**, Boston Architectural Society, October, 2012
2012 "Targeting 100!", **(Invited lecture)**, GreenBuild, November 2012, San Francisco
2012 "Integrated Design for Energy Efficiency, Meeting the 2030 Challenge with AIA+2030", **(Invited ½ day workshop),** Charlotte, NC. AIA, September, 2012
2012 "A Dose of Daylight", **(Invited short lecture)**, Conservation REMIX at Town Hall Seattle, June, 2012
2012 "Target 100" **(Invited lecture and workshop)**, National Renewable Energy Lab, CleanMed 2012, Golden, Colorado, April, 2012
2012 "Existing Building Renewal for Deep Energy Saving", **(Invited lecture)**, Architecture 2030 Roundtable, Seattle, WA, April, 2012
2012 "Target 100", **(Invited lecture)**, HKS Architects (web cast to 30 offices internationally), Dallas, March, 2012
2012 "Design with Climate, Meeting the 2030 Challenge", Workshop 4; Minnesota AIA+2030 Workshop Series Two; **(Invited ½ day workshop),** February, 2012
2012 "Integrated Design, Meeting the 2030 Challenge", Workshop 1; Seattle AIA+2030 Workshop Series Three; **(Invited ½ day workshop),** January, 2012
2011 "Target 100", **(Invited lecture)**,Cameron McAlister, San Francisco Chapter, September, 2011
2011 "Integrated Design"; Charlotte, NC; AIA+2030 Workshop Series One: **(Invited workshop),** September, 2011
2011 "Target 100", **(Invited lecture)**, San Francisco Chapter, USGBC, September, 2011
2011 "Meeting the 2030 Challenge with AIA+2030", **(Invited lecture)**, University of Idaho and the Idaho AIA, Boise, ID, May, 2011
2011 "Integrated Design, the Integrated Design Lab", **(Invited lecture)**, Seattle Chamber of Commerce, April, 2011
2011 "Target 100" Beam, Richard, Burpee, H. Hatten, M. and Loveland, J. **(invited panel presentation)**, American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Pacific Northwest Annual Regional Meeting, Portland, May, 2011
2011 "Target 100, Hospital of the Future" Loveland, Joel, Burpee, H and Griffin, D. **(Invited workshop)**, CleanMed 2011, Phoenix, AZ, April, 2011
2011 "Energy Management at the University of Washington", Loveland, Joel and Lockwood, S. **(peer-reviewed presentation)** , CleanMed 2011, Phoenix, AZ, April, 2011
2011 "The Smart Energy University", Loveland, Joel **(invited panel presentation)**, US.GSA Administrator's Green Building Conference, April, 2011
2011 "Targeting 100: Re-evaluating Hospital Energy, Quality, and Cost." Burpee, Heather, Hatten, M., and Loveland, J. **(peer-reviewed paper and panel presentation)**, at the annual American Society for Healthcare Engineering (ASHE) Conference on Health Facility Planning, Design and Construction (PDC). Tampa, FL, March 13-16, 2011.
2011 "Integrated Design"; Workshop 1, Portland AIA+2030 Workshop Series One: **(Invited ½ day workshop),** January, 2011
2010 AIA+2030 Workshop Series Two: Moderator; **(Invited ½ day workshops),**January 2010 – November, 2010
2010 "The Integrated Design Lab, Building Value with Passion, Collaboration and Persistence", **(Invited lecture)**, ACSA Administrators Conference, Washington, DC, October 2010

2010 "Target 100: Meeting the 2030 Challenge in hospital Design" with Heather Burpee, Mike Hatten & Duncan Griffin **(peer-reviewed paper and panel presentation)**, American Council for an Energy Efficient Economy Conference of Energy Efficiency in Buildings, Asilomar, CA, August, 2010

2010 "Collaborating with Architecture Firms to Influence Design of High Performance Buildings" with John Jennings and Margaret Montgomery **(peer-reviewed paper and panel presentation)**, American Council for an Energy Efficient Economy Conference of Energy Efficiency in Buildings, Asilomar, CA, August, 2010

2010 "The Intersection of Evidenced Based Design Inquiry & Integrated Project Delivery" with Dale Brentrup **(Invited Panel Discussion)**; American Solar Energy Society Annual Meeting, Phoenix May, 2010

2010 CleanMed 2010, Baltimore, "Target 100: Meeting the 2030 Challenge in hospital Design", May, 2010

2010 The 2030 Challenge, 50 Strategies to 60% More Energy Efficient", **(Invited ½ day workshop)** AIA National Convention, 2010, Miami

2010 "Passive Approaches to Meeting the 2030 Challenge", Workshop 4; AIA+2030 Workshop Series Two; **(Invited ½ day workshop),** June, 2010

2010 "High performance in Energy Efficiency and Daylighting for Hospital Design in the 21st Century" Video tapping of interview April, 2010. **(Video interview by US. Department of Energy)**; in production

2010 "Meeting the 2030 Challenge in Hospital Design" **(Invited presentation)** Design for Health in Healthcare for the 21st Century, Royal Architectural Institute of Canada with Cascadia USGBC, Vancouver, BC, Joel Loveland & Heather Burpee , January, 2010

2010 "Integrated Design"; Workshop 1, AIA+2030 Workshop Series One: **(Invited ½ day workshop),** January, 2010

2010 "Meeting the Challenge, Putting it All Together", Workshop 10, AIA+2030 Workshop Series One; **(Invited ½ day workshop),** March, 2010

2009 AIA Portland, Architects for Health, "Meeting the 2030 Challenge in hospital Design" with Heather Burpee , December, 2009

2009 AIA Seattle, Architects for Health Semi-Annual Meeting; Panel "Meeting the 2030 Challenge in hospital Design" w/ Heather Burpee and Duncan Griffin, September, 2009

2009 Health Design at the University of Washington, AIA Healthcare Leadership Summit, Chicago; July, 2009

2009 "Integrated Design"; Workshop 1, AIA+2030 Workshop Series One: **(Invited ½ day workshop),** April, 2009

2009 AIA+2030 Workshop Series One: Moderator; **(Invited ½ day workshops),** April 2009 – March 2010

2009 "Exchanging Change" Panel Discussion at the 2009, ACSA Conference, **(Invited Panel Discussion)**; Portland, OR

2009 "High Performance Hospital Partnerships: Reaching the 2030 Challenge and Improving the Health and Healing Environment", **(Invited Paper and Panel Discussion)**; the American Society of Hospital Engineers (ASHE), Planning, Design and Construction Conference, Phoenix, AZ, 2009.

2008 "Windows to Net-Zero Energy", invited lecture & panel discussion, Global Green: Sustainable Planning and Design in the Pacific Northwest and Denmark, University of Washington, 2008

2008 Invited PhD opponent at Chalmers University, Goteborg, Sweden for Hendrick Vol

2008 "Building Value within Integrated Design, the 2030 Challenge & Zero (net) Energy", NBBJ Architects Building Design Series, Seminar given directly in Seattle and via tele-conference to Los Angeles, San Francisco, Columbus, New York & London

2008 "Green Hospital Design", Panel Discussion, AIA Seattle, Healthcare Forum, 2008

2008 "Daylighting Day of Design for North America, Invited Workshop, a Day-Long Workshop for the AIA National Convention, Boston

2008 "Light Re-Construction", Invited lecture, Lake Flato Architects, San Antonio, TX

2008 "Daylighting by Design", Invited Panel Presentation, Pacific Gas and Electric, Pacific Energy Center, San Francisco, CA, October, 2007

2007 "Initiating and Completing a Daylighting Project, a Daylighting Day" , Invited Workshop, Pacific Gas and Electric, Pacific Energy Center, San Francisco, CA, June, 2007

2007 Lightfair Institute International, Moderator of 8 panel discussions, New York, New York, May, 2007

2007 Light Re-Construction, Invited Lecture, Architectural Institute of British Columbia Annual Conference, April, 2007

2007 EarthWeek Zero-Energy Design: a design workshop for the 2030 challenge, Invited Workshop with the Weidt Group, a Day-Long Workshop for the Minnesota AIA, University of Minnesota, Minneapolis, MN

2007 Light Re-Construction, Invited School Lecture, Ball State University, School of Architecture, February, 2007

2007 Daylighting Day, Day-Electric Lighting, Nuckolls Foundation Workshop, University of Virginia, School of Architecture, Ball State University, School of Architecture, February-March, 2007

2007 Green Hospital Design, Panel Discussion, AIA Seattle, Healthcare Forum, January, 2007

2006 Light Re-Construction, Invited School Lecture, University of Virginia, School of Architecture, October, 2006

2006 Daylighting Day, EcoMOD Studio Workshop, University of Virginia, School of Architecture, October, 2006

2006 High-Performance & Integrated Design for Healthcare, Providence Health Systems, Invited lecture, Western Regional Design and Construction Conference, September, 2006

2006 Daylighting Day, Blackwell Studio Workshop, University of Arkansas, School of, Architecture, September, 2006

2006 Daylighting Day of Design for North America, Invited Workshop, a Day-Long Workshop for the AIA National Convention, Los Angeles

2006 Daylighting Labs, Daylighting Design in Practice, Invited Web-lecture, a Web-Seminar for CEEE (Council for and Energy Efficient Economy) , to a national audience of policy and electric utility planners

2006 Daylighting from the Side, Invited Workshop, a Half-Day Workshop for Lightfair International, Las Vegas, NV

2006 Daylighting, Building Project Case-Studies, Invited lecture, a Seminar for Lightfair International, Las Vegas, NV

2006 "Initiating and Completing a Daylighting Project, a Daylighting Day" , Invited Workshop, Pacific Gas and Electric, Pacific Energy Center, San Francisco, CA

2005 "Daylight and Our Culture of Light" Invited lecture, School of Architecture, University of Arkansas

2005 "Daylighting and Integrated Energy Design in High Performance Schools, the Daylighting Lab Experience at the University of Washington" Invited lecture, Northeast Energy Partnership, NGRID (Massachusetts electric utility) with the High Performance Schools Exchange, Boston, MA

2005 "The BetterBricks Daylighting Network, News from the Cult of Daylighting in the Pacific Northwest of the United States," Invited lecture, International Energy Agency, Task 24 Daylighting Conference, Lawrence Berkeley Laboratory, Berkeley, CA

2005 "Daylighting from the Side", Invited lecture, Lightfair International 2005, Daylighting Institute New York City, NY

2005 "Initiating and Completing a Daylighting Project, a Daylighting Day" Invited lecture, Pacific Gas and Electric, Pacific Energy Center, San Francisco, CA

2005 "Initiating and Completing a Daylighting Project, a Daylighting Day" Invited lecture, Sacramento Public Utility District Headquarters, Sacramento, CA

2004 "Daylighting by Design", Invited lecture, British Columbia Hydro, Vancouver, BC

2004 "The Daylighting Prescription for Good Design", Invited Lecture, Washington State University Research Week: The Impact of the Physical Environment on Health: Models for Collaborative Thinking

2004 "Initiating a Daylighting Project, Daylighting by Design 2004", Invited lecture, AIA National Conference, Chicago, ILL

2004 "Initiating a Daylighting Project, Daylighting by Design 2004", Invited lecture, Lightfair International, Daylighting Institute 2004, Las Vegas, NV

2004 "Measuring the Value of Daylighting Laboratories, Connecting Theory to Practice", Paper and Invited lecture, ARCC-AEEA Dublin, IR, with Dale Brentrup.

2004 "Utilizing DIFFUSE Daylight as the Primary Source of illumination in Buildings: Transforming the Marketplace for Lighting in Commercial Buildings Three Office Building Case Studies", Paper and Invited lecture, Light+Building International Congress on Improving Energy Efficiency in Commercial Buildings, Frankfurt, Germany

2004 "Daylighting Day", Invited lecture and workshop, PGE Energy Center, San Francisco, CA

2004 "Daylighting Day", Invited lecture and workshop, Hawaiian Electric Company and the University of Hawaii, Manoa; Honolulu, HI

2004 "Daylighting Controls Design", California Energy Commission and PIER, Invited Research advisory panel

2003 "Daylighting in Educational Facility Design", 3Di Architects, Houston, Tx, Invited lecture

2003 "The Use of Daylight in Grocery Store Design" , 2003 Annual Energy Conference of the National Food Marketing Institute, Invited lecture

2003 "Daylighting" , Invited lecture, Architecture Week, Charlotte, NC

2003 "2003 Lighting Controls Review, the Experience of the Betterbricks Daylighting Lab Seattle", National Lighting Controls Summit, Invited Panel, Lighting Design Lab

2003 "Schematic Design for Daylighting", Lightfair International 2003, New York, NY; Invited Two-Day Workshop: Daylighting by Design with GZ Brown, Univ. of Oregon and Andy Bierman, LRC, RPI

2003 Daylighting by Design, and Its FREE", Lightfair International 2003, New York, NY; Invited Lecture: Daylighting, Making It Happen!

2003 Daylighting and High Performance Schools, Invited Panel and Moderator; IIDA Greenworld 2

2003 "Skylight - PIER Ceiling Integration", Invited Research Advisory Panel, California Energy Commission & The Heschong Mahone Group, Sacramento, CA

2003 "Daylighting by Design", invited lecture, Boise Chapter of the AIA

2003 "Daylighting, RETHINK", Invited lecture, Portland City Green Team; with GZ Brown

2003 "Daylighting Design", Invited lecture, McDonough+Partners, Charlottesville, VA

2003 "Daylightng Dividends - Lighting Research Center Research Project; Invited Advisory Panel-*continuing*, Offices of the US Department of Energy, Washington, DC

2002 "Daylighting by Design", Invited lecture *[to 700 participants]*, 2002 National AIA Conference, Charlotte, NC

2002 "Daylighting as Market Transformation", Invited Plenary *[to 500 participants]*, to the Annual - American Council for and Energy Efficient Economy, Market Transformation Conference, Washington Hilton, Washington, DC

2002 "Daylighting in School Design", Invited Lecture, Meeting of the National AIA Committee on Education

2002 "Daylighting Design for Retail Design", Invited Lecture, Portland Chapter of the AIA and the University of Oregon, Portland

2002 "Daylighting in Schools Workshop", Invited One-Day Workshop, Utah State Department of Energy, Park City, Utah

2002 "PDX Daylighting Lab – Proposal Review", Invited Review Panel, for the NW Energy Efficiency Alliance

2001 "Top Ten Ways to save Energy with Good Lighting Design," an invited lecture, to the Annual Meeting of Commercial and Industrial Customers of SCE, for the Electrical Power Research Institute

2001 "Design Market Transformation for Daylighting and Energy Efficiency," an invited lecture, to the Annual American Council for and Energy Efficient Economy – Market Transformation Conference 2001

2001 Daylight and Sustainability," an invited public lecture, Daylighting Year Speaker to the Portland AIA Committee on the Environment

2001 "Light and Productivity," an invited public lecture, Puget Sound Chapter of the Illuminating Engineering Society of North America

2001 "Daylighting Design 2001," an invited public lecture, Montana Daylighting Forum, Bozeman, MT

2001 "Daylighting Design 2001," an invited public lecture, Eastern Washington Daylighting Forum, Spokane, Washington

2000 "High Performance Building Design for Energy Efficiency," an invited public lecture, Washington State Conference of the American Institute of Architectss

2000 "Dayight and High-Performing Buildings," an invited public lecture, Idaho League of Cities Conference, Sun Valley, ID

2000 "Light, Daylight and Productivity," an invited public lecture, British Columbia Hydro, Vancouver, BC

2000 "Daylighting Design," an invited public lecture, Montana Daylighting Forum, Billings, MT

1998 "The Landscapes of Light," an invited public lecture, Department of Architecture, Ball State University, Muncie Indiana

1998 "The Nature of Light," anniversary plenary address to the Lighting Design Lab, Seattle, WA

1998 “The Arrogance of Electric Light, "JE Loveland and M.S. Millet, referred paper presentation to the American Solar Energy Society 1998 Annual Meeting, Albuquerque, NM.

1998 “The Appearance of the Light of Day, in the Landscapes of Perfection and Desire,” Baker Chair Lecture, University of Oregon, Eugene and Portland

1997 “The Landscape of Light,” an invited lecture at the University of North Carolina at Charlotte, College of Architecture

1996 “Lighting Design: Design Technology Out of the Shadows of the Laboratory and into the Light of Critical Practice,” 1996 Annual referred publication of the Architecture Research Centers Consortium, Tucson, AZ

1996 Two Museums in Daylight, Daylighting Case studies of the Frye Museum of Seattle, and the Billings, Montana Art Center, an invited lecture at the Daylighting Forum 1996, Portland Gas and Electric Energy Resource Center, Portland, OR

1994 Lighting Energy Efficiency in Historic Preservation, The Renovation of the King County, Washington, Courthouse, an invited lecture at the Daylighting Forum 1994, Portland Gas and Electric Energy Resource Center, Portland, OR

1993 Light with Heat, Invited workshop for the Society of Building Science Educators, National Summer Workshop, Timberline Lodge, Mt. Hood, Oregon

1993 "Washington State Archives Building, Western Washington University," an invited lecture at the Daylighting Forum 1993, Lighting Design Lab, Seattle

1992 "The Practice on Energy Efficient Lighting Design in Commercial Buildings, "JE Loveland and M.S. Millet, invited symposia lecture to the annual meeting of the American Solar Energy Society 1992, Cocoa Beach, Florida

1992 "The Interaction of Daylighting and Electric Lighting," JE Loveland and M.S. Millet, symposium presented to the Lighting Design Lab, Seattle, WA

1992 "The Integration of Daylight and Electric light," JE Loveland and M.S. Millet, an invited lecture at the Daylighting Forum 1992, Energy Resource Center, Portland, OR

1991 "Lessons Learned From Energy Edge," an invited lecture at the Daylighting Forum 1991, Lighting Design Lab, Seattle, WA

1991 "Recent Work of Loveland Millet Partnerships Lighting Consultants: The Integration of Day/Sunlight and Electric Lighting in Architectural Design," JE Loveland and M.S. Millet, An invited lecture to the Seattle Chapter of the Illumination Engineering Society

1991 "The Evergreen Art Studios, The Integration of Daylight and Electric Light," JE Loveland & MS Millet, an Invited Forum Lighting Lecture at the Seattle Lighting Lab

1991 "Limits of the Sky - Testing and Evaluation of the Current State-of-the-Art in Mirror-Box Artificial Sky Simulation," C. Cooksy, JE Loveland, MS Millet & A Vanags, referred paper presented to the Proceedings of the International Solar Energy Society 1991 World Congress, Denver, Colorado

1991 "Public Daylighting Education - Seattle's Lighting Design Lab," MS Millet & JE Loveland, referred paper presented to the Proceedings of the International Solar Energy Society 1991 World Congress, Denver, Colorado

1991 "People and Light in Energy Efficient Buildings," J Heerwagen & JE Loveland. referred paper presented to the Proceedings of the International Solar Energy Society 1991 World Congress, Denver, Colorado

1991 "Case Studies of the Integration of Day/Sunlight and Electric Lighting in Architectural Design," JE Loveland an Invited Forum at the Regional Meeting of the Illumination Engineering Society, Portland, Oregon

1991 "Building As A Light Fixture - An Introduction to Lighting in Architectural Design," JE Loveland and M.S. Millet, A workshop presented to the Summer Energy Institute of the Association of Collegiate Schools of Architecture, Lighting Design Lab

1991 "Occupant Satisfaction in Energy Edge Buildings in the Pacific Northwest," J Heerwagen & JE Loveland. an Invited Forum at the Regional Meeting of the Illumination Engineering Society, Portland, Oregon

1990 "Global Warming and Regional Energy Conservation Potential - 2040," JE Loveland & GZ Brown, Plenary Paper at the 15th National Passive Solar Conference, Austin, TX.

1989 "Integration of Daylight and Electric Light - a Pedagogical Model for Transferring Technology in Higher Education in the 1990's," College of Architecture Lecture Series, Univ of N. C. at Charlotte

1989 Haglund, B. and Loveland, J.E., "Insideout Redux: Writing an Environmental Technology Workbook for Future Architects", 1989 National Passive Solar Conference, American Solar Energy Society, Denver, CO

1989 Loveland, J.E., "Energy Efficient Lighting", Invited Staff Seminar to the Washington State Energy Office, Olympia

1989 Loveland, J.E., The Effects of Climate Change on the Built Environment", Invited Staff Workshop with the Office of Technology Assessment, United States Congress

1988 Loveland, J.E., "Introduction to Daylighting" and " The Integration of Daylight and Electric Light," lectures sponsored by the Idaho AIA and the Idaho DNR, in Daylighting workshops with G.Z. Brown and B. Haglund

1988 "1987-88 Paradise Retreat: Teaching ECS with Design Patterns," Society of Building Science Educators, 1988 Curriculum Meeting, Harvard University Forest Retreat,

1987 "Computers in the Housing Industry," Panel discussion, Housing for the 90's Conference, Tacoma, Washington

1987 Loveland, J.E. and M.S. Millet, "Design and Simulation of Daylight and Electric Light for Energy Conservation," Four Lectures and Workshops, ACSA-AIA Summer Energy Institute, Seattle WA.

1987 Loveland, J.E.; "Design Patterns, An Environmental Control Systems Curriculum Approach," panel discussion, Proceedings of the 1987 Annual Summer Meeting of the Society of Building Science Educators, Paradise Mt. Rainier National Park, WA

1987 Loveland, J.E., "Physical Modeling the Simulation of Lighting Design," Lecture at the 12th National Passive Solar Conference, Portland, OR.

1987 Loveland, J.E., "The Simulation and Evaluation of the Energy Performance of Commercial Buildings, a Case-study of Design Assistance Through the Daylighting/Energy Research Center at the University of Washington," lecture at the Northwest Commercial Building Exposition, Portland, OR

1987 Loveland, J.E., D.A. Brentrup and J.R. Bower, "Dissemination of Appropriate Technology Precedents," Proceedings of the 10th International Council for Building Research, C.I.B. '87 Congress, Washington, D.C.

1986 Loveland, J.E., "Design Patterns in the Thermal Environment," lecture and workshop, Proceedings of the Annual Summer Meeting of the Society of Building Science Educators, Heceta Head, OR

1986 Loveland, J.E., and D.A. Brentrup, "The Use of Human Comfort Parameters in the Development of Climate Classification Systems that Predict Building Energy Performance," presentation to the 11th National Passive Solar Conference, Boulder, CO.

1985 Loveland, J.E., D.A. Brentrup, B. Onouye and A. Vanags; "Construction Materials and Technology, The Art of Thinking, Representing and Building," The Proceedings of the 1985 ACSA Technology Conference, Washington, D.C.

1985 Loveland, J.E. and M.S. Millet; "Daylighting by Design: Physical Modeling," Proceedings of the 10th National Passive Solar Conference, Raleigh, NC

1983 Lakin, J.E. "Physical Model in Lighting Design," Design Tools Workshop, 8th National Passive Solar Conference, Sante Fe, NM

1983 Lakin, J.E., D.R. Heerwagen, J.H. Heerwagen and M.S. Millet; Breaking the Sun: Evaluating the Effects on Illumination, Sun Penetration and View in the Design of Sun Control Devices," Panel Discussion, 1st International Daylighting Conference, Phoenix, AZ

1982 Emery, A.F., Heerwagen, D.R., Johnson, B.R., Kippenhan, J.R. and Lakin, J.E.; "The Evaluation of Fenestration Assemblies in Office Buildings for Their Daylight and Thermal Performance," Proceedings of the 7th National Passive Solar Conference, Knoxville, TN

1982 Emery, A.F., Heerwagen, D.R., Johnson, B.R., Kippenhan, J.R. and Lakin, J.E.; "The Development of Sensitivity Curves for Energy Conserving Housing in the Northwest, "Proceedings of the 7th National Passive Solar Conference, Knoxville, TN

1981 Computer-aided Energy Conserving Design, "Proceedings of the 1981 Annual Meeting of the American Section of the International Solar Energy Society, Philadelphia, PA

1981 M.S. Millet and J.E. Lakin, "Light Without Heat, Daylight and Shading," Proceedings of the International Passive and Hybrid Cooling Conference, American Section of the International Solar Energy Society, Miami, FL.

1981 Millet, M.S. and J.E. Lakin, "Rainy Day Shading: The Effects of Shading Devices on Daylighting and Thermal Performance," Proceedings of the 6th National Passive Solar Conference, AS/ISES, Portland, OR

1981 Lakin, J.E. and M.S. Millet, "Road Map to the Stars, Teaching an Integrated Approach to Energy Conserving Design," Proceeding of the 6th National Passive Solar Conference, AS/ISES, Portland, OR

1980 Milne, M. and J.E. Lakin, "Solar Cities 2025" Proceedings og the 5th National Passive Solar Conference, AS/ISES, Kansas City, MO.

SCHOLARSHIP: **Continuing Education**

1999 Northwest Native Plant Stewardship, 10 week course by Washington Native Plant Society, at the Center for Urban Horticulture, University of Washington

1993 1993 Annual Curriculum Development Meeting, Society of Building Science Educators, Mt Hood, Oregon

1992 1992 Annual Curriculum Development Meeting, Society of Building Science Educators, Cedar Key, FL

1989 1989 Annual Curriculum Development Meeting, Society of Building Science Educators, Pack Forest Retreat, WA

1988 1988 Summer Daylighting Institute, Lawrence Berkeley Laboratory and the University of California, Berkeley

1988 1988 Annual Curriculum Development Meeting, Society of Building Science Educators, Harvard University Forest Retreat, MA

1987 1987 Annual Curriculum Development Meeting, Society of Building Science Educators, Paradise, Mt. Rainier National Park, WA

1986 1986 Annual Curriculum Development Meeting Society of Building Science Educators, Heceta Head, OR

1982 Summer Institute for Teaching Energy in Design Massachusetts Institute of Technology

1980 Summer Daylighting Institute Lawrence Berkeley, Laboratory and the University of California at Berkeley

1978 Citizen Participation in Design Harvard University, Summer Session

RESEARCH: **Proposals Written and Projects Underway or Completed**

2013 Christopher Meek (PI) with Joel Loveland C0-PI), "Integrated Design 2013-2014" to the Northwest Energy Efficiency Alliance, **$956,000 (funded January 2013)**

2012 "2012 Pacific Northwest Commercial Building Assessment", to the Northwest Power Planning Council and the Northwest Energy Efficiency Alliance, teamed with EnerNoc Inc., **$2,700,000 (declined, May 2012)**

2011 "Integrated Design 2011-2012" to the Northwest Energy Efficiency Alliance, **$1,200,000 (funded January 2011)**

2010 Multiple Proposals under: The Energy Efficient Building Systems Regional Innovation Cluster Initiative, UW with the pacific Northwest National laboratory, Richland, to: the United States Department of Energy, the Department of Commerce—Economic Development Administration, the Department of Commerce—National Institute of Standards and Technology, the Small Business Administration, the Department of Labor, the Department of Education and the National Science Foundation: Cluster Project Proposals: 1) Buildings Data Clearinghouse and Knowledge Network ($475,000 Pending) 2) Enhance and Expand the Northwest Lab Network for Commercial Buildings ($575,000 Pending) 3) Integrated Design for Deep Renovations Commercial Buildings ($375,000 Pending) 4) Improved Daylighting and Controls of Lighting in Commercial Buildings ($375,000 Pending) 5) Benchmarking of Task-Ambient System for Interior Workspaces Against Task Ambient System for Optimal Energy and Quality Results ($200,000 Pending) **(not funded)**

2010 "Integrated Design 2011-2014" with the NEEA, $4,400,000 **(not funded)**

2010 "Integrated Design 2010" with the NEEA, $956,000 **(submitted December 2009, funded January 2010)**

2009 "Advanced Energy Efficient Building Technologies for High Performance Hospitals", Joel Loveland & Heather Burpee, U.S. Department of Energy, National Energy Technology Laboratory, DE-FOA-0000115, **$1,200,000 (funded, July 2010)**

2009 "Greater Seattle Green Guide", Proposal to the Ittelsen Foundation, $60,000, (submitted October 2009, not funded)

2009 "High Performance Scandinavian Hospitals", a tour funded by NEEA and Scan Design, $63,000 (submitted April 2009, funded June 2009)

2009 Loveland, "Extending Integrated Design in the Pacific Northwest 2009," to the Northwest Energy Efficiency Alliance, Portland, OR. $30,000 + match

2009 Loveland, "Integrated Design in the Pacific Northwest 2009," to the Northwest Energy Efficiency Alliance, Portland, OR. $950,000 + match

2008 "Integrated Lighting in Grocery Retail", New York State Research and Development Authority, Albany, NY; $25,000

2007 Loveland, J., N. Rottle & D. Abramson, "Sustainable Design Institute: UW TOWER PROPOSAL FOR SPACE ASSIGNMENT"

2007 Loveland, "Integrated Electric Lighting at the IDL," to the Northwest Energy Efficiency Alliance, Portland, OR. $186,000 + match

2007 Loveland, "Daylighting Metrics for Buildings," to the Northwest Energy Efficiency Alliance, Portland, OR. [funded for two years] $80,000 + match

2007 Loveland, J. & Christopher Meek, "Daylighting Education in British Columbia," to British Columbia Hydro, $30,000 + an additional $120,000 in project funding

2007 Loveland, J. & Christopher Meek, "Daylighting Reflection for Giante Egg at Maiden Bower Bay," to the Blumen Consulting Group, Kirkland, WA, $5,000

2006 Loveland, "Integrated Design in the Pacific Northwest 2006-2009," to the Northwest Energy Efficiency Alliance, Portland, OR. [funded for three years] $2,400,000 + match

2005 Loveland, "Daylighting in Schools, Project Field Reports," to the Northwest Energy Efficiency Alliance, Portland, OR. $10,000

2005 Van Den Wymellenberg, Kevin; Loveland, JE & Meek, C., "Daylighting in Practice, Methods and Metrics," to the Lighting Research Center, Rennselear Polytechnical University, Troy, NY, $20,000 plus match

2004 Loveland J., J. Theodorson (WSU) and T. Woods (MSU), "A Pacific Northwest Daylighting Network: Centers for Integrated Design at Washington State University and Montana State University 2004-2005", to the Northwest Energy Efficiency Alliance, Portland, OR.

2003 Loveland, "Daylighting Design in the Pacific Northwest 2004-2005," to the Northwest Energy Efficiency Alliance, Portland, OR. [funded for two years] $950,000 + match

2002 Loveland, "Daylighting Design in the Pacific Northwest 2003," to the Northwest Energy Efficiency Alliance, Portland, OR. [funded] $225,000 + match

2001 Loveland, “Daylighting Design in the Pacific Northwest 2002,” to the Northwest Energy Efficiency Alliance, Portland, OR. [funded] $175,000 + match

2001 “Daylighting Analysis for the University of British Columbia Life Sciences Building”, Bunting Coady Architects, Vancouver, BC, CN and British Columbia Hydro, Vancouver, BC, CN [funding pending]

2001 “Daylighting Analysis for the Canadian Douglas Border Crossing”, Bunting Coady Architects, Vancouver, BC, CN and British Columbia Hydro, Vancouver, BC, CN [funding pending]

2001 J. Loveland, “Daylighting and Modular Classrooms,” to the Oregon Department of Energy, Salem , OR [not-funded]

2000 J. Loveland, “Daylighting Design in the Pacific Northwest 2001,” to the Northwest Energy Efficiency Alliance, Portland, OR. [funded] $125,000 + match

2000 J. Loveland “ Daylighting Analysis and Design for the University of Washington’s Intermural Acitivities Building,” to BOORA Architects, Portland [funded]

1999 J. Loveland, “Daylighting Design in the Pacific Northwest,” to the Northwest Energy Efficiency Alliance. [funded] $75,000 + match

1999 J. Loveland, “Development Concept Plan for Marblemount Station, North cascades National Park, CAUP Interdisciplinary Design Studio,” National Park Service [funded] $5,000

1997 J. Loveland, “Building Industry Communications: Future Intersections on the World Wide Web,” UW-CAUP Dean’s Development Fund [not-funded]

1997 Dave Riley and J. Loveland, “Increasing Access to Sustainable Building Materials with a Web-Accessible Database,” UW - Royalty Research Fund [not-funded]

1996 J. Loveland and M Spitzer, “Beta Development of the Specifier Database,” the Sustainable Building Research Center at Environmental Works, funded by the Horizons Foundation, Seattle, WA

1993 J. Loveland, G.Z. Brown, V. Cartwright, R. Cole, G. Finrow, M. Millet, and J. Reynolds, "Pacific Northwest Lighting Education Consortium," Nuckolls Fund Annual National Award to Improve Lighting Education [Funded] $10,000

1992 "A Higher Education Initiative, Energy Conservation in Commercial Building of the Pacific Northwest," a proposal submitted to the Bonneville Power Administration, United States Department of Energy, Portland, OR [not-funded]

1991 Loveland, J and J Barnes, "A Prototype Energy Efficient Industrialized House" to The Center for Housing Innovation, University of Oregon, Eugene, OR [funded] $5,000

1990 G.Z. Brown, B Haglund & J.E. Loveland, Teaching Energy Efficiency in Schools of Architecture in the Pacific Northwest, a proposal submitted to the Bonneville Power Administration, United States Department of Energy, Portland, OR [not-funded]

1990 Heerwagen J.H., and J.E. Loveland, The Evaluation of Occupant Perceptions of Visual and Thermal Comfort in State-of-the-Art Energy Efficient Buildings- Phase 2, a proposal submitted to and funded by the United States Department of Energy, Washington, DC [funded] $150,000

1989 Loveland, J.E. and M.S. Millet, Energy Efficient Lighting Technology Transfer Using Hyper Media, a proposal submitted to the United States Dept of Energy, Wash., DC [not-funded]

1989 Loveland, J.E. and M.S. Millet, Lighting Design Center-Lighting Specialist, proposal to the Bonneville Power Administration, Natural Resource Defense Council and Seattle City Light [not-funded]

1988 Loveland, J.E. and G.Z. Brown, The Impacts of Global Warming on the Energy Efficiency of Building in the United States, a proposal submitted to and funded by the Office of Technology Assessment, Congress of the United States, [funded] $10,000

1988 Loveland, J.E. and M.S. Millet, Design Fellowships in Energy Conservation a proposal submitted to extend an existing contract, funding extended by the Washington State Energy Office, [extended]

1987 Loveland, J.E. Energy Conservation Technology Transfer forArchitects, Building Designers and Students of Architecture, a proposal to the Power Washington Review Committee, [funded] $125,000

1987 Loveland, J.E. and M.S. Millet, Design Fellowships in Energy Conservation a proposal submitted to and funded by the Washington State Energy Office, [funded] $10,000

1987 Loveland, J.E., M.S. Millet and R. Williams, The Mobile Lighting Demonstration Laboratory, A Preliminary Proposal to Transfer State-of-the Art Lighting Design Technology to Students and Practitioners in the Architecture and Engineering Professions, a preliminary proposal to Lightolier Incorporated and the U.S.\D.O.E. [not-funded]

1987 Loveland, J.E., G.Z. Brown and B. Haglund, Pacific Northwest Network of Regional Design Resource Centers for Energy Conservation in Commercial Buildings, a proposal to the Bonneville Power Administration, [not-funded]

1986 Loveland, J.E. and G.Z. Brown; 1987 Society of Building Science Educators, Energy Curriculum Development Project, a proposal to the United States Department of Energy, Washington, DC, [funded] $10,000

1986 Loveland, J.E. ,D. Kelbaugh and M.S. Millet, Daylighting/Energy Design Center a proposal to the Power Washington Review Committee, [funded] $75,000

1985 Loveland, J.E. and D.A. Brentrup; Visual Presence of Appropriate Precedence, A Morphology of Adaptation to Climate in Vernacular Architecture, a proposal submitted to and funded by the National Endowment for the Arts, [funded] $45,000 + match

1985 Loveland, J.E. and D.A. Brentrup; The Development of Hueristic Problem Solving Systems in Architectural Design, a proposal submitted to and funded by the Design Research Institute, Iowa State University, [funded] $2,000

1985 Loveland, J.E. and D.A. Brentrup; Proposal for Regional Research Center Status, Daylighting Network of North America, a proposal submitted to and accepted by the Daylighting Network of North America and the United States Department of Energy [accepted]

1984 Loveland, J.E., D.A. Brentrup and J.R. Bower, Housing, Climate and Comfort, Precedents ofAdaptation to Climate for Thermal Comfort in Preindustrial Vernacular Cultures, a proposal submitted to and funded by the Design Research Institute, Iowa State University, [$2,000]

1984 Loveland, J.E. and D.A. Brentrup; Daylighting in the Basement, the Construction and Evaluation of an Artificial Sky, a proposal submitted to and funded by the Design Research Institute, Iowa State University, [$2,000]

1984 Loveland, J.E. and D.A. Brentrup; Johnson Elementary School Playground, a proposal submitted to and funded by the Johnson School Board for a design studio to build a playground at the Johnson City, Iowa, Elementary School, [funded] $10,000

1984 Loveland, J.E. and D.A. Brentrup; Johnson Elementary School Playground, a Case-Study for Teaching Building Technology and Design, a proposal submitted to and funded by the Design Research Institute, Iowa State University, [funded] $1,000

1983 Lakin, J.E. and B.R. Johnson, "Algorythmic Design," a research proposal submitted to the National Science Foundation, Washington, DC [not-funded]

1983 Lakin, J.E., DR Heerwagen & S.L. Cooper, "Energy Conscious Design: Methods for Understanding Thermal Dynamics," a research proposal submitted to the Graduate School Research Fund, University of Washington, Seattle, WA [not-funded]

1982 Lakin, J.E., D.R. Heerwagen and M.S. Millet; "Teaching Energy in Design," a curriculum research proposal submitted to the Association of Collegiate Schools of Architecture, Washington, DC [accepted]

1981 Lakin, J.E. and M.S. Millet; "The Performance of Sun Control Devices: Effects on Illumination and Sun Penetration in the interior Building Environment," a proposal submitted to the National Science Foundation, Washington, DC, [not-funded]

1981 Lakin, J.E.; The Renovation and Restoration of Roberts Hall at the University of Washington, a proposal to the ACSA and the National Building Museum, Washington, DC, [not-funded]

RESEARCH: **Articles by or contributor, Peer Reviewed Published Papers & Research**

2012 “Advance Energy Design Guide for Large Hospitals, Achieving 50% Energy Savings Toward a Net-Zero Energy Building”, Loveland, J. with AIA/IESNA Project Team

2012 “Measuring a Decade of Market Transformation – the Pacific Northwest Integrated Design Labs”, Kevin Van Den Wymelenberg, Brown, G.Z. and Loveland J., 2012 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, California, 2012

2012 “Measuring Market Transformation in the Building Industry”, Kevin Van Den Wymelenberg, Brown, G.Z. and Loveland J., Energy Policy, The International Journal of the Political, Economic, Planning, Environmental and Social Aspects of Energy, accepted for publication in Autumn, 2012

2012 “Plug Loads and People, Observations and Analysis from the Field” peer reviewed paper, 2012 ACEEE Summer Study on Energy Efficiency in Buildings, Adam Stoekle, Loveland J. and Pena R., Pacific Grove, California

2010 Targeting 100! Envisioning the High Performance Hospital: Implications for a New Low Energy High Performance Prototype”, Burpee, H. and J. Loveland; peer reviewed paper, , 2010 ACEEE Summer Study on Energy Efficiency in Buildings, Heather Burpee and, Loveland J., Pacific Grove, California

2010 "A Dose of Daylight: Capturing the human response to natural light in workplace and healthcare settings", Loveland, J. E. and H. Burpee, AIA Seattle Forum, Winter 2010.

2009 "High Performance Hospital Partnerships: Reaching the 2030 Challenge and Improving the Health and Healing Environment", Heather Burpee, Loveland, J.E, Hatten, M. and Price, S. for the American Society of Hospital Engineers (ASHE), Planning, Design and Construction Conference, Phoenix, AZ, 2009.

2009 "Sustainable Healthcare Energy Challenge", Duncan Griffen, Burpee H. & Loveland, J.E. CleanMed 09 Conference, Chicago, Ill, 2009.

2005 "Sky's the Limit", J. Loveland, Meek, C. and Strandberg, E. for Athletic Business, Dec. 2005

2005 "More Daylight Means Healthier Environments", peer reviewed article for Pacific Northwest Public Health Magazine, June 2005

2005 "Renewed Demand for Daylighting", *contributor to article* by Craig Dilouie, for Architectural Products, Lighting + Illumination Magazine, March 2005

2004 "Deliberations on Daylighting", Buildings Magazine, April 2004, *contributor to article*

2003 "Refining the Window, the Story of Daylight", Intelligent Glass Solutions, November, 2003

2003 "Daylighting by Design," Lighting Design and Applications, Journal of the North American Section of the Illuminating Engineering Society, October 2003

2003 The Evangelists of Natural Light, Selling Architects on the Benefits of the Sun's Illumination
By Brian Libby, International Herald Tribune, Thursday, June 19, 2003
As directors of Better Bricks Daylighting Labs, nonprofit centers devoted to helping architects maximize natural light in their buildings, Joel Loveland and G.Z. Brown preach the benefits of the sun's illumination, *contributor to article*

2003 Edited article "Beyond the Bulbs: In Praise of Natural Light" New York Times, June 6, 2003, by Brian Libby, *contributor to article*

2003 "SkyLab" Simulations at Seattle's Daylighting Lab teach designers just how green their buildings can be. By Brian Libby (about our work at the Daylighting Lab) Metropolis Magazine, April 2003, *contributor to article*

2002 "COMMON MYTHS of Daylighting Design Practice: When Daylighting a Building East Windows Perform Better than West, At the Daylighting Lab: Daylight and Suncontrol have become a Delicate Balance of Unexpected Assets", Published by Betterbricks.com

2002 COMMON MYTHS of Daylighting Design Practice: "The Daylight Zone Depth From the Windowwall is Twice the Window Head Height." At the Daylighting Lab: Balancing the Daylight and the Integration of Electric Light are the Goal", Published by Betterbricks,com

2003 "Daylighting and Sustainability", Environmental Design and Construction Magazine, September, 2002

2001 "Daylighting Design," Posters at Future @ Work, Seattle, WA

2000 "Daylighting Design and Windows," Home Energy Magazine, March, 2001

1998 "The Arrogance of Electric Light, In the Nature of Light, Energy Efficiency and Architectural Preservation in the Pacific Northwest", JE Loveland, MS Millet, referred paper presented to the American Solar Energy Society 1998, Albuquerque, NM

1995 "State-of-the-Art in Lighting Education," Architecture, May, 1995

1992 "Public Daylighting Education: Seattle's Lighting Design Lab,"
MS Millet & JE Loveland, Solar Today, Vol. 6, No. 1

1991 "Renewable House for a Temperate Climate: Design Study", Loveland J. and J. Barnes, Referred design study, published in Designs for Energy Efficiency, by the Center for Housing Innovation, University of Oregon, Eugene, OR

1991 "Limits of the Sky - Testing and Evaluation of the Current State-of-the-Art in Mirror-Box Artificial Sky Simulation," C. Cooksy, JE Loveland, MS Millet & A Vanags, referred paper presented to the International Solar Energy Society 1991 World Congress, Denver, Colorado

1991 "People and Light in Energy Efficient Buildings," J Heerwagen & JE Loveland. refereed paper presented to the International Solar Energy Society 1991 World Congress, Denver, Colorado

1990 "Global Warming and Regional Energy Conservation Potential - 2040," JE Loveland & GZ Brown, Referred Paper, Proceedings of the 15th National Passive Solar Conference, Austin, TX.

1989 Loveland, J.E. and G.Z. Brown, The Impacts of Global Warming on the Energy Efficiency of Building in the United States, The Office of Technology Assessment, Congress of the United States

1989 Loveland, J.E., 1989 Society of Building Science Educators Survey of Energy Curriculum, Faculty and Facilities, Society of Building Science Educators and United States Department of Energy, Oak National Energy Laboratory, Oak Ridge , TN

1987 Design Patterns, Society of Building Science Educators, Energy Curriculum Development Project, contributor and editor, United States Department of Energy, Oak National Energy Laboratory, Oak Ridge , TN

1987 "Modeling Purpose, Scale and Budget," "Reflectances," "Light Leaks" and "Construction of a Mirror-Box Artificial Sky" in Simulating Daylight with Architectural Models, edited by Marc Schiller, Published by the Daylighting Network of North America, Los Angeles, California,

1987 Loveland, J..E., D.A. Brentrup and J.R. Bower, "Dissemination of Appropriate Technology Precedents," Proceedings of the 10th International Council on Building Research, C.I.B. '87, Congress, Washington, D.C.

1985 Loveland, J.E., D.A. Brentrup, B. Onouye and A. Vanags, "The Art of Thinking, Representing and Building", Proceedings of the 1985 ACSA Building Technology Conference, Washington, DC.

1985 Loveland, J.E. and M.S. Millet, "Daylighting by Design," Proceeding of the 10th National Passive Solar, Daylighting Applications Conference, Raleigh, NC.

1983 Lakin, J.E., D.R. Heerwagen, J.H. Heerwagen and M.S. Millet; Breaking the Sun: Evaluating the Effects on Illumination, Sun Penetration and View in the Design of Sun Control Devices," Panel Discussion, 1st International Daylighting Conference, Phoenix, AZ

1982 Emery, A.F., Heerwagen, D.R., Johnson, B.R., Kippenhan, J.R. and Lakin, J.E.; "The Evaluation of Fenestration Assemblies in Office Buildings for Their Daylight and Thermal Performance," Proceedings of the 7th National Passive Solar Conference, Knoxville, TN

1982 Emery, A.F., Heerwagen, D.R., Johnson, B.R., Kippenhan, J.R. and Lakin, J.E.; "The Development of Sensitivity Curves for Energy Conserving Housing in the Northwest, "Proceedings of the 7th National Passive Solar Conference, Knoxville, TN

1981 M.S. Millet and J.E. Lakin, "Light Without Heat, Daylight and Shading," Proceedings of the International Passive and Hybrid Cooling Conference, American Section of the International Solar Energy Society, Miami, FL.

1981 Lakin, J.E. and M. Milne, "Solar4, A Conceptual Tool for Computer-aided Energy Conserving Design, "Proceedings of the 1981 Annual Meeting of the American Section of the International Solar Energy Society, Philadelphia, PA

1981 Millet, M.S. and J.E. Lakin, "Rainy Day Shading: The Effects of Shading Devices on Daylighting and Thermal Performance," Proceedings of the 6th National Passive Solar Conference, AS/ISES, Portland, OR

1981 Lakin, J.E. and M.S. Millet, "Road Map to the Stars, Teaching an Integrated Approach to Energy Cons. Design," Proceeding of the 6th National Passive Solar Conference, AS/ISES, Portland, OR

1980 Milne, M. and J.E. Lakin, "Solar Cities 2025" Proceedings of the 5th National Passive Solar Conference, AS/ISES, Kansas City, MO.

RESEARCH: **Articles about Work**

2012 "A New Conversation About Conservation at Remix", by Mary Jean Spadafora, Seattle Times, May 31, 2012

2011 *"Newest Medical Centers, 'not your father's hospital'",* by Carol Ostrom, Seattle Times, May 13, 2011

2010 *"Health Care of the Future"*, by Brad Broberg, Puget Sound Business Journal, April 23, 2010

2004 *"Shedding the Light, University of Washington professor Shines with World-Recognized Lighting Lab",* by Steven Goldsmith, UW Week, October 7th, 2004

2003 *"The Evangelists of Natural Light, Selling Architects on the Benefits of the Sun's Illumination"*, By Brian Libby, International Herald Tribune, Thursday, June 19, 2003

2003 *"Beyond the Bulbs: In Praise of Natural Light"* New York Times, June 6, 2003, by Brian Libby

2003 "SkyLab" Simulations at Seattle's Daylighting Lab teach designers just how green their buildings can be. By Brian Libby, Metropolis Magazine, April 2003

1995 *"State-of-the-Art in Lighting Education*," Architecture, May 1995

1992 *"Daylighting in Critical Visual Environments, Controlling Direct Sunlight, Lightshelves and Clerestories Brighten Offices and Reduce Glare",* The Campus Activities Building Addition, the Evergreen State College, Olson Sundberg Architects, Seattle, WA, **Architecture**, August 1992

RESEARCH: **Grants Awarded**

2011 "Integrated Design 2011-2012" with the NEEA, **$1,200,000 (funded January 2011)**

2010 "Advanced Energy Efficient Building Technologies for High Performance Hospitals", Joel Loveland & Heather Burpee, U.S. Department of Energy, National Energy Technology Laboratory, DE-FOA-0000115, **$1,200,000+match of $144,000**

2009 Loveland, “Extending Integrated Design in the Pacific Northwest 2009,” to the Northwest Energy Efficiency Alliance, Portland, OR. **$30,000 + match**

2009 Loveland, “Integrated Design in the Pacific Northwest 2009,” to the Northwest Energy Efficiency Alliance, Portland, OR. **$950,000 + match**

2008 “Integrated Lighting in Grocery Retail”, New York State Research and Development Authority, Albany, NY; **$25,000**

2007 Loveland, J., N. Rottle & D. Abramson, “Sustainable Design Institute: UW TOWER PROPOSAL FOR SPACE ASSIGNMENT”

2007 Loveland, “Integrated Electric Lighting at the IDL,” to the Northwest Energy Efficiency Alliance, Portland, OR. **$186,000 + match**

2007 Loveland, “Daylighting Metrics for Buildings,” to the Northwest Energy Efficiency Alliance, Portland, OR. [funded for two years] **$80,000 + match**

2007 Loveland, J. & Christopher Meek, “Daylighting Education in British Columbia,” to British Columbia Hydro, **$30,000 + an additional $120,000 in project funding**

2007 Loveland, J. & Christopher Meek, “Daylighting Reflection for Giante Egg at Maiden Bower Bay,” to the Blumen Consulting Group, Kirkland, WA, $5,000

2006 Loveland, “Integrated Design in the Pacific Northwest 2006-2008,” to the Northwest Energy Efficiency Alliance, Portland, OR. [funded for three years] **$2,400,000 + match**

2005 Loveland, “Daylighting in Schools, Project Field Reports,” to the Northwest Energy Efficiency Alliance, Portland, OR. **$10,000**

2005 Van Den Wymellenberg, Kevin; Loveland, JE & Meek, C., “Daylighting in Practice, Methods and Metrics,” to the Lighting Research Center, Rennselear Polytechnical University, Troy, NY, $20,000 plus match

2004 Loveland J., J. Theodorson (WSU) and T. Woods (MSU), “A Pacific Northwest Daylighting Network: Centers for Integrated Design at Washington State University and Montana State University 2004-2005”, to the Northwest Energy Efficiency Alliance, Portland, OR. [funded for one year] **$250,000 + match**

2004 Loveland, “Daylighting Design in the Pacific Northwest 2004-2005,” to the Northwest Energy Efficiency Alliance, Portland, OR. [funded for two years] **$950,000 + match**

2002 Loveland, “Daylighting Design in the Pacific Northwest 2003,” to the Northwest Energy Efficiency Alliance, Portland, OR. [funded] **$225,000 + match**

2001 Loveland, “Daylighting Design in the Pacific Northwest 2002,” to the Northwest Energy Efficiency Alliance, Portland, OR. [funded] **$175,000 + match**

2000 J. Loveland, “Daylighting Design in the Pacific Northwest 2001,” to the Northwest Energy Efficiency Alliance, Portland, OR. [funded] **$125,000 + match**

2000 J. Loveland “ Daylighting Analysis and Design for the University of Washington’s Intermural Acitivities Building,” to BOORA Architects, Portland [funded] **$2,500**

1999 J. Loveland, “Daylighting Design in the Pacific Northwest,” to the Northwest Energy Efficiency Alliance. [funded] **$75,000 + match**

1999 J. Loveland, “Development Concept Plan for Marblemount Station, North cascades National Park, CAUP Interdisciplinary Design Studio,” Pacific Northwest Region, National Park Service, **$5,000**

1996 J. Loveland and M Spitzer, “Beta Development of the Specifier Database,” the Sustainable Building Research Center at Environmental Works, funded by the Horizons Foundation, Seattle, WA, **$10,000**

1994 Loveland, JE., MS Millet and D. Kelbaugh, "Energy Education in Higher Education," a grant from the Bonneville Power Administration and the Washington State Energy Office for guest lecturers and design studio critics related to energy conservation in architecture, **$10,000**

1993 J. Loveland, G.Z. Brown, V. Cartwright, R. Cole, G. Finrow, M. Millet, and J. Reynolds, "Pacific Northwest Lighting Education Consortium," Nuckolls Fund Annual National Award to Improve Lighting Education, **$10,000**

1993 Loveland, JE., MS Millet and D. Kelbaugh, "Energy Education in Higher Education," a grant from the Bonneville Power Administration and the Washington State Energy Office for guest lecturers and design studio critics related to energy conservation in architecture, **$10,000**

1992 Loveland, JE., MS Millet and D. Kelbaugh, "Energy Education in Higher Education," a grant from the Bonneville Power Administration and the Washington State Energy Office for guest lecturers and design studio critics related to energy conservation in architecture, **$10,000**

1991 Loveland, J and J Barnes, "A Prototype Energy Efficient Industrialized House" to The Center for Housing Innovation, University of Oregon, Eugene, OR **$5,000**

1991 D. Kelbaugh, JE Loveland, and MS Millet, "Energy Education in Higher Education," a grant from the Bonneville Power Administration and the Washington State Energy Office for guest lecturers and design studio critics related to energy conservation in architecture, **$10,000**

1990 Loveland, J.E. and J.H. Heerwagen Phase-Two: The Evaluation of Occupant Perceptions of Visual and Thermal Comfort in State-of-the-Art Energy Efficient Buildings, a proposal submitted to and funded by the United States Department of Energy, Washington, DC, **$50,000**

1990 Loveland, J.E, Design Fellowships and Lectureships in Energy Conservation a proposal extending a contract, Washington State Energy Office, **$15,000**

1990 D. Kelbaugh, JE Loveland, and MS Millet, "Energy Education in Higher Education," a grant from the Bonneville Power Administration and the Washington State Energy Office for guest lecturers and design studio critics related to energy conservation in architecture, **$10,000**

1988 Loveland, J.E. and J.H. Heerwagen, The Evaluation of Occupant Perceptions of Visual and Thermal Comfort in State-of-the-Art Energy Efficient Buildings, a proposal submitted to and funded by the United States Department of Energy, Washington, DC, **$100,000**

1988 Loveland, J.E. and G.Z. Brown, The Impacts of Global Warming on the Energy Efficiency of Building in the United States, a proposal submitted to and funded by the Office of Technology Assessment, Congress of the United States, **$10,000**

1988 Loveland, J.E. and M.S. Millet, Design Fellowships in Energy Conservation a proposal submitted to extend an existing contract, funding extended by the Washington State Energy Office, **$10,000**

1987 Loveland, J.E. Energy Conservation Technology Transfer for Architects, Building Designers and Students of Architecture, a proposal to the Power Washington Review Committee, **$125,000**

1987 Loveland, J.E. and M.S. Millet, "Design Fellowships in Energy Conservation" a proposal to the Washington State Energy Office, **$10,000**

1987 Loveland, J.E., National Academy of Sciences Travel Award, in support of the presentation of current research concerning traditional building technology, to the 10th International Council on Building Research, C.I.B. '87, Congress, Washington, D.C., **$2500.**

1987 Loveland, J.E. and G.Z. Brown; "1987 Society of Building Science Educators, Energy Curriculum Development Project," a proposal to the United States Department of Energy, **$10,000**

1985 Loveland, J.E. and D.A. Brentrup; Visual Presence of Appropriate Precedence, A Morphology of Adaptation to Climate in Vernacular Architecture, a proposal submitted to and funded by the National Endowment for the Arts, Washington, DC, **$45,000**

1985 Loveland, J.E. and D.A. Brentrup; The Development of Heuristic Problem Solving Systems in Architectural Design, a proposal submitted to and funded by the Design Research Institute, Iowa State University, **$4,000**

1985 Loveland, J.E. and D.A. Brentrup; Proposal for Regional Research Center Status, Daylighting Network of North America, a proposal submitted to and accepted by the Daylighting Network of North America and the US.DOE.

1984 Loveland, J.E., D.A. Brentrup and J.R. Bower, Housing, Climate and Comfort, Precedents of Adaptation to Climate for Thermal Comfort in Preindustrial Vernacular Cultures, a proposal submitted to and funded by the Design Research Institute, Iowa State University, **$5,000**

1984 Loveland, J.E. and D.A. Brentrup; Daylighting in the Basement, the Construction and Evaluation of an Artificial Sky, a proposal submitted to and funded by the Design Research Institute, Iowa State University, **$2,000**

1984 Loveland, J.E. and D.A. Brentrup; Johnson Elementary School Playground, a proposal submitted to and funded by the Johnson School Board, Johnson City, Iowa **$10,000**

PRACTICE: **Employment**

2006-present	Director, University of Washington, CBE/DoA Integrated Design Lab
2002-2005	Director, BetterBricks Daylighting Lab Seattle, operated by the UW
2000 -2002	Daylighting Consultant, Lighting Design Lab/Northwest Energy Efficiency Alliance
1988 -1999	Principal, **Loveland Millet Partnerships** *Energy and Lighting Consultants, Seattle, WA*
1983 -1988	Principal, **Design Zero** Energy and Daylighting Consultant, Seattle, WA
1978-1980	Principal: **ACCESS** Los Angeles, CA Communications consultants for public design comment
1976-1978	Project Architect: Flynn, Saito and Anderson Architects, Waterloo, IA
1974-1976	Project Architect: Thorson, Brom, Broshar and Snyder Architects, Waterloo, IA
1974-1978	*Carpenter, Mason, Electrician.. .Designer: (designed a built a home for my mother, on the family farm homesteaded by my great grandfather, Janesville,IA)*
1973-1974	Architectural Intern: Alexander and Ganos Architects, Phoenix,AZ
1972-1973	Architectural Intern: Carl Day Architect, Santa Monica, CA
1971-1972	Architectural Intern: Michael Goodwin Architect, Tempe, AZ
1970-1971	Carpenter: A Building Collaborative Tempe, AZ

National, regional and local awards of merit for work on projects that Lab efforts were substantially mentioned as significant to the project:

2011 National Healthcare Design Award of Honor
Seattle Children's Bellevue Clinic
(Project team members as sustainability research consultants)
NBBJ

2011 AIA National C.O.T.E. Top Ten Green Building Award
Lott Alliance, Olympia
(Project team members as daylighting research consultants)
Miller Hull Partnership

2011 AIA Northwest and Pacific Region Design Award of Merit
Kenmore Library
(Project team members as daylighting research consultants)
Weinstein A+U

2011 Seattle AIA Honor Award
Lott Alliance, Olympia
(Project team members as daylighting research consultants)
Miller Hull Partnership

2011 Seattle AIA Commendation Award
Gray Middle School, Tacoma
(Project team members as daylighting research consultants)
Mahlum Architects

2011 Seattle AIA Commendation Award
Kenmore Library
(Project team members as daylighting research consultants)
Weinstein A+U

2010 Seattle AIA Merit Award
Seattle Children's Bellevue Clinic and Surgery Center
(Project team members as energy performance research consultants)
NBBJ

2010 Seattle AIA Commendation
Rainier Vista Boys & Girls Club and Rainier Valley Teen Center
(Project team members as daylighting research consultants)
Weinstein AU

2010 Seattle AIA Citation
University of Washington West Campus Student Housing
(Project team members as daylighting research consultants)
Mahlum

2010 Northwest and Pacific Region AIA Design Awards, Honor Award
Bainbridge High School
(Project team members as daylighting research consultants)
Mahlum
2010 IES Puget Sound Chapter , Honor Award
Integrated Design Lab, Lighting Design
2009 AIA C.O.T.E. National Top-Ten Green Building
"Terry Thomas Building"
(Project team members as daylighting research consultants)
Stantec Engineering and Weber Thompson Architects
2009 Northwest and Pacific Region AIA Design Awards, Honor Award
The Terry Thomas Office Building, Seattle, WA
(Project team members as daylighting research consultants)
Weber Thompson, Seattle, WA
2009 Northwest and Pacific Region AIA Design Awards, Merit Award
Douglass-Truth Branch, Seattle Library**,** Seattle, WA
(Project team members as daylighting research consultants)
Schacht Aslani Architects, Seattle, WA
2009 Northwest and Pacific Region AIA Design Awards, Citation Award
Hillsdale Branch Library**,** Portland, OR
(Project team members as daylighting research consultants)
THA Architects, Portland, OR

2008	**AIA Honor Award** Seattle Public Libray, Montlake Branch, Seattle, WA Weinstein AU Architects Daylighting Research Consultants
2008	**AIA Honor Award** EX3 Ron Sandwith Teen Center, Federal Way, WA Weinstein AU Architects Daylighting Consultants Daylighting Research Consultants
2008	**AIA Award of Merit** Kitsap County Administration Building, Port Orchard, WA Miller Hull Partnership Daylighting Research Consultants
2008	**AIA Commendation** Terry Thomas Building, Seattle, WA Weber Thompson Daylighting Research Consultants
2006	**AIA C.O.T.E. National Top-Ten Green Building** Ballard Library & Neighborhood Center, Seattle, WA Bohlin Cywinski Jackson Daylighting Research Consultants
2006	**AIA C.O.T.E. National Top-Ten Green Building** Ben Franklin Elementary School, Kirkland, WA Mahlum Architects Daylighting Research Consultants
2005	**AIA C.O.T.E. National Top-Ten Green Building** Seminar Two, The Evergreen State College, Olympia, WA Mahlum Architects Daylighting Research Consultants
2004	**AIA C.O.T.E. National Top-Ten Green Building** Pierce County Environmental Services Center, Tacoma, WA The Miller Hull Partnership Daylighting Research Consultants
2004	**Washington Governors Award for Sustainable Practices** Daylighting Lab Services
2004	**Sustainable Industries Journal Top 25 Sustainable Design Practitioner**

2003 **AIA C.O.T.E, National Top-Ten Green Building**
The Fisher Pavillion, Seattle, WA
The Miller Hull Partnership
Daylighting Research Consultants

2002 **AIA C.O.T.E, National Top-Ten Green Building**
Puget Sound Environmental Learning Center, Bainbridge Island, WA
Mithun Architecture
Daylighting Research Consultants

2004 **ILDA Lighting Design Honor Award with Brian Hood Lighting**,
Yarrow Bay Residence,
Olson Sundberg Kundig Allen Architects

1999 **Baker Chair of Lighting, University of Oregon,**
Spring Quarter Residence, 1998

1998 **AIA Honor Award**
Temple B-Nai Torah, Bellevue, WA
Olson Sundberg Architects

1998 **AIA Honor Award**
Frye Art Museum, Seattle, WA
Olson Sundberg Architects

1994 **AIA Honor Award**
Campus Activities Building, Evergreen State College
Olson Sundberg Architects, Seattle, WA

1994 **AIA Honor Award**
Jaechs Residence, Kirkland
Olson Sundberg Architects, Seattle, WA

1994 **AIA Honor Award**
Art Studios Addition II, Evergreen State College
Carlson Ferrin Architects

1993 **AIA Honor Award, Pacific Northwest Design + Energy Awards**
Campus Activities Building, Evergreen State College
Olson Sundberg Architects, Seattle, WA

1990 **AIA Award of Merit**
Overlake Park Presbyterian Church
Olson Sundberg Architects, Seattle, WA

1989 **Award of Merit, Seattle Chapter AIA**
Evergreen University Art Studios, Miller Hull Architects, Seattle, WA

CREATIVE ACHIEVEMENT, PRACTICE:

On-going Recent Selected Projects: *[only those which extensive IDL efforts were involved]*

2012-13 University of Pennsylvania Hospital, Philadelphia,
Kiernan Timberlake and Ballinger Architecture
Fire Station 32, Seattle
Bohlin Cywinski Jackson, Seattle
Frans Chocolate Factory and Offices
Engineering Biosystems Building, Georgia Technical Institute
Lake Flato Architects

2011 Google Offices, Mountainview, CA
Mithun Architects
Goodwill Offices and Training Center, Seattle
Mithun Architecture
UW Terry Lander Hall Replacement
Mithun Architects

2010 Austin Main Library, Austin, TX
Lake Flato Architects, San Antonio, TX
Bullitt Net-Zero Office Building, Seattle
The Miller Hull Partnership, Seattle
University of California San Diego, Sciences Building
ZGF Architects

Peace Island (net-zero) Hospital, Friday Harbor, WA
Mahlum Architects
Everett Community College, Health Careers Center
SRG Architects
Valley Medical Center Emergency Medicine Clinic
NBBJ Architects
WSU Riverpoint Spokane, health Careers Center
NBBJ Architects
Hayes Freedom (net-zero) School, Camas
Mahlum Architects
Finn Hill Elementary School, Kirkland
Mahlum Architects
Swedish Issaquah Medical Center
Collins Woerman Architects

2009 Hunt Middle School, Tacoma
McGranahan Architects, Tacoma
Hood River Elementary School, Hood River
OPSIS Architecture, Portland
Tacoma Community College, Health Careers Center, Tacoma
NBBJ Architects
Island County MOB, Anacortes
Mahlum Architects, Seattle
Tyee Middle School, Bellevue
Integrus Architecture
Tacoma Power, South Service Center Office Bldg & Shops, Tacoma
TCF Architecture, Tacoma
Swedish Hospital Issaquah
Collns Woerman Architecture, Seattle
Meadowdale Middle School, Lynnwood
Integrus Architecture
Billings Middle School, Seattle
Mithun Architecture
Seattle Children's Phase One Addition
ZGF Architects, Seattle

2008 Whidbey Naval Air Station Hangers Patano
Hafferman Architects, Seattle Peninsula
College Library Humanities Building Schacht
Aslani Architects
Providence Alaska Medical Center, Anchorage
ZGF Architects, Seattle
UW West Campus Student Housing
Mahlum Architects, Seattle
John Muir Elementary School, LWSD
Mahlum Architects, Seattle
Palo Alto Medical Foundation -Clinic & Hospital
NBBJ Architects, Seattle
Finn Hill Middle School, LWSD
Mahlum Architects, Seattle
Bullitt Foundation Headquarters Offices
Bullitt Foundation, Seattle
Les Gove Community Center, Auburn, WA
ARC Architects, Seattle
Lakota MS, Federal Way
BLRB Architects, Tacoma Ft.
Vancouver Main Library
Miller Hull Architects, Seattle
Swedish Medical Center Issaquah MOB
Mahlum Architects, Seattle

Children's Medical Center ICU Addition, Seattle
ZGF Architects, Seattle
Olympic Medical Center, Ambulatory Care center, Port Angeles, WA
O'Connor Architects, Bainbridge Island & Stantec, Vancouver, BC
Grays Harbor Community College, Classroom Bldg
SRG Architects, Seattle
Kootenai medical Center, Womens and Childrens Center, Couer D'Alene, ID
NAC Architecture, Seattle & Spokane
Everette Community College, Recreation Center
SRG Architects, Seattle
Greenland Luan Office Building, Shanghai, China
Callison Architects
Moses lake City hall
The Miller Hull Partnership
REI Headquarter, Auburn, WA
NBBJ Architects
Veterans Hospital New Orleans, LA
NBBJ Architects
LSU Medical Center, New Orleans
NBBJ Architects
Kenmore City Hall, Kenmore, WA
Weinstein AU, Seattle
Chief Sealth High School, Seattle
Bassetti Architects, Seattle
Lake Washington Middle School, Redmond, WA
Mahlum Architects, Seattle
Nathan hale High School, Seattle
Mahlum Architects, Seattle
Ingraham High School, Seattle, WA
Integrus
Yale Office Development, Seattle
NBBJ Architects
Water Quality testing labs, Tacoma, WA
Perkins + Will
Swedish Issaquah Medical Center
Mahlum Architects, Seattle
Telluride Medical Center, Telluride, CO
Mahlum Architects
Sammamish High School
Perkins + Will
Kenmore Library
Weinstein AU
Federal Way Library
Mithun
Microsoft Office Complex, Redmond
ZGF Architects
Nintendo NA. Headquarters, Redmond
ZGF Architects
University of Washington Molecular Engineering Bldg
ZGF Architects
University of Washington Lewis Hall
Mithun
University of Washington Denny hall
Thomas hacker Architects
University of Michigan School of Architecture, Addition
The Miller Hull Partnership
5th and Columbia Office Tower, Seattle
ZGF Architects
University of Washington medical center, South Patient Tower
NBBJ Architects

Virginia Mason Hospital East Tower Addition
NBBJ Architects
Camas Elementary School, Camas, WA
Mahlum Architects
Kitsap SEED Office Bldg
Mithun
Enumclaw Regional Hospital
Mahlum Architects

2007 Children's Hospital, Seattle
ZGF Architects, Seattle
(3) Hillsboro Elementary Schools, OR
Mahlum Architects, Seattle
Muckleshoot Tribal School
Mahlum Architects, Seattle
McMinneville Elementary School, OR
Mahlum Architects, Seattle
Medford High School, OR
Mahlum Architects, Seattle
Crandall Library Library, NY
Ann Beha Architects, Boston
Pratt & Whitney Offices, NY
SLAM Collaborative, Boston
Kootenai Medical Center, ID
Mithun Architecture
Gresham Elementary School
Mahlum Architects, Seattle
Springfield Elementary School
Mahlum Architects, Seattle
Beaverton Elementary School
Mahlum Architects, Seattle
Iowa State University Bio-Fuels Institute,
ZGF Architects, Seattle
Bellingham Children's Museum
Olson Sundberg Kundig Allan, Seattle
Bainbridge High School, WA
Mahlum Architecture, Seattle
CIRS Center for Sustainability Research, University of British Columbia, Vancouver
Busby Perkins+Will, Vancouver
Rainier Valley Boys & Girls Club, Seattle
Weinstein AU, Seattle
Brightwater Interpretive Center, Woodinville
Mithun Architecture
Acheson Hall, State University of New York, Buffalo
SLAM Collaborative, Boston
Savory hall, University of Washington
SRG Architects, Seattle
Massachusetts General Hospital, Boston
NBBJ, New York
Columbia Springs Environmental Center
Miller Hull Partnership
Clark Hall, University of Washington
Mahlum Architecture, Seattle
Issaquah High School
Mahlum Architecture, Seattle
Puyallup City Hall
Mithun Architecture, Seattle
Pearl River Office Tower, Shanghai
SOM Architects, Chicago & Pivitol Lighting
Scriber Lake School

Mahlum Architects
Texas Prototype Classroom
Paladino and Company
Lake Middle School
Miller Hull Partnership

2006 Bellingham Art Museum
Olson Sundberg Kundig Allen
Wildhorse Interpretive Center
Schacht Aslani Architects
Jewish Day School
Don Carlson Architects
Scriber Lake School
Mahlum Architects
Texas Prototype Classroom
Paladino and Company
University of British Columbia, Anthropology Museum Addition
Arthur Erickson with Stantec Architects
Tulalip Tribes Office Building
Mithun Architects
Bellevue Community College Science Building
Miller Hull Partnership
Norton Sound Hospital, Nome, AK
Mahlum Architects
Cedar River Academy
Don Carlson Architects
South Puget Sound Community College Science Bldg
Miller Hull Partnership
Seattle Fire Station No. 10
Weinstein AU
Marysville Alternative High School
Meng Strasse
Peninsula College Admin Bldg
Schacht Aslani Architects
Lake Middle School
Miller Hull Partnership
Barn Beach Environmental Center
Bassetti
Puget Consumer Coop, Redmond
Velocipede
Steilacoom Middle School
DLR Architects
King County Library, Covington
Integrus Architects
Town and County Grocery Store, Poulsbo
Priscilla Zimmerman Architects
Tulalip Tribes Meeting Hall
Mithun Architects
Lynnwood High School
Bassetti Architects
UW Educational Outreach Buidling
Perkins Will Architects
Boeing 787 Assembly Building
NBBJ

2005 Novelty Hill Winery
Mithun Architects
Patagonia Stores Design Guideline
Miller Hull Partnership
Boise State University Student Services Center, Boise, ID

Miller Hull Partnership
BRE Multi-Family Housing Projects, Bellevue, WA
Mithun Architects
South Lake Union Bio-Technology Building, Seattle
Mithun Architects
South Lake Union Bio-Technology Building, Seattle
Perkins+Will and Busby, Seattle
Carlton Winery II, Carlton, OR
Boxwood Architects, Seattle
Tacoma Landfill Truck Wash
City of Tacoma
Lynnwood High School, Lynnwood, WA
Bassetti Architects
Chinese Information Services Center, Seattle
Environmental Works, Seattle
Belltown Lofts Multi-Family Housing, Seattle
Mithun Architects
Spokane Community College Social Sciences Building
Northwest Architectural Company, Spokane
Bank of California Tower, Seattle
DLR Group

2004 Whitman College Athletic Center, Walla Walla, WA
Weinstein AU, Seattle
Walter Clore Wine and Culinary Center, Prosser, WA
Boxwood Architects
Whatcom Children's Art Museum, Bellingham, WA
Olson Sundberg Kundig Allen, Seattle
Terry Office Building, South Lake Union, Seattle, WA
Weber Thompson Architects, Seattle
Jackson Hole Visitors Center, Jackson Hole, WY
Ensar Group, Boulder, CO
Snohomish Public Utility Building, Water Building, Everette, WA
Miller Hull Partnership, Seattle
Missoula Federal Credit Union, Missoula, MT
MMW Architects, Missoula
Tacoma Community College Library
Schacht Aslani Architects, Seattle
Olympic Educational Services Building
Cornerstone Architects, Seattle
White Pines Charter School, White Pines, ID
Mahlum Architects, Seattle
Itronics Office and Production Facility, Spokane, WA
Wolfe Architectural Group, Spokane
Hanford High School
Integrus Architecture, Spokane
Telco Credit Union Offices, Spokane
ALSC Architects, Spokane
Aleutian Spray Fisheries Office Building, Seattle
Clark Design Group, Seattle
College of Southern Idaho, Recreation Center
CTA Architects, Boise, ID
Kennydale Elementary School, Renton, WA
McGranahan Architects, Tacoma
South Seattle Community College Classroom Building
Mithun Architects
Whitman College Recreation Center
Weinstein A+U, Seattle

Chief Dull Knife Childcare Center
UW School of Architecture
Spokane Community College, Sciences and Business Building
Northwest Architectural Company, Spokane
Washington Middle School, Olympia, WA
Mahlum Architects, Seattle
Ridgeview Elementary School, Spokane, WA
ALSC Architects, Spokane
Lincoln Heights Elementary School, Spokane, WA
Integrus Architecture, Seattle
Tacoma Power Shops Building
BCRA Architects, Tacoma
Vancouver "Big-Box" Retail Prototype
Peter Busby Architects
Pierce College Fort Steilacoom Recreation Center
OPSIS Architecture
Northwest Indian College, Bellingham, WA
Mithun Architecture
Tacoma Power Administration Building
BCRA Architects, Tacoma
East Catholic High School, Bellevue, WA
Integrus Architects, Seattle
Seattle Northeast Transfer Station
KPG Architects, Seattle
Bellingham Technical College, Auto Technology Classroom Building
Henty Klein Partnership, Mt Vernon
Bellevue City Hall, Bellevue, WA
SRG Partnership, Seattle

2003 Issaquah Highlands Community Center
Weber Thompson Architects, Seattle
Southwest Branch Library, Seattle
Olson Sundberg Kundig Allan Architects, Seattle
Seattle Children's Hospital Ambulatory Care Addition
Sparling Engineers
Foothills Environmental Education Center, Boise, ID
Insight Architects, Boise
West Seattle Community Center
Weinstein AU, Seattle
Bothell High School, WA
Dykeman Architects, Everette, WA
Cottage Lake Elementary School, Bothell, WA
Bassetti Architects
St Vincents Hospital Neo-natal Intensive Care Unit, Billings, MT
CTA Architects, Billings
1414 Market Office Building, Issaquah, WA
4D Architects, Issaquah
US Dept of Energy, Richland, Childcare Facility
Environmental Works, Seattle
Federal Way Headstart Center
ARC Architects, Seattle
Tacoma Wilson High School
Northwest Architectural Company, Seattle
Seattle Country Day School
Don Carlson Architects, Seattle
Neighborhood House, Seattle
Environmental Works, Seattle
Beacon Hill Elementary School, Seattle
BLR+B Architects, Tacoma

Lake Tapps Elementary School
Hutterball Oremus Architects, Kirkland
Northgate Community Center and Library, Seattle
Miller Hull Architects
Cascade Community Center, Seattle
Jones and Jones Architects
Bertschi School Addition, Seattle
Miller Hull Architects
Tacoma Elementary School #37
Hutterball Oremus Architects, Kirkland
Brightwater Treatment Facility, Woodenville, WA
Mithun Architects, Seattle
St Benedicts Family Medical Center, Twin Falls Idaho
CTA Architects, Billings, MT
Anchorage Art Museum, AK
Cameron Studio, Seattle
Nampa Elementary School, ID
Design West Architects
Willis Tucker Park Community Center
Miller Hull Architects
St Charles Medical Center, Redmond, OR
Callison Architects
Nampa High School, ID
CSHQA Architects, Boise
Mattawa High School,
Architects West, Coure d'Alene, ID
Rosewood Specialty Care Facility, Portland
LRS Architects, Portland
Issaquah Middle School #9
Bassetti Architects
Golden Garden Bath House, Seattle
BOLA Architects, Seattle
Carkeek Park Environmental Center
Selkirk Miller Hiyashi Architects, Seattle
Lake Hills Elementary School, Bellevue, WA
Northwest Architectural Company
Coleville Confederated Tribes School, Omak, WA
ALSC Architects, Spokane
West Yellowstone Entrance, West Yellowstone, WY
CTA Architects, Billings, MT
Seattle Municipal Joint Training Facility
Boxwood
Teton Science School, Jackson Hole, WY
Mithun Architects
Franklin Elementary School, Kirkland, WA
Mahlum Architects, Seattle

2002 Douglas Border Crossing, Canadian/US Border at Peace Arch Park
Bunting Coady Architects, Vancouver, BC
Boeing 737 and 757 Assembly Building, Renton
NBBJ Architects
Yesler Community Center
Mithun Architects
Albertson Prototype Market Skylighting
Albertsons Corporate Hdqts, Boise
Federal Way Youth Center, Federal Way, WA
Weinstein AU
Tacoma Community College ITVC Building
Callison Architects

Heritage Mt. School, BC, CN
KMBR Architects, Vancouver, BC, CN
Shoreline Community College Science Building
Schacht Aslani Architects
Plano Whole Foods Grocery Store Skylighting, Plano Texas
CTA Architects, Billings, MT
Whole Foods Prototype Market Skylighting
CTA Architects, Billings, MT
Northwest Maritime Museum, Port Townsend, WA
Miller Hull Partnership
Jefferson Park Community Center, Seattle
ARC Architects
Pioneer Middle School, Wenatchee, WA
DOH Associates
Bozeman Public Library, Bozeman, MT
Overland Architects, Bozeman
University of Washington BioEngineering Building
Ashen + Allen Architects, Los Angeles
Montlake Branch Library, Seattle
Weinstein AU, Seattle
Veterans Administration Hospital, Seattle
NBBJ Architects
Lake Washington Community College, Technology Education Center
Schreiber Lane Architects
Washington State Crime Labs at Eastern Washington University, Cheney
Integrus Architects
Offices at Boat Street Landing, Seattle
Mithun Architects
Brotman Residence
Olson Sundberg Kundig Allen Architects
The Evergreen State College Childcare Center, Olympia, WA
Environmental Works
Northeast Branch Library, Seattle
Miller Hull Partnership
Douglas Truth Library, Seattle
Schacht Aslani Architects
University of British Columbia, Life Sciences Building
Bunting Coady Architects, Vancouver, BC
Independence Library, Independence, OR
Crow/Clay Architects, Portland
Pierce College, Puallyup
OPSIS Architects, Portland
Snohomish County Public Utility District Operations Center Renovation
Snohomish Co. PUD
Martin Luther King Childcare Center
Environmental Works
Sunset Athletic Club, Portland
Sal Khan Architect
Tacoma Police headquarters
Thomas, Cook Reed Rheinvelt Architects, Tacoma
PSU Child Development Center
GBD Architects, Portland
City of Seattle Maintenance Shop Renovation
Snyder Hartung Kane and Strauss Architects, Seattle
Ballard Community Library, Seattle
Bohlin Cywinski Jackson Architects, Seattle
Puget Consumer Coop, Fremont Grocery Store
Velociped Architects
Greenwood Library, Seattle
Buffalo Architects, Seattle

Park 90/5 Seattle Police Operations Center
DKA Architects, Seattle
Merrill Hall, University of Washington, Seattle
Miller Hull Partnership
Woodland Park Zoo Administrative Offices, Seattle
Mithun Architects
Great Falls International Airport Renovation
CTA Architects, Billings, MT
Lao Highlands Community Center, Seattle
Environmental Works
Avondale Childcare Center, Redmond, WA
Environmental Works
University of Washington Connebear Shell House
Miller Hull Partnership
Beacon Hill Library, Seattle
Don Carlson Architects, Seattle
Grays Harbor Community College Library
Schacht Aslani Architects, Seattle

2001 Portland State University, Roosevelt Hall
Mithun ARchitects
Eklind Hall, Swedish Hospital, Seattle
ARC Architects, Seattle
Port of Seattle Pier 18 Management Offices
Merritt Pardini Architects, Seattle
Cherry Parkes Building, UofW Tacoma
BOLA Architects, Seattle
Portland Community College, Sylvania Hall
OPSIS Architects, Portland
Ravenna Woods Congregate Home, Seattle
Velocipeed, Seattle
Seattle University School of Theology Administrative Offices
Mahlum Architects, Seattle
Carlton Winery, Carlton, OR
Boxwood, Seattle
Eagle Point Elementary School, Medford, OR
DOWA Architects, Portland
Crow Nation School, Worland, WY
CTA Architects, Billings, MT
Yellowstone Research and Archeology Center, Gardner, MT
CTA Architects, Billings, MT
Wooden Cross Lutheran Church, Woodenville, WA
The Buffalo Architects, Issaquah
St Joseph's Hospital, Orange, CA
NBBJ Architects, Seattle
Hillsboro Cleanwater Services Building
SRG Architects, Portland
Kent Community Center
ARC Architects, Seattle
Springwood Family & Recreation Center, Kent
ARC Architects, Seattle
Water Place, Boise, ID
NBBJ Architects, Seattle
Idaho Place, Boise, ID
NBBJ Architects, Seattle
Curry Puppet Studio, St Helens, OR
OPSIS Architects, Portland
Dalles Fort Worth Airport
NBBJ Architects, Seattle

Tom McCall 5-6 Elementary School
Mahlum Architects, Portland
Metro King County South and East Transit Facilitites
Merrit Pardini Architects, Seattle
Tacoma Intermediate School #11
Northwest Architectural Company, Seattle
Truman High School, Federal Way, WA
Mahlum Architects, Seattle
Sun Valley Community School, Sun Valley, ID
Mahlum Architects, Seattle
Pala Youth Center, San Jose CA
BOORA Architects, Porland
Hospice House of Spokane
ALSC Architects, Spokane, WA
Fred Hutchinson Cancer Research Center, Seattle
ZGF Architects, Seattle
Garden City Headstart Center, Boise
McKibben and Cooper, Boise
Seatac TRACON Facility
URS Architects, Seattle
Kalmiopsis Elementary School, Brookings Harbor, OR
WBGS Architects, Eugene, OR
Hilsdale Branch Library, Portland, OR
Thomas Hacker Architects, Portland
Seattle Central Library
EDAW Landscape architects and Planners
Grande Ronde Education Center, LeGrande, OR
CSHQA Architects, Portland & Boise
Lebanon Elementary School, Lebanon, OR
BOORA Architects, Portland
Capital Hill Branch Library, Seattle
Johnson Architects with Jim Cutler, Architect
White River High School, White River, WA
Integrus Architects, Seattle
Anacortes Public Library
Selkirk Miller Hyashi Architects, Seattle
Prince Rupert Community College Classrooms and Library, Prince Rupert, CN
Larry McFarland Architects, Vancouver, BC CN

2000 North Mall State Office Building, Salem, OR,
Yost Grube Hall Architects, Portland
National Joint Warfare Analysis Center, Virginia
AKS Architects, Seattle
Lasserre Building Addition, UBC
Peter Busby Architects, Vancouver, BC CN
Pt Defiance Veterinary Clinic, Tacoma
Boxwood Architects
Ebsworth Residence, Seattle
Olson Sundberg Kundig Allen Architects
Seattle City Hall,
Bohlin Ciwynski Jackson Architects – Bassetti Architects
Seattle Justice Center
NBBJ Architects
University of Montana Recreation Center
DTA Architects, Helena, MT
St. Paul's Methodist Church, Helena
Place Architects, Bozeman, MT
Holter Museum, Helena, MT
Bjerke Architects

Central Intermediate School, Independence, OR
BOORA Architects, Portland
St. James Methodist Church, Kirkland, WA
Architects, Kirkland
Seattle Southwest Police Precinct
Arai Jackson Architects
Pierce County Environmental Services Building, Tacoma
Miller Hull Partnership
Lents Boys and Girls Club, Portland
RMB Architects, Portland
Camas High School
Northwest Architectural Company
Relief Childcare and Nursery, Portland
RMB Architects, Portland
Ashland Public Library, Ashland, OR
SERA Architects, Portland
Microsoft Issaquah Campus Master Plan
ZGF Architects, Seattle
Seattle Opera House
LMN Architects
Lott Residence, Mercer Island
Olson Sundberg Kundig Allen Architects
Whidbey General Hospital
Northwest Architectural Company
Covenant Christian School
Nils Finne Architect
Tacoma Art Museum
Antoine Predock & Olson Sundberg Kundig Allen Architects
Dalles Intermediate Schools, Dalles, OR
BOORA Architects
Camas Youth Center
BOORA Architects
Vista Residence
Olson Sundberg Kundig Allen Architects
American Honda Hdqts USA, Portland, OR
McKenzie Group Architects
LaSalle High School, Portland
BOORA Architects
Muckleshoot Childcare and Cultural Center, Tacoma
Mahlum Architects, Seattle
Shepard of the Valley Lutheran Church, Boise, ID
Cole Associates, Boise
Oltremare Conservatory, Ricione, Italy
Peter Busby Architects, Vancouver
Tacoma Community College Art Gallery
Schacht Aslani Architects
University of Montana Recreation Center, Missoula
DTA Architects, Helena, MT
University of Washington IMA [Daylighting], with
BOORA, Portland

1999 Seminar Two Classroom Office Complex, The Evergreen State College
Mahlum Architects, Seattle
3018 Western Building [Daylighting], with
NBBJ, Seattle

1998 Bagley Wright Gallery, Seattle, WA
Olson Sundberg Architects

1997 Billings Montana Art Center
Thomas Hacker Architects, Portland

Mystic, Connecticut Aquarium
Portico Architects
Temple B-Nai Torah, Bellevue, WA
Olson Sundberg Architects
1996 Frye Art Museum, Seattle, WA
Olson Sundberg Architects
South American Gateway, San Francisco Zoo
Portico Architects
1994 King County Courthouse, Council Chambers
1993 King County Courthouse, Council Offices
1992 Northwest Center for the Arts, Bellingham WA
Miller Hull Architects
Henderson Hall, Addition to the Applied Physics Lab, University of Washington, Seattle, WA
Miller Hull Architects
Recreational Equipment Inc., Federal Way, WA
Evergreen University Art Studios II
Evergreen State College, Olympia, WA
Carlson Ferron Architects, Seattle, WA
1991 Temple B'nai Tora
Bellevue, WA
Olson Sundberg Architects, Seattle, WA
Washington State Archives
Western Washington University, Bellingham, WA
Boyle Wagoner Architects, Seattle, WA
Shoreline Public Library
King County, WA
Portico Architects, Seattle, WA
Jaechs Residence
Kirkland, WA
Olson Sundberg Architects, Seattle, WA
1990 Student Activities Building Addition for Evergreen State College, Olympia, WA
Olson Sundberg Architects, Seattle, WA
Woodland Park Zoo, Siamang/Orang Exhibit
OZ Architects, New Orleans, LA
Tacoma MetroParks Commission Headquarters,
Merrit Pardini Architects, Tacoma, WA
American Trust Center
Kahn, Pedersen and Fox Architects, NY
1989 Cleveland Rainforest Conservatory
Buckminster Fuller, Sadao & Zung Architects, Cleveland, Ohio
Minnesota State Zoo, Dolphinarium
Portico Group Architects, Seattle
City Light Lighting Design Lab
Roger Williams Architect, Seattle, WA
1988 Overlake Park Presbyterian Church
Olson Sundberg Architects, Seattle, WA
Evergreen University Art Studios
Miller Hull Architects, Seattle, WA
1987 Westlake Mall Sun Path Study
Elaine Latourelle Architect, Seattle, WA
Crestview Guest Home Sun Path Study,
Morris Stafford Architect, Tacoma, WA
1983 Swedish Medical Center, Medical Suite
Miller Hull Architects, Seattle, WA
Building 6580, Daylight Study
Morse Stafford Architects, Seattle, WA
Kittitas Valley Community Hospital
Knipper, Dunn and Franklin Architects, Yakima, WA. and the Washington State Energy Office, Olympia, WA

Brown Residence
Wyatt Stapper Architects, Seattle, WA
Willard Residence
Wyatt Stapper Architects, Seattle, WA
Williams Residence
Roger Williams Architect, Seattle, WA

TEACHING: **Employment**

2005-present	**Professor** (50% UW funding and 50% external funding as Integrated Design Lab Dir., 9 mos.)
2000-2005	Associate Professor (50% UW funding and 50% external funding as Daylighting Lab Director, 9 mos.)
1997-2000	Associate Professor (Full-time teaching and research/practice)
1993-1997	Associate Professor/Graduate Program Coordinator (50%-teaching & research/practice, and 50% administration)
1989-1993	Associate Professor/Graduate Program Advisor (25%-teaching & research/practice, and 75% administration)
1988-1989	Research Associate Professor/Graduate Program Advisor (50%-teaching & research/practice, and 50% administration) Department of Architecture University of Washington, Seattle, WA
1986-1988	Research Assistant Professor (75%-teaching & research) Department of Architecture University of Washington, Seattle, WA
1983-1986	Assistant Professor Department of Architecture Iowa State University, Ames, IA
1980-1983	Assistant Professor Department of Architecture University of Washington, Seattle, WA
1978-1980	Teaching Assistant Graduate School of Architecture University of California at Los Angeles
1978-1980	Teacher: City Building Educational Programs, Santa Monica, CA
1976-1978	Lecturer Department of Interior Design University of Northern Iowa, Cedar Falls, IA

TEACHING: **Courses Taught:**

1999 – 2012 **50% UW Teaching and 50% UW Integrated Design/Daylighting Lab Director (12 months)**
This time including full-time in the summers is bought out by the Northwest Energy Efficiency Alliance. I offer more than 50 daylighting, integrated design and energy performance seminars, lectures or workshops per year nationally, internationally and across the Pacific Northwest.

2013 **50% UW Teaching and 50% UW Integrated Design Lab Director (12 months)**

W13	ARCH 502 Comprehensive Studio
W13	ARCH 435 Architectural Lighting with Christopher Meek
W & SP13	ARCH 501 – 502 Lecture Series
A12	ARCH 598 Design with Climate (Graduate Seminar)

2012 **50% UW Teaching and 50% UW Integrated Design Lab Director (12 months)**

SP12	ARCH 502 Sustainable Design, Comprehensive Studio
A10	ARCH 598 Design with Climate with Chris Chatto (Graduate Seminar)

2011	50% UW Teaching and 50% UW Integrated Design Lab Director (12 months)	
	SP11	ARCH 502 Sustainable Design, Comprehensive Studio
	SP11	ARCH 598 Performance Modeling in Design with Mike Hatten (Graduate Seminar)
	W11	ARCH 598 Sustainable Design Case Studies (Graduate Seminar)
	A10	ARCH 598 Design with Climate with Chris Chatto (Graduate Seminar)
	A10	ARCH 503 Integrated Design Comprehensive Studio
2010	50% UW Teaching and 50% UW Integrated Design Lab Director (12 months)	
	SP09	ARCH 502 Integrated Design Comprehensive Studio
	W10	ARCH 598 Sustainable Design Case Studies (Graduate Seminar)
	W09	ARCH 501 3-Workshops
	A09	ARCH 500 3-Workshops
	A09	ARCH 598 Design with Climate with Chris Chatto (Graduate Seminar)
2009	50% UW Teaching and 50% UW Integrated Design Lab Director (12 months)	
	SP09	ARCH 502 w/ ARUP Seattle, Integrated Design Comprehensive Studio
	SP08-09	ARCH 502 3-Workshops
	W08	ARCH 501 3-Workshops
	A08	ARCH 500 3-Workshops
2007 – 2008	SP08	ARCH 502 w/ ARUP Seattle, Integrated Design Comprehensive Studio
	SP08	ARCH 530 w/ Dave Miller, Integrated Building Systems
	SP08	ARCH 502 3-Workshops
	W07	ARCH 501 3-Workshops
	A07	ARCH 500 3-Workshops
2004-2006	SP06	ARCH 431, Passive Environmental Controls, Undergraduate
	SP06	ARCH 331, Passive Environmental Controls, Graduate
	SP06	ARCH 535, Advanced Topics in Light, Daylighting Design
	SP05	ARCH 431, Passive Environmental Controls, Undergraduate
	SP05	ARCH 331, Passive Environmental Controls, Graduate
	SP05	ARCH 535, Advanced Topics in Light, Daylighting Design
		Daylighting Lab Seminars, Lectures and Workshops: D100: Introduction to Daylighting: Building Value with Daylight D101: Schematic Daylighting Design D102a: Modeling of Daylighting Decisions D103a: Daylighting Design Development, Windows & Glazing D103b: Daylighting from the Top, Skylighting D103c: Daylighting from the Side, Windows and Clerestories The Appearance of Daylight Daylighting by Design: Lecture Light, Daylight and Health, and Productivity: Lecture Daylight and the Design of Schools Daylight and the Design of Grocery Stores Daylighting Day: Workshops
2003-2004	SP04	ARCH 331, Introduction to Passive Environmental Control Systems
		ARCH 535, Daylighting Design [CANCELLED for Lab deconstruction]
		Daylighting Lab Seminars, Lectures and Workshops: D100: Introduction to Daylighting D101: Schematic Daylighting Design D102a: Physical Modeling of Daylighting Decisions D103a: Daylighting Design Development, Windows & Glazing The Appearance of Daylight Daylighting by Design: Lecture Light, Daylight and Health, and Productivity: Lecture Daylight and the Design of Schools Daylight and the Design of Grocery Stores Daylighting Day: Workshops

2002-2003	SP03	ARCH 331, Introduction to Passive Environmental Control Systems
	A02	ARCH 535, Daylighting Design
		Daylighting Lab Seminars and Workshops [as above]
2001-2002	SP02	ARCH 331, Introduction to Passive Environmental Control Systems
	A01	ARCH 535, Daylighting Design
		Daylighting Lab Seminars and Workshops [as previous page]
2000-2001	SP 01	ARCH 331, Introduction to Passive Environmental Control Systems
	A 00	ARCH 535, Daylighting Design
		Daylighting Lab Seminars and Workshops [as previous page]
1999-2000	A 99	ARCH 535, Daylighting Design
		Daylighting Lab Seminars and Workshops [as previous page]

1995-1999 Department of Architecture (100% Teaching. appt.)

1998-1999	SS 99	ARCH 431, Introduction to Passive Environmental Control Systems
	SP 99	ARCH 331, Introduction to Passive Environmental Control Systems
	WNT 99	ARCH 591, Architecture of the Landscape(2nd offering)
		ARCH401/LARC 474, Interdisciplinary Design Studio [Marblemount]
	AUT 98	ARCH 535, Advanced Lighting Seminar, Daylighting
	SP 98	Baker Chair, University of Oregon
	WNT 98	ARCH 591, Architecture of the Landscape(1st offering)
		ARCH401/LARC 474, Interdisciplinary Design Studio [Santa Paula, CA]
	AUT 97	ARCH 535, Advanced Lighting Seminar, Daylighting
	SP 97	ARCH 505/LARC 474, Interdisciplinary Design Studio [Stehekin]
	WNT 97	ARCH 331 & 431, Introduction to Passive Environmental Control Systems
		ARCH 401/LARC 474, Interdisciplinary Design Studio [North Cascades]
	AUT 96	Sabbatical Leave
	SP 96	Sabbatical Leave
	WNT 96	ARCH 331, Introduction to Passive Environmental Control Systems
	AUT 95	Sabbatical Leave

1993-1995 Department of Architecture (50% Teaching. appt.)

1994-1995	Department of Architecture (50% teaching appt.)	
	University of Washington	
	AUT 94	ARCH 400, Design Studio
	WNT 95	ARCH 431, Introduction to Passive Environmental Control Systems
		ARCH 596, Internships
1993-1994	Department of Architecture (50% teaching appt.)	
	University of Washington	
	AUT 93	ARCH 400, Design Studio
	WNT 94	ARCH 431, Introduction to Passive Environmental Control Systems
		ARCH 596, Internships

1990-1993
1990-1994 Department of Architecture (25% Teaching. appt.)

1992-1993	Department of Architecture (25% teaching appt.)	
	University of Washington	
	WNT 93	ARCH 304, Design Studio
		ARCH596, Internships
1991-1992	Department of Architecture (25% teaching appt.)	
	University of Washington	
	SP92	ARCH 302, Design Studio
		ARCH 596, Internships
1990-1991	Department of Architecture (25% teaching appt.)	
	University of Washington	
	WN91	ARCH 304, Design Studio
		ARCH 596, Internships

1989-1990 Department of Architecture (25% teaching appt.)
University of Washington
WN90 ARCH 304, Design Studio
ARCH 596, Internships

1988-1989 Department of Architecture (50% teaching appt.)

University of Washington

SP89	Arch 305	Design Studio(Grad.)
WN89	Arch 304	Design Studio(Grad.)
	Arch 330	Introduction to the Building Sciences(Grad.)
Fall88	Arch 598	Design+Energy Simulation I

1986-1988 Department of Architecture (75% teaching appt.)

University of Washington

SP88	Arch 503	Design Studio(Grad.)
	Arch 200	Intro. to Arch: Environmental Systems
WN88	Arch 304	Design Studio(Grad.)
	Arch 330	Introduction to the Building Sciences(Grad.)
Fall87	Arch 400	Design Studio
	Arch 431	Intro. to Environmental Systems
	Arch 200	Introduction to Arch., Environmental Systems
SP87	Arch 400	Design Studio

1986-1988 Department of Architecture (75% teaching appt.)
(continued)

	Arch 200	Introduction to Arch.: Environmental Systems
W87	Arch 304	Design Studio
	Arch 330	Intro to Bldg. Science
F86	Arch 301	Design Studio
	Arch 200	Introduction to Arch.: Environmental Systems
SM86	Arch 431	Intro to Environmental Systems

1983-1986 Department of Architecture

Iowa State University

SP86	Interdisciplinary Design Studio Energy/Lighting Simulation(Grad) Introduction to Architecture (coordinator of five member faculty team and taught the environmental systems component)
F85	Appropriate Technology(Grad) Design Studio Building Climatology
SP85	Design Studio Building Climatology
F84	Design Studio Building Climatology
SP84	Design Studio Building Materials and Assemblies
F83	Design Studio Building Climatology

1980-1983 Department of Architecture

University of Washington

Graduate Design Studios
Undergraduate Design Studios
Passive Env. Control Systems
Active Env. Control Systems
Environmental Lighting
Advanced Lighting
Energy Simulation
Introduction to Architecture:
Environmental Systems

1978-1980 Graduate School of Architecture &

Urban Planning
University of California at Los Angeles

Building Climatology
Environmental Lighting
Advanced Energy Conscious Design
Beginning Drawing

1976-1978 Department of Interior Design

University of Northern Iowa

Commercial Interior Design Studio
Lighting
Beginning Drawing
Housing, Culture and Technology

New Course Development:

2013	Design with Climate
2012	Energy Performance Modeling
2011	Graduate Seminar: Performance Modeling for Energy Efficient Design
2007	Graduate Seminar: Sustainable Design Case Studies (offered annually since 2007)
2005-2006	Large Lecture w/ discussion sections, new combination of ARCH 431 and 331
1999-2004	Daylighting Lab Curriculum of Seminars, Workshops and Lectures (many!)
1997-1999	Architecture of the Landscape, [large lecture graduate class]
1997	Ecological Design, [an interdisciplinary studio in architecture and landscape]
1989-90	Design+Energy Simulation I
1987	Architecture 304/330: (Integration of Building Technology and Design)
1986	Introduction to Architecture(ISU)
1985	Appropriate Technology(ISU)
1984	Energy/Lighting Simulation(ISU)
1983	Building Climatology(ISU)
1983	'83-'86 B. Arch Curriculum(ISU) (As the Chair of the Curriculum Committee I was primarily responsible for the writing and implementation of a totally new five year B. Arch Degree Program. This work included the writing of eight new design studios and more than 20 new lecture courses.)
1983	Passive Environmental Controls(UW)

Development of Teaching Aids

1987-1989	New ECS text “Inside-Out” written by B. Haglund and J. Loveland
1986-1987	Development of "Design Patterns," a new teaching method for enhancing student understanding of energy related building design issues, with G.Z. Brown etal.
1984-1986	Syllabi and Workbook for teaching Passive Environmental Control Systems

TEACHING:

Individual Instruction: Ph.D.

2006 – 2012 Kevin van Den Wymellenberg
2006 – 2009 Hendrik Vol, Chalmers University, Goteborg, Sweden

Individual Instruction: Thesis

2011-2013 Sean Engle
James Mohring
Kelly Hogg
Pete Chimicles
Alex Bautz
2006-2007 Morgan Ennis & Heather Burpee
2005-2006 Carl Baker
Angela Berry
Anna Dolzer
Carrie Anderson
2003 Jenny Burdzynski
Here: A Mass-Transit Terminal in the Landscape of Interconnected Systems
2003 Jeremy Imhoff
Urban Environment: An Environmental Learning and Design Center in Seattle
2003 Lynne Wassinger
The Senses of Place; A Winery in the Walla Walla Valley
2002 Boaz Ashkenazi
Structured Chance: An Addition to the Museum of Jurassic Technology
2002 Youngjoo Kahng
A Conversation with Time and Place: An Art School in Ballard, Seattle
2002 Katherine Van Anda
The Character of Place: Daylighting and Siting of the Sagewillow Elementary School, Sun Valley ID
2001 Kevin Van Den Wymelenberg
A Franciscan Hermitage in the North Cascades,
Shades of Light Silence and Solitude
2001 Chris Meek
Continuing Lowell: Reattaching Lowell Elementary School to Capitol Hill
2000 Lisbeth Kristensen
Light & Learning, Daylighting and Schools
2000 Gabriel Hanson
Connection & Transition: Exploding the Place-Based Environment in Digital Media Company
2000 Jeffrey Mazurek
Disturbance: An Ecological Approach to the Creation of Habitat
1999 Juliet Hebert-Andersen
Place-making for Art: An Addition to the Seattle Art Museum
1999 Varopat Inkarojrit
“An Integrated Solution for Daylighting”
1998 Aaron Kang-Crosby
“High-Rise: Evolution of the Human Experience”
1992 Cynthia Esselman
"An Interpretive Center in the Nisqually Delta"
1992 Rob Trimble
"Shelter in the Alpine Lakes"
1991 Lisa Scribante
"An Addition to the Tacoma Parks Conservatory"
1991 Kendal Williams
"A Prototype Office & Package Handling/Distribution Center"
1991 John Barnes
"Back-Country Lodging"
1990 Patrick OHare
"Seattle City Hall"
1990 Mary Guzowski
"An Addition to the Volunteer Park Conservatory"

1990	Craig Lofgren Paradise Visitor's Center Revisted"
1990	Ann Tyson "The Grow House"
1989	Malcomb Dickson "Designing a Macintosh Interface for Superlight, a Daylighting Simulation Computer Program"
1989	Anne Mcburney "The Study of Craftsman Style Homes in the Pacific Coast Region as an Example of the 'Simple' Affordable 'Home'"
1989	Camille Stephens Environmental Considerations for Building Design and Construction on Wetlands Sites in Anchorage, Alaska"
1989	Kris Maher "The Well-Crafted Small House: A Viable Alternative?"
1988	Steve Shaw "Low-impact Building Systems"
1988	Eric Gedney "A house in Seattle as an Integration of Heat & Light"
1986	Demetra Efstratou "Culturally and Climatically Sensitive Housing for the South Coast of Cyprus"
1986	Richard Cleveland Selecting a Computer System for a Medium or Small Architectural Firm"
1984	Carol Thomas "An Integrated Methodology for Daylighting Design in Buildings: The Design of a School of Art and Design at the University of Washington"
1983	William Lapatra "Interior Life: the Atrium Story"
1983	Randy Berg "Residential Applications of Thermal Conservation in the Puget Sound Climate"
1982	Elga Gemst "Little House on Rivieres Des Prairies: A Study in Energy Efficiency"
1982	Jill Ericsson "Roberts Hall Renovation and Extension"
1982	Scott Dinges "Energy Efficient Housing for Seattle: Principles and Guidelines"
1981	Mary Stuck "An Artists Foundry and Cooperative"
1981	Sue Slatkin "Design Method for Daylighting as an Element of Energy Efficient Architecture"
1981	Chu-Chung Lin "Housing in Taiwan: A High-Density, High-Rise Complex responding to Taiwan's Climate and Cultural Patterns"

SERVICE

ACADEMIC: **Administrative Responsibilities**

2011-2013	Department of Architecture (50% Teaching. appointment.) Dean Friedman's Dean's Review Committee, 2011-'12 College Council, 2009 - '12 College Ad Hoc Strategic Planning Committee, 2011 – '12 DoA Tenure Promotion & Merit Review Committee, Chair, Winter 2012
2010-2011	Department of Architecture (50% Teaching. appointment.) College Council, Chair 2009-'11
2009-2010	Department of Architecture (50% Teaching. appointment.) College Council, 2009-'10
2000-2004	Department of Architecture (50% Teaching. appointment.) Departmental Thesis Committee, Chair '00-'03 Ecological Design Faculty Search Committee, '03-'04

1995-2000 Department of Architecture (100% Teaching. appointment.)
Departmental Thesis Committee, Chair '98-'00
College Committee for Sustainability, Chair '97-'98
Graduate Student Admissions *(every year)*

1993-1995 Department of Architecture, Graduate Program Coordinator
(50% Administrative. appointment.)
College Council
Staff/Personel Budget Management
All Graduate Student Admissions
Student Advising
Scholarships and Financial Aid
Curriculum
ACSA and NAAB Coordination
Exhibits and Archives
Oversight of Student Internships

1990-1993 Department of Architecture, Graduate Program Advisor
(75% Admin. appt.)
Staff/Personel Budget Management
Student Advising
Student Admissions
Scholarships and Financial Aid
Curriculum
New Undergraduate Curriculum Retreats & Proposal
Master of Arts in Architectural Studies
ACSA and NAAB Coordination
NAAB Reports
ACSA National Energy Institute
ACSA Regional Meeting
Exhibits and Archives
Oversight of Student Internships

1989 Department of Architecture (50% Admin. appt.)
Student Advising
Curriculum
MAAS
Three-Year Student Admissions
1987-1989 Department of Architecture (50% Admin. appt.)
Student Advising

SERVICE, PROFESSION:

Memberships:
Illuminating Engineering Society of North America, member
American Society of Healthcare Engineering, member
Society of Building Science Educators, member
1987-1990 member of Board of Directors
1989-1990 Chairperson
American Section, International Solar Energy Society, member

Individual Contributions:
1991 ACSA-AIA Summer Energy Institute, Seattle WA.
Institute Coordinator
1991 Heatkeeper Home Competition
Washington Natural Gas
Juror for competition
1991 Energy Smart - a competition for architectural interns sponsored by the Washington State Energy Office
Juror for competition

1991 ACSA Regional Meeting: Seattle WA.
meeting coordinator with Peter Cohan
1991 ACSA-AIA Summer Energy Institute, Seattle WA.
meeting coordinator
1989 ACSA-AIA Summer Energy Institute, Seattle WA.
Institute Coordinator
1988-present "Energy Smart Clearinghouse Steering Group" Bonneville Power Administration,
1987-present "Lighting Design Lab, Steering Group" City Light,
1987 ACSA-AIA Summer Energy Institute, Seattle WA.
Institute Coordinator
1986 Energy Smart Design Assistance Steering Group,"

SERVICE,
UNIVERSITY: **College and Departmental Committees**

2011 – Present **Department of Architecture (50% Teaching. appointment.)**
College Council, Department of Architecture Representative
Tenure Promotions and Merit Review Committee (Chair, Winter, 2012)
College of Built Environments
Provost's Committee of Deans and Energy (through December 2011)
CBE College Council's 2020 Strategic Plan Committee (Chair)
University of Washington
Provost Appointment: CBE Dean's Review Committee
UW Senior Vice-President's UW Energy Futures Working Group

2010-2011 **Department of Architecture (50% Teaching. appointment.)**
College Council, Department of Architecture Representative (Current Chair)
Health Design Faculty Search Committee (Chair)
College of Built Environments
Provost's, Deans' Committee on Energy
University of Washington
UW Senior Vice-President's UW Energy Futures Working Group
Environmental Stewardship Advisory Committee (ESAC), Buildings Sub-Committee

2009-2010 **Department of Architecture (50% Teaching. appointment.)**
College Council, Department of Architecture Representative
(Chair, Spring and Summer, 2010)
Health Design Faculty Search Committee (Chair)
College of Built Environments
Provost's, Deans' Committee on Energy
University of Washington
UW Senior Vice-President's UW Energy Futures Working Group
Environmental Stewardship Advisory Committee (ESAC), Buildings Sub-Committee
Faculty Senate

1990 -2009 **University of Washington**
Department of Architecture
Integrated Structures Search (Chair), 2007-2008
Search Committee, Ecological Design, 2003
Thesis Committee, Chair, 1996 - 2002
Graduate Admissions, 1992- 2001
TPMR, 1993-1994, 1998
Departmental Executive, 1988 - 1995
College Committee for Sustainability Education, Chair, 1994
College Council, Chair, 1993-1994
College Curriculum Committee, 1993 - 1994
Curriculum, Chair 1992-1994
Departmental Computer Use Committee 1994
Graduate AdmissionsCurriculum -
Master of Arts Proposed Degree, 1992 - 1994
College Computer Use 1992

1983-1986 **Iowa State University**
Department of
Architecture
'83-86 Building
Technology Faculty
'83-85 Tenure, Promotion &
Merit Review
'83-
85
Exe
cuti
ve
'83-86
Dept.
Curriculum
'83-86 College
Computer Planning

SERVICE,
COMMUNITY: **Contributions to the Community**

2010 – 2013	Collaborative for High-Performance School, Technical Advisory Committee
2006 - 2008	Collaborative for High Performance Schools, Panel Advisor
2005 - 2008	Washington State Sustainable Schools Protocol; Panel Advisor
2004	Snohomish Public Utility District, Water Utility Building, Design Team Pr op os al Ju ro r
1988-present	Lighting Design Lab Steering Group, Seattle City Light Oversight of all lighting activities at LDL
1994-1999	Board of Directors and Executive Committee, Environmental Works President of the Board, 1997 - 1998 Vice President, 1998 - 1999; and 1996 - 1997 Environmental Works, Resource Center Steering Group
1989-1999	Lighting Design Lab, Daylighting Subcommittee Oversight of daylighting activities at LDL
1992 - 1998	Steering Group for the Regional Education Training Advisory Commitee, for energy conservation in commercial buildings, Bonneville Power Administration, Portland, OR
1992 - 1998	Regional Education Training Advisory Commitee, for energy conservation in commercial buildings, Bonneville Power Administration, Portland, OR
1991 - 1998	Ad-Hoc Regional Lighting Committee Bonneville Power Administration, Portland, OR
1991 - present	Daylighting Forums, Steering Group, Lighting Design Lab, Seattle, WA
1997	City of Seattle, Sustainable-Design Task Force
1989-1992	Lighting Design Lab, Education Subcommittee - Coordination of regional lighting education - Oversight of Lighting Design Lab lighting educ.
1989-1992	Lighting Design Lab, Video Subcommittee - Oversight of the production of three ltg videos

- Script editing of video tape production
- Filming of UW Daylighting Lab for use in video productions

1984 Johnson City Elementary School, Johnson, IA
Design and Construction of playground as a ten week design studio project

1983 Wallingford Daycare Center, Seattle, WA.
Design and Construction of playground as a ten-week design studio project

1982 Calvary Daycare Center, Seattle, WA
Design and Construction of playground as a ten-week design studio project

1981 Daybreak Star Indian Cultural Center, Seattle, WA
Design and Construction of playground as a ten-week design studio project

Appendix H: Certificate Courses

South Seattle Community College

Sustainable Building Science Technology
Certificate Courses

High Performance Buildings: The Integration of Science and Sustainability

DEPARTMENT:	**Georgetown**
CURRICULUM:	**Building Sciences/ Energy Management & Systems Technology**
COURSE TITLE:	**High Performance Buildings: The Integration of Science and Sustainability**
COURSE NUMBER:	**ENS 102**
TYPE OF COURSE:	**Occupational Preparation**
COURSE LENGTH:	**4 weeks**
CREDIT HOURS:	**4 Credit hours**
LECTURE HOURS:	**44**
LAB HOURS:	**0**
Work Site/etc.:	**N/A**
CLASS SIZE:	**Capacity is 20**

COURSE DESCRIPTION: This course explores the realities of sustainability in buildings and identifies the tasks and career pathways that contribute to cost-effective, high performance sustainable building management. A class project will be produced using a real building for assessing building performance upgrades. The participant will explore a multitude of elements in high performing/green/sustainable buildings and the associated career pathways can identify a personal interest for further pursuit. The class project will require the student to develop an Energy Star Portfolio Management evaluation, a LEED EBOM draft checklist, and a proposal to improve the overall sustainability of a specific building. The approach to the proposal will be to address the building as a system of interactive components.

Commissioning for Energy Efficiency

DEPARTMENT:	**Georgetown**
CURRICULUM:	**Building Sciences/ Energy Management & Systems Technology**
COURSE TITLE:	**COMMISSIONING FOR ENERGY EFFICIENCY**
COURSE NUMBER:	**ENS 103**
TYPE OF COURSE:	**Occupational Preparation**
COURSE LENGTH:	**10 weeks**
CREDIT HOURS:	**5 credits**
LECTURE & LAB HOURS:	**60 hours**
CLASS SIZE:	**17 maximum**

COURSE DESCRIPTION: This class introduces Building Commissioning as a systematic process that spans the entire life of a building from project inception and design to construction and occupancy. Students learn to apply this quality-oriented process to improve and document the quality and performance of facilities, systems, and assemblies in accordance with defined objectives and criteria. The students will perform field evaluations, and define and execute tests to evaluate performance of systems to measure their performance, effectiveness, and energy efficiency.

The course will also offer an understanding of state of the art commissioning practice, current code requirements related to commissioning.

Lighting Science and Design

DEPARTMENT: **Georgetown**
CURRICULUM: **Building Sciences/ Energy Management & Systems Technology**
COURSE TITLE: **Lighting Science and Design**
COURSE NUMBER: **ENS 110**
TYPE OF COURSE: **Occupational Preparation**
COURSE LENGTH: **6 weeks**
CREDIT HOURS: **4 credits**
LECTURE HOURS: **33**
LAB HOURS: **22**
Work Site/etc.: **N/A**
CLASS SIZE: **20 maximum**

COURSE DESCRIPTION: This class introduces the science and principles of lighting in the built environment to educate the students to be able to assess and affect a lighting retrofit inside an existing building. The students will perform a field evaluation, take measurements, perform calculations and produce a design with interactive software. The course will also offer an in depth understanding of electrical and energy codes with respect to lighting design so the resulting design is useful and vetted in an industry acceptable manner.

Residential Energy Auditing

COURSE TITLE: Residential Energy Auditing
COURSE NUMBER: ENS 123, a short term training certificate.
LECTURE HOURS: 66
LAB HOURS: 66 (Onsite and field trips)
Credits 9

Course Description: This 132 hour course combines class, lab and field study to teach the fundamental concepts of building science and the skills required of a residential energy auditor. The successful student will earn a Short Term Training Certificate from South Seattle Community College and be prepared to take the Building Analyst 1 certification exam administered by the Building Performance Institute (not included in the cost of the course). The successful graduate will be able to assess and report on the status of energy use for residential buildings and recommend a path forward for the owner.

Level 1 Commercial Energy Auditing

DEPARTMENT: **Georgetown**
CURRICULUM: **Building Sciences/ Energy Management & Systems Technology**
COURSE TITLE: **Level 1 Commercial Energy Auditing**
COURSE NUMBER: **ENS 124**
TYPE OF COURSE: **Occupational Preparation**
COURSE LENGTH: **10 weeks**
CREDIT HOURS: **11 credits**
LECTURE HOURS: **88**
LAB HOURS: **66**
Work Site/etc.: **N/A**
CLASS SIZE: **20 maximum**

Course Description: This 154 hour course combines class and field study to teach the basics of auditing a commercial facility for energy use. It includes curriculum that is certification based for energy consuming systems. The successful graduate will be prepared to conduct a site visit (Level 1 Commercial Energy Auditing Short-Term Training Certificate).

Controls: The Basics of Building Automation

DEPARTMENT: Georgetown
CURRICULUM: Building Sciences/ Energy Management & Systems Technology
COURSE TITLE: Controls: The Basics of Building Automation
COURSE NUMBER: ENS 224
TYPE OF COURSE: Occupational Preparation
COURSE LENGTH: 7 weeks
CREDIT HOURS: 4 credits
LECTURE HOURS: 33
LAB HOURS: 22
Work Site/etc.: N/A
CLASS SIZE: 20 maximum

COURSE DESCRIPTION: This 4 credit, 55 hour course combines class and lab study to teach basic mechanisms of building automation. Starting at a foundational level of equipment and digital technology the course builds a knowledge base of the history, applicability and importance of controls in today's building operations. Controls are the key to successful energy efficiency projects and will become even more crucial to the success of project verification and measurement in achieving energy efficiency and conservation goals. On-site controls understanding and manipulation is invaluable at maintaining building function and occupant satisfaction. The student will be able to apply their knowledge to customized, proprietary controls systems to better understand and diagnose building environmental conditions and more complex operations issues.

Codes, Standards & Policies for Buildings

DEPARTMENT: Georgetown
CURRICULUM: Building Sciences/ Energy Management & Systems Technology
COURSE TITLE: Codes, Standards & Policies for Buildings
COURSE NUMBER: ENS 225
TYPE OF COURSE: Occupational Preparation
COURSE LENGTH: 5 weeks
CREDIT HOURS: 3 credits
LECTURE HOURS: 33
LAB HOURS: 0
Work Site/etc.: N/A
CLASS SIZE: 20 maximum

COURSE DESCRIPTION: This 3 credit, 33 hour course involves classroom lectures and outside study designed to give students a basic grounding in the codes, standards, & policies that are involved in modern building construction. This course will cover the national, state, and municipal level, including such issues as residential vs. commercial codes and construction vs. design standards. Topics for discussion will include professional liability & responsibility,

mandatory & voluntary standards, and energy conservation & green codes. The course will cover the business of enforcement of codes, standards, & policies, and the issues and challenges involved. Finally, careers and jobs in the fields related to this subject will be discussed with an emphasis on internships and resume' development.