High Performance Public Green Buildings

Implementation of RCW 39.35D

A Biennial Legislative Report Through July 2014

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Executive summary

Leadership in Energy and Environmental Design (LEED) is an internationally recognized green building certification system. Developed by the U.S. Green Building Council, LEED certification provides proof that a building or community was designed and built using strategies that improve performance across a variety of metrics including:

- Energy savings
- Water efficiency
- Carbon dioxide (CO2) emissions reduction
- Improved indoor environmental quality
- Stewardship of resources and sensitivity to their impacts

LEED provides a concise framework for finding and applying practical and measurable solutions using green building design, construction, operations and maintenance solutions. Recently adopted LEED v4 will add more rigor for water regime protection and ecosystem protection to reverse contribution to global climate change.

State law (Revised Code of Washington Chapter 39.35D) requires major facility projects funded in the state capital budget or projects paid for through state financing contracts to be certified to at least the LEED Silver standard (earning 33 to 38 points out of a potential 69 points for LEED Platinum).

This standard applies to public agencies that enter into the design phase or the grant application process after July 2005. (Note: K-12 school projects have their own sustainable schools rating/certification system outlined under RCW 39.35D. 020(b). They report separately and are not included in this report.)

The Department of Enterprise Services (DES) is responsible for developing and issuing guidelines for green building by public agencies in Washington State. DES is also charged with advising public agencies on improvements to the overall High Performance Green Building process.

Agencies report annually to DES about their projects. DES then reports to the Governor and the Legislature by September 1 of each even-numbered year. This report covers the period through June 30, 2014.

Report highlights

- DES is tracking 139 state-owned LEED projects, representing more than $1.6 billion in construction costs. Of these, 65 state-owned projects have been LEED ‘certified’ at the following levels (case studies are included in Appendix 1 and 2):
    - 2 at Platinum (with another four pending certification)
    - 34 at Gold (with another 20 pending certification)
    - 28 at Silver (with another 23 pending certification)
    - One at base certification

- 91 percent of state agency, university, and college projects are taking part; only 13 have declared exemptions as of September 2014.
- Achieving LEED certification does not always cost more; the range is -.7 percent to + 3.0 percent of the total project first cost. This can be offset with facilities operating savings and user comfort with improved employee productivity results.
- Estimated energy savings range from 19 to 50 percent. The payback for LEED related costs is estimated between 0 and 33 years with the average being 15 years for 75 percent of the projects where complete data is available.
- Construction waste recycling practices used on 10 projects diverted more than 7,500 tons (94 percent) of construction debris from landfills.
- Three new projects of exceptional note:
    - On the Capitol Campus in Olympia we have the first LEED Gold Certified High Performance Green Building: The recently completed $43 million renovation of the nationally historic John L. O'Brien Building, originally built over 75 years ago.
    - A potential new LEED Platinum High-Performance Green Building is the 1063 Block Replacement Project, which would be the first new building constructed on the west side of the Capitol Campus in 60 years. The $65.5 million project is under a design/build process contract currently in schematic design phase. The proposed 1063 office building project could potentially establish a new standard for state buildings through a set of interrelated strategies and high performing achievements to place the building in the top one percent of buildings nationally.
    - Also exceeding the 2011 target of the 2030 Building Challenge to reduce energy use intensities, greenhouse gas emissions and dependency on fossil fuels: The 'LEED Gold certified Maier Hall Center for Fine Arts, Peninsula College campus, Port Angeles. (See Appendix 1 for these three State LEED Highlighted project Case Studies. Also see Appendix 2 Case Study Gallery for further notable LEED certified projects.)
- The Center for Construction Research and Training reports annually about national LEED registered and certified project updates in all states. The report shows that:
    - Certifications have exponentially increased from 2000 to 2013.
    - There were more than 500,000 green jobs in 2011.
    - Jobs in construction grew by 27.1 percent between 2010 and 2011, which is more than six times the growth rate for all industries combined; see Appendix 9.
- Building Green.com is reporting progress on natural ventilation: Designers are reinventing the art and science of passive comfort control even where climate and culture favor mechanical systems. Natural building ventilation can provide energy savings, occupant comfort satisfaction and indoor air quality (see Appendix 10).
- Due to technical problems and lack of resources, metering and reporting of actual energy and water use continues to be challenging.

Recommendations

- DES proposes the creation of a statewide Resource Conservation Management (RCM) Program with a robust data management system to assist state agencies and institutions of higher education to reduce utility consumption and meet greenhouse gas reduction goals. The RCM program would partner with the DES energy program and support sustainability and other green building initiatives. It is proposed to fund the RCM program through an appropriation.
- DES proposes the creation of a LEED incentive program to assist public agencies and institutions with LEED project planning during the energy life-cycle cost analysis process. The analysis would occur in partnership with the DES energy program. It encourages energy efficiency by evaluating the total cost of ownership of several competing design alternatives. It is proposed to fund the LEED incentive program through capital appropriations on eligible projects.
- Establish a requirement that one-half of one percent of all LEED project's maximum allowable construction cost be used for renewable energy systems.
- DES recommends additional capital funding for smaller projects (between 5,000 and 10,000 square feet) to encourage LEED certification. Smaller project LEED documentation costs are nearly the same as much larger projects, creating a burden for smaller projects. Additional funding for smaller projects encourages LEED implementation without the need to compromise design and construction scope.
- Perform building operator interviews, and post occupancy evaluations to provide feedback to design and project management professionals. The feedback loop will lead to continuous design improvements and improved energy efficiency in LEED buildings, resulting in reduced operating costs, improved building performance and occupant comfort.
- Encourage agencies to contract through DES for enhanced post-commissioning within 10 to 12 months after the substantial completion of a project (tied to the warranty period),
- Engage the design firm to complete a Post Construction Energy Model to compare the original design to the as built buildings performance.
- Encourage agencies to include LEED consultation in their LEED project requests.
- Require improved and refined metering on new capital projects and major renovation projects to provide more accurate data collection, ensure design objectives are met and to guide further energy reduction project proposals.

Background

Since the implementation of the 2005 High Performance Green Building statute, the state of Washington, its citizens and occupants of state LEED buildings have benefitted in the following ways:

- Improved energy and water efficiency
- Enhanced indoor environmental quality
- Reduced stormwater impacts to rivers, lakes and Puget Sound
- Creation of local jobs through use of regional materials
- Reduced construction waste to landfills

- Increased markets for recycled content materials
- Protection and restoration of habitat
- Reduced automobile reliance
- LEED demonstrates the state's commitment to environmental and health principles
- Use of LEED as a rigorous quality assurance tool

Improved energy and water efficiency

LEED has a strong emphasis on energy and water efficiency. State LEED buildings in Washington typically rank high in these areas. Buildings reporting energy data had estimated dollar savings of 19 to 50 percent over a code-based building (see figure 3), with a payback of 0 to 33 years with an average of 15 years payback for the 10 buildings reported (see appendix 6). This means the buildings are designed and constructed to be energy and water efficient.

Building envelopes are better than the Washington State Energy Code (WSEC). The heating, ventilating, and air conditioning (HVAC) systems are more efficient than required by the WSEC and additional controls are installed that enable energy savings not addressed by the WSEC. These controls include CO_2 sensors to control outside air exchange, daylight sensors to turn off lights, and occupancy sensors that not only turn off lights, but also reduce HVAC operation in vacant rooms. Water efficient fixtures that go beyond the plumbing code are also specified as part of LEED. This, along with low or no irrigation landscaping, can stretch scarce water resources, while efficiently using municipal water infrastructure.

DES developed guidelines for implementing the HPGB statute, which requires a metering plan be submitted during the design process to ensure state LEED buildings have the capability to measure and collect consumption data. Agencies report data to DES for analysis and reporting to the Governor and the Legislature. Meters also assist maintenance staff in managing the building's energy- and water-using systems. Operation of LEED buildings, as with all buildings, requires well-trained staff to continuously adjust building systems to "dial down" energy consumption while maintaining occupant comfort. This diligence helps the state realize maximum savings.

Enhanced indoor environmental quality

Buildings are typically designed for people. If a building fails to provide a healthy work or learning environment, then it has failed its primary purpose. Yet many buildings can cause "sick building syndrome" where occupants are made sick by the building's products or systems. Symptoms include headaches, dizziness, forgetfulness, nausea and drowsiness. The syndrome can affect productivity and, in extreme cases, result in lawsuits against the state.

LEED emphasizes selecting materials with low or no volatile organic compound content (i.e. paints, carpets, cabinets, etc.), eliminating pollution sources in the building through isolation and exhaust (copy machines, solvents, etc.), and through effective outdoor air delivery systems. Through this emphasis and documented compliance, LEED ensures that these design and construction goals are met.

To illustrate the value of improved productivity compared to energy and water savings, a building saving 50 percent on energy and water may save $1 to $1.50 per square foot per year. In saving just one percent through improved productivity, this can result in a $3 to $4 per square foot value improvement.

If the improvement is actually three to five percent, the savings or value of the improvements, relative to energy and water savings, sharply increases. Post occupancy evaluations can help quantify these savings, but there is no funding for these.

Reduced stormwater impacts

LEED encourages through scoring criteria, managing both on-site stormwater and on-site stormwater infiltration. This is consistent with the goals that Washington has for cleaning up Puget Sound and streams, lakes and rivers across the state. This also reduces the cost of municipal treatment facilities, saving money on unneeded wastewater treatment facility upgrades and associated energy use. If these practices were more widespread, it could impact infrastructure efficiency – collection system piping and treatment facilities – allowing the same system to serve more buildings.

On a building-by-building basis, it is hard to measure “infrastructure cost savings,” but when taken in aggregate with many buildings, this approach can provide significant savings in the area of infrastructure (construction and operation). It also helps protect water bodies, such as streams, lakes, rivers and Puget Sound.

Summary of state LEED results

This section provides a summary of the state green building program. Included are tables and graphics illustrating costs and calculated performance data, along with a spreadsheet showing the status of all 139 state-owned projects under the program. (See the Master List for state LEED projects on page 13).

Table 1 – Status of state-owned projects subject to LEED requirements

Status	# of Projects
Design	11
Construction	5
Substantial Completion or Completed (but not yet certified)	31
Projects with LEED Certification	65
Miscellaneous Projects (on hold)	14
Projects Taking an Exemption	13

See Master List on page 13.

Table 2 – State-owned projects: LEED certification to date

LEED Rating	Bldg #	Project Management Agency	Building Name	Location
Platinum (2)	1	Skagit Valley College (DES)	Science & Heath Building	Mount Vernon
	2	University of Washington	UWT - Joy Building Remodel (Ph. 3)	Seattle
Gold (34)	7	Bellevue College (DES)	Science & Technology Building	Bellevue
	8	Corrections, Dept. of	Cedar Creek CC – PCO Building	Littlerock
	15	Central Washington University	Dean Hall Renovation	Ellensburg
	9	Centralia College (DES)	New Science Center	Centralia
	10	Clark College (DES)	East County Satellite Campus	Vancouver
	12	Columbia Basin College (DES)	Business Education "B" Building	Pasco
	13	Columbia Basin College (DES)	Building Career & Tech Ed. Center	Pasco
	14	Corrections, Dept. of	Coyote Ridge Corrections Facility	Connell
	35	Eastern Washington University	EWU Student Sport & Rec. Ctr.	Cheney
	21	Eastern Washington University	Hargreaves Hall Renovation	Cheney
	16	Enterprise Services, Dept. of	John L. O'Brien Building	Olympia
	17	Everett CC (DES)	Student Fitness & Health Center	Everett
	18	The Evergreen State College	Campus Activities Building	Olympia
	20	Grays Harbor College (DES)	Childcare Center	Aberdeen
	22	North Seattle CC (DES)	Integrated Services Center	Seattle
	23	Olympic College (DES)	Humanities Building	Bremerton
	24	Peninsula College (DES)	Maier Hall & West Campus	Port Angeles
	25	Pierce College (DES)	Ft. Steilacoom - Sci & Tech. Ctr	Tacoma
	26	Pierce College (DES)	Communication, Arts & Allied	Puyallup
	37	WA School for the Deaf (DES)	Voc. Education & Support Building	Vancouver
	31	South Puget Sound CC (DES)	Natural Sciences Complex	Olympia
	32	South Puget Sound CC (DES)	Instructional Building 23	Olympia
	33	South Puget Sound CC (DES)	Vocational Tech. Building	Olympia
	28	Spokane CC (DES)	Building 7	Spokane
	29	Spokane Falls CC (DES)	Bus. and Social Science	Spokane
	30	Spokane Falls CC (DES)	Science Building	Spokane
	34	Tacoma CC (DES)	Early Learning Center	Tacoma
	11	University of Washington	Clark Hall	Seattle
	19	University of Washington	Floyd & Delores Jones Playhouse	Seattle
	27	University of Washington	Savery Hall Renovation	Seattle
	36	University of Washington	UWT - William W. Philip Hall	Seattle
	38	Yakima Valley CC (DES)	Grandview Library	Yakima
	39	Washington State University	Undergraduate Classroom Building	Vancouver
	40	Washington State University	Engineering & Comp. Science	Vancouver

LEED Rating	Bldg. #	Project Management Agency	Building Name	Location
Silver (28)	78	Central Washington University	Samuelson Comm. & Tech Ctr.	Ellensburg
	85	Corrections, Dept. of	WCCW Health Care Facility	Gig Harbor
	64	Corrections, Dept. of	Cedar Creek Corrections Center - 100 Bed Expansion	Littlerock
	74	Corrections, Dept. of	MCC IMU	Monroe
	73	Corrections, Dept. of	MCCW – 100 Bed Housing Unit	Monroe
	61	Corrections, Dept. of	AHCC - Minimum Security Beds (200)	Airway Heights
	62	Corrections, Dept. of	AHCC Building C2 - New Visitation Building	Airway Heights
	63	Corrections, Dept. of	AHCC Treatment Program Building	Airway Heights
	81	Corrections, Dept. of	SCCC Furniture Factory	Spokane
	86	Corrections, Dept. of	North Close Building	Walla Walla
	87	Corrections, Dept. of	South Close - Health Unit	Walla Walla
	66	Edmonds CC (DES)	Meadowdale Hall Renovation	Edmonds
	67	Everett CC (DES)	Undergraduate Education Center	Everett
	88	The Evergreen State College	Lab 1 - 1st Floor Renovation	Olympia
	68	Grays Harbor CC (DES)	Voc. Ed. Renovation – Auto & Weld	Aberdeen
	71	Green River CC (DES)	Salish Hall	Auburn
	72	Lake Washington Institute of Technology (DES)	Allied Health Building	Kirkland
	75	Military Dept., WA State (DES)	Washington Youth Academy	Bremerton
	77	Olympic College (DES)	Sophia Bremer Child Dev. Center	Bremerton
	83	Washington State School for the Blind (DES)	New Phys. Ed. Center	Vancouver
	79	Seattle Central College (DES)	Wood Construction Center	Seattle
	65	Social and Health Services, Dept. of	Echo Glen – Residential Housing Renovations	Snoqualmie
	69	Social and Health Services, Dept. of	Green Hill School - HCA Building	Chehalis
	70	Social and Health Services, Dept. of	Green Hill School Residential Mental Health	Chehalis
	80	Spokane CC (DES)	Tech Ed Building	Spokane
	82	Spokane Falls CC 9DES)	Music Building	Spokane
	84	Walla Walla CC (DES)	Center for Water and Environmental Studies	Walla Walla
	76	Washington State University	Olympia Avenue Student Housing	Pullman

Note: Projects are not in order of when LEED certification was awarded. *See Master List on page 13.*

Department of Commerce update

Under state law (RCW 39.35D.080), all affordable housing projects or programs receiving Housing Trust Funds from the state capital budget must be built according to the Evergreen Sustainable Development Standard (ESDS).

Community Capital Facilities

Active contracts overview: In the 2013-15 capital budget, Commerce was directed to administer 87 projects. Of these, the 38 that have executed contracts have received exemptions.

- 23 have received a facility-type exemption
- 15 received a "not practicable" exemption

Competitive grants overview: The 2013-2015 application period ended in July 2012 with 81 projects receiving grant funding. Of those, 45 are for energy efficiency programs that are not eligible for LEED Certification, such as replacing less efficient light bulbs. The goals of the applicants are as follows:

- Four (16 percent) plan to achieve LEED Silver certification
- Nine received a facility-type exemption
- 11 received a "not practicable" exemption
- 12 are pending contracts

This is a sizeable decrease from the previous period that reported projects planning to achieve LEED Silver certification as 48 percent and likely due to the elimination of LEED training efforts due to budget constraints.

Washington State Housing Trust Fund (HTF)

Affordable housing projects funded from the state capital budget are exempt from the LEED Silver requirement. However, HTF-funded projects must adhere to ESDS and Commerce is tracking nearly 100 affordable housing ESDS projects.

State LEED master list project tracking

DES tracks LEED projects through its quality assurance process (see Appendix 8). This process consists of four to five submittals, depending whether a project has a pre-design phase. The initial submittal provides a project schedule used in the state LEED master list table below.

State LEED Project Master List

Update September 16, 2014

No. of LEED Projects that are Certified:

Certified	In Design	In Construction	Sub Comp / Not Certified Yet
64	11	5	31

Bldg #	Mgt.	Project Name	No.	Estimate	Footage	Manager	Status	Exemption	Pre-Design	Schem. D.	Design Dev.	Const.Doc.	Subst. Compl.	Awarded	Number	Design	Construction	Subst. Compl. Not Cert.
1	DES-B	Skagit Valley CC - Science and Allied Health Building	05-200	$ 25,136,700	65,900	Bob Colasurdo	LEED Platinum						11/1/2008	Aug-10	1			
2	UW	UWT - Joy Building Remodel (Phase 3)	200636	$ 19,103,011	46,238	Lanie Ralph	LEED Platinum						3/25/2011	Jan-12	1			
3	DES-A	1063 Block Replacement Building	14-009	$ 65,500,000	210,063	Rick Browning	LEED Platinum(pending)			2/20/2014	10/7/2014	9/7/2015	6/30/2017					1
4	UW	Burke Museum	203007	$ 52,500,000	100,000	Randy Everett	LEED Platinum(pending)		7/12/2011	7/31/2013	7/31/2014	7/31/2015	4/1/2017					1
5	DES-B	Cascadia CC - Classroom/Office Building #2	06-144	$ 28,439,000	54,300	Bob Kacel	LEED Platinum(pending)		9/15/2006		11/28/2006	12/5/2007	4/1/2009					1
6	DOT	Seattle Ferry Terminal					LEED Platinum(pending)						1/1/2005			1		
7	DES-B	Bellevue College - Science & Tech Bldg	06-123	$ 29,634,094	62,882	Bob Colasurdo	LEED Gold						11/1/2008	Jul-10	1			
8	DOC	CCCC - 100 Bed Expansion	06-330	$ 3,847,300		Ed Hampton	LEED Gold						2/1/2009	Feb-10	1			
9	DES-A	Centralia College-Science Complex	03-218	$ 20,400,000	70,000	Jim Copland	LEED Gold						3/9/2009	Aug-10	1			
10	DES-A	Clark College - East County Satelite Campus	05-099	$ 20,470,000	70,000	Todd Flynn	LEED Gold						4/22/2009	Jun-10	1			
11	UW	Clark Hall Renovation	200910	$ 9,000,000	30,541	Steve Tatge	LEED Gold						12/1/2008	Feb-10	1			
12	DES-B	Columbia Basin C - B Building Career & Tech Education Ctr	07-152	$ 18,200,000	72,241	Mariah Kiehn	LEED Gold		2/30/2008	4/30/2008	7/31/2008	4/30/2009	1/6/2012	TBC	1			
13	DES-B	Columbia Basin C - Business Education	07-151	$ 4,715,245	24,000	Dave Combs	LEED Gold						6/30/2009	7/1/2010	1			
14	DOC	Coyote Ridge Corrections Center	06-313	$ 190,000,000	564,000	Jack Olson	LEED Gold						11/31/08	Jun-10	1			
15	CWU	Dean Hall Renovation	5229	$ 18,038,328	79,553	Joanne Hillemann	LEED Gold						5/10/2008	Nov-10	1			
16	DES-A	DES - John L. O'Brien Bldg. Renovation	07-022	$ 37,960,000	104,000	Dwayne Harkness	LEED Gold					5/27/2009	3/7/2012	Nov-13	1			
17	DES-B	Everett CC - Student Fitness & Health Center	08-199	$ 17,000,000	50,000	Jonathan Martin	LEED Gold						12/14/2010	Jun-12	1			
18	TESC	Evergreen State C Campus Activities Bldg Add. & Renovations	07-05	$ 14,000,000	100,500	Dick Clintworth	LEED Gold						6/1/2010	Jun-10	1			
19	UW	Floyd and Delores Jones Playhouse	200912	$ 5,660,000	13,554	Randy Everett	LEED Gold						7/1/2008	Jul-09	1			
20	DES-A	Grays Harbor CC - Childcare Center	09-015	$ 1,635,000	6,246	Stacy Simpson	LEED Gold						2/4/2010	Sep-10	1			
21	EWU	Hargreaves Hall Renovation	AE0511	$ 9,292,000	45,172	Jim Moeller	LEED Gold						3/1/2010	Sep-10	1			
22	DES-B	North Seattle C - Integrated Resource Center	06-132	$ 16,622,807	47,500	Bob Kacel	LEED Gold						3/25/2011	Oct-11	1			
23	DES-A	Olympic College - Humanities Building	05-187	$ 21,200,000	85,012	Ronnie Hill	LEED Gold						1/8/2010	Aug-11	1			
24	DES-A	Peninsula College - Maier Hall & West Campus	06-125	$ 27,390,359	63,221	Jim Copland	LEED Gold		6/11/2009	6/11/2009	6/11/2009	2/9/2009	3/28/2011	May-12	1			
25	DES-A	Pierce College - Ft. Steilacoom - Science & Tech Center	03-200	$ 21,300,000	70,000	Todd Flynn	LEED Gold						2/25/2010	Aug-10	1			
26	DES-A	Pierce College - Puy - Communication, Arts & Allied Health	03-198	$ 19,000,000	60,000	Todd Flynn	LEED Gold						9/22/2010	Feb-11	1			
27	UW	Savery Hall Renovation	200911	$ 36,200,000	102,105	John Palewicz	LEED Gold						6/1/2009	Oct-10	1			
28	DES-B	Spokane CC - Buiding 7	07-133	$ 6,405,000	31,571	Eric Benson	LEED Gold						11/10/2010	Nov-11	1			
29	DES-B	Spokane Falls CC - Business and Social Science	04-192	$ 14,347,980	70,533	Eric Benson	LEED Gold						8/1/2008	Dec-08	1			
30	DES-B	Spokane Falls CC - Science Building	07-150	$ 19,547,000	69,825	Dave Lohrengel	LEED Gold						2/25/2011	Apr-12	1			
31	DES-A	SPSCC - Science Complex	03-223	$ 18,546,500	66,990	Bala Ramaya	LEED Gold						10/30/2008	May-10	1			
32	DES-A	SPSCC-Instructional Building 23	08-150	$ 16,831,000	30,000	Yelena Semenova	LEED Gold						9/1/2010	Mar-11	1			
33	DES-A	SPSCC-Vocational Tech Building	08-150	$ 8,550,000	40,000	Bala Ramaya	LEED Gold						6/1/2010	Apr-11	1			
34	DES-A	Tacoma CC-Early Childhood Edu. & Child Care Center	06-205	$ 4,242,000	15,000	Yelena Semenova	LEED Gold						7/18/2008	Oct 09	1			
35	EWU	University Recreation Center				Troy Bester	LEED Gold						9/1/2008	Mar-09	1			
36	UW	UWT - William W. Philip Hall	10686	$ 9,400,000	20,250	Catherine Vogt	LEED Gold						8/1/2008	Nov-10	1			
37	DES-A	WA School for the Deaf, New Voc. Ed. & Support Bldg	07-214	$ 10,900,000	23,134	Dwayne Harkness	LEED Gold						8/1/2009	Aug-10	1			
38	DES-B	Yakima Valley CC - Grandview Library	09-172	$ 3,116,878	12,553	David Lohrengel	LEED Gold						6/30/2011	Mar-12	1			
39	WSU	Undergraduate Classroom Building - Vancouver			58,000		LEED Gold						8/1/2009	8/1/2010	1			
40	WSU	Engineering and Computer Science Building - Vancouver			56,000		LEED Gold							TBC	1			
41	DES-B	Bellingham Technical College - LRC Building	08-070	$ 22,400,000	74,000	Marziah Kiehn	LEED Gold (Pending)		3/5/2008	3/5/2008	7/2/2008	12/28/2009	3/1/2012					1
42	UW	Business Hall (Balmer Hall)	201838	$ 25,510,595	70,518	Steve Tatge	LEED Gold (Pending)		3/24/2008	11/14/2008	9/1/2009	7/30/2010	3/8/2012					1
43	DES-A	Clover Park TC - Allied Heath Care Facility	06-092	$ 21,480,000	56,000	Erasmus Othieno	LEED Gold (Pending)		6/16/2006	3/19/2008	5/1/2008	9/1/2008	7/19/2013					1
44	DES-B	Everett CC - Index Hall Replacement	09-207	$ 27,000,000	70,000	Jonathan Martin	LEED Gold (Pending)		8/16/2010	8/16/2010	11/1/2010	5/1/2011	4/1/2013					1
45	DES-A	Grays Harbor CC - STEM Bldg.	06-069	$ 31,719,772	70,325	Stacy Simpson	LEED Gold (Pending)		11/18/2005	5/15/2010	5/15/2011	6/29/2013	5/6/2015				1	
46	DES-B	Green River CC - SMT Renovation	09-249	$ 11,813,000	61,956	Julie Nakahara	LEED Gold (Pending)		6/30/2008	1/19/2010	9/8/2010	8/26/2011	9/13/2013					1
47	CWU	Health Sciences			72,200		LEED Gold (Pending)							TBC		1		
48	CWU	IET/Hogue Technology Project			95,996		LEED Gold (Pending)						9/1/2012					1
49	DES-A	Lower Columbia College - Health Sciences		$ 20,000,000	70,000	Ronnie Hill	LEED Gold (Pending)			6/1/2009	7/15/2009	1/15/2011						1
50	EWU	Martin/Willaimson Hall Remodel		$ 24,636,277		Troy Bester	LEED Gold (Pending)		7/3/2005	7/7/2005			7/10/2005	TBC		1		
51	WWU	Miller Hall Renovation	PW465	$ 35,801,240	133,117	David Willett	LEED Gold (Pending)		2/11/2008	2/11/2008	4/23/2009	10/6/2009	10/31/2011					1
52	UW	Molecular Engineering Interdisciplinary Academic Bldg.	201989	$ 75,423,000	90,374	Steve Tatge	LEED Gold (Pending)		3/24/2008	5/6/2008	5/6/2011	5/6/2011	7/15/2012					1
53	DES-B	North Seattle C - Technology Building	08-177	$ 16,000,000	50,600	Chris Gizzi/Indra Jain	LEED Gold (Pending)		8/16/2010	8/16/2010	11/1/2010	10/1/2011	3/1/2014					1
54	EWU	Patterson Hall Renovation	AE0614	$ 41,266,000	139,900	Jim Moeller	LEED Gold (Pending)		6/2/2008	6/2/2008	4/6/2009	1/4/2010	1/1/2014					1
55	DES-B	Spokane CC - Campus Classroom Building	07-148	$ 12,825,910	51,143	Gloria Miller	LEED Gold (Pending)		12/12/2006	9/1/2007	4/13/2008	11/1/2009	12/30/2012					1
56	DES-B	Spokane CC - Early Learning Center	07-149	$ 2,960,000	16,000	Gloria Miller	LEED Gold (Pending)		12/1/2006	9/1/2007	1/27/2008	5/27/2008	9/30/2012					1
57	DES-A	SPSCC - Campus Center Redevelopment - Bldg 22 Renovation	08-150	$ 23,700,000	89,000	Yelena Semenova	LEED Gold (Pending)		10/23/2009	12/31/2009	4/30/2010	9/30/2010	12/3/2013					1
58	DES-A	Tacoma CC - Health Careers Center Pre-Design	07-142	$ 29,935,000	69,266	Ronnie Hill	LEED Gold (Pending)		10/1/2009	3/1/2010	10/1/2010	7/1/2011	1/1/2013					1
59	EWU	University Science Center I					LEED Gold (Pending)		7/5/2005					TBC		1		
60	EWU	University Science Center II				Troy Bester	LEED Gold (Pending)		7/5/2005					TBC		1		
61	DOC	AHCC - Minimum Security Beds (200)	06-311	$ 868,000	116,000	Anna Crickmer	LEED Silver						9/1/2008	Oct-10	1			
62	DOC	AHCC - New Visitation Building	06-311	$ 1,975,000	6,100	Anna Crickmer	LEED Silver						9/1/2008	Oct-09	1			
63	DOC	AHCC - Treatment Program Building	08-300	$ 3,100,000	9,510	Anna Crickmer	LEED Silver						6/15/2009	Apr-10	1			
64	DOC	CCCC - 100 Bed Expansion	06-330	$ 4,878,336	16,300	Ed Hampton	LEED Silver						4/1/2009	TBC	1			
65	DSHS	Echo Glen - Cottage Improvements	00-405	$ 7,667,398	28,140	Diana Peeples	LEED Silver						4/20/2010	Feb-12	1			
66	DES-B	Edmonds CC - Meadowdale Hall Renovation	08-058	$ 5,534,000	36,100	Linda Colasurdo	LEED Silver		8/20/2007	8/20/2007	4/21/2008	11/10/2008	11/1/2010	Feb-12	1			
67	DES-B	Everett CC - Undergraduate Education Center	05-219	$ 21,000,000	86,000	Joe Sullivan	LEED Silver						11/5/2007	Sept-09	1			
68	DES-A	Grays Harbor CC - Voc. Ed. Renovation-New Auto & Weld	05-186 G	$ 3,663,500		Stacy Simpson	LEED Silver		8/29/2005	1/19/2006	6/1/2006	12/8/2006	11/20/2007	Dec-07	1			
69	DSHS	Green Hill School - HCA Building	06-481	$ 4,300,000	20,275	Terri Sinclair-Olson	LEED Silver						10/26/2009	Jul-11	1			
70	DSHS	Green Hill School-Residential Mental Health Unit	10-457	$ 4,200,000	10,500	Diana Peeples	LEED Silver		12/20/2010	5/4/2011	6/23/2011	9/9/2011	10/30/2012	Aug-13	1			
72	DES-B	Lake WA Tech - Allied Health Bldg.	06-073	$ 24,205,873	83,554	Bob Kacel	LEED Silver						5/2/2011	Aug-12	1			

State LEED Project Master List

Update September 16, 2014

No. of LEED Projects that are Certified:

Certified	In Design	In Construction	Sub Comp / Not Certified Yet
64	11	5	31

Bldg #	Mgt.	Project Name	No.	Estimate	Footage	Manager	Status	Exemption	Pre-Design	Schem. D.	Design Dev.	Const.Doc.	Subst. Compl.	Awarded	Number	Design	Construction	Subst. Compl. Not Cert.
73	DOC	MCC IMU -0100 Bed Housing Unit	02-302	$ 27,255,000	77,000	Tom Davis	LEED Silver						6/1/2006	Jun-07	1			
74	DOC	MCCCW - 100 Bed Housing Unit	08-303	$ 4,033,163	12,800	Ed Hampton	LEED Silver						10/15/2009	Nov-11	1			
75	DES-A	Military - Washington Youth Academy	07-189	$ 5,000,000	20,000	Yelena Semenova	LEED Silver						1/7/2009	Aug-10	1			
76	WSU	Olympia Avenue Student Housing Project					LEED Silver						8/1/2009	Aug-10	1			
77	DES-A	Olympic College - Sophia Bremer Child Development Ctr	08-256	$ 3,318,000	12,890	Ronnie Hill	LEED Silver		12/1/2008	2/1/2009	4/1/2009	10/1/2009	10/1/2010	Aug-12	1			
78	CWU	Samuelson Communications & Technology Center			129,260	Shawn Mill	LEED Silver						6/1/2006	Jun-07	1			
79	DES-B	Seattle Central C - Wood Construction Center	08-063	$ 19,513,281	58,700	Lee Knawa	LEED Silver		1/1/2008	1/1/2008	6/6/2009	1/1/2009	1/23/2013	Feb-14	1			
80	DES-B	Spokane CC - Tech Ed Building	07-132	$ 19,804,000	70,000	Gloria Miller	LEED Silver		4/1/2008	4/1/2008	6/15/2008	7/9/2013	8/10/2011	TBC	1			
81	DOC	Spokane CCC - Furniture Factory	10-356	$ 6,800,000	46,700	Gary Myers	LEED Silver						7/1/2011	Jul-12	1			
82	DES-B	Spokane Falls CC - Music Building	07-134	$ 9,607,000	47,571	Dave Lohrengel	LEED Silver					7/27/2011	1/22/2011	Jan-12	1			
83	DES-A	WA School for the Blind, New Phys. Ed. Center	08-040	$ 8,000,000		Marziah Kiehn	LEED Silver						3/1/2009	Sept-09	1			
84	DES-B	Walla Walla CC - Center for Water and Environ. Studies	05-210	$ 2,000,000	10,500	Dave Combs	LEED Silver						6/1/2008	Jun-10	1			
85	DOC	WCCW Health Care Facility	06-309	$ 11,864,719	22,130	Dwight Hollar	LEED Silver		5/24/2006	8/1/2006	11/13/2006	3/13/2007	1/1/2010	Jan-10	1			
86	DOC	WSP - North Close	05-311	$ 130,139,000	385,975	Nanette Graham	LEED Silver						8/1/2007	Jul-14	1			
87	DOC	WSP - South Close - Health Unit	06-314	$ 22,931,500	49,022	Nanette Graham	LEED Silver						6/29/2010	Aug-11	1			
88	TESC	Evergreen College - Lab 1 - 1st Floor Renovation				Dick Clintworth	LEED Silver						9/1/2006	Jun-07	1			
89	DES-A	Centralia College-Centralia College Commons	08-164	$ 26,000,000	70,000	Debra Delzell	LEED Silver (Pending)		4/15/2013	12/15/2013	6/15/2014	3/15/2015	1/14/2017			1		
90	DES-A	Clark College - STEM Building	08-210	$ 29,763,000	79,776	David Hruska	LEED Silver (Pending)					5/1/2014	12/22/2015	TBC			1	
91	COM	Pacific Tower Improvements	14-195	$ 15,000,000	215,000	Chris Gizzi	LEED Silver (Pending)			6/30/2014	8/20/2014	11/1/2014	9/1/2015			1		
92	DES-A	Peninsula College - Allied Health Early Childhood Developm.	09-146	$ 17,886,000	42,000	Rafael Urena	LEED Silver (Pending)		12/9/2013	7/14/2013	12/5/2014	7/28/2015	6/2/2017			1		
93	DES-B	Renton Technical College Automotive Complex	14-062	$ 15,721,000	17,600	Indra Jain	LEED Silver (Pending)		3/3/2014	6/2/2014	10/31/2014	4/30/2015	5/31/2017			1		
94	UW	UWB - Science and Academic (Phase 3)	202235	$ 68,000,000	74,975	Steve Tatge	LEED Silver (Pending)		2/18/2010	9/30/2010	4/1/2011	9/1/2012	6/1/2014				1	
95	DOT	Anacortes Ferry Terminal					LEEDSilver (pending)						TBD			1		
96	WWU	Carver Academic Renovation					LEEDSilver (pending)						9/1/2014					1
97	DSHS	Echo Glen - Residential Housing Units Renovations	10-456	$ 6,500,000	28,120	Penny Koal	LEEDSilver (pending)		6/23/2010	9/7/2010	12/7/2010	6/1/2011	11/30/2012					1
98	WSU	Global Animal Health			62,000		LEEDSilver (pending)						1/1/2012					1
99	DES-B	Green River CC - Student Life Building	12-051	$ 20,220,000	65,000	Phil Timpke	LEEDSilver (pending)					1/15/2014	TBD				1	
100	DES-B	Green River CC - Trades Replacement	12-909	$ 21,858,629	70,000	Phil Timpke	LEEDSilver (pending)					2/15/2014	TBD				1	
101	UW	Intellectual House	202070	$ 5,853,000	8,400	John Wetzel	LEEDSilver (pending)		3/30/2012	10/31/2012	2/28/2013	8/31/2013	10/31/2014					1
102	TESC	Lab 1-1st Floor Renovation		$ 4,950,000		Dave Shellman	LEEDSilver (pending)			10/1/2011			12/1/2013					1
103	DES-A	Lower Columbia College - Gymn & Fitness Center	12-001	$ 4,388,000	34,655	Ronnie Hill	LEEDSilver (pending)			3/24/2012	4/1/2012	5/23/2012	12/1/2014					1
104	DOT	Mukilteo Ferry Terminal					LEEDSilver (pending)						TBD			1		
105	DES-B	Skagit Valley College - Academic & Student Support Bldg.	07-236	$ 25,433,000	64,230	Bob Colasurdo	LEEDSilver (pending)		9/1/2009	9/1/2009	2/1/2010	6/1/2010	1/15/2014					1
106	DES-B	South Seattle College - Cascade Court	13-174	$ 2,145,300	59,000	Jonathan Martin	LEEDSilver (pending)		6/28/2012	2/10/2014								1
107	DES-B	South Seattle College - Colin Building Addition	10-063	$ 3,600,000	10,000	Jonathan Martin	LEEDSilver (pending)			3/29/2010	6/14/2010	8/31/2010	3/1/2011					1
108	DOT	SR 520 Bridge Maintenance Facilities					LEEDSilver (pending)						7/1/2013					1
109	DOC	WSP - South Close - Warehouse	06-314	$ 5,280,384	21,600	Nanette Graham	LEEDSilver (pending)						6/29/2010					1
110	DOC	WSP Housing Units & Kitchen Expansion	10-355	$ 30,778,000	94,974	Nanette Graham	LEEDSilver (pending)						6/1/2013					1
111	DOC	WSP South Close	06-314			Nanette Graham	LEEDSilver (pending)						11/1/2009					1
112	WWU	Academic Instruction Center					LEED Certified						8/31/2009	9/9/2014	1			
113	DOT	Alaska Way Viaduct Tunnel Operations Building					Exemption	7/2/2012					6/1/2015					
114	WWU	Buchanan Tower Addition					Exemption	1/10/1900					9/1/2010					
115	TESC	Daniel J Evans Library Modernization - Phase 2	F06007	$ 14,323,000	87,000	Hal Van Gilder	Exemption	Exemption	3/16/2007	9/10/2006	3/7/2007	1/28/2008	11/1/2008					
116	DOT	Eagle Harbor Maintenance Facilities				Mark Scott	Exemption	7/30/2007					5/1/2011					
117	DES-A	Grays Harbor CC - Voc. Ed. Renovation	05-186			Stacy Simpson	Exemption	2/6/2006										
118	DES-A	Grays Harbor CC - Voc. Ed. Renovation-700 Bld Renovation	05-186 I	$ 896,534		Stacy Simpson	Exemption	2/6/2006	3/17/2008	8/14/1008	11/1/1008	3/19/2009	12/17/2009					
119	DSHS	Green Hill School - HCA Building	06-481	$ 4,200,000	12,000	Diana Peeples	Exemption	8/26/2008										
120	DSHS	Green Hill School - IMU Building	06-481	$ 4,200,000	12,000	Diana Peeples	Exemption	8/26/2008										
121	DES-A	Peninsula College - Fort Worden Building 202	12-050	$ 3,300,000	14,000	Rafael Urena	Exemption		3/1/2012	7/20/2012	2/7/2013	6/2/2014						
122	DOC	MCCCW - 120 Bed	06-312	$ 2,939,189	12,800	Ed Hampton	Exemption	7/13/2007										
123	DES-B	Walla Walla CC - Clarkston Health Sciences	05-162	$ 2,252,000		Dave Combs	Exemption	10/12/2006	11/30/2004	8/12/2005	12/20/2005	5/15/2006						
124	DES-B	WSP - FTA Dormatory	07-203	$ 1,900,000	9,484	Jonthan Martin	Exemption	9/2/2008										
125	DES-B	Yakima Valley CC - Brown Dental Renovation	07-155	$ 3,898,000		David Lohrengel	Exemption	5/19/2008	11/21/2007	11/21/2007	1/2/2008	4/2/2008	7/1/2009					
126	UW	Denny Hall Renovation	202039	$ 56,915,000	87,549	Randy Everett	On Hold		12/31/2007	8/23/2008	3/10/2009							
127	UW	Lewis Hall Renovation	202040	$ 25,130,000	33,736	Ken Kubota	On Hold		4/1/2008	8/1/2008	12/1/2008	9/1/2009						
128	DOC	CBCC Replace Bladder Tanks	06-327	$ 47,169,000	105,536	Nanette Graham	On Hold		7/1/08	11/12009	10/30/2009	7/15/2015	9/1/2016					
129	DES-B	Bellevue College - Health Science Bldg. Predesign	08-036	$ 25,538,000	70,000	Bob Colasurdo	On Hold		7/1/2008	2/15/2010	6/1/2010	11/15/2010	4/1/2013					
130	DES-B	Columbia Basin College - Social Science Center	07-153	$ 12,410,000	40,520	Marziah Kiehn	On Hold		7/1/2008									
131	DOC	MCC - Health Care Facility	06-305	$ 1,403,990	6,000	Tom Davis	On Hold		6/8/2006	10/23/2009	2/5/2010	7/30/2010	6/1/2012					
132	DOC	Statewide - 300 Bed Minimum Expansion	06-305	$ 39,031,010	113,400	Tom Davis	On Hold		6/8/2006	12/11/2009	7/16/2010	5/23/2011	6/1/2014					
133	DOC	MCC - Hazardous Waste/Vehicle Storage	06-305			Diana Cannon	On Hold		6/7/2006	6/12/2006	9/19/2006	11/15/2006	5/1/2007					
134	DOC	WSP South CLose	06-314	$ 8,351,351	22,400	Nanette Graham	On Hold		7/9/2007	7/18/2007	12/5/2007	4/10/2008	6/29/2010					
135	DOC	MCC Health Care Facility	06-305	$ 5,985,000	26,000	Tom Davis	On Hold		6/8/2006	10/23/2009	2/5/2010	7/30/2010	6/1/2012					
136	DOC	CBCC Replace Bladder Tanks	06-327	$ 38,660,000	90,229	Nanette Graham	On Hold		6/30/2008	12/30/2012	2/28/2013	4/30/2013	9/30/2014					
137	DOT	Olympic Regional Headquarters					On Hold						TBD					
138	DOT	Bainbridge Island Ferry Terminal					On Hold						TBD					
139	DOC	WCC Expand Reception Center	08-314	$ 46,265,000	87,583	Diana Cannon	On Hold		8/15/2009	2/15/2010	9/15/2010	7/1/2011	7/15/2013					
			Totals	$975,778,423	2,990,444													

Key		Points
LEED Platinum	Platinum	52+
LEED Gold	Gold	39-51
LEED Silver	Silver	33-38
LEED Certified	Certified	26-32
Projects On-Hold	Exempted	
This project will not seek LEED certification or follow GA QA process		

In Design = 11

In Construction 5

Substantially Cc 31

LEED costs and savings on state building construction and operation

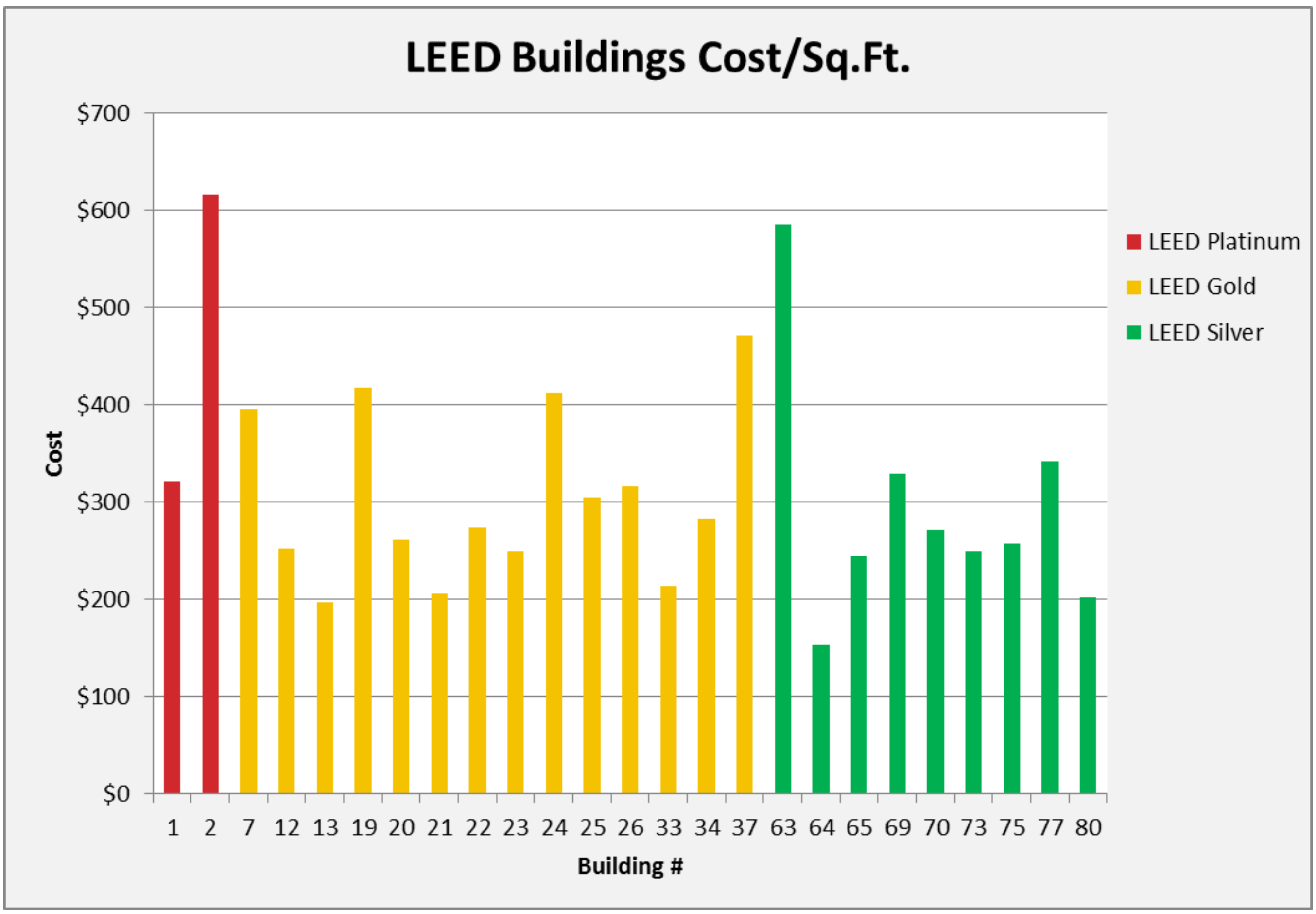
The following pages show information about:

- The cost per square feet of several state-owned LEED buildings.
- The added or reduced costs for LEED.
- Cost savings achieved in LEED buildings for energy and water use.

In Figures 1 through 4, each bar is a specific building. The data in the figures below are intended as average representative samples from the 65 certified buildings.

Figure 1 – LEED Buildings: Cost per square foot

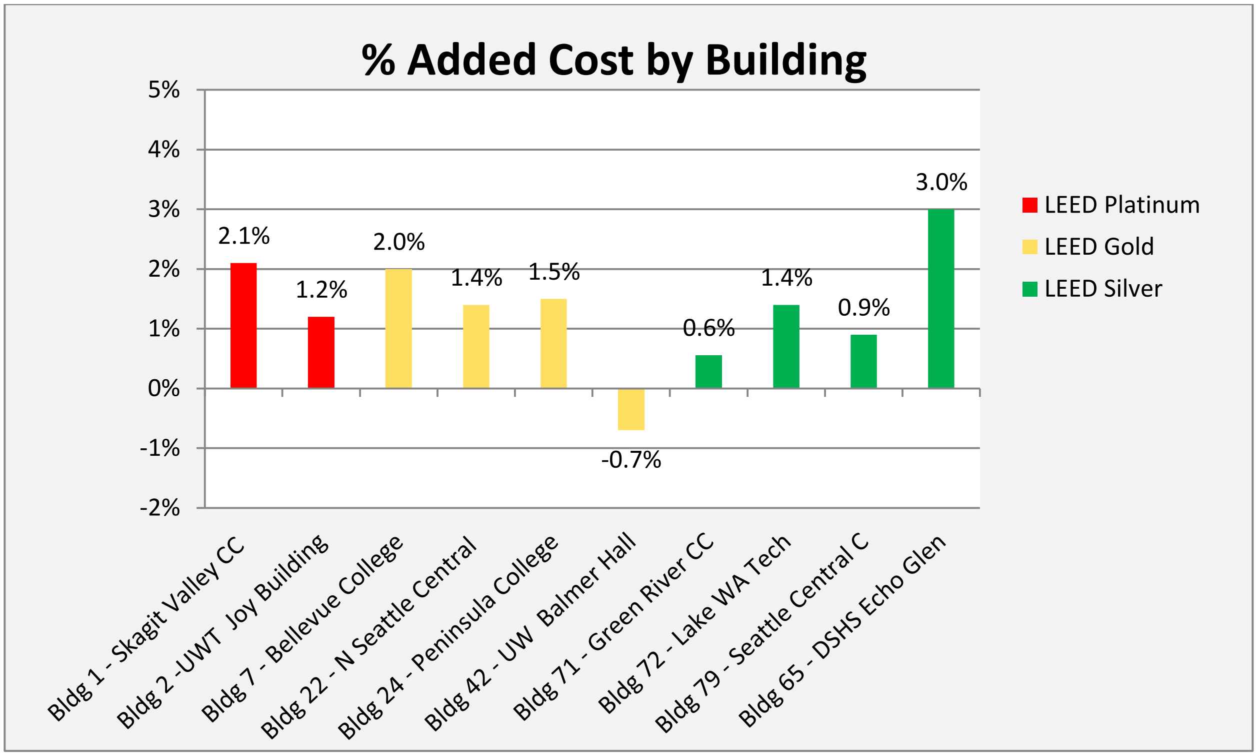
The figure below shows the building cost per square foot (building only not including site preparation costs) and the LEED level achieved. The cost of a building is influenced by type of use, complexity of the building systems, size, choice of materials, and time of year of the bid.



For building name correlating with the number, see Master List on page 13.

Figure 2 –Added LEED first costs

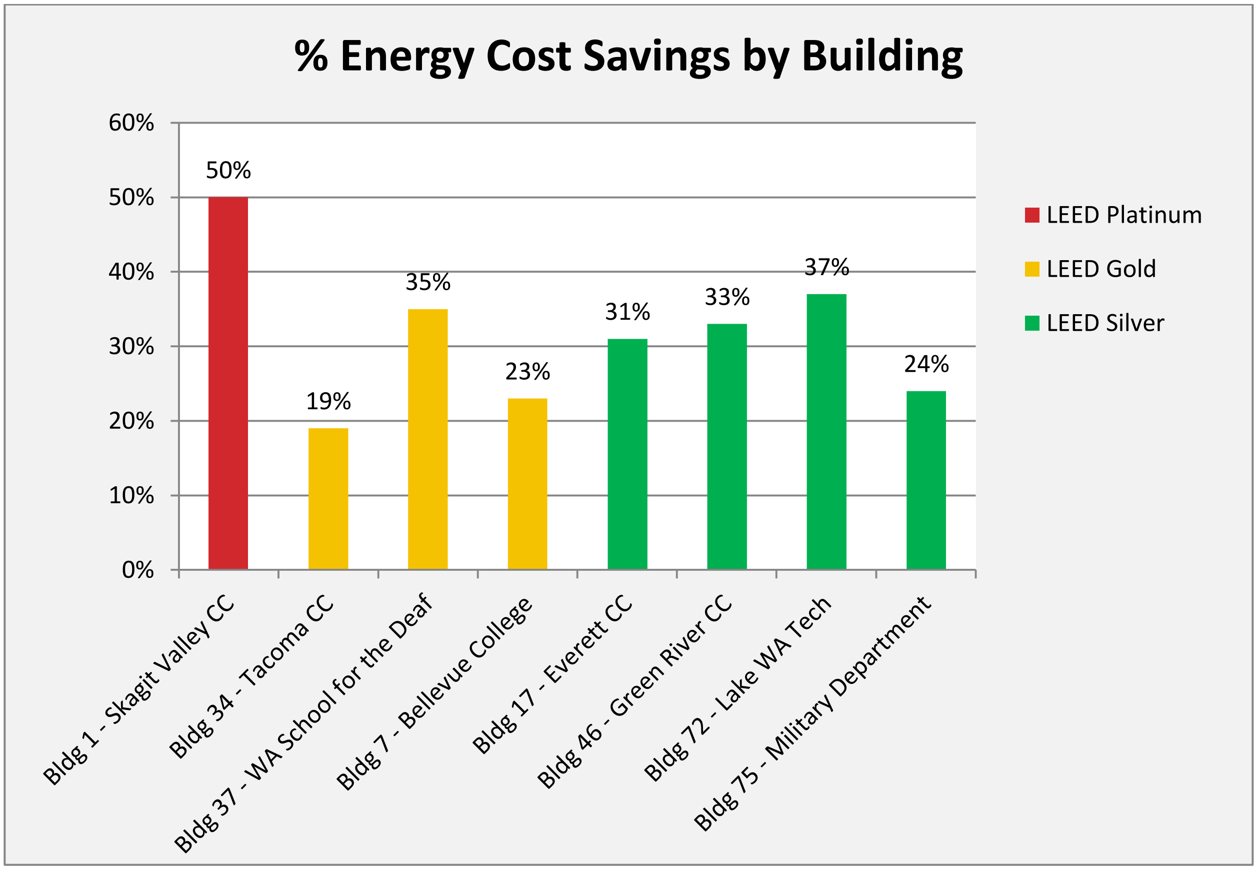
The figure below shows an estimate of the added costs and savings for LEED-related elements, such as consultants and construction, as a percentage of the overall project first costs. These added costs and savings were estimated by the state project managers, the architect consultant on the project and the contractor (See Table 3, Appendix 6 and Master List).



See Master List on page 13.

Figure 3 – Energy cost savings

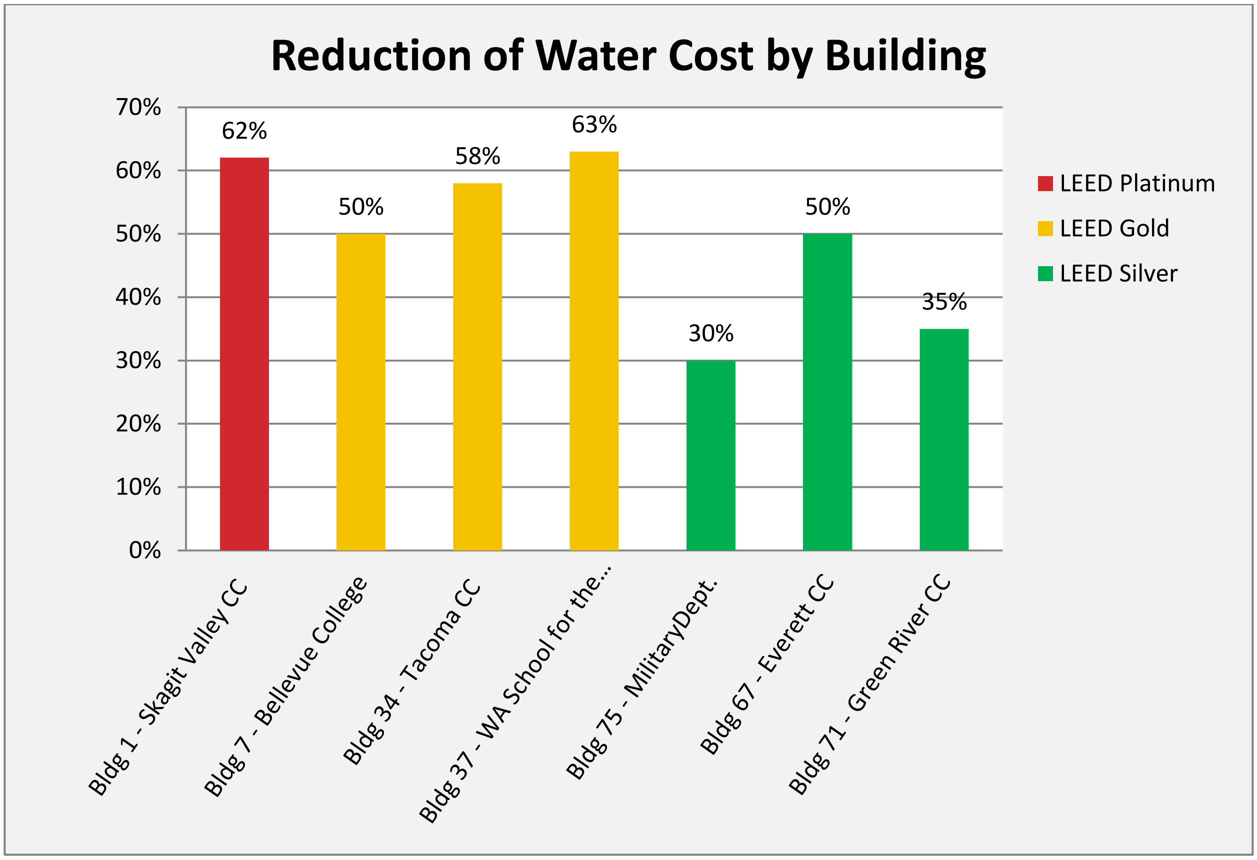
The figure below compares the energy consumption cost of the high performance green building with a minimum code building.



See Master List on page 13.

Figure 4 –Water cost savings in state LEED buildings (Interior)

The figure below compares the interior water usage of a “Base Minimum Building Code” with the reported “proposed” high performance green buildings (see appendix 6). The interior water consumption is tied to the number of occupants.

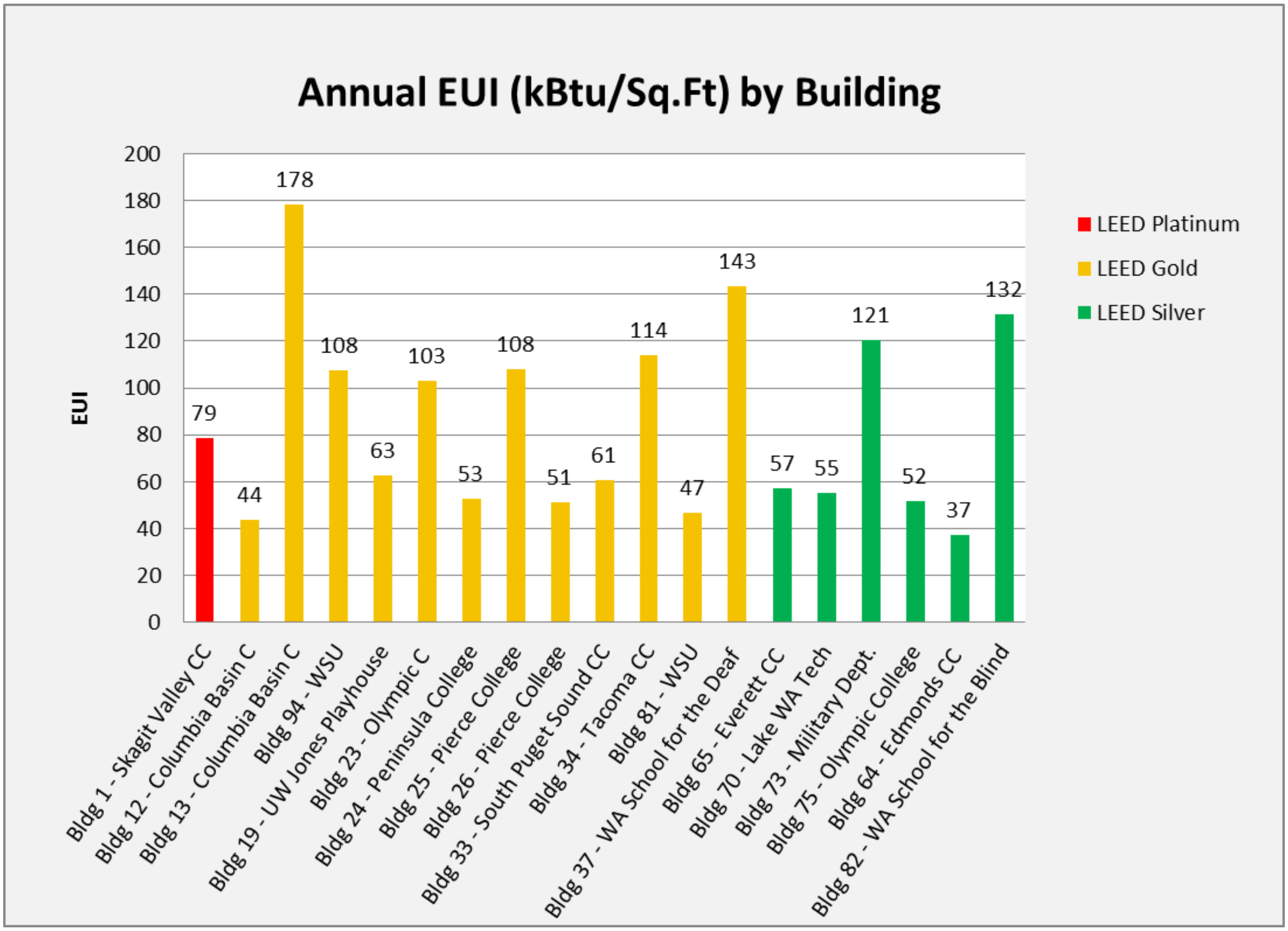


See Master List on page 13.

Actual energy use reports summary

Figure 5 – Energy use comparison of state LEED projects

The types of facilities that reported energy use varied widely, from prisons to a child-care center.

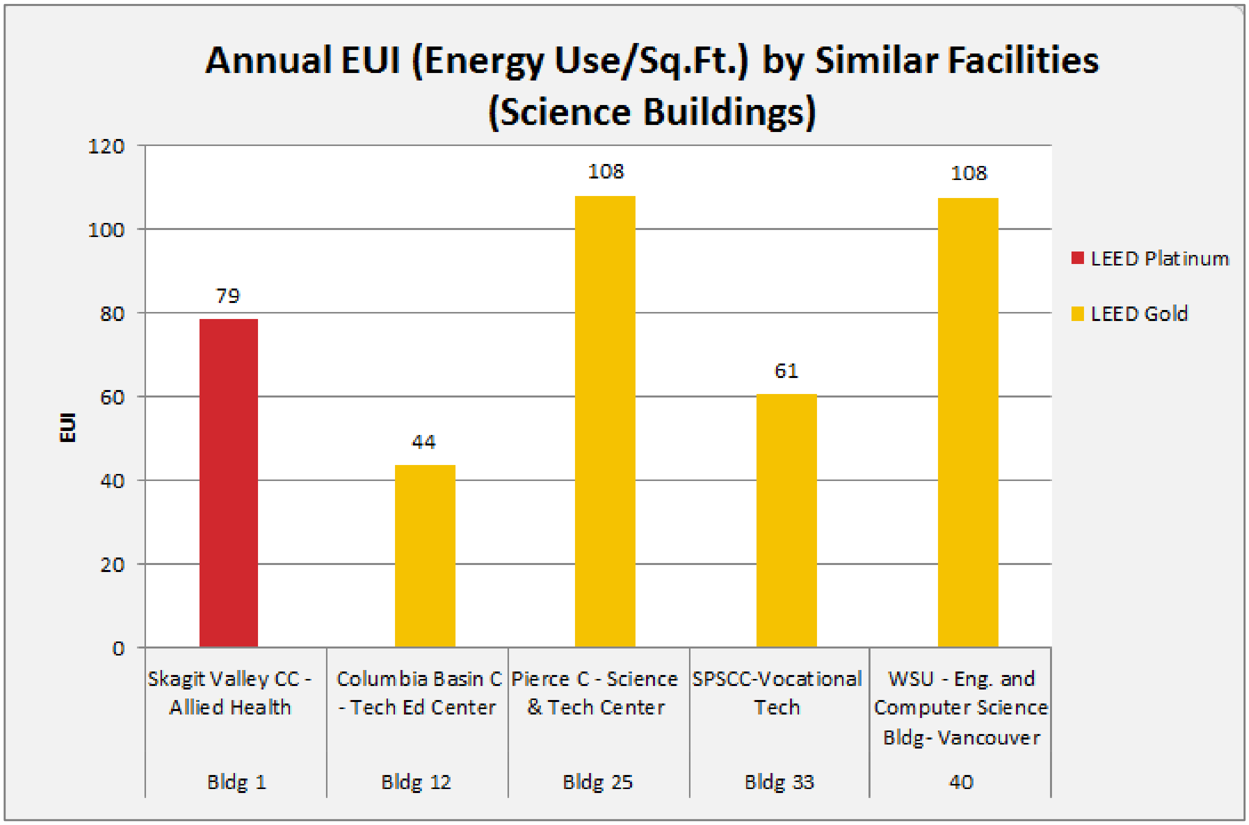


See Master List on page 13.

Grouping similar types of buildings provides a better comparison of energy use. The next two figures make comparisons of community college science buildings (figure 6) and of college and university classroom/office, buildings (figure 7).

Figure 6 – Energy use comparison in community college science buildings

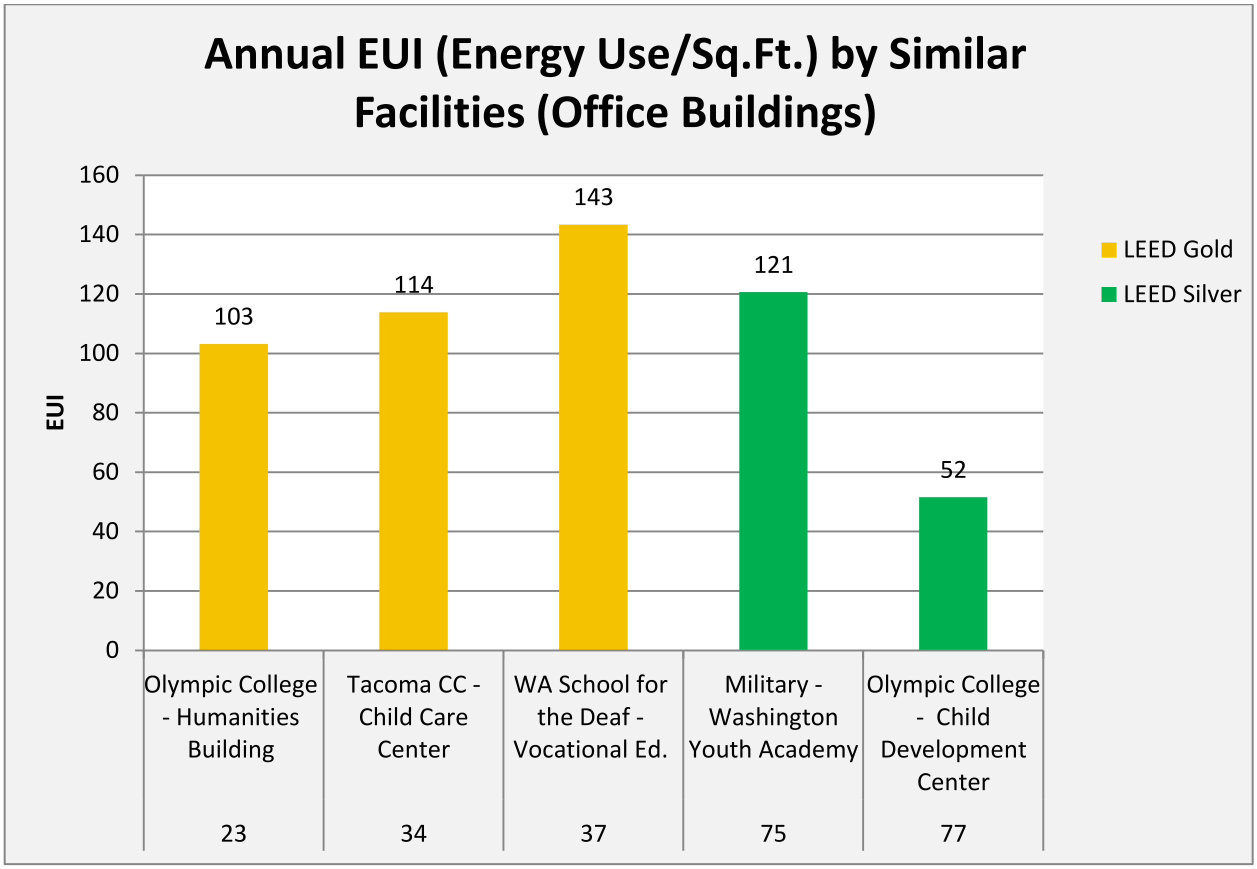
The below comparisons do not include differences in hours of use, plug loads, and climate, so they might not reflect the most efficient buildings. However, the comparisons provide useful information for further ongoing evaluation.



See Master List on page 13.

The average for science buildings is EUI 89.

Figure 7 – College and university classroom/office buildings



See Master List on page 13.

The average for office buildings reported is EUI 110.Note that office buildings have a higher EUI on average than science buildings.

Determining LEED buildings costs and savings

<u>Costs</u>

Determining the overall cost of LEED buildings is relatively easy. Project accounting provides the breakdown needed to show demolition costs, site development costs, building costs and consultant fees. Determining the costs for elements attributable to LEED, on the other hand, is more difficult because of the integrated nature of building design and construction.

Using LEED strategies in the building design process causes architects and engineers to work together to create buildings that blur the lines between mechanical systems, lighting systems and architectural elements. The quality assurance process attempts to gather the added costs for LEED consultants, as well as construction elements. These costs are provided by the state project manager, the architect or both. This is documented for each project in Appendix 6 (LEED building cost and performance data).

<u>Savings – First cost</u>

Although not typical, first cost savings can be achieved through careful design. For instance:

- The electrical system in a green building can be smaller than one in a conventional building by using shading devises, earth berms, more insulation, high- performance, operable windows and energy-efficient lighting that incorporates daylight harvesting.
- The heating system can be downsized using a super insulated building envelope and heat recovery on the exhaust air.
- The water systems can be downsized by using low-flow fixtures, saving money on piping and hook-up fees.

<u>Savings – Operating costs</u>

When designing a building, simulation models are used to compare the proposed structure to one built to meet required energy codes called the baseline building. This simulation accounts for factors that are constant elements in both buildings and those features that can make one more efficient than another.

Constant elements include weather, people loads, operating schedules and plug loads.

Variable features can include insulation levels, window solar heat gain coefficient, mechanical equipment efficiencies, orientation and outside air quantities.

After at least 10 to 15 months of occupancy, the building simulation model can be updated to show actual operating conditions, including a fit to the actual energy use. Unfortunately, even though LEED encourages additional scoring criteria for post-occupancy simulation modeling, this extra building simulation model is rarely completed because of cost ($5,000 to $10,000).

The building simulation model prepared during the design of the building provides the best available calculation of operational savings. This savings figure is used in calculating the payback for LEED-certified buildings in this report.

The operational savings calculated by the building simulation model represent the savings that are "capable" by the proposed building. Some features of the design will deliver those savings regardless of the operator. These features include light shelves, building orientation, earth berms and the envelope (insulation and windows).

Although a building may be "capable" of a certain level of savings in the model, it is possible that a number of elements could keep those savings from being realized. These include:

- Improper commissioning of mechanical, electrical and control systems.
- Inadequate training of operation and maintenance staff.

- Inadequate staff available to properly maintain the building operating schedules and mechanical systems.

Some or all of these issues exist in instructional and institutional buildings built by the state.

College and university buildings make up 65 percent of those identified in this report. The other 35 percent are a diverse mix that includes prisons, dormitories, kitchen and dining halls, and more. The unique nature of many of these buildings makes it difficult to determine energy and water savings from actual consumption data. While some college and university buildings include only classrooms and offices, most have space with more specialized uses, such as welding and auto shops, gymnasiums or performance halls. For many buildings, this varying mix of uses makes it difficult find a "like" building for purposes of comparing consumption data.

Where possible, this report compares actual consumption data received from the operators of similar types of buildings. Using year-to-year comparisons of a specific building may be the best way to benchmark. Year-to-year improvements in energy use accomplished through adjustments to the building mechanical and control systems is also a comparison that will be tracked over time and presented in this report.

DES will continue to track energy and water use, and will provide feedback to the building operators if the consumption seems abnormally high. The department will also look for particularly efficient buildings and follow-up with those operators to learn how they achieved greater efficiencies.

<u>Metering Challenges</u>

This is the second biennium with a significant amount of reported consumption data, along with information related to metering. To get accurate consumption data for the LEED buildings, meters are necessary to consistently measure energy and water use throughout the year.

For stand-alone buildings, energy and water metering can be a relatively easy effort. Utility companies install the electric, gas and water meters, and consumption can be tracked using utility bills. In some situations, a utility company can install pulse outputs to the Energy Management Control System, making instantaneous use readings possible. Trends can be set up to capture monthly consumption data for reporting purposes. The LEED Quality Assurance process includes a spreadsheet template for reporting energy and water use (See Appendix 8). See Appendix 4 for examples of completed energy and water use reports.

Most state buildings are located on a campus. Often, there is only one or two meters for the entire campus, so there is no way to measure consumption for an individual building. To complicate this further, a central plant may provide steam to the individual buildings without any metering. A campus central plant may also provide domestic hot water and chilled water to the buildings.

Given these challenges, DES will often request that a metering plan be prepared and submitted at the construction documents phase of the design. DES uses a metering plan template for each state LEED project (see Appendix 8). This helps ensure that design teams include meters in all LEED projects. See Appendix 5 for examples of completed metering plan reports.

Installing meters in all buildings is difficult to accomplish for a variety of reasons, including:

- Inadequate funding to get meters installed at the end of the project.
- Meters were installed, but were not fully programmed into the Energy Management Control System.
- Meters were installed, but are not maintained and functioning properly, resulting in lost data.
- Some meters are installed for electrical and water, but not heating because of the complexities and expense of measuring steam.

Facility operators are doing their best to report data that is metered or prorated, based on square footage or other strategies.

Overview of the DES LEED Quality Assurance (QA) process

The DES LEED QA process was developed with the help of the original Affected Agencies Committee (see Appendix 8). The process provides DES with a minimum level of information to track the progress of a project through design and construction. The process allows for "verifying activities necessary for certification to at least the LEED Silver standard for major facilities." (From RCW 39.35D.060 (1) (a)) It also helps ensure that proper metering is installed for energy and water consumption reporting by requiring a metering plan be submitted during the construction documents phase. It gives state project managers the information to make sure their project is on track to achieve at least LEED Silver.

The QA process is made up of easy-to-complete templates and specific LEED documents (see Appendix 8). These guidelines provide education and tools for state agencies and project managers for implementing an integrated design and construction process.

The current LEED QA process requires the following:

- At schematic design: A half-page template with basic project size and cost information, and main contacts. A LEED checklist is also submitted to DES.
  At design development: An updated LEED checklist and a two- to four-page description of how the project will meet the goals set in the LEED checklist, especially for energy and water efficiency goals.
- A new step may be offered at design development in the QA process to extend the use of an energy service company (ESCO) for major projects. This can benefit an

agency by having the ESCO complete the energy evaluation as part of the project design. Projects can benefit from additional cost-effective measures identified and larger utility incentives.

- At construction documents: An updated LEED checklist and an updated two- to four-page strategies summary of how the project will meet the LEED goals set in the checklist. A metering plan is also submitted. A metering plan template is provided (see Appendix 8).
- At post-construction: Project cost data is collected. Added or saved costs related to LEED separated by consultant costs and construction costs are available from the final invoice(s). The added or saved construction costs are sometimes difficult to determine because of the integrated nature of green building design. Some features can easily be estimated, such as solar panels or a bike rack. Others can be more difficult, such as use of operable windows and skylights, features that may be added to the design for other reasons. This data is collected from the state project manager and project architect.

The savings data and other performance data are collected by "mining" the LEED submittal. This is accomplished using the LEED Building Cost and Performance template (Appendix 8). This can be completed by the state project manager and/or the architect. Using the LEED submittal documents provides access to all of the energy and water savings calculations, construction waste management data and other metrics. See Appendix 6 for examples of completed Cost and Performance reports.

DES has established contacts at each of the agencies and universities. These contacts are used to disseminate information regarding the quality assurance process and to coordinate reporting to the department (see Appendix 4).

In addition, case studies will be developed for each project. A state LEED project case study gallery is included in Appendix 2 of this report.

Payback for LEED

The following formula is used to calculate the payback for added costs of LEED construction during the LEED QA process:

$$\frac{\text{(Added Consultant Costs + Added Construction Costs + LEED Certification Costs) – (Utility Incentives)}}{\text{(Annual Savings in Water and Energy)}}$$

- The costs used should be accurate because they are developed by the state project managers, the project architect and the contractor. (It is sometimes hard to see if something is a "LEED element" or is just part of good design.)
- The savings figures are from the energy modeling prepared for the Energy Life-Cycle Cost Analysis (ELCCA) process and LEED.
- Water savings are based on calculations prepared for LEED.

Table 3 – Cost, savings and payback of LEED in state buildings

(See appendix 6 and Figure 2)

Bldg. #	Agency	Building name	Sq. ft.	Cost (millions)	Percent added cost	Savings/yr	Payback (years)
42	University of Washington	Business Hall (Balmer Hall)	70,518	$25.5	-.7%	$679,270	0
2	UW	Joy Building Remodel (Phase 3)	46,238	$19.1	1.2%	$30,181	4.9
7	Bellevue College	Science & Tech Building	62,882	$29.6	2%	$33,744	17.5
71	Green River CC	Salish Hall	82,792	$25	0.9%	$34,388	6.4
72	Lake WA Tech	Allied Health Building	83,554	$24.2	1.4%	$29,800	11.0
22	North Seattle C	Integrated Resource Center	47,500	$16.6	1.4%	$6,967	33.2
24	Peninsula College	Maier Hall	63,221	$27.4	1.5%	$17,065	23.6
79	Seattle Central C	Wood Construction Cen.	58,700	$19.5	.9%	$8,017	22.2
1	Skagit Valley College	Angst Hall – Science & Allied	65,900	$25.1	2.1%	$44,920	6
65	Social & Health Services, Dept. of	Echo Glen Residential Housing	28,140	$7.7	3%	$8,095	28.5

Studies have shown that in addition to utility cost savings, green buildings improve worker productivity and retention. Subjective evidence implies that green buildings reduce the number of worker sick days and reduce the risk of “sick-building syndrome” lawsuits because the materials used do not contain or have low levels of volatile organic compounds, such as formaldehyde. These types of savings may be greater than those achieved from lower water and energy use, but are much harder to quantify.

DES QA and data collection process goal

In 2011, the Joint Legislative Audit and Review Committee (JLARC) completed a statutorily required performance review of the high-performance green building program. JLARC identified the lack of complete and timely reporting by state agencies and institutions as a serious limitation on any evaluation of the program.

DES recommends the data collection effort be expanded to assist with multiple reporting efforts in conjunction with a Statewide Resource Conservation Management (RCM) program. The quality assurance process described above will continue for data collection and be integrated into the RCM program once appropriation is approved and the RCM program is implemented. Features will include:

- All project submittal data will be in one location and will be easily sorted, accessed, etc.
- Some reports and tracking spreadsheets will update continuously as new data comes in.
- Some reports and tracking spreadsheets will be open to public review for viewing at any time.
- Data will be available for development of biennial and custom reports.
- Data will be available to provide for feedback to participants regarding building performance.
- Reminders will be sent to the four listed project team members when project teams miss a quality assurance submittal due date.
- All templates will be available for download and complete plans and reports for upload (metering plan, post-construction LEED building cost and performance data and case study template).
- Users will be able to update project schedules and team member data as appropriate.
- Annual energy and water consumption reports will also be available to building operators (review previous submittals, spreadsheet templates to download, completed data to upload).
- Biennial Agency Sustainable Building Report will be available to appropriate capital building/facility staff (review previous reports, templates to download, completed report to upload).

The RCM program will provide up-to-date summaries about green building efforts in the state. It will make the development of reports much easier and more complete for future biennial reporting.

Table 4 – Proposed Statewide RCM Program

The Department of Enterprise Services is involved with five major energy-related reporting requirements for the State of Washington as shown in the table below. Each requirement collects information for a specific purpose. All of the reporting mechanisms have the same challenges, a lack of resources to provide consistent and complete information.

	LEED (RCW 39.35D)	Building Benchmarking (RCW 19.27A, EO 12-06)	Greenhouse Gas reporting (GHGR)	Results WA Goal 5 2.2	EO 14-04 State Government Operations
Definition	Requires LEED Silver minimum Certification on major facilities over 5,000 sq. ft. thru USBGC process	EO 12-06 - Reduce energy usage in state buildings by 20% by 2020		Reduce energy of state facilities from 120 kBtu/sq.ft./yr. to 106 kBtu/sq.ft./yr. by 2015	Improve the energy efficiency of public buildings
Lead Agency	DES	DES	Ecology	DES	DES
Affected Agencies	All new buildings over 5,000 sq. ft. and major renovations	All public agencies with buildings over 10,000 sq. ft.		All agencies - to participate in projects to reduce energy usage	All agencies - improve efficiency and reduce energy
Affected Agencies (number)*	50	63	140	140	140
Number of Buildings Affected*	139	1,900	10,300	10,300	10,300
Square Footage of Buildings Affected*	7,400,000	89,000,000	108,000,000	108,000,000	108,000,000
Reporting Description	Annual data collection/biennial report	Data available monthly from EPA's Energy Star portfolio manager database	Total Green House Gas Emissions by Agency	Currently uses GHGR data - proposed to use building benchmarking data	Proposed to use building benchmarking data to develop baseline and track progress
Reporting frequency	Biennial through 2016	Biennial – RCW 19.27A Annual – EO 12-06	Biennial - Indefinitely	Quarterly	To be determined (TBD)

Continued	**LEED (RCW 39.35D)**	**Building Benchmarking (RCW 19.27A, EO 12-06)**	**Greenhouse Gas reporting (GHGR)**	**Results WA Goal 5, 2.2**	**EO 14-04 State Government Operations**
Frequency of Data Collection	Annual	Monthly	Biennial	Currently annually Proposed monthly	TBD
Reporting Tool	Excel spreadsheets	**Energy Star Portfolio Mgr.** (EPA)	Ecology's Excel spreadsheet s	**Proposed Energy Star Portfolio Mgr.**	**Proposed Energy Star Portfolio Mgr.**
Energy Usage	Yes	Yes	Yes	Yes	Yes
Water usage	Yes	No	No	No	No
Additional Data Collected	Cost savings, Post Occupancy, LEED Bldg., cost & performance, sustainable building reports, metering & measurement reports, exemption declarations	NA	NA	NA	NA

Proposed Solution: Statewide Resource Conservation Management Program

It is proposed to create a statewide Resource Conservation Management (RCM) program, with a comprehensive energy data management system to be administered by the Department of Enterprise Services and funded through an appropriation. The RCM program will provide assistance to agencies and help the state meet its goals for data management, energy efficiency, carbon reduction, and lowering the cost of operating state facilities.

Rather than having multiple databases, it is proposed to establish the Energy Star Portfolio Manager database sponsored by the US Environmental Protection Agency as the single repository of energy data for the state. The major utility companies in the state of Washington have the ability to upload energy consumption data directly to Energy Star Portfolio Manager. The utilities with this ability account for approximately 80% of the energy consumed by the State, reducing redundant data collection effort. There will be a considerable initial setup effort to initiate the automatic upload of information.

The RCM program will help agencies set up the reporting accounts to input their energy usage into the Energy Star Portfolio Manager. This will provide reliable and actionable data that can be used to make informed decisions. It will also help agencies identify where they should make energy efficiency improvements. Energy data can be used to track progress towards Results Washington goal 5 2.2. The energy use data from Energy Star can also be used for the Ecology Greenhouse Gas Report. The use of this data could result in an increase in the number of agencies reporting energy usage to Ecology. If the buildings affected by LEED reporting were entered into Energy Star Portfolio Manager, the energy data for the LEED report would be easier to obtain.

The RCM also plays an important role in developing capital improvement projects that provide long-term energy savings. This will result in energy savings performance contracting projects. While systematically leveraging operating and capital funds to achieve more energy and greenhouse gas emission reductions.

As the energy champion, the RCM provides valuable oversight and strategic planning in complying with the various statutory requirements for public agencies. By removing this burden, agencies will be able to concentrate on their critical mission and meet the operational goals required by statute.

LEED Training and Processes

Training related to LEED is an ongoing effort for project managers. Periodic training is provided to state project managers regarding LEED and the quality assurance process.

Contractors are critical to the success of LEED projects. While architects are selected based on their knowledge of LEED, as well as qualifications, contractors are selected based on their bid, but not necessarily on their knowledge of LEED. To meet this challenge, it was determined that the state could require the successful contractor to either have experience with LEED or be required to participate in a free training.

DES worked with the Department of Ecology and the Cascadia Regional Green Building Council to develop the Build-It LEED toolkit that is a training program geared for contractors. It consists of a two-hour presentation, an Excel workbook and a notebook. The department's Green Building advisor provides the training to contractors.

Over the past two years, the advisor has given several free trainings to contractors, project managers and owners' representatives. Many contractors are now proficient with LEED, so Build-It-LEED training requests are less frequent.

Building operator interview recommended process

Green buildings are often a mixture of systems that respond to natural forces, such as daylight and natural convection, and mechanical HVAC systems and artificial light. These buildings have operating plans that change based on time of day and time of year. Systems can be automated and designed for occupant involvement. As a result, it is important that building operators and occupants understand these systems and the strategies to preserve comfort and maximize efficiency. Visits to some of the early state LEED projects have shown that green buildings are not always operated optimally. This can lead to higher energy use and uncomfortable occupants.

In an effort to improve building performance and occupant comfort, DES is proposing that it perform a building operator interview after the building has been occupied for two to four months. The interview would include the following:

- Review of building operations manuals (if developed).
- Review of case study to understand green features of the building.
- Interview with building operator to determine familiarity with the green features and strategies for operation.
- Review the schedules and strategies incorporated into the building automation system with the building operator to determine their knowledge of the system.
- DES would develop a summary report for the building operator. It would include appropriate recommendations for improvement. An electronic copy of the report would be kept by the department.
- This effort will require additional funding to conduct and facilitate reporting.

Post-occupancy evaluation recommended process

DES has collaborated with the Washington State University Extension Energy Program to develop a post-occupancy evaluation (POE) process that takes into account the design and operation of buildings as they related to occupant performance.

The process would be a valuable tool for DES to evaluate the effectiveness of the green building effort and to share these experiences throughout the state. The reports developed from the evaluation of each state LEED building would provide energy and water savings information, maintenance-related impacts and occupancy survey results. These reports would be posted as case studies on the DES Green Building website.

The POE process would be implemented between 10 to 15 months after occupancy. Performing the POE before 12 months would help to identify issues prior to the end of the warranty period.

Rules

The Attorney General's Office has determined that rules are not currently needed for implementation of RCW 39.35D. DES has developed guidelines for tracking projects through its LEED QA process. They use this tool to make sure proper attention is given to LEED issues throughout the project design and construction.

Purpose of commissioning

Commissioning is a process for achieving, verifying and documenting that the performance of a building and its various systems meets the design intent, contract documents, and the owner's operational needs.

The purpose of commissioning a project is to provide the owner and their facility operators with a high level of assurance that the mechanical, electrical and temperature control systems are installed in compliance with the design intent and contract documents. This process does not do away with the responsibility of the system designers or installing contractors, nor is it intended to be a redundant testing or inspection function. Commissioning is performed to complement the efforts of the designers and contractors, enhancing the quality of the systems and aiding in their orderly transfer to the owner. The expected benefits of successfully commissioning this project are that the owner will receive systems that perform at or above the expected level, with reduced operation and maintenance costs. Commissioning also documents system performance parameters to facilitate fine-tuning of control sequences and operational procedures, and to assist in future troubleshooting.

It is recommended by DES that enhanced post commissioning' is contracted separately by the agency, especially within 10 to 12 months after substantial completion (tied to warranty period) and the "Post Construction Energy Model" are simultaneously completed to confirm the design energy modelling is being achieved. This analysis would then be added to his reporting to confirm if the facility operation is performing to the original design goals.

Green Building Metrics

One of the challenges of measuring the benefits of green building is developing metrics to track and report. The important attributes, where this data is found in the LEED process and DES LEED QA process, are described below.

Building square footage and cost

Building square footage and cost, along with building type and use, are important elements to consider when comparing buildings. The added cost related to LEED is also important in determining the cost-effectiveness of LEED buildings. Building cost per square foot allows for comparing buildings of different size in a common unit of measure. This data is available in the LEED project summary.

High-performance green buildings help the state achieve a number of goals, including:

- Energy efficiency and reduced reliance on imported energy.
- Water efficiency to stretch resources.
- Reduced stormwater runoff into streams, rivers, lakes and Puget Sound.
- Reduced reliance on the automobile, which lessens traffic congestion and the carbon footprint.
- Reduced construction waste going to landfills.
- Increased use of recycled materials.
- Use of Washington-made products and materials.
- Protection of forests and habitat.
- Improved working and occupant health and productivity.

Energy efficiency and renewable energy production

Energy efficiency and Pacific Northwest regional production of renewable energy provides multiple benefits by:

- Lowering operating costs.
- Reducing emissions from energy sources (mostly electric and gas), which lower greenhouse gas impacts.
- Improves local economy (energy dollars saved and earned may stay local).
- Reduces energy imports.

  Applicable LEED credits:

  - EAc1 – Optimize Energy Performance (percent energy cost savings, percent energy, Btu savings, kWh and Therms, or other fuels/year).
  - EAc2 – On-Site Renewable Energy (kWh and/or Btu/year).

Water efficiency

Efficient use of water can also provide these benefits:

- Lower operating costs.
- Improved water availability for other uses.
- Greater capability of existing supply infrastructure to serve expanding customer base.
- Reduced need for expansion of wastewater treatment facilities.

  Applicable LEED credits:

  - WEc1 – Water efficient landscaping (percent water savings and gallons).
  - WEc2 – Innovative wastewater technologies (0 or 1 point).
  - WEc3 – Water use reduction (percent water savings and gallons).

Stormwater management

In an effort to clean up streams, rivers, lakes and Puget Sound, Washington is aggressive on management of stormwater. This is critical to protect salmon and other fish habitat, and helps serve as another measurement of the overall health of the environment.

  Applicable LEED credits:

  - SSc6 – Stormwater design (0, 1 or 2 points).

Alternative transportation sources

Transit options can ease traffic congestion and improve air quality by reducing vehicle emissions. The use of bicycles can also help reduce vehicle traffic and cut emissions while improving the health of building occupants. Walking access to services, such as restaurants, banks and stores, also improves building occupant health and reduces congestion.

Applicable LEED credits:

- SSc2 – Development density and community connectivity (0 or 1 point)
- SSc4.1 – Public transportation access (0 or 1 point)
- SSc4.2 – Bicycle storage and changing rooms (0 or 1 point)

Table 5 – Construction waste recycling

Bldg. #	Agency	Building name	Location	Tons	Percent recycled
7	Bellevue College	Science & Technology Building	Bellevue	1,149.7	98.0%
65	Dept. of Social and Health Services	Echo Glen	Snoqualmie	135.6	97.6%
71	Green River CC	Salish Hall	Auburn	353.0	98.8%
72	Lake Wash. Tech College	Allied Health Building	Kirkland	702.0	91.0%
75	Military Dept., WA State	Washington Youth Academy	Bremerton	71.2	95.0%
22	North Seattle CC	Intergrated Services Center	Seattle	200.7	95.7%
24	Peninsula College	Maier Hall & West Campus	Port Angeles	315.0	84.0%
1	Skagit Valley College	Science & Heath Building	Mount Vernon	749.1	97.1%
79	Seattle Central College	Wood Construction Center	Seattle	236	97%
2	UW	Joy Building	Seattle	368	95%
42	UW	Business Hall (Balmer Hall)	Seattle	3657	91%

Construction waste recycling

Nationwide, more than 40 percent of the waste going to landfills is from construction waste. Recycling of this waste can:

- Extend the life of landfills.
- Provide a source of other materials and products.
- Reduce the impacts of extraction of raw materials.

Applicable LEED credits:

- MRc2 – Construction waste management (percent recycled and tons).

Table 6 – Recycled content materials

Bldg. #	Agency/University	Building name	Location	Recycled content materials	Percent Total materials cost*
7	Bellevue College	Science & Technology Building	Bellevue	$1,146,427	21.2%
71	Green River CC	Salish Hall	Auburn	$1,767,439	34.9%
72	Lake Wash. Tech College	Allied Health Building	Kirkland	$1,869,817	41.6%
75	Military Dept., WA State	Washington Youth Academy	Bremerton	$35,280	4.5%
22	North Seattle CC	Intergrated Services Center	Seattle	$721,935	24.5%
24	Peninsula College	Maier Hall & West Campus	Port Angeles	$1,160,642	22%
1	Skagit Valley College	Science & Heath Building	Mount Vernon	$1,039,282	23.8%
79	Seattle Central College	Wood Construction Center	Seattle	$1,185,000	35%
2	UW	Joy Building	Seattle	$74,951	23.7%
42	UW	Business Hall (Balmer Hall)	Seattle	$1,393,836	26%

**Percent of materials cost (in Divisions 2-10, does not include plumbing, electrical or HVAC equipment).*

Use of Recycled content materials

Purchase of recycled content materials reduces the demands for “virgin” supplies. This reduces environmental impacts and creates local jobs by closing the recycle loop.

Applicable LEED credits:

- MRc4 – Recycled content materials (percent-recycled content materials and cost).

Table 7 – Regional materials

Bldg. #	Agency/University	Building Name	Location	Regional Materials Cost	Percent Total Materials Cost*
7	Bellevue College	Science & Technology Building	Bellevue	$626,985	11.6%
71	Green River CC	Salish Hall	Auburn	$760,690	15.0%
72	Lake Wash. Tech College	Allied Health Building	Kirkland	$1,106,017	22.8%
75	Military Dept., WA State	Washington Youth Academy	Bremerton	$290,758	51.7%
24	Peninsula College	Maier Hall & West Campus	Port Angeles	$923,568	17%
1	Skagit Valley College	Science & Heath Building	Mount Vernon	$10,090,424	25%
79	Seattle Central College	Wood Construction Center	Seattle	$510,000	15%
2	UW	Joy Building	Seattle	$636,171.39	20.3%
42	UW	Business Hall (Balmer Hall)	Seattle	$1,169,190	22%

**Percent of materials cost (in Divisions 2-10, does not include plumbing, electrical or HVAC equipment).*

Use of Regional Materials

The use of regional materials (within 500 miles of job site) can create the following benefits:

- Create and retain local jobs.
- Keep money in the local economy.
- Reduce the trade imbalance.
- Reduce emissions from transportation of materials and products.

This is the only LEED metric that demonstrates the use of Washington materials (RCW 39.35D.090: Use of local building materials and products). If a project did not use enough to meet the 10 percent threshold, it was not reported.

<u>Applicable LEED credits:</u>

- MRc5 – Regional materials (percent regional materials and cost)

Protect forests by supporting sustainable forestry

The purchase of Washington Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI) certified wood ensures that the lumber is harvested in a sustainable way and the wood has the chain of custody documentation to prove it. Sustainable forestry practices protect wildlife habitat, streams, rivers and lakes and guards against excessive soil erosion. This helps protects the natural environment for future generations.

Applicable LEED credits:

- MRc7 – Certified wood (0 or 1 point)
- Washington also recognizes as sustainable forestry the harvest of wood that complies with the state's Forest and Fish Law.
- Other third-party certified wood also is recognized by Washington as meeting the intent of this LEED credit.

Good indoor air quality

Good indoor air quality is a key to a healthy work environment, contributing to better worker productivity and reduced sick leave. Factors that can contribute to poor indoor air quality include:

- Dust in the ductwork and equipment from construction.
- Toxic fumes from construction practices absorbed into ceiling tile and carpet.
- Outgassing of materials with toxic fumes (volatile organic compounds).
- Outgassing of copiers and other equipment or activities in the building.

Applicable LEED credits:

- EQc3 – Construction IAQ management plan (0, 1 or 2 points).
- EQc4 – Low-emitting materials (0, 1, 2, 3 or 4 points).
- EQc5 – Indoor chemical and pollutant source control (0 or 1 point).

Access to natural light

Access to daylight has been shown to improve worker and student performance. It provides a connection with natural light, which enhances colors and overall visibility. Having access to views can also improve occupant satisfaction and help with worker retention.

Applicable LEED credits:

- EQc8 - Daylight and views (0, 1 or 2 points).

Use of Energy Star reporting for energy and water use

Complete energy and water usage was received from 29 LEED projects. The reporting forms are found in Appendix 8. The reporting forms used by DES are comprehensive and provide base data about the building size, use, high-energy using equipment, and more. It is necessary to get this form completed at least once for each project. In response to RCW 19.27A.190 (5), the department is actively assisting agencies to establish Energy Star Portfolio Manager accounts for all buildings larger than 10,000 square feet. This is an opportunity for the DES Green Building Program to use this mechanism. It can be used to collect energy and water consumption data and reduce facility operators' efforts to obtain this information. Over the next two years, DES will refine this process and work with facility management staff to work towards using the Portfolio Manager for energy and water reporting.

Agency/University sustainable building reports summary

Agencies and universities are required to provide biennial reports to DES to show their progress related to their Green Building efforts. DES developed a template that is used by the agencies and universities to report green building activities, provide general comments, discuss training efforts, suggest improvements and provide a discussion about their metering efforts and plans. These reports are found in Appendix 3.

Exemption declarations

The exemption declaration process was developed as a means for state organizations with projects to opt out of the LEED Silver certification process. Agencies are given three choices:

1. Pursue a LEED certification at a lower level.
2. Follow through with the DES LEED QA process reports.
3. Do nothing more.

Thirteen out of 139 projects have submitted an exemption declaration. DES' green building advisor works with those agencies to determine possible solutions that would support pursuit of LEED Silver certification, recognizing that the agencies make the final choice.

DES does not approve exemptions, but includes them in this report (Appendix 7). Each agency is responsible for its own exemptions.

Recommendations for improvement

DES has coordinated the implementation of RCW 39.35D.030 for more than nine years. In consultation with affected agencies and universities, the department has developed processes for tracking LEED projects. The following is a combination of feedback from agencies about the issues concerning implementation of the law and knowledge of the state design and construction process.

Issue: Energy efficiency will continue to be a major priority in meeting sustainability standards set by the state. To achieve improved efficiency, it is imperative that cost-effective and energy-efficient systems identified in the energy life-cycle cost analysis process be considered in the design. However, capital budget funding can be a challenge. Renewable energy systems also contribute to better efficiency, but currently may not be as cost-effective.

- **Recommendation A:** Provide capital funds to supplement projects to increase energy efficiency. DES could assist with implementation of an incentive program through review of proposals as part of the energy life-cycle cost analysis process. The analysis encourages energy efficiency by evaluating the total cost of ownership of several competing design alternatives. The intent is to help build cost-effective public facilities.

- **Recommendation B:** Establish a requirement that one-half of one percent of the maximum allowable construction cost be used for renewable energy systems, as defined by LEED.

- **Discussion:** The most cost-effective time to implement energy efficiency measures in the life of a building is at the time of design. An incentive applied to a project based on the energy life- cycle cost analysis report could fund additional energy efficiency that may have been outside the original budget. More consistent funding of renewable energy projects would help contribute to a more stable renewable energy market, creating more experienced designers and installers. This will not only stimulate more green jobs, but also enhance competition. As renewable energy technology lowers in price, Washington will be poised to respond to the demand for these systems. Renewable energy systems installed on state projects are also critical to achieving the carbon reduction goals set by RCW 70.235.050, which the Legislature enacted in 2008.

Issue: For smaller projects, the administrative cost to seek LEED certification is a much higher percentage of the total project cost than for larger projects. As a result, some of the smaller projects must opt for an exemption from the process or cut program from the project.

- **Recommendation:** Provide additional capital funding to cover the administrative costs for LEED certification funding for smaller projects (between 5,000 and 10,000 square feet). Since many LEED documentation costs are nearly the same as for much larger projects, the costs for consultant fees related to LEED documentation preparation can be a burden to the smaller projects. The additional funds would result in smaller projects that don't have to compromise design and construction to implement LEED, thus reaping the benefits.

Issue: There is no current funding for the DES Green Building Program. This makes it difficult to support the state's LEED Building efforts through guidance, reporting, and feedback.

- **Recommendation:** Provide funding for DES efforts to support state LEED projects. This would include an increased level of effort for Building Operator Interviews, Post Occupancy Evaluation, and provide feedback to the design and project management professionals. This kind of involvement can lead to better design and improved energy efficiency in LEED buildings, thus saving operating funds.

Issue: Metering is needed to track energy and water use to determine savings.

- **Recommendation**: Provide additional funding earmarked for metering to capital projects in new and major renovation projects.

Issue: Testing mechanical, electrical, and temperature control systems at the end of a project does not guarantee performance once the building is occupied and in use.

- **Recommendation**: Enhanced post-commissioning should be contracted by the agency within 10 to 12 months after the substantial completion of a project (tied to the warranty period) and a "Post Construction Energy Model" should be completed to confirm that the system meets the performance intended in the design modelling.

Recent Executive Orders

Executive Order 14-04: Washington carbon pollution reduction and carbon energy action.

Energy Efficiency

The Department of Commerce, working with the Washington State University Energy program, the State Building Code Council, and others, will develop, and implement to the extent possible and consistent with state and federal law, a new statewide program to significantly improve the energy performance of both our public and private buildings, taking into account existing state and utility efforts. The program must accelerate the cost-effective energy efficiency retrofit of existing buildings, with a support system that provides information, consumer protection, and assistance to businesses and homeowners. The program must ensure that all new buildings are as energy-neutral as possible, with advanced envelopes, efficient appliances, on-site generation, smart controls, and other features, where practicable.

The program must include the following measures:

- Provide businesses and homeowners with access to energy use, efficiency, and cost information such as building energy efficiency disclosure requirements and other means;
- Improve access to financing for energy-efficiency upgrades, including meter-based financing that ties efficiency investment to the building;
- Support vulnerable and low-income populations through weatherization assistance, setting minimum standards for rental housing energy efficiency, and securing funding for energy efficiency for non-utility fuel sources such as oil heat;
- Achieve early and widespread deployment of energy-neutral buildings prior to the 2031 statutory requirement in RCW 19.27A.160;
- Upgrade the energy efficiency of all street lighting within the state; and
- Ensure that the cost-benefit tests for energy-efficiency improvements include full accounting for the external costs of greenhouse gas emissions.

The program must include a branded campaign to effectively inform businesses and citizens of the new program and encourage its use. The program should enhance, and be compatible with, similar programs offered by utilities and others, where possible.

Executive Order 13-03: Requiring consideration of life cycle and operating costs in public works projects

Implementation

Life-cycle cost analysis shall determine the reasonably expected fuel costs for the economic life of the building that are required to maintain illumination, power, temperature, humidity, ventilation of such state-funded facility, and all other energy consuming equipment in a facility and the reasonable expected costs of probable facility ownership, operation, and maintenance including labor, and materials, and building operation. Life-cycle cost may be expressed as an annual cost for each year of the facility's use. Further, the life-cycle cost analysis may demonstrate for each design how the design contributes to energy efficiency, and conservation with respect to, any of the following: energy use, energy cost, clean energy use, water use, and water cost.

DES shall develop sustainable design principles. The principles shall include using an energy use index or other measurements that identify energy and operating savings. Agencies shall apply such principles to the siting, design, and construction of new facilities. Agencies shall optimize life-cycle costs, pollution, another environmental and energy costs associated with the constructions, life-cycle operation, and decommissioning of the facility. Agencies shall consider using Operating Performance Contracts or utility energy-efficiency service contracts to aid them in constructing sustainably designed buildings.

Appendices

State LEED "Highlighted" Project Case Studies
1) DES – Capitol Campus O'Brien Project (Gold)
2) DES – 1063 Block Replacement Project (Platinum)
3) Peninsula College – Maier Hal (Gold)

State LEED Project Case Study Gallery
1) Centralia College – New Science Center (Gold)
2) Clark College – Columbia Tech Center (Gold)
3) Skagit Valley College – Science and Allied Health Building (Platinum)
4) Spokane Falls Community College – Business & Social Science Building (Gold)
5) Department of Corrections – Coyote Ridge (Gold)

Agency and University Sustainable Building Reports
1) Department of Commerce 2014 (57 Projects)
2) Department of Corrections 2014 (14 Projects)
3) Seattle Colleges 2014 (3 Projects)
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Energy and Water Savings Reporting Spreadsheet
1) Energy/Water Consumption Contact List
2) Columbia Basin College – B Business Building
3) Columbia Basin College – Center for Career and Technical Educations
4) Echo Glen Children's Center – Phase 2 Cottages & Classroom
5) Everett Community College – Student Fitness Center
6) LWIT – Allied Health Building
7) LWIT – Redmond Building
8) Olympic College – Humanities and Student Services
9) Olympic College – Sophia Bremer Childcare Development Center
10) Peninsula College – Meier Hall, Building E
11) Pierce College – Arts & Allied Health
12) Pierce College – Rainier 2013
13) Pierce College – Rainier 2014
14) Skagit Valley College – Angst Hall
15) Spokane Community College – Jenkins Wellness Center
16) Spokane Community College – Music
17) Spokane Community College – Business and Social Science
18) Spokane Community College – Standard Technical Education
19) SPSCC – Auto, Welding & Central Services

20) SSCC – Gene J Colin Building Additions
21) Tacoma Community College- Building 3 Early Learning Center
22) University of Washington – Floyd & Delores Jones Playhouse
23) Washington Military Department – Dorm/Office
24) Washington State University – Vancouver Undergraduate Building
25) Washington School for the Blind – Kennedy Fitness Center 2013
26) WA School for Blind – Kennedy Fitness Center 2014
27) WA School for Deaf – Oliver Kastel Vocational Ed & Facilities Support Building
28) Washington State University – Vancouver Engineering & Comp Science Building
29) Edmonds Community College – Meadowdale Hall

Metering & Measuring Reports

1) University of Washington – Clark Hall
2) Bellevue College – Science & Technology, Building S
3) Centralia College – New Science Center
4) Grays Harbor College – Childcare Center
5) Pierce College Puyallup – Arts & Allied Health Building
6) Tacoma Community College – Building 3, Early Science Center
7) University of Washington – Savory Hall
8) Washington State University – Vancouver Engineering & Computer Science Building
9) Washington State University – Vancouver Undergraduate Building
10) Bellingham Technical College – Campus Center
11) Echo Glen Children's Center – Phase 2, Residential Housing Renovation
12) Pierce College Fort Steilacoom – Rainier
13) Edmonds Community College – Meadowdale Hall

LEED Building Cost & Performance Data

1) University of Washington – Business School Phase 2
2) University of Washington Tacoma – Joy Building
3) Bellevue College – Science & Technology Building
4) Cascadia Community College – Classroom Building 2, Bothell
5) Green River Community College – Salish Hall, Auburn
6) LWIT – Allied Health Building, Kirkland
7) NSCC – Integrated Resource Center, Seattle
8) Peninsula College – Maier Hall
9) SCCC – Wood Construction Center, Seattle
10) Skagit Valley College – Angst Hall, Mount Vernon
11) Echo Glen Children's Center – Phase 2, Renovation
12) Peninsula College – Allied Health & Early Childhood

Exemption Declarations (2012-2014)

1) City of Bellingham – Bellingham Federal Building
2) Fort Vancouver National Trust – Quarter Master & Dental Surgery Project
3) Foss Waterway Seaport – Balfour Dock building/Tacoma
4) Grays Harbor Historical Seaport – Seaport Landing

5) Historic Seattle – Washington Hall Restoration Project
6) Pacific Science Center – Yamasaki Courtyard Restoration Project
7) Western Washington University – Buchanan Towers
8) Department of Transportation – Alaska Way Viaduct
9) Peninsula College – For Worden Building

Instructions and Forms
1) LEED Quality Assurance Process Guidelines Instructions
2) High-Performance Green Buildings – Exemption Declaration Form
3) High-Performance Green Buildings – Pre-Design/Schematic Design Submittal Form
4) High-Performance Green Buildings – Design Development Submittal Form
5) High-Performance Green Buildings – Construction Documents Submittal Form
6) High-Performance Green Buildings – Alternative Wood LEED Point Compliance Form
7) Environmental Design Considerations Form
8) State LEED Project Energy & Water Metering Plan
9) Metering and Measurement Report Template
10) Sustainable Building Report Template
11) Energy & Water Consumption & Savings Report Form
12) LEED Building Cost & Performance Data Form
13) Explanations

CPWR: Green Construction Update: Feb. 2014, Vol.3, No.

Natural Ventilation: The Nine Biggest Obstacles and How Project Teams Are Beating Them

Appendix 1

State LEED “Highlighted” Project Case Studies

1. Department of Enterprise Services – Capitol Campus O’Brien Project (Gold)
2. Department of Enterprise Services – 1063 Block Replacement Project (Platinum)
3. Peninsula College – Maier Hall & West Campus (Gold)

Washington State Department of
Enterprise Services

John L. O'Brien Building Renovation

Project Specifics:

Gross square footage:	103,000 sf
Renovation cost:	$43 Million
Completion Date:	March 2012
LEED rating:	GOLD

Tenant:	Washington State House of Representatives
Project Manager:	Dwayne Harkness
Architect:	Duarte Bryant
General Contractor:	Berchauer Phillips Const.
LEED Building Advisor:	Stuart Simpson

This building is on the National Register of Historic Places as Washington State Capitol Historic District (listed in 1979)

Department of Enterprise Services

John L. O'Brien Building Renovation

The John L. O'Brien Building, originally known as the Public Health Building, was one of six government buildings envisioned in the 1911 Capitol Master Plan designed by architects Walter Wilder and Harry White. Building Construction began in 1938 and completed in 1940. Federal relief funds were used to finance the original construction project.

In 2007, the Washington State House of Representatives began modernizing this office building with a strong vision for preserving the integrity of its unique design. The roughly $43 million project overhauled the mechanical, electrical and plumbing systems, corrected life-safety code deficiencies, strengthened seismic resistance, and realigned offices to improve space use of the upper three floors.

Energy conservation measures included replacing lighting systems and improvement to the building envelope from changes to windows, insulation, and roofing.

Over 95 percent of the demolition rubble was collected and sent to recycling centers or reused on site, reducing the amount of material sent to landfills and the associated project costs. In addition, reusing these materials reduced the demand for extracting, manufacturing, and transporting new products.

The project replaced:

- Lighting systems with a modern, energy efficient system.
- HVAC system with modern equipment that improved air quality and is more energy efficient.
- Disparate mechanical and electrical control systems with a unified system that provides better occupant comfort and improved efficiency.
- Galvanized pipe plumbing with copper pipe
- Telecommunications systems with greater capacity and more modern equipment.
- Two elevators

In addition, hazardous material was removed, primarily asbestos, the emergency generator capacity was expanded, a fire protection sprinkler system was added, and the exterior was thoroughly cleaned and repaired. Seismic improvements were made to meet current standards and space efficiencies were improved throughout the building, including the basement.

Bicycle parking was added for occupants and the building uses the campus green housekeeping program. The John L. O’Brien Building Renovation made the O’Brien building the first state building on campus to receive a LEED rating.

1063 BLOCK
REPLACEMENT PROJECT

The proposed 1063 Block Replacement project establishes a new standard for State buildings through a set of interrelated strategies and high-performing achievements, including:

» 100% outside air ventilation system & large windows for daylight improve productivity & reduce the number of worker sick days.

» Building energy performance of 30.1 kBTU/SF/yr (energy use per SF per year).

» A zero emissions renewable solar power roof-top system that will generate 7% of the building's energy, improve the building energy performance and place the building in the top 1% of buildings nationally.

» Energy Star score of 99.

» 35% reduction of potable water through efficient fixtures.

» 50% reduction of irrigation water usage through the use of native or adapted plants and high efficiency irrigation systems.

» 75% construction waste diversion rate through on-site separation of recyclable materials.

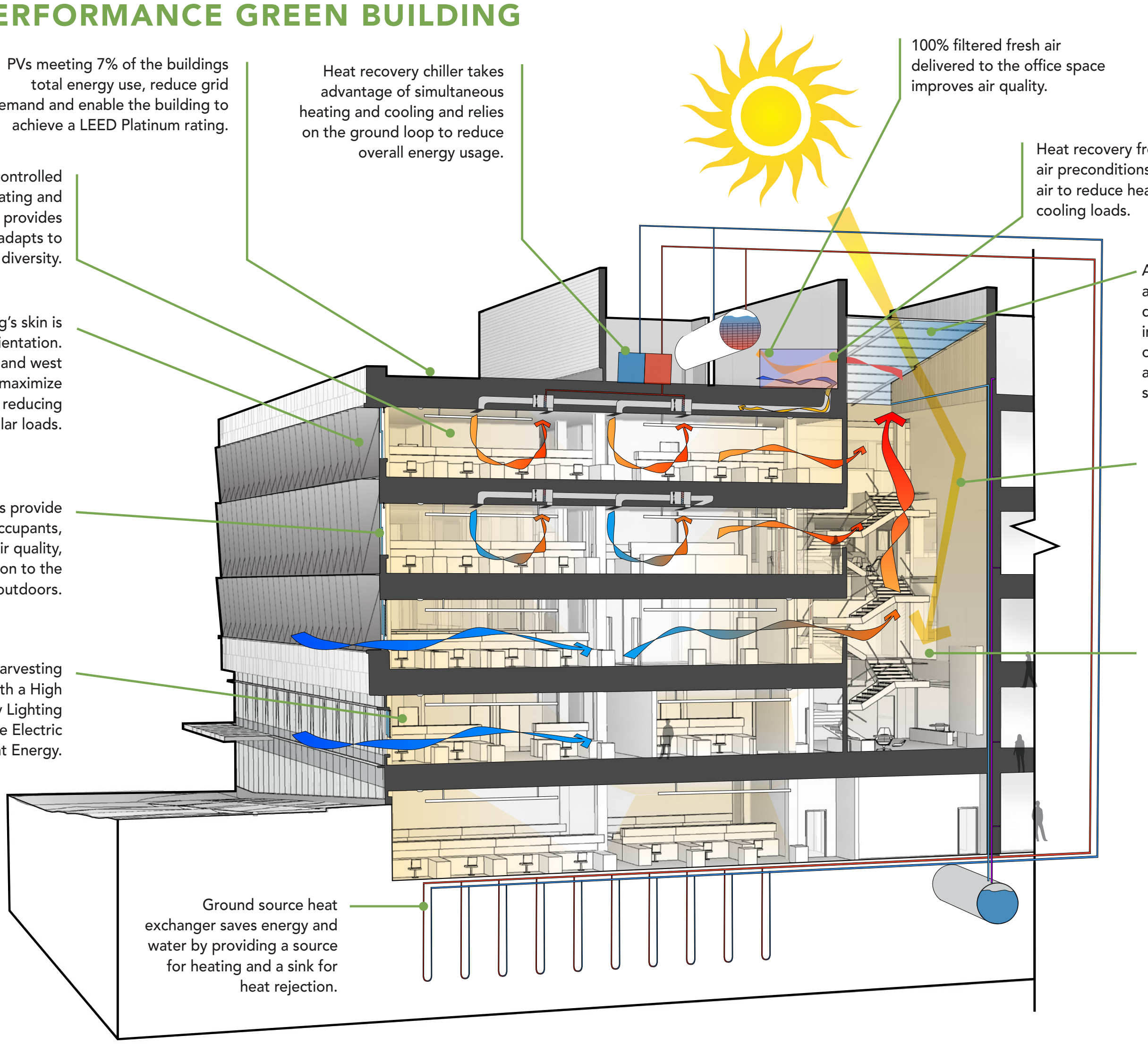
» Building's energy efficiencies reduce Green House Gas Emissions by approximately 2.8 million pounds/yr

PROJECT SPECIFICS

Gross Square Footage	**215,000 SF**
Design-Build Cost	**$65,500,000**
Construction Cost	**APPROX. $287/SF**
Projected Operating Savings	**$60,000/YR**
Anticipated LEED Rating	**PLATINUM**
Estimated Utility Incentive	**$150,000**
Project Manager	**RICK BROWNING, DES**
Architect	**ZGF ARCHITECTS LLP**
General Contractor	**SELLEN CONSTRUCTION**
Structural Engineer	**KPFF**
Mechanical Engineer	**WSP USA CORP**
Civil Engineer	**KPFF**
Electrical Engineer	**GERBER ENGINEERING**

Washington State Department of
Enterprise Services

HIGH-PERFORMANCE GREEN BUILDING



For every dollar invested in the project, an estimated 75 cents will be reinvested back in Washington companies and workers through material and labor costs. "Made in Washington" products and technology will be found throughout the building, further reducing its carbon footprint.

The floor plate will be thinner than conventional office buildings, providing tenants with more daylight and control over their environment through easy access to operable windows that provide passive cooling and increased fresh air. Other sustainable features include:

- A five-story high atrium that brings natural light into work areas throughout the building.
- Low energy LED lighting throughout building
- High-efficiency building systems, including a ground source heat exchange, photovoltaic panels and a smart HVAC system that provides 100% full fresh air.
- Extensive metering to track, diagnose, and control building performance and energy
- High-quality, durable exterior building envelope materials to harmonize with sandstone of historic West campus buildings.
- State-of-the-art wireless and other information technology infrastructure built in.

The building's thoughtful central plant makes double use of the heat recovery chiller. In the winter, these heat recovery chillers pull heat from the ground to heat the building for a majority of the time. In the summer, the heat recovery chillers cool the building and reject heat to the ground, minimizing the use of water consuming cooling towers.

The total building annual energy cost will be almost $50,000 less than a building built to the current Washington State energy code. This cost will be further reduced by the renewable solar power system that will generate almost $10,000 worth of electricity each year.

The building will offer numerous amenities to tenants and visitors including a 5th floor deck with views of Puget Sound and the Olympic Mountains. Generous outdoor plaza areas provide weather protection, landscaping, seating, bike parking, and areas for artwork.

This high-performance building will not only reduce the state's impact on the environment, but with the photovoltaic array will be the first state-owned building to achieve LEED Platinum, making it in the top one percent of buildings nationwide for energy efficiency.

LOCATION

1502 E Lauridsen Boulevard
Port Angeles, WA

OWNER

Peninsula College

SUSTAINABILITY

LEED Gold Certified
Architecture 2030 Case Study

AWARDS

Masonry Institute of Washington
Merit Award, 2012

AIA Seattle Honor Awards
Merit Award, 2011

American School & University
Post-Secondary Citation, 2011

AIA Seattle
What Makes It Green?, 2010

Maier Hall

Maier Hall is a 69,650 sf multi-disciplinary center for fine arts, music, humanities, and instructional support programs located at Peninsula College in Port Angeles, Washington. The building provides state-of-the-art instructional space for a wide range of educational programs. It houses the College's Learning Center, provides general purpose classrooms for Math and English and includes studios for Music and the Fine Arts. A 134-seat performance hall is the focal point of the building and serves as a multi-purpose classroom. It can be acoustically tuned for music performance, lecture and film. Designed to create a place for students and faculty to engage in the College's academic community, the new facility serves the College's mission of becoming a regional center for continuing and higher education.

The building is sited to connect the community spaces on campus to the surrounding natural environment, while minimizing impacts to sensitive adjacent ecosystems. The site borders virgin forests, wetlands and an ecologically-sensitive ravine. The building form wraps around a first-growth grove of tree and serves as an edge to the existing campus and as a gateway to the wetlands and woodlands beyond. An open-air breezeway allows students to pass through the building from the campus to the forest and leads them to a viewing platform at the wetland edge.

The building is designed for sustainability. All new plantings are native species requiring no permanent irrigation system. Rainwater is collected and directed to the adjacent wetland, which is lacking water due to the campus' original stormwater system. An epiphytic roof of native mosses reduces heat island effect, while exterior sun screens reduce glare and unwanted solar heat gain. Heating is provided by a geothermal well field and ground-source heat pumps.

The building features extensive use of natural light, natural ventilation and natural cooling through the use of operable windows. These features bring students into direct contact with the unique environment of the campus and reinforce the College's commitment to sustainability and its expanding programmatic emphasis on environmental issues. The project is designed to exceed the 2011 target of the Architecture 2030 Building Challenge for reducing energy use intensities, greenhouse gas emissions and dependence on fossil fuels.

The project has been LEED Gold certified.

Appendix 2

State LEED Project Case Study Gallery

1.	Centralia College – New Science Center	LEED Gold
2.	Clark College – Columbia Tech Center	LEED Gold
3.	Skagit Valley College – Science and Allied Health Building	LEED Platinum
4.	Spokane Falls Community College- Business & Social Science Building (Sn-w’ey’-mn)	LEED Gold
5.	Department of Corrections – Coyote Ridge	LEED Gold

Centralia College New Science Center — LEED Gold

CENTRALIA COLLEGE

Project specifics

Gross square footage:	69,984 SF
Construction cost:	$23,980,983
Project occupied:	April 2009
Energy savings:	$ 33,171.00 and 5,486 KBtu/Yr
Water savings:	$ 197.24 39,761.67 gallons
Waste recycled:	311.74 Tons / 96.493%
Added LEED cost*:	$ 291,296.00, 1.3% of Constr.
Incentives:	none
LEED Payback**:	8.7 Years
CO_2 savings:	194 Tons

Design and construction team

Owner's representative:	Steve Ward, Centralia College
Project manager:	Jim Copland, General Administration
Architect:	Leavengood Architects
Structural engineer:	Arun Bhagat, AKB Structural Engineers
Mechanical engineer:	Wood Harbinger
Civil engineer:	Saez Consulting Engineers, Inc.
Electrical engineer:	Wood Harbinger
Landscape architect:	Karen Keist Landscape Architects
LEED consultant:	Green Building Services
General contractor:	Schwiesow Construction

The New Science Center at Centralia College is designed as a platform for discovery, organized to activate a vibrant and friendly pedestrian environment. The new three story concrete and steel structure is sympathetic to the original order of the street, housing the science departments, the nursing facilities, general classrooms and administrative offices. The project's visual and physical connections between the interior and exterior, creates an environment that promotes strong campus and community links, while offering innovative new learning opportunities.

Designed prior to the Washington State Sustainable requirements, the project achieved a gold status, without any revisions to the design. This can be attributed to the straightforward approach to achieve the sustainable goals for the campus. Working within a tight budget and a building type that typically has a high-energy demand, the sustainable design is characterized by efficiency and a passive common sense approach to design, in lieu of expansive active systems.

The expression of the passive design is captured in the new structures sun control systems. Overhangs and louvers were designed and tested with the Lighting Lab in Seattle, to reduce energy loads while activating natural lighting and social connections. Rain gardens defined a new passive approach to Storm Water Control for the campus, eliminating the expense of underground water detention. In addition, the College sought sustainable directions in materiality that was not only durable, but also long lasting.

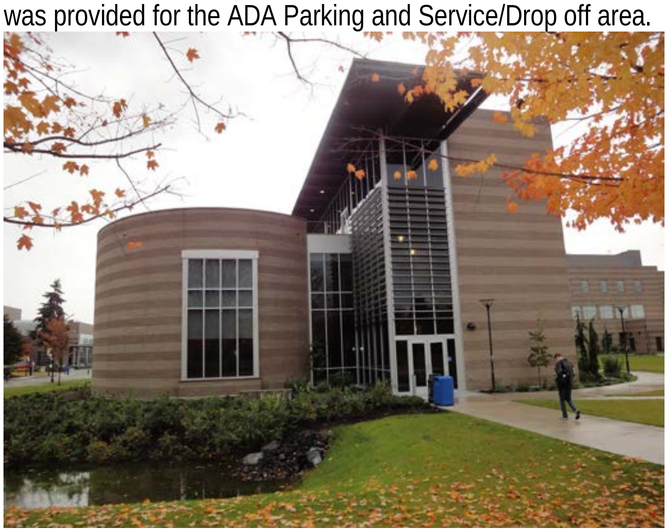
http://www.ga.wa.gov/eas/green
Phone: (360) 902-7199 Fax: (360) 753-2848
Email: ssimpso@ga.wa.gov

Sustainable sites

Land improvement:
The New Science Center not only energize an existing pedestrian environment, it invites students to explore the world of science. With generous amounts of break-out spaces, laboratories and classrooms, the New Science Center communicates its environmental goals by contributing to a vibrant and healthy community. The new structure fosters public participation, with indoor/outdoor spaces that flow together spatially and visually. The project is part of the existing residential neighborhood, lending 43,000 SF of open space to both the campus and the community,

The New Structures replaces the existing science building and two classroom structures that have all reached the end of their building life cycle. Asbestos was identified in the existing science building, the site was classified as a brown-field and cleaned up prior to construction.

In the post development condition the new facility will add 0.16 acres of impervious surface. A passive approach to storm water management was set as a priority. Three infiltration rain gardens were implemented with a total bottom surface area of 1,453 SF. Sized for a 3-inches per hour infiltration rate, the rain gardens offset the storm water runoff and erosion from the site. Additionally a pervious concrete was provided for the ADA Parking and Service/Drop off area.



Alternative transportation:
The primary means of transportation to the campus has historically been the automobile. To inspire alternative means of transportation, the site is located adjacent to existing city bus lines. Bicycle facilities are located adjacent to the structure and electric power has been provided for alternative transportation vehicles in selected parking spaces around the building. No additional parking spaces were added to the campus parking plan as a result of this project, other than two ADA parking spaces off Locust Street. As a result this leaves an open area on the east side of the building for outdoor activities, graduation ceremonies terraces and pathways that connect the building to the campus.

Light pollution reduction:
All new light fixtures for the site are shielded to prevent light pollution of the night sky, the natural environment and crossing the property boundary. Existing Campus Street Lights have been retrofitted to minimize the night sky pollution while providing a safe and secure campus.

Water efficiency

Potable water has been reduced by 42.7%. The approach for the water harvesting, detention and conservation is defined as passive. With the exception of irrigated turf, Planting material chosen selected is native and drought resistant, once established irrigation will be not be needed.= This helps offset the open lawn areas required as a programmatic requirement for graduation ceremonies.

Dual flush toilets, water efficient faucets, low flow urinals, lavatories and kitchen sinks, all contribute to the to reduce water use for the Structure.

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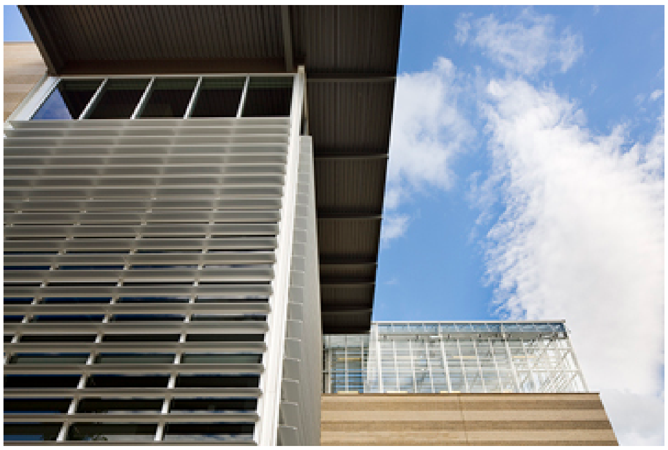
Energy and atmosphere

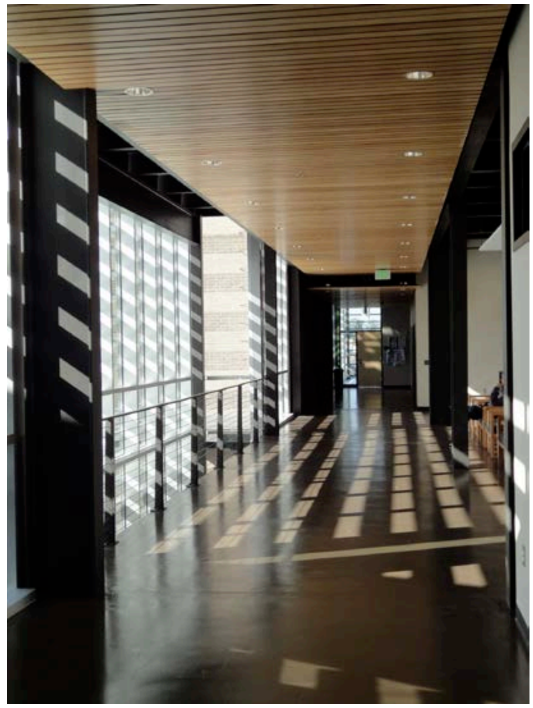
A number of energy conservation measures are designed into the New Science Center to reduce the overall energy savings for the site. Highly insulated building envelope including walls, and windows, high efficiency lighting and a highly efficient mechanical system all contribute to the calculated. Large roof overhangs, and sunshades located in large glazed areas minimize heat gain. The energy performance rating has been calculated at 31.2% according to the ASHRAE methodology.



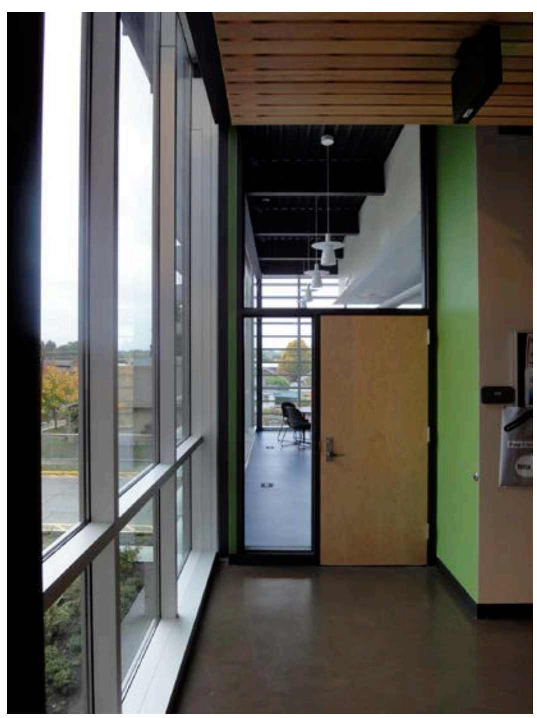
High efficient condensing gas fired boilers and hot water heaters are 13% more efficient than conventional boilers. Air conditioning systems will be provided to all HVAC systems from a central air-cooled chiller located on the roof.

Variable Air Volume controls at the Science fume hoods are balanced with the general exhaust air valves to provide a negative offset in the room to control fumes while reducing energy loads on the mechanical system.

Natural Light reaches 75% of the building floor area, while a direct line of sight to the exterior reaches 96 % of the structure. Large overhangs and solar shades reduce glare and minimizes heat gain, especially in the south and west facing elevations. Natural light is utilized to enhance the building and reduce energy consumption.



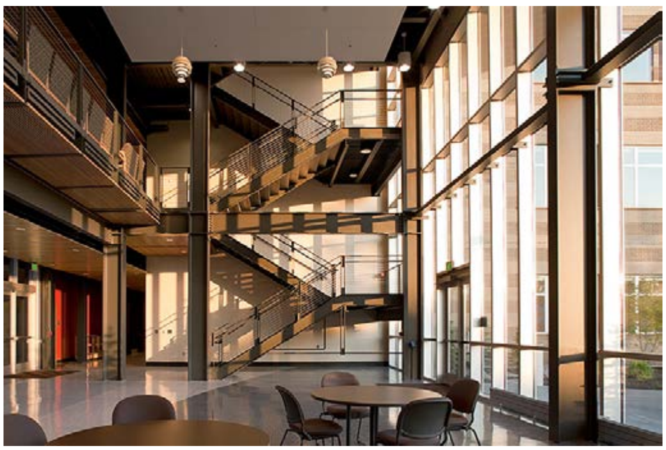
Lighting Daylight controls reduce total quantity of artificial lighting, dimming electrical lights when outside light is adequate. Classrooms are zoned to turn luminaries on only when electric lighting is needed along, thus reducing the electrical load on the project. When electric light is needed the luminaries that are zoned use power while still providing quality light to the space.



Material and resources

Occupant recycling:
A Recycling Center is established for the entire building. Concrete demolished from the existing structures on the site was removed and recycled.

Recycle materials:
Exposed Steel and Concrete constitute a visual expression of recycled and local materials utilized in the structure. Recycled Materials with over 40% content are used and expressed in the design and itemized as follows:
Steel, Cast in Place Concrete, Rebar, Precast Concrete, Suspended Ceiling Panels, Mortise Locks, Insulation, Dens Glass Gold Sheathing, Casework,



Local materials: Local Material used on the project are listed as follows:
Rebar, Steel, Cast in Place Concrete, Casework, Steel Studs, Dens Glass Sheathing, Specialty doors, Pea Gravel.

Indoor environmental quality

Low-emitting materials:
Indoor air is protected by the choices of carefully researched finishes and other potential source of fumes. All sealants, paints and adhesives were selected for low volatile organic compounds (VOC) content. Floor finishes all Low VOC as follows; carpet, exposed concrete, concrete sealers, linoleum, and terrazzo. Filtration in the mechanical system exceeds standard industry practice. Operable windows in the administrative areas allow users to control fresh air entering their spaces.

Innovation in design

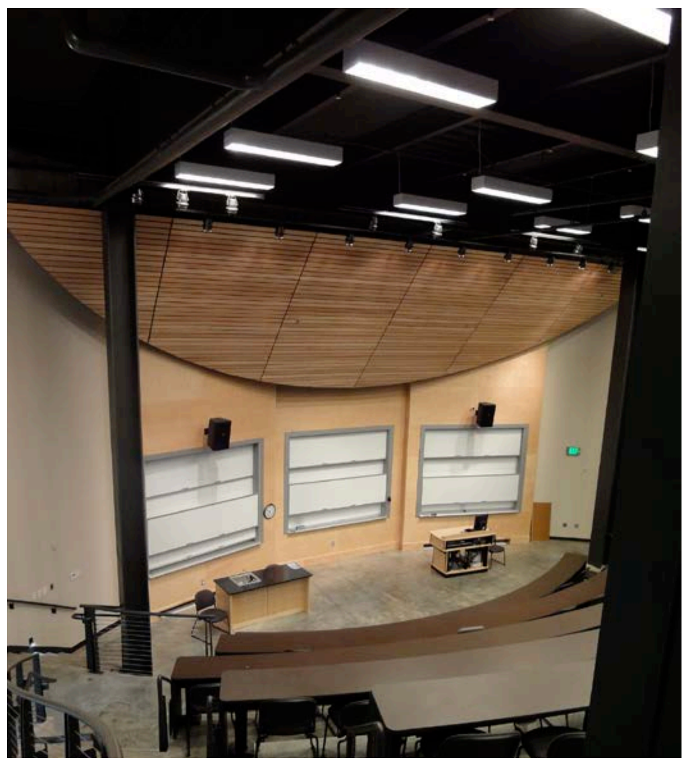
Education:
Signage is currently being developed to teach the different aspects of sustainable design to the users. Signage is being organized to show how the structure achieves sustainable design in each of the following categories:

Construction Waste:
The construction team selected division methods to divert over 95% of the construction waste from landfill.

Recycled Material:
Over 40% of the construction material was recycled

Water Efficiency:
This project used a combination of high efficiency fixtures including low flow water closets, low flow urinals and lavatories to achieve a 42.7% water use reduction.

Material Recourses:
The project team selected certified wood materials that allowed them to exceed a 95% threshold of FSC certified wood products.



Clark College at the Columbia Tech Center

Example of the Sustainable and Green Building Strategies incorporated in the Design, Construction, and on-going Operations of the facility:

Sustainable Sites:

Some of the strategies used to promote healthy ecosystems include and are not limited to:

- Capture, treatment and release of all stormwater on-site
- Use of rain gardens and bioswales for storm water treatment, *(and a celebration of our region's rain water by daylighting roof drains through artificial ponds for people to see the water being diverted from storm sewers into the rain garden, where it infiltrates and recharges the aquifer.,)*
- Reduced impervious surfacing
- Bicycle parking and Mass Transit service
- Light pollution avoidance

Rain Garden Source

Water Efficiency:

The project was designed with a projected total annual water savings of 948,184 gallons:

- Landscape Irrigation Efficiency: Over 70% irrigation water use reduction by landscaping with native and drought tolerant plant species, reducing lawn area, a high efficiency irrigation system, rain sensors, etc.(a projected savings of 810,000 gallons per year).
- Building Water Use Efficiency: 49.9% building potable water use reduction by installing low-flow fixtures, dual flush toilets, and pint flush urinals (an annual projected savings of 138,184 gallons inside the building).

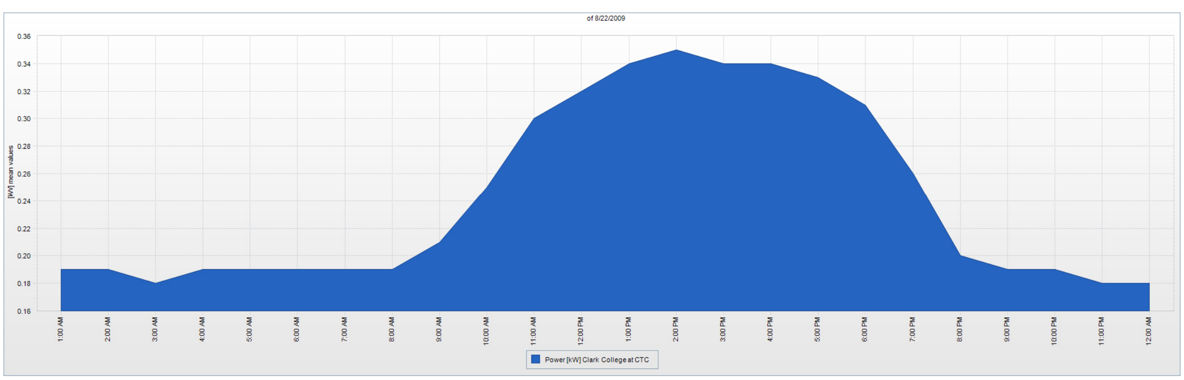
Energy and Atmosphere:

The Facility was designed with energy conservation in mind, and is targeted to perform nearly 29% more efficiently than standard buildings. The design even includes an innovative multi-story trombe wall that pre-heats the building's intake air with passive solar energy. Annual energy savings are estimated at nearly $20,000 per year (note also that bids opened nearly $500,000 below budget).

Trombe Wall

Renewable Energy: Roof-top photovoltaic arrays (one fixed and one tracking for a total of 2.25kW) and two micro-wind turbines (2 kW) will provide real-life examples of renewable energy systems for students. Students will be able to monitor the energy used by the building and produced on site, while also gaining an understanding of these alternative power sources.

PV and Micro Wind turbines



Sample graphic output of on-site power generated

Materials and Resources

Recycling:

In addition to providing recycling for building occupants, more than 95% of construction waste generated on the project was diligently recycled (323 tons) and diverted from landfills through an aggressive construction recycling and salvaging program.

Examples of Responsible Materials used on the project include:

- **32.3% Recycled** products and building materials
- **31.4% Regionally** harvested and manufactured building materials
- Certified wood from sustainable forests (FSC certified)
- Urea-formaldehyde free composite wood products and insulation
- Polished concrete floors reduce materials and maintenance needs, in addition to other low maintenance and durable materials

Indoor Environmental Quality

- **Daylighting:** Over 75% of occupied spaces have been designed with natural lighting, which has been shown to improve student performance, productivity and overall comfort of occupants.
- **Views:** Over 90% of occupied spaces will have access to exterior views.
- **Glazing and Sunshade Devices:** They block unwanted sun in summer, while capitalizing on passive daylighting and heating with deep penetration of daylight in the winter.
- **Indoor Air Quality** Non-toxic Building Materials were used, including low-VOC emitting paints, sealants, adhesives, carpets and finishes. The contractor implemented strict Indoor Air Quality management techniques during construction, and flushed out the building with fresh outside air after construction as an added precaution.
- **Mechanical system and filtration**: designed for high standards of occupant health and comfort. The general contractor adhered to a strict indoor Air Quality management plan during construction, and a complete building flush out was performed after construction to exhaust any remaining irritants. The College uses Green and healthy cleaning practices and cleaning agents to maintain indoor air quality and protect health.

Innovation in Design

Exemplary performance:
Water efficiency features of the design significantly conserve water above even the LEED Water efficiency credit thresholds.

Other Innovation:
Green Cleaning and Housekeeping practices adhere to very strict guidelines and environmentally safe products to protect the indoor environmental quality and and health of the buildings occupants and cleaning personnel.

Comprehensive green building education is provided in numerous ways to improve the public's knowledge and appreciation for green building through signage, flat panel monitors in the building, tours, Clark College program mailers, and even within the educational offerings in the building.

Starting early with an Eco-Workshop to set environmental goals, a LEED Accredited Professional (Greenstone Architecture, PLLC) was involved through out the entire design and construction process to assist in championing green building and guiding the entire integrated team through the related green design, construction, operations and LEED processes.

LEED Certification:
Although only required to achieve a Silver Rating by the State of Washington in the US Green Building Council's LEED rating system, the building is currently anticipating achieving LEED Gold Certification, and is currently in the certification review process.

LEED Costs and Savings:
The project's team goals were to design, construct and operate the facility to achieve as high a LEED certification as possible without significantly increasing first costs, and maximizing opportunities for savings over the life of the building, which has been designed to last fifty years. Integrated Design decisions were strategically selected to maximize value-based decisions.

Other savings not identified by the LEED process started with programming to reduce physical area and increase efficiency by designing multi-functional spaces. For instance; the ground floor corporate flexible learning center combined multiple program needs in one space that also should become a revenue source as a rental space when not being used by the college for educational programming. Other first cost saving features include limiting the parking area to the zoning standard minimum (reducing development costs), and concrete floors.

Building orientation was also a "free" life time savings strategy. By optimizing the solar orientation, not only are there energy savings from controlling solar heat gain, it serves to maximize passive heating, and daylighting strategies, including reduced lighting energy demand.

100% on-site infiltration of storm water not only avoided costly connection fees, but afforded a discount of over $6,000 a year from the City storm sewer impact fees.

Selection of water saving fixtures was not only a negligible first-cost item, but will contribute to a lifetime of water conservation and water/sewer service charge savings, in addition to conserving hot water and reducing energy use.

Energy Savings: Estimated at roughly $19,500 per year
Strategies that increase first cost were carefully balanced against program value, and the return on the investments (energy, maintenance, and replacement savings).

Higher quality and more efficient HVAC systems contribute to a life of energy savings, as do high efficiency lighting integrated with photocells, all incorporated with occupancy sensor controls.

On-site renewable energy systems are still a high first-cost choice with a fairly long return on the investment. However we feel the systems are more justifiable by the fact that they serve an educational program demand for the Power Utilities educational programs in the building. The installed systems were paid for by grants, and not from the State construction funds.

At a first cost premium of 1.10%, the additional first cost items relating to LEED (design team and consultant services, materials and construction, and LEED certification costs) will have a excellent return on the investment coupled with a healthier and improved learning and working environment justifies the small percentage of first cost value, especially considering the savings dividends that will continue over the future life of the building.


Skagit Valley College Science and Allied Health Building — LEED Platinum

The new Laura Angst Hall, Science and Allied Health Building, is sited on the Southwest corner of the main campus located in Mount Vernon.

The building comprises a 65,230-square-feet building with distance education classrooms, labs for nursing and other health occupations, as well as classrooms for astronomy, biology, chemistry, environmental conservation and physics.

The facility was built with a host of sustainable features including a rain garden that will also function as a lab. photovoltaic panels that supply 8.5 percent of the building's electricity, lighting that self adjusts to natural light, a system that recovers heat from lab hoods, and plumbing fixtures that use 40 percent less water.

The contractor achieved a 98 percent rate of recycling for construction waste, no new parking was added. The building achieved LEED Platinum certification.

The Distance Education portion of the building, equipped with wi-fi networks and smart classrooms will allow student options for learning opportunities at other community colleges as well as four-year universities.

Project specifics

Gross square footage:	65,230 sf
Construction cost:	$22,536,844
Project occupied:	8/2009
Energy savings:	$27,197/23,461 Therm/yr
Water savings:	121,942 gal/yr
Waste recycled:	749 tons / 98 %
Added LEED cost*:	$477,441.
Incentives:	$254,570
LEED Payback**:	8.2 years
CO_2 savings:	1,167 metric tons per year

Design and construction team

Owner's representative:	Dennis Rohloff, Skagit Valley College
Project manager:	Bob Colasurdo, GA
Architect:	Schreiber, Starling, & Lande
Structural engineer:	AHBL
Mechanical engineer:	Wood Harbinger
Civil engineer:	LBS Engineers
Electrical engineer:	K-Engineers
Landscape architect:	Murase Associates
LEED consultant:	Green Building Systems
General contractor:	Tiger Construction

Sustainable sites

Land improvement: The project removed a contaminated building within the project limits resulting in a credit for brownfield redevelopment and for maximization of open space.

Alternative transportation: Skagit valley College is served by 2 bus lines with 0.25 miles of the site. Bicycle storage, shower/changing facilities and racks have been provided.

Light pollution reduction: The project is located in a campus setting and is compliant with LEED-NC for multiple buildings and On-Campus Building Projects.

Water efficiency

Irrigation: The installed irrigation system reduce potable water consumption by 68.4% from baseline.

Water efficient fixtures: The project utilizes ultra-low flow urinals, dual flush toilets and low flow lavatories, showers and kitchen sinks for a 48% reduction from baseline.

Energy and atmosphere

Natural light: The project achieved a minimum 2% glazing factor or a minimum daylight illuminance of 25 footcandles in 75.8% of all regularly occupied spaces.

Heating and cooling: Energy efficient methods include an improved thermal envelope, high efficiency glazing, reduced lighting power density, occupancy sensors and high efficieincy water source heat pumps.

Lighting: Multi-shared and individual work stations have been provided with occupancy sensors, orverride on-off switches, and multi-level lighting controls,

Material and resources

Occupant recycling: The facility has been provided with appropriately sized dedicated areas for the collection and storage of recycling materials, including cardboard, paper, plastic and glass.

Recycle materials: The project recycled 749 tons (97.1%) of on-site generated waste.

Local materials: 24.9 % of total building materials and/or products have been extracted, harvested, or recovered, as well as manufactured within 500 miles of the project site.

Indoor environmental quality

Low-emitting materials: All indoor paint and coating products comply with the VOC limits of Green Seal and SCAQMD standards. Low emitting marials include adhesives and sealants, paints and coatings, carpet systems, composite woods and Agrifiber.

Innovation in design

Education: The project includes an educational display highlighting the building's sustainable design features as well as an educational outreach program.

Green Cleaning: The college has committed to LEED –NC v2.1 IDc1.1 CIR ruling. for achievement of a Green Housekeeping program.

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NAC|Architecture and its 63 LEED Accredited Professionals pay tribute to Community Colleges of Spokane and Spokane Falls Community College for seizing this golden opportunity to implement sustainable best practices in a campus building and for being a leader in creating a healthier environment for us all.

sn-w'ey'-mn Building Earns LEED Gold Certification From the U.S. Green Building Council

The Spokane Falls Community College sn-w'ey'-mn Building has earned LEED Gold certification, making it the first community college building in Washington state to attain this status as well as the first LEED building constructed on a Community Colleges of Spokane campus.

NAC|Architecture worked closely with CCS and SFCC to determine the most effective sustainable practices to incorporate in the 70,000-square-foot sn-w'ey'-mn Building, which houses the Business and Social Science departments. Sustainable attributes include:

+ 40% reduction in water usage
+ 90% of regularly occupied spaces have direct line of sight to one or more exterior windows
+ 75% of regularly occupied spaces are daylit
+ 95% of construction waste was diverted from landfills to recycling centers or utilized in another form on site during construction
+ Glass thermal buffer wall that maximizes daylight harvesting opportunities in the classrooms while at the same time significantly increasing the energy efficiency of the building envelope
+ MDF (Medium-Density Fiberboard), bamboo, linoleum, terrazzo and carpet tiles with recycled backing are primary interior materials
+ CCS has committed to operating the building on sustainable power for the first two years at a minimum
+ Locally produced materials including the aggregate in the terrazzo floors, masonry veneer and concrete

These and other features reduce energy usage, conserve natural resources, and lower operating costs – all while making the building an inspirational, productive and comfortable setting for education and research.

Washington State Department of Corrections

Coyote Ridge Corrections Center

Project Specifics:

Total Gross (sq. ft.):	738,029
Housing (sq. ft.):	395,341
Industries (sq. ft.):	73,564
Administration (sq. ft.):	269,164
LEED rating:	GOLD
Construction cost:	$190 M
Added cost (after rebates):	$471,000
Payback period	6 months
Completion Date:	2/18/2011
Project Manager:	Jack Olson
Architect:	Integrus Architecture
General Contractor:	Hunt/Lydig JV
LEED Building Advisor:	David Jansen

Note: Coyote Ridge includes a Minimum Camp that was not part of the LEED project.

Coyote Ridge Corrections Center is prison consisting of a large campus of 22 buildings. It opened as a minimum security prison in 1992 and began a 2,048 bed medium security expansion in 2006 which included upgrades to obtain a LEED Gold rating for the entire campus. Upgrades were completed in December 2008, and operations began in March 2009. It houses 2,353 inmates and 637 staff.

LEED features include:

- No or low volatile organic compounds (VOC) products
- Regional and recycled content materials
- Pollution prevention during construction
- Switching to low emitting & fuel efficient vehicles
- Water use reduction
- Water Reclaim and reuse for laundry facilities saving 2,160,000 gallons per yr.
- Optimizing energy performance EAc2.2-1.7
- Laundry water heat exchange
- Cooler/freezer condensing unit heat exchange
- Housing unit cell lighting sweep

RESULTS	State Avg. use other prisons	Coyote Ridge after project
Water uses (per offend/day)	140 gallons	109 gallons
Wastewater (per offender/day)	117 gallons	66 gallons

LEED Cost for Coyote Ridge Corrections Center

Ventilation air heat recovery at Housing Units and Food Service	$163,000.00
Indirect evaporative cooling for Medium housing	$ 40,000.00
Enhanced Cell Lighting Controls	$ 24,000.00
High Efficiency Air Filters	$ 17,000.00
LEED design/documentation effort	$ 80,000.00
CI Laundry water/heat reclaim system	$200,000.00
CI Building refrigeration heat recovery	$160,000.00
Design/Builder LEED Consultant/Enhanced Commissioning	$175,000.00
LEED Submittal preparation and fees	$ 30,000.00
Total	$889,000.00

The total Design-Build Cost of the project was $189 million. The LEED cost at Coyote Ridge Corrections Center was estimated to cost $889,000 (.5% of the design budget). After energy rebates of $418,000, the remaining $471,000 in LEED related costs was paid back in about 6 months through energy savings.

Appendix 3

Agency and University Sustainable Building Reports

2014 Reports (74 projects certified)

1. Department of Commerce
    - Community Capital Facilities Report
    - Housing Trust Fund (57 projects certified)
2. Department of Corrections
    - 14 Projects Certified
        - 3 LEED Gold
        - 11 LEED Silver
3. Seattle Colleges
    - 3 Projects Certified
        - 1 LEED Gold
        - 2 LEED Silver

2012 Reports (145 projects certified)

4. Washington State University
5. Central Washington University
6. Eastern Washington University
7. Western Washington University
8. The Evergreen State College
9. Department of Enterprise Services
10. Department of Commerce
    - Community Capital Facilities Report
    - Housing Trust Fund
11. Department of Corrections
12. Department of Social and Health Services
13. Department of Transportation
14. University of Washington

Sustainable Building Report

Reported by: *Michael Kendall*
Phone – 360-725-3073
E-mail – mike.kendall@commerce.wa.gov

Overview

Community Capital Facilities (CCF) administers four competitive grant programs as well as Direct Appropriations made by the Governor and the Legislature. CCF strongly urges all of its Competitive and Direct appropriation recipients to achieve the LEED Silver Status whenever possible; however Direct Appropriations and their sponsors in the Legislature continue to need greater education and understanding of the statute.

Projects

Competitive grants overview: *Due to the conversion to an online application system combined with advancing the due date of this report by 30 days, CCF has no data to report for the current 2015-17 grant cycle. Any projects recommended for funding at the conclusion of this review process will be submitted to the Governor for possible inclusion in the agency's 2015-2017 Capital Budget request. The Governor and Legislature will make the final determination concerning funding.*

As for the current biennium, CCF has 81 competitive grant contracts this reporting cycle. Of those, 45 are for our Energy Efficiency Programs which are piecemeal in nature and not eligible for LEED Certification (e.g. replacing less efficient light bulbs, etc.) Of the remaining 36, 24 have gone or indicated they are ready to go to contract. Of these, four state they are going at lease LEED Silver, nine have received a facility-type exemption and 11 have received a not practicable exemption.

Direct appropriations overview: *Capital Programs has been asked to administer 87 projects placed in the 2013-2015 Capital Budget by legislators and/or the Governor. We have no role in selecting these projects, and generally have no contact with the grantee until after the budget is signed. As of the reporting date, 38 have executed contracts and provided us with information about their compliance with the green building law: none plan to achieve at least the LEED silver certification, 23 have received a facility-type exemption, and 15 have received a "not practicable" exemption. Not practicable exemptions are only issued when a project is significantly completed before the capital budget is signed, considered "piecemeal" or otherwise ineligible for LEED Certification. Cost of certification is not an eligible reason for receiving a not practicable exemption.*

Training Efforts

After two cycles (four years) of offering green building workshops to our applicants, this program was discontinued due to budgetary constraints.

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Lessons Learned

- *Nonprofit organizations represent the majority of our grant recipients, and they are generally not required by other funding sources to enter the LEED process. Because these organizations must usually conduct time-intensive, independent fundraising campaigns to raise the non-state share of project costs, a key element in our role as grant officers is to convince nonprofits that LEED is cost-effective in the long term and good public policy - even though the initial construction costs will be higher.*
- *Projects in rural parts of the state were less familiar with LEED and often have fewer resources with which to comply with the law. This, however, is changing with time and awareness seems to be growing.*
- *Our projects are so diverse in terms of facility type as well as stage of development that a "one-size-fits-all" training program is not particularly efficient and effective.*
- *We have received a number of complaints from pro-green building architects and other professionals that the LEED process is not the most cost-effective approach for "greening-up" their projects.*

Recommended Improvements to the Legislation

Recommend a thorough examination of other sustainability efforts and programs in order to determine the cost-effectiveness of the LEED system.

New Metering Efforts and Challenges

N/A

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Submit this report to Sidney Hunt, DES LEED Green Building Advisor, by e-mail to: sustainablity@des.wa.gov .

This report should be no more than three pages. No photographs or LEED Checklists please. LEED Certified projects should have a Case Study prepared with photos and LEED Checklist submitted separately. See the Case Study Template, and completed case studies and previous Sustainable Building Reports in the 2012 Green Building Report: http://des.wa.gov/SiteCollectionDocuments/Facilities/Energy/Green_Website/StateGreenBuildingReport-2012.pdf

Due date: June 2, 2014

This will satisfy some of the annual reporting requirements dictated by RCW 39.35D.

Sustainable Building Report

Reported by: Dena Harris
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Dena.Harris@commerce.wa.gov

I. Overview

Affordable housing projects funded from the state capital budget are exempt from the LEED Silver requirement. However, the Evergreen Sustainable Development Standard (ESDS) is required of projects funded with capital bond proceeds in the Washington State Housing Trust Fund (Housing Trust Fund).

The ESDS contains 79 criteria that safeguard health and safety, increase durability, promote sustainable living, preserve the environment, and increase energy and water efficiency. In addition to complying with all mandatory requirements of ESDS, new construction projects must achieve 50 points from the optional criteria, while rehabilitation projects must achieve 40 points.

The Evergreen Criteria, forms and instructions, and other information can be found at http://www.commerce.wa.gov/evergreen.

II. Projects

Project Data is provided at the end of this report.

III. Training Efforts

In the Spring of 2012, a series of trainings regarding the principles of sustainable development as it relates to the ESDS was provided for Housing Trust Fund staff, stakeholders, public funders and construction verifiers. Presently, the Housing Trust Fund is collaborating with their Policy Advisory Team to create training for stakeholders about incorporating whole building life-cycle analyses during the design process. Life-cycle thinking encourages the integrative design process to move towards identifying performance based solutions that will reduce energy and water consumption as well as decrease operating and maintenance costs.

IV. Lessons Learned

- Many affordable housing funders have adopted ESDS as their own sustainable development standard. This has required the Housing Trust Fund to increase collaboration when updating the ESDS and approving waivers on specific criteria. These partnerships have strengthened the quality of the ESDS.
- The Housing Trust Fund's capacity to capture data from the ESDS process has been limited. However, a new database is in development which includes significant space dedicated to the collection of ESDS data.

V. Recommended Improvements to the Legislation

None

VI. *New* Metering Efforts and Challenges

Electricity metering is required for all new construction and substantial rehabilitation projects. However, exemptions are given to shelters, single room occupancy, designated supportive housing dwelling units and seasonal farmworker projects. These types of projects experience high turnover and metering creates a significant cost and administrative burden for the owner.

Although most ESDS projects are individually metered, Commerce does not own or operate affordable housing units and therefore does not require the collection of actual energy usage data. However, the ESDS criterion 8.4 incentivizes projects to monitor their energy and water usage by providing optional points when this data is submitted to Commerce. This criterion went into effect in 2011; projects that selected this criterion are now in the final stages of development. Commerce, in consultation with stakeholders, will be establishing a method for capturing this data.

PROJECT DATA

The ESDS requirements have been imposed on the projects below. "Placed in Service" indicates the date the project is complete and 90% occupied. "Awarded" indicates the project has received Housing Trust Fund dollars but the contract has not been executed yet.

Project Name	Housing Units	Residential Square Footage	New Construction or Rehab	Status	Placed in Service Date	Metering	Consumption Data to be provided
1st Street Apartments	152	277,905	NC	Awarded		Yes	No
Appleway Court II	40	31,560	NC	Place In Service	3/14/14	Yes	No
Bakerview Family Housing	50	7,120	NC	Awarded		Yes	No
Bellevue Apartments	57	52,107	NC	Awarded		Yes	Yes
CAC RD Preservation Portfolio	109	82,745	R	Awarded		Yes	No
Camas Ridge Apartments	51	49,400	NC	Place In Service	8/1/12	N/A	No

Carrie House	4	1,864	NC	Awarded		Yes	No
Carson Springs Apartments	8	7,800	NC	Awarded		Yes	Yes
Cedarstone Apartments	15	10,040	R	Place In Service	5/1/13	Yes	Yes
Columbia Confluence	201	44,080	NC	Awarded		Yes	Yes
Columbia Grove Apartments	30	31,800	NC	Awarded		Yes	Yes
Compass on Dexter	74	80,464	NC	Awarded		Yes	Yes
Controlled Access/Randall Townsend	35	24,472	R	Awarded		Yes	Yes
Cornwall	42	26,707	NC	Awarded		Yes	No
Cosecha Court-Granger Seasonal Housing	76	13,990	NC	Place In Service	12/23/13	N/A	No
DeCamp Acquisition	90	71,800	R	Place In Service	12/19/13	N/A	No
Dekko Place	50	38,417	NC	Place In Service	6/30/12	N/A	No
Delridge Supportive Housing	75	45,077	NC	Place In Service	12/4/13	Yes	No
Des Moines Family Housing	43	45,417	NC	Construction		Yes	No
Desoto Senior Housing	13	7,520	NC	Awarded		N/A	No
East Oroville Harvest Park	76	15,888	NC	Place In Service	8/27/13	N/A	No
Emerald City Commons	61	82,041	NC	Place In Service	12/12/13	Yes	No
Evergreen Homes I	3	1,700	R	Place In Service	12/12/12	N/A	No
Everyone Deserves to Be Safe	52	9,216	R	Awarded		N/A	No
Fern Hill Terrace Apartments	26	19,800	R	Place In Service	9/12/13	N/A	No
FFC Community Homes VIII	20	9,400	NC	Awarded		Yes	Yes

FFC Homes VII	24	12,600	R	Construction		N/A	No
FHMC Replacement Housing II & Chico Passage	6	2,400	R	Place In Service	12/2/13	N/A	No
Filbert Road	20	7,662	NC	Awarded		N/A	No
Fourth and Pearl Family Housing	50	53,643	NC	Awarded		Yes	No
Frances Haddon Morgan Center	10	5,400	R	Place In Service	12/1/12	N/A	No
Granger Family Housing	61	70,332	NC	Awarded		Yes	No
Granger Family Housing II	61	68,936	NC	Awarded		Yes	No
Harmony Park	24	18,498	R	Awarded		N/A	No
Hirabayashi Place	86	87,388	NC	Awarded		Yes	Yes
Hoffman Apartments	16	9,873	R	Place In Service	2/13/13	N/A	No
Homeless Project (Gravelly Lake Drive)	15	15,328	NC	Awarded		Yes	No
HopeSource RD Preservation Portfolio	175	141,933	R	Awarded		N/A	No
Imani Village	16	15,892	NC	Place In Service	5/10/13	N/A	No
Independence Bridge	25	13,000	NC	Construction		Yes	Yes
Interbay Supportive Housing	97	54,146	NC	Awarded		N/A	No
Jackson Village Affordable Housing	10	10,910	NC	Construction		Yes	No
Josephinum Apartments - Rehab Phase 1	222	135,240	R	Awarded		Yes	Yes
Kennewick Perry Suites	15	9,888	NC	Awarded		Yes	No
Kirkland Campus Young Adult Transitional	20	9,224	NC	Awarded		Yes	No

Lavender Hollow Apartments	22	22,000	R	Place In Service	9/12/13	N/A	No
Leschi House Redevelopment	69	64,458	R	Awarded		N/A	Yes
Marcus Place	18	15,951	R	Awarded		Yes	Yes
Meadowdale Apartments	108	87,581	R	Place In Service	10/31/12	N/A	No
MLK Family Housing at the Sound Transit Site	86	59,954	NC	Awarded		Yes	No
Monroe Family Village	47	53,235	NC	Awarded		Yes	Yes
MSC Federal Way Veterans' Program	37	52,125	NC	Awarded		Yes	Yes
Nativity House	145	28,055	NC	Awarded		Yes	No
New Tacoma 2	40	29,181	NC	Awarded		Yes	No
Northwest Corner Affordable Housing	61	56,945	R	Awarded		Yes	Yes
Parkside Place	16	10,578	R	Awarded		N/A	No
Parkview Homes XI	9	4,500	R	Awarded		Yes	Yes
Passage Point - Rehabilitation	46	54,174	R	Place In Service	3/1/13	N/A	No
Patrick Place Apts	71	35,833	NC	Place In Service	2/12/14	Yes	No
Pear Tree Place III	22	18,580	NC	Place In Service	11/7/13	Yes	Yes
Phoenix Rising	24	13,476	NC	Awarded		Yes	No
Pine Meadows	10	8,278	NC	Place In Service	3/1/13	Yes	No
Pivotal Point Apartments	20	18,195	NC	Awarded		Yes	Yes
Plaza Roberto Maestas - Beloved Community	114	111,340	NC	Awarded		Yes	No
Providence Joseph House	65	62,504	NC	Place In Service	12/30/12	N/A	No

Quincy Family Housing	51	58,020	NC	Place In Service	12/26/13	Yes	No
Quixote Village	30	8,380	NC	Contracted		Yes	Yes
RHA Kirkland Avenue Townhomes	18	15,960	NC	Awarded		Yes	Yes
Sail River Longhouse	21	21,379	NC	Awarded		Yes	No
Sanchez Lane Seasonal Housing	14	14,796	NC	Awarded		Yes	No
Sequim - DD Home	7	3,972	R	Awarded		N/A	No
Seventh Adult Family Home	5	3,000	R	Place In Service	3/17/14	N/A	No
Smith Building Family Shelter and Affordable Housing	13	11,700	R	Awarded		N/A	No
Spring Street	18	3,613	R	Place In Service	1/30/13	Yes	Yes
SSHP Rehabilitation: Reunion House and Willis House	70	-	R	Place In Service	2/1/13	N/A	No
Stratford Arms Rehab	24	14,675	NC	Awarded		Yes	No
Sunnyside Family Housing	40	41,000	NC	Awarded		N/A	No
Sylvan Place Apartments	15	12,072	NC	Place In Service	12/1/12	Yes	No
Tall Firs Apartments	40	29,895	R	Awarded		N/A	No
Terry Home II	12	5,500	NC	Place In Service	12/24/13	Yes	Yes
The Caroline W. Apartments	46	23,189	NC	Awarded		Yes	Yes
The Haines Apartments	30	17,418	R	Awarded		N/A	No
The Outpost	4	3,888	R	Contracted		Yes	No
The Summit at Bay Vista	83	65,560	NC	Place In Service	2/1/13	N/A	No
Third and Virginia	65	36,695	NC	Awarded		Yes	No

Three Rivers Village	41	31,393	R	Awarded		Yes	No
Toppenish Family Housing	30	33,478	NC	Awarded		Yes	No
Towne Square Apartments Preservation	40	32,817	R	Awarded		Yes	No
Traumatic Brain Injury Residential Facility	12	5,500	NC	Awarded		Yes	No
Urness House	80	52,295	NC	Place In Service	9/30/13	N/A	No
Valor Apartments	21	19,515	NC	Awarded		Yes	No
Villa Kathleen, Evergreen Manor, and Fircrest Apartments	84	54,941	R	Awarded		Yes	No
Volland Street Housing	32	28,891	NC	Awarded		Yes	No
Walla Walla Family Homes Phase 2	68	83,376	NC	Contracted		Yes	No
Woods Creek Village	14	14,427	NC	Place In Service	4/15/13	Yes	Yes
Youth Haven	17	5,819	NC	Place In Service	11/19/13	Yes	Yes
YWCA Family Village at Issaquah	73	66,160	NC	Place In Service	9/4/13	N/A	No
YWCA Family Village at Issaquah Phase II	48	45,660	NC	Place In Service	9/4/13	N/A	No

Sustainable Building Report
Department of Corrections

Reported by: Kent Nugen, Director of Capital Programs
Phone: 360.725.8354
E-mail: kent.nugen@doc.wa.gov

Overview

Capital Programs' commitment to designing, building, and certifying to LEED Silver – Sustainability is part of the Department of Corrections' Strategic Plan as a means to develop more effective and efficient business practices, and to support the Priority of Government to protect the environment.

In 2004, Capital Programs established a policy to design and construct all new occupied buildings over 5,000 square feet and all major building renovations to at least LEED Silver Standards. This policy was in response to the Department's Sustainability Plan that included a goal of building green. The 2005 Legislature passed a law requiring these same two provisions for all state-funded building projects.

Projects

Projects Completed and Achieved LEED Certification

1. MONROE CORRECTIONAL COMPLEX – SOU Maintenance Building – Completed 2005 – Achieved LEED Silver.
2. MONROE CORRECTIONAL COMPLEX – Training Center – Completed 2005 – Achieved LEED Gold.
3. WASHINGTON STATE PENITENTIARY – Warehouse – Completed 2005 – Achieved LEED Silver.
4. MONROE CORRECTIONAL COMPLEX – IMU/Segregation Unit – Completed in 2006 – Achieved LEED Silver.
5. CORRECTIONAL INDUSTRIES – Warehouse/Headquarters – Completed 2006 – Achieved LEED Silver.
6. WASHINGTON STATE PENITENTIARY – North Close Security Complex. Seven separate buildings were individually certified at Silver – Completed August 2007 – Achieved LEED Silver
7. CEDAR CREEK CORRECTIONS CENTER – Perimeter Control Office (PCO) Building – Completed February 2009 –Achieved LEED Gold
8. AIRWAY HEIGHTS CORRECTIONS CENTER New Visitation Building – Completed June 2008 – Achieved LEED Silver
9. AIRWAY HEIGHTS CORRECTIONS CENTER Treatment Program Building – Completed May 2009 – Achieved LEED Silver

10. COYOTE RIDGE CORRECTIONS CENTER – Expansion – October 2008 – Achieved campus-wide LEED Gold; 22 buildings total.
11. MISSION CREEK CORRECTIONS CENTER for WOMEN – 100-Bed Expansion – Completed March 2010 – Achieved LEED Silver
12. WASHINGTON CORRECTIONS CENTER FOR WOMEN- Health Care Facility – Completed January 2010 – achieved LEED Silver.
13. WASHINGTON STATE PENITENTIARY - South Close Custody Expansion / Health Services Building – Completed June 2010 – achieved LEED Silver.
14. STAFFORD CREEK CORRECTIONAL CENTER – Furniture Factory – Completed June 2011– Achieved LEED Silver.

Projects Completed waiting on LEED Certification

1. WASHINGTON STATE PENITENTIARY - South Close Custody Expansion / Correctional Industries Warehouse – Completed September 2009 – Expect to achieve LEED Silver.
2. WASHINGTON STATE PENITENTIARY – Two housing units – Construction underway. Completed February 2014. Expect to achieve LEED Silver.

Training Efforts

Capital Programs has one employee who is LEED Certified. All of the project managers have taken some LEED modules/training. Management encourages all project managers to achieve certification, because we believe it is a valuable credential.

Lessons Learned

What lessons were learned by your agency regarding the implementation of the LEED Silver requirement? What changes were made to your process that helped make your agency successful? Provide attachments as appropriate (samples of documents, spreadsheets, specs, etc.)

- We have also found that there can be inconsistencies from one reviewer to another when interpreting LEED requirements.
- Obtaining LEED certification is becoming more and more complex; encourage project managers to take the training for certification at the earliest possible time.
- When constructing a “Green Building” – or LEED is a goal from day one, it becomes much easier and less expensive to achieve the goal. It is similar to our trying to meet ADA 15 years ago – we would do a typical design and then try and adjust or fix things so they were ADA compliant. It caused problems and increased the expense. Nowadays designers

just design to ADA; it has become part of the standards. Today, we select firms who take the same approach with LEED; it has become a part of how they approach a project and meeting the owner's commitment to green building design.

- All stakeholders involved in a LEED project have to be bought into the concepts and make it a priority from start to finish. Hiring the best available LEED professionals in design was a focus.
- It is a challenge, due to security requirements, on a small corrections campus to acquire necessary LEED points to achieve Site Development, Protect or Maintain Open Space, Restore Habitat and Development, and Maximize Open Space, these are all elements that make it challenging.
- The cost to implement/document LEED in smaller projects is larger than big projects from a percentage standpoint, largely because some of the same efforts are needed regardless of square footage.
- During a new project we found that the carpool parking requirements that we needed to meet for two other projects did not apply to the new projects. The new projects required that these parking stall be changed to parking for green cars. When we asked about what to do about the previously required carpool parking spaces we did not receive any direction.
- We have also found that there can be inconsistencies from one reviewer to another when interpreting LEED requirements. This creates confusion, aggravation and sometimes wasted efforts at times.
- LEED has at time not provided us with reliable information at the beginning of a project. When we began a project that had two identical buildings, they told us we would be able to submit both buildings together if we waited to start the process for a couple of months. After several delays we ended up having to submit each building separately.

Recommended Improvements to the Legislation

Describe what improvements could be made to make achieving LEED Silver easier. This might include incentives, disincentives, or (others?).

- Additional funding would be incentive to allow for inclusion of more green technology.
- Establish a funding pool for LEED green power points – for when the Owner has submitted for LEED and is close but has no additional funding available – as incentive to complete Silver.

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Sustainable Building Report Template

Reported by: *Ian Siadak, Sustainability Coordinator*
206-934-3862
Ian.siadak@seattlecolleges.edu

Overview

Short paragraph explaining the commitment to designing, building, and certifying to LEED Silver.

The Seattle Colleges believe that sustainability falls firmly in our mission of providing excellent, accessible educational opportunities to prepare our students for a challenging future. The Seattle Colleges endeavor to not only meet, but to exceed the LEED Silver requirement for new construction for State agencies. LEED buildings help the District's strategic plan to reduce our greenhouse gas emissions in accordance with the requirements for State agencies, and also help our ambitious resource consumption targets as members of the Seattle 2030 District. By striving to construct buildings that showcase innovative technologies and approaches to sustainable design, we let our built environment serve as an ever present reminder of our commitment to sustainability to our faculty, staff, and students.

Comments for this report have been compiled by Ian Siadak, Sustainability Coordinator for the Seattle College District, with input from the following representatives from each college:

- North Seattle College: Jason Francois – Facilities and Operations Director
- Seattle Central College: Chuck Davis – Facilities and Operations Director
- South Seattle College: Keith Schreiber – Principal Architect

Projects

North Seattle College: Opportunity Center for Employment and Education (OCE&E) – May 2011 – LEED Gold

Seattle Central College: Wood Technology Center – September 2012 – LEED Silver.

South Seattle College: Gene Colin Building C Expansion – Occupied – Substantially Complete on 1/21/2013 – Expected LEED Silver

Training Efforts

Short paragraph describing the LEED/High Performance training efforts provided for project management staff.

At North Seattle College's OCE&E building, project management staff were given training on LEED code and requirements, including benefits and points gained for individual building components, and engineering rationales for why these LEED points were being pursued. Technical training on each of the chosen LEED components was given to facilities staff before, during, and after construction. Some examples include specialized training on automatic dimmers, underfloor air systems, and cooling zones that would require ongoing supervision from facilities staff to operate most efficiently.

At South Seattle College's Building C. Expansion, the project management staff participated in a LEED charrette to help identify the LEED components to pursue from a technical, financial, and scoring standpoint. After construction was complete, the project management staff helped educate building occupants on the LEED aspects of the building. Educational opportunities included a scripted LEED tour of the building as well as a permanent energy dashboard located prominently in the building.

Project management for Seattle Central's Wood Technology Center was taken over by the project architect and it is not clear what LEED training they provided themselves in regards to this project.

Lessons Learned

What lessons were learned by your agency regarding the implementation of the LEED Silver requirement? What changes were made to your process that helped make your agency successful? Provide attachments as appropriate (samples of documents, spreadsheets, specs, etc.)

A lesson learned from the OCE&E building at North Seattle College is that project components cannot simply be chosen for their LEED points; the components need to match the building use, and the staff needs to be willing to engage with LEED components when necessary. The underfloor air system was chosen for its LEED points, but the lack of individual control points for the system made it a poor solution for a building with multiple tenants with different building uses. The green roof was also chosen for its LEED points, but there was no commitment from the staff at the time to properly maintain the roof.

The Building C. Expansion project at South Seattle College highlighted how difficult it is to get proper and timely LEED documentation from contractors. In the future, the project management staff will monitor this aspect of the LEED process much more closely and will budget the time necessary to do so. The Wood Technology Center at Seattle Central College also illustrated this lesson. The project management staff felt there was too much control over the LEED process by the contractors and sub-contractors; if these groups are unresponsive or fail it puts the entire LEED certification in jeopardy. Final LEED certification was delayed for over one year because of this for the Wood Technology Center.

Recommended Improvements to the Legislation

Describe what improvements could be made to make achieving LEED Silver easier. This might include incentives, disincentives, or (others?).

For project management staff at North Seattle College, the scoring system seems lopsided for engineering systems, with not enough focus on waste stream management or transportation for LEED points. Additionally, not enough points are given for human engagement elements. Additional points for these non-engineering focused sustainability components would make achieving LEED Silver easier and more meaningful.

Project management staff at Seattle Central College and South Seattle College both expressed that the requirement of LEED Silver should be reconsidered and have potential alternatives. Achieving LEED Silver certification is a complex process and does not always make financial sense. Either a separate process for determining what LEED level is appropriate on a project-by-project basis, or other sustainable building standards such as Energy Star and USGBC alternatives, would be good options. Designing to LEED Silver specifications without having to do the additional, costly, and time intensive work of achieving certification would also help achieve the desired end result in a much more efficient manner.

Additionally, having stronger incentives for contractors to submit LEED information in a timely manner would help alleviate many certification delays and problems that arose from the Building C. Expansion and Wood Technology Center projects.

New Metering Efforts and Challenges

Describe the standards or strategies established to meter energy and water in all LEED buildings. Include a description of the challenges encountered in getting meters installed and operational, and in establishing an on-going tracking and reporting system.

The Seattle Colleges strive to measure and track LEED building utility data, when possible, for not only measurement and verification purposes but also for increased building performance analysis.

For the OCE&E project, submetering was in mind when the building was designed because of ongoing efforts on campus to track complete resource consumption. Gas and electric submeters were installed. The gas meter was not pulse output initially but has been upgraded to pulse output to help gather meaningful and timely data. A water meter was value engineered out, as there did not seem to be a necessity for it at the time because no other buildings have a dedicated water meter; only one curbside meter exists for the college.

Metering at the Building C. Expansion at South Seattle College was straightforward since there is only electricity – no gas or water – used in the building. An electrical submeter was installed to measure energy consumption of just the LEED expansion.

The Wood Technology Center is its own satellite campus, and as such has dedicated utility meters for the building.

Once challenge that exists for the submeters at the OCE&E building and the Building C. Expansion is having reliable access to the submeter data. Currently, this information is only collected on site at irregular intervals. This process has been further complicated by malfunctions in the submeters which makes getting reliable meter data difficult.

The Seattle Colleges are currently planning a project that will install 5-minute interval or less submeters for every utility on each building across our District, and connect these meters through a new integrated energy management system. This system, when operational, will allow real-time and historical access to energy and water data for all buildings, including LEED buildings at our colleges and should alleviate any difficulties in tracking and reporting resource consumption. In the interim, regular monitoring of the submeter data will be put in place to catch technical difficulties early on to ensure this data can be reported when needed.

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Submit this report to Sidney Hunt, DES Sustainable Building Advisor, by e-mail.

2012 Sustainable Building Reports

Overview

Washington State University remains committed to sustainable campus growth, responsible development, and resource conservation. In compliance with the requirements of the State of Washington, WSU endeavors to complete new building construction to a minimum of LEED Silver Certification as appropriate. This report covers construction or design completed in 2012 and planning efforts for 2010 and beyond.

Projects

Engineering and Computer Science Building, WSU Vancouver Funded under the previous name Applied Technology Center; this 56,000 GSF facility was completed in September 2011 and provides research and teaching space in Computer Sciences and Electrical Engineering. LEED Gold certification is pending.

Biomedical and Health Sciences Building – Phase 1 The Riverpoint Biomedical and Health Sciences Building – Phase 1, is a project to advance health-sciences based research and education program growth on the Riverpoint Campus in Spokane, Washington. The Phase 1 building will facilitate and significantly expand the existing Washington State University, University of Washington, and Eastern Washington University health-sciences collaboration with programs and services provided by the Spokane health care sector including regional hospitals, clinics, and research institutes. The project is designed for LEED Silver certification and is expected to be completed in the fall of 2013.

Clean Technology Laboratory Building The Clean Technology Laboratory Building is a new interdisciplinary facility that will boost the state of Washington's high-demand research and education priorities in "Clean Technology:" the developing industries in renewable materials and the environment. The 96,000 GSF facility will house science and engineering programs advancing new technologies in sustainable materials, atmospheric research, and water quality. Due to the emphasis on clean technology, LEED Gold will be targeted. Occupancy is expected in mid-2015.

Other Sustainable Projects Several projects in Pullman are pursuing sustainable certification, though due to funding sources other than the state capital budget are not required to do. The Paul G. Allen Center for Global Animal Health, a 62,000sf building focusing on infectious disease research and animal diagnostics, has completed construction and is pursuing LEED Silver. The recently completed Duncan Dunn & Community Halls project renovated and connected two 1920's dormitory buildings, and Northside Residence Hall is a new 300-bed dormitory currently under construction; both projects are pursuing LEED Silver certification. A new Visitor Center is planned and LEED Silver certification is likely.

Training Efforts

WSU Capital Planning and Development now has thirteen professional staff members who are LEED Accredited Professionals. Periodic presentations are held by staff and are attended by industry representatives, academics, researchers and professionals to discuss available products and services and sustainable practices.

Project personnel continue to work with University researchers to explore other sustainable technologies. Of note is our recent experience using pervious paving on the Palouse - the heavy clay soils don't percolate and as such previous discussions regarding permeable pavement have not developed into project use. We now have several projects in place which utilize pervious concrete and asphalt pavement on a large scale to help slow the rate of storm-water runoff on site and improve the quality of the downstream flow.

Metering Efforts and Challenges

Design of major facilities on the Pullman campus includes provision for metering of main utility services. Those services usually include steam, normal electrical service, emergency Life-Safety electrical service, chilled water, and domestic water. Those utilities are all provided from campus district energy systems so are not metered by the local Utility. The only utility procured directly from the local Utility with individual building billing meters is natural gas. Campus heating is provided from the central district steam system, so natural gas is normally provided only for laboratory gas fuel systems, when required.

Proper installation, setup, and commissioning of meters is an on-going problem. It is not unusual for at least one meter on each building to have a problem that does not become apparent until some months after the building has been turned over by the contractor, and then getting effective assistance from the contractor/vendor in identifying and resolving the problem may take a number of additional months. In the meantime, no trustworthy data is collected.

In addition, the campus currently has only stand-alone meters requiring manual monthly meter reads, a very time-consuming effort. The potential for error in the meter reads and data entry/manipulation is significant and further complicates identification of actual meter problems and root causes. The monthly usage data is manually summarized and entered in historical data file worksheets and the file formats used make tracking and reporting very burdensome. This fall WSU will select and install an Enterprise Energy Management System front end for a networked metering system. Initially only electrical meters on approx. 36 buildings will be connected to the network. In the future, as funding allows, existing building meters will be upgraded and connected to the network. New facilities will be designed with metering connected to the networked system. Over time, the network metering system will eliminate most manual reads and provide a good tracking and reporting tool.

Lessons Learned

LEED has allowed our professional design team to probe strategies and explore creative solutions that have previously been overlooked or considered unattainable. It has also created a "sustainable design" mindset that extends beyond projects addressed in the legislation. Staff have embraced the concept of high performance development.

Reported by: Jeff Lannigan
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<u>Sustainable Building Report</u>

Reported by: Mickey Parker, Administrative Services Manager, Facilities Management, Central Washington University
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E-mail: parkerm@cwu.edu

Overview

Central Washington University's Campus Facilities Master Plan 2005 sets a key vision for the campus to "take progressive measures toward environmental sustainability. Sustainability is defined as the ability to meet the needs of the present without compromising the ability of the future generations to meet their own needs. Sustainable actions will be taken to improve the relationship between humans and their natural environment, to amplify the beauty of the campus, to decrease resource expenditure and depletion, and to serve as a source of pride for the university community at large. Actions taken will help teach students and citizens learn sustainability by practice rather than words." CWU is committed to resource conservation and another key objective stated in our master plan is to "Develop with resource conservation measures in place. Work toward Leadership in Energy and Environmental Design (LEED) certification for all new and renovated major facilities, as funds permit." CWU's Facilities Management Department has been successful in energy conservation practices, winning the Governor's Excellence in Energy Conservation award in 2004.

Projects	Year Completed	Size in GSF	LEED Level	Status
Dean Hall Renovation	2009	79,553	LEED NC Gold	Achieved
Hogue Technology Addition and Renovation	Sept. 2012	95,996	LEED NC Gold	Goal
Samuelson Communications & Technology Center	In Design	129,260	LEED NC Platinum	Goal
Health Sciences	Predesign Complete	72,200	LEED NC Gold	Goal

Training Efforts

Facilities Management encourages and supports training to its staff to increase the quality and depth of a sustainable future and implementation. Project management staff have attended LEED certification training, 2 are LEED APs, and others are pursuing LEED accreditation. Facilities held several LEED orientation workshops to familiarize staff with LEED, and LEED training pre and post construction.

Lessons Learned

Start early. Encourage stakeholder training in sustainable design. Hire consultants well versed in sustainable design. Identify sustainable champion for project. Utilize eco-charrettes early, and revisit later in design/CD phase. Create, follow thru and frequently review LEED checklists and status. Commission building systems, and bring the commissioning agent in early. Be flexible. Innovate.

Recommended Improvements to the Legislation

- Consider the challenge and applicability in achieving LEED silver certification for renovation projects, and provide additional LEED funding in such cases.

New **Metering Efforts and Challenges**

CWU standards require installation of condensate, electric and water meters on all new construction – LEED and non-LEED projects. Reliable condensate meters have been a challenge. Meter tracking and reporting are coordinated through campus-wide Alerton and Ion systems and managed through the Facilities Management Department. The major challenges with metering include limited funds to support the manpower needed to verify meter accuracy and maintain meters.

Reported by: Shawn King, Associate Vice President for Facilities and Planning
Date: July 25, 2012
Phone: 509-359-6878
E-mail: sking@ewu.edu

Overview
EWU currently has (2) major project completed that are incorporation the principles of Sustainable Building Design. They are as follows:

Project	**Status**
Hargreaves Hall Renovation	
EWU Project Manager	Jim Moeller
Architect	Madsen, Mitchell, Evenson and Conrad, Spokane WA
LEED Consultant	Kelly Karmel, AIA LEED AP, Design Balance, Missoula, MT
Status	Completed March 2010; Certified LEED Gold.

University Recreation Center	
EWU Project Manager	Troy Bester
Architect	Sink, Combs, Dethlefs, Denver, CO
LEED Consultant	Kelly Karmel, AIA LEED AP, Design Balance, Missoula, MT
Status	Completed September 2008; Certified LEED Gold.

EWU current has several project underway that are in various stages of planning, design or construction that are incorporating the principles of Sustainable Building Design. They are:

Project	
Patterson Hall Renovation	
Project Manager	Jim Moeller
Architect	NAC Architecture, Spokane, WA
LEED Professional	Dana Harbaugh AIA LEED AP, Principal, NAC Architects
Status	Phase II construction in progress. Final completion Scheduled for January 2014 LEED Gold is anticipated.

University Science Center Science I	
Project Manager	Troy Bester
Architect	LMN Architects, Seattle, WA
LEED Professional	LMN Architects (pre design)
Status	Capital budget requested in 2011-13. Request was not approved by OFM. Request for design funds will be

	submitted in the 2013-2015 capital budget request. Pre Design report anticipates LEED Gold certification

University Science Center Science II

Project Manager	TBD
Architect	TBD
Status	2013-2015 capital biennial request. Anticipate LEED Gold Certification.

Martin Williamson Hall

EWU Project Manager	Troy Bester
Architect	Opsis Architecture, Portland, OR
LEED Professional	Alec Holser, AIA LEED AP
Status	Pre Design complete. Project Design deferred to 2015 with construction anticipated in 2017. LEED Gold anticipated

Note: Checklists from Available Projects below.

Training Efforts

As funding is available we continue to offer the ability for our staff to have access to professional training related to Sustainable Design on major and minor works projects. Additionally training related to maintenance and operation of new equipment and system is essential in keeping those installations operating at peak performance. As funding becomes less restrictive we hope to develop and plan for more design and M&O training to support the efforts that we have accomplish so far and promote into the future.

- Eastern Washington University is signatory to the American College and University Presidents Climate commitment. EWU affords itself of any training and expertise available through this organization.
- Eastern Washington University is a member of the U.S. Green Building Council and uses that organizations training resources when funding is available.
- Eastern Washington University is anticipating funding to be available to add LEED credentials to our Construction and Planning staff.

Lessons Learned

Eastern Washington University has a long history of major and minor works focusing on energy conservation projects. That is because EWU staff, as well as supporting profession design firms, understands the requirement and the university's dedication to the process.

Lesson Learned have led to requiring our architectural and engineering consultants to have certification and experience with LEED design project implementation. For major projects a Sustainable Building Design sub consultant in conjunction with our normal list of architectural consultants are required. This specialty consultant should be brought on at the pre design stage of the project when the cost is sustainable and energy conservation design is more effective.

Recommended Improvements to the Legislation

Recommendations would be to fully fund secondary projects (Minor Works Preservation) that supports measurement and verification processes on campus. Also, operational and backlog maintenance funding would allow for upgrades of those systems that do not meet the current efficiencies that the campus is targeting to attain.

Additional recommendations would be that mandated conservation sustainability requirement is given priory as funding is approved from the legislature. Washington State's commitment to sustainability and conservation is well documented across the nation. More implementation would take place sooner if new and creative funding mechanisms were available.

Metering Efforts and Challenges

On the Patterson Hall project, the largest academic building on Eastern's campus, we are providing a building metering and sub metering design within the facility so that we have a more detailed analysis of the true energy usage. As with all capital enhancements, the cost of operations and maintenance of these metering systems are not always considered when the project is funded for operations.

Eastern is currently implementing a campus wide upgrade of utility meters through the state ESCO process. If funding is available we see a broader and more detailed level of campus wide metering being installed over the next year. This project will automate the reading of meters as well as tying back the data to our Energy Management systems to better track building performance and the potential success of building operational routines.

LEED-NC

LEED-NC Version 2.2 Registered Project Checklist

Hargreaves Hall Renovation
Eastern Washington University

Yes	?	No			
9	3	2	**Sustainable Sites**		**14 Points**
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
1			Credit 1	**Site Selection**	1
	1		Credit 2	**Development Density & Community Connectivity**	1
		1	Credit 3	**Brownfield Redevelopment**	1
1			Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
1			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
		1	Credit 4.3	**Alternative Transportation**, Low-Emitting and Fuel-Efficient Vehicles	1
1			Credit 4.4	**Alternative Transportation**, Parking Capacity	1
	1		Credit 5.1	**Site Development,** Protect of Restore Habitat	1
1			Credit 5.2	**Site Development,** Maximize Open Space	1
1			Credit 6.1	**Stormwater Design,** Quantity Control	1
1			Credit 6.2	**Stormwater Design,** Quality Control	1
1			Credit 7.1	**Heat Island Effect,** Non-Roof	1
1			Credit 7.2	**Heat Island Effect,** Roof	1
	1		Credit 8	**Light Pollution Reduction**	1

Yes	?	No			
2	1	2	**Water Efficiency**		**5 Points**
1			Credit 1.1	**Water Efficient Landscaping,** Reduce by 50%	1
		1	Credit 1.2	**Water Efficient Landscaping,** No Potable Use or No Irrigation	1
		1	Credit 2	**Innovative Wastewater Technologies**	1
1			Credit 3.1	**Water Use Reduction,** 20% Reduction	1
	1		Credit 3.2	**Water Use Reduction,** 30% Reduction	1

Yes	?	No			
6	3	1	**Energy & Atmosphere**		**17 Points**
Y			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Required
Y			Prereq 2	**Minimum Energy Performance**	Required
Y			Prereq 3	**Fundamental Refrigerant Management**	Required
4	1		Credit 1	**Optimize Energy Performance**	1 to 10
		1	Credit 2	**On-Site Renewable Energy**	1 to 3
1			Credit 3	**Enhanced Commissioning**	1
	1		Credit 4	**Enhanced Refrigerant Management**	1
1			Credit 5	**Measurement & Verification**	1
	1		Credit 6	**Green Power**	1

continued...

Yes	?	No			
8	3	2		**Materials & Resources**	**13 Points**
Y			Prereq 1	**Storage & Collection of Recyclables**	Required
1			Credit 1.1	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1
1			Credit 1.2	**Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof	1
	1		Credit 1.3	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1
1			Credit 2.1	**Construction Waste Management**, Divert 50% from Disposal	1
1			Credit 2.2	**Construction Waste Management**, Divert 75% from Disposal	1
		1	Credit 3.1	**Materials Reuse**, 5%	1
		1	Credit 3.2	**Materials Reuse**,10%	1
1			Credit 4.1	**Recycled Content**, 10% (post-consumer + ½ pre-consumer)	1
	1		Credit 4.2	**Recycled Content**, 20% (post-consumer + ½ pre-consumer)	1
1			Credit 5.1	**Regional Materials**, 10% Extracted, Processed & Manufactured Regiona	1
1			Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Regiona	1
1			Credit 6	**Rapidly Renewable Materials**	1
	1		Credit 7	**Certified Wood**	1

Yes	?	No			
13	2			**Indoor Environmental Quality**	**15 Points**
Y			Prereq 1	**Minimum IAQ Performance**	Required
Y			Prereq 2	**Environmental Tobacco Smoke** (ETS) **Control**	Required
1			Credit 1	**Outdoor Air Delivery Monitoring**	1
1			Credit 2	**Increased Ventilation**	1
1			Credit 3.1	**Construction IAQ Management Plan**, During Construction	1
1			Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1
1			Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1
1			Credit 4.2	**Low-Emitting Materials**, Paints & Coatings	1
1			Credit 4.3	**Low-Emitting Materials**, Carpet Systems	1
1			Credit 4.4	**Low-Emitting Materials**, Composite Wood & Agrifiber Products	1
	1		Credit 5	**Indoor Chemical & Pollutant Source Control**	1
1			Credit 6.1	**Controllability of Systems**, Lighting	1
1			Credit 6.2	**Controllability of Systems**, Thermal Comfort	1
1			Credit 7.1	**Thermal Comfort**, Design	1
1			Credit 7.2	**Thermal Comfort**, Verification	1
	1		Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1
1			Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1

Yes	?	No			
3				**Innovation & Design Process**	**5 Points**
1			Credit 1.1	**Innovation in Design**: TBD	1
1			Credit 1.2	**Innovation in Design**: TBD	1
			Credit 1.3	**Innovation in Design**:	1
			Credit 1.4	**Innovation in Design**:	1
1			Credit 2	**LEED® Accredited Professional**	1

Yes	?	No		
41	12		**Project Totals (pre-certification estimates)**	**69 Points**

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

LEED-NC

LEED-NC Version 2.2 Registered Project Checklist

EWU Patterson Hall Renovation and Addition, 111-06139 - 4Fg
Cheney, Washington

Yes	?	No			
10			**Sustainable Sites**		14 Points
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
1			Credit 1	**Site Selection**	1
1			Credit 2	**Development Density & Community Connectivity**	1
		N	Credit 3	**Brownfield Redevelopment**	1
1			Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
		N	Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
		N	Credit 4.3	**Alternative Transportation**, Low-Emitting and Fuel-Efficient Vehicles	1
1			Credit 4.4	**Alternative Transportation**, Parking Capacity	1
1			Credit 5.1	**Site Development,** Protect of Restore Habitat (designate Turnbull)	1
1			Credit 5.2	**Site Development,** Maximize Open Space	1
1			Credit 6.1	**Stormwater Design,** Quantity Control	1
		N	Credit 6.2	**Stormwater Design,** Quality Control	1
1			Credit 7.1	**Heat Island Effect,** Non-Roof	1
1			Credit 7.2	**Heat Island Effect,** Roof	1
1			Credit 8	**Light Pollution Reduction**	1

Yes	?	No			
3			**Water Efficiency**		5 Points
1			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
		N	Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
1			Credit 2	**Innovative Wastewater Technologies**	1
1			Credit 3.1	**Water Use Reduction**, 20% Reduction	1
		N	Credit 3.2	**Water Use Reduction**, 30% Reduction	1

Yes	?	No			
7			**Energy & Atmosphere**		17 Points
Y			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Required
Y			Prereq 2	**Minimum Energy Performance**	Required
Y			Prereq 3	**Fundamental Refrigerant Management**	Required
4			Credit 1	**Optimize Energy Performance**	1 to 10
		N	Credit 2	**On-Site Renewable Energy**	1 to 3
1			Credit 3	**Enhanced Commissioning**	1
1			Credit 4	**Enhanced Refrigerant Management**	1
1			Credit 5	**Measurement & Verification**	1
		N	Credit 6	**Green Power**	1

continued...

Yes	?	No			
7			**Materials & Resources**		**13** Points
Y			Prereq 1	**Storage & Collection of Recyclables**	Required
		N	Credit 1.1	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1
		N	Credit 1.2	**Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof	1
		N	Credit 1.3	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1
1			Credit 2.1	**Construction Waste Management**, Divert 50% from Disposal	1
1			Credit 2.2	**Construction Waste Management**, Divert 75% from Disposal	1
		N	Credit 3.1	**Materials Reuse**, 5%	1
		N	Credit 3.2	**Materials Reuse**,10%	1
1			Credit 4.1	**Recycled Content**, 10% (post-consumer + ½ pre-consumer)	1
1			Credit 4.2	**Recycled Content**, 20% (post-consumer + ½ pre-consumer)	1
1			Credit 5.1	**Regional Materials**, 10% Extracted, Processed & Manufactured Regic	1
1			Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Regic	1
		N	Credit 6	**Rapidly Renewable Materials**	1
1			Credit 7	**Certified Wood**	1

Yes	?	No			
11			**Indoor Environmental Quality**		**15** Points
Y			Prereq 1	**Minimum IAQ Performance**	Required
Y			Prereq 2	**Environmental Tobacco Smoke** (ETS) **Control**	Required
1			Credit 1	**Outdoor Air Delivery Monitoring**	1
1			Credit 2	**Increased Ventilation**	1
1			Credit 3.1	**Construction IAQ Management Plan**, During Construction	1
1			Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1
1			Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1
1			Credit 4.2	**Low-Emitting Materials**, Paints & Coatings	1
1			Credit 4.3	**Low-Emitting Materials**, Carpet Systems	1
1			Credit 4.4	**Low-Emitting Materials**, Composite Wood & Agrifiber Products	1
1			Credit 5	**Indoor Chemical & Pollutant Source Control**	1
1			Credit 6.1	**Controllability of Systems**, Lighting	1
		N	Credit 6.2	**Controllability of Systems**, Thermal Comfort	1
1			Credit 7.1	**Thermal Comfort**, Design	1
		N	Credit 7.2	**Thermal Comfort**, Verification	1
		N	Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1
		N	Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1

Yes	?	No			
4			**Innovation & Design Process**		**5** Points
1			Credit 1.1	**Innovation in Design**: Green Educational Features in Building	1
1			Credit 1.2	**Innovation in Design**: Green Housekeeping Plan	1
1			Credit 1.3	**Innovation in Design**: Dedicated Outside Air System	1
	?		Credit 1.4	**Innovation in Design**:	1
1			Credit 2	**LEED® Accredited Professional**	1

Yes	?	No		
42			**Project Totals** (pre-certification estimates)	**69** Points

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

LEED-NC

LEED-NC Version 2.2 Registered Project Checklist

Eastern Washington University Martin/Williamson Hall
Cheney, Washington

Yes	?	No			
8	5	1	**Sustainable Sites**		14 Points
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
Y			Credit 1	**Site Selection**	1
	Y?		Credit 2	**Development Density & Community Connectivity**	1
		N	Credit 3	**Brownfield Redevelopment**	1
Y			Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
Y			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
Y			Credit 4.3	**Alternative Transportation**, Low-Emitting and Fuel-Efficient Vehicles	1
Y			Credit 4.4	**Alternative Transportation**, Parking Capacity	1
	Y?		Credit 5.1	**Site Development,** Protect of Restore Habitat	1
	Y?		Credit 5.2	**Site Development,** Maximize Open Space	1
Y			Credit 6.1	**Stormwater Design,** Quantity Control	1
	Y?		Credit 6.2	**Stormwater Design,** Quality Control	1
	Y?		Credit 7.1	**Heat Island Effect,** Non-Roof	1
Y			Credit 7.2	**Heat Island Effect,** Roof	1
Y			Credit 8	**Light Pollution Reduction**	1

Yes	?	No			
2	2		**Water Efficiency**		5 Points
Y			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
	Y?		Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
	Y?		Credit 2	**Innovative Wastewater Technologies**	1
Y			Credit 3.1	**Water Use Reduction**, 20% Reduction	1
	N?		Credit 3.2	**Water Use Reduction**, 30% Reduction	1

Yes	?	No			
6	2		**Energy & Atmosphere**		17 Points
Y			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Required
Y			Prereq 2	**Minimum Energy Performance**	Required
Y			Prereq 3	**Fundamental Refrigerant Management**	Required
Y			Credit 1	**Optimize Energy Performance**	1 to 10
	Y?		Credit 2	**On-Site Renewable Energy**	1 to 3
Y			Credit 3	**Enhanced Commissioning**	1
	Y?		Credit 4	**Enhanced Refrigerant Management**	1
Y			Credit 5	**Measurement & Verification**	1
Y			Credit 6	**Green Power**	1

continued...

Yes	?	No			
7	4	2	**Materials & Resources**		13 Points
Y			Prereq 1	**Storage & Collection of Recyclables**	Required
Y			Credit 1.1	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1
	Y?		Credit 1.2	**Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof	1
		N	Credit 1.3	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1
Y			Credit 2.1	**Construction Waste Management**, Divert 50% from Disposal	1
Y			Credit 2.2	**Construction Waste Management**, Divert 75% from Disposal	1
	Y?		Credit 3.1	**Materials Reuse**, 5%	1
		N	Credit 3.2	**Materials Reuse**,10%	1
Y			Credit 4.1	**Recycled Content**, 10% (post-consumer + ½ pre-consumer)	1
Y			Credit 4.2	**Recycled Content**, 20% (post-consumer + ½ pre-consumer)	1
Y			Credit 5.1	**Regional Materials**, 10% Extracted, Processed & Manufactured Regior	1
	Y?		Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Regior	1
	Y?		Credit 6	**Rapidly Renewable Materials**	1
Y			Credit 7	**Certified Wood**	1

Yes	?	No			
7	7	1	**Indoor Environmental Quality**		15 Points
Y			Prereq 1	**Minimum IAQ Performance**	Required
Y			Prereq 2	**Environmental Tobacco Smoke** (ETS) **Control**	Required
Y			Credit 1	**Outdoor Air Delivery Monitoring**	1
	N?		Credit 2	**Increased Ventilation**	1
	Y?		Credit 3.1	**Construction IAQ Management Plan**, During Construction	1
Y	Y?		Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1
Y			Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1
Y			Credit 4.2	**Low-Emitting Materials**, Paints & Coatings	1
Y			Credit 4.3	**Low-Emitting Materials**, Carpet Systems	1
Y			Credit 4.4	**Low-Emitting Materials**, Composite Wood & Agrifiber Products	1
	Y?		Credit 5	**Indoor Chemical & Pollutant Source Control**	1
	Y?		Credit 6.1	**Controllability of Systems**, Lighting	1
	Y?		Credit 6.2	**Controllability of Systems**, Thermal Comfort	1
	Y?		Credit 7.1	**Thermal Comfort**, Design	1
Y			Credit 7.2	**Thermal Comfort**, Verification	1
	Y?		Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1
		N	Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1

Yes	?	No			
5			**Innovation & Design Process**		5 Points
Y			Credit 1.1	**Innovation in Design**: Education about building systems	1
Y			Credit 1.2	**Innovation in Design**: Divert 95% of construction waste	1
Y			Credit 1.3	**Innovation in Design**: Green cleaning program	1
Y			Credit 1.4	**Innovation in Design**: Enhanced acoustical performance	1
Y			Credit 2	**LEED® Accredited Professional**	1

Yes	?	No		
35	20	4	**Project Totals** (pre-certification estimates)	69 Points

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

39	4	26	Total Project Score	EWU Sport and Recreation Center 4/20/06	Possible Points 69

Certified 26 to 32 points **Silver** 33 to 38 points **Gold** 39 to 51 points **Platinum** 52 or more points

Sustainable Sites — Possible Points 14

Y	?	N			
8	1	5		**Sustainable Sites**	Possible Points 14
Y			Prereq 1	**Erosion & Sedimentation Control**	
1			Credit 1	**Site Selection**	1
		1	Credit 2	**Urban Redevelopment**	1
		1	Credit 3	**Brownfield Redevelopment**	1
1			Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
1			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
		1	Credit 4.3	**Alternative Transportation**, Alternative Fuel Refueling Stations	1
1			Credit 4.4	**Alternative Transportation**, Parking Capacity	1
	1		Credit 5.1	**Reduced Site Disturbance**, Protect or Restore Open Space	1
1			Credit 5.2	**Reduced Site Disturbance**, Development Footprint	1
		1	Credit 6.1	**Stormwater Management**, Rate and Quantity	1
		1	Credit 6.2	**Stormwater Management**, Treatment	1
1			Credit 7.1	**Landscape & Exterior Design to Reduce Heat Islands**, Non-Roof	1
1			Credit 7.2	**Landscape & Exterior Design to Reduce Heat Islands**, Roof	1
1			Credit 8	**Light Pollution Reduction**	1

Water Efficiency — Possible Points 5

Y	?	N			
3	1	2		**Water Efficiency**	Possible Points 5
1			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
		1	Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
		1	Credit 2	**Innovative Wastewater Technologies**	1
1			Credit 3.1	**Water Use Reduction**, 20% Reduction	1
1			Credit 3.2	**Water Use Reduction**, 30% Reduction	1

Energy & Atmosphere — Possible Points 17

Y	?	N			
6	1	9		**Energy & Atmosphere**	Possible Points 17
Y			Prereq 1	**Fundamental Building Systems Commissioning**	
Y			Prereq 2	**Minimum Energy Performance**	
Y			Prereq 3	**CFC Reduction in HVAC&R Equipment**	
2			Credit 1.1	**Optimize Energy Performance**, 20% New / 10% Existing	2
1	1		Credit 1.2	**Optimize Energy Performance**, 30% New / 20% Existing	2
		2	Credit 1.3	**Optimize Energy Performance**, 40% New / 30% Existing	2
		2	Credit 1.4	**Optimize Energy Performance**, 50% New / 40% Existing	2
		2	Credit 1.5	**Optimize Energy Performance**, 60% New / 50% Existing	2
		1	Credit 2.1	**Renewable Energy**, 5%	1
		1	Credit 2.2	**Renewable Energy**, 10%	1
		1	Credit 2.3	**Renewable Energy**, 20%	1
1			Credit 3	**Additional Commissioning**	1
1			Credit 4	**Ozone Depletion**	1
	1		Credit 5	**Measurement & Verification**	1
1			Credit 6	**Green Power**	1

Materials & Resources — Possible Points 13

Y	?	N			
7		6		**Materials & Resources**	Possible Points 13
Y			Prereq 1	**Storage & Collection of Recyclables**	
		1	Credit 1.1	**Building Reuse**, Maintain 75% of Existing Shell	1
		1	Credit 1.2	**Building Reuse**, Maintain 100% of Existing Shell	1
		1	Credit 1.3	**Building Reuse**, Maintain 100% Shell & 50% Non-Shell	1
1			Credit 2.1	**Construction Waste Management**, Divert 50%	1
1			Credit 2.2	**Construction Waste Management**, Divert 75%	1
		1	Credit 3.1	**Resource Reuse**, Specify 5%	1
		1	Credit 3.2	**Resource Reuse**, Specify 10%	1
1			Credit 4.1	**Recycled Content**, Specify 5%	1
1			Credit 4.2	**Recycled Content**, Specify 10%	1
1			Credit 5.1	**Local/Regional Materials**, 20% Manufactured Locally	1
1			Credit 5.2	**Local/Regional Materials**, of 20% Above, 50% Harvested Locally	1
		1	Credit 6	**Rapidly Renewable Materials**	1
1			Credit 7	**Certified Wood**	1

Indoor Environmental Quality — Possible Points 15

Y	?	N			
12		3		**Indoor Environmental Quality**	Possible Points 15
Y			Prereq 1	**Minimum IAQ Performance**	
Y			Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	
1			Credit 1	**Carbon Dioxide (CO_2) Monitoring**	1
1			Credit 2	**Increase Ventilation Effectiveness**	1
1			Credit 3.1	**Construction IAQ Management Plan**, During Construction	1
1			Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1
1			Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1
1			Credit 4.2	**Low-Emitting Materials**, Paints	1
1			Credit 4.3	**Low-Emitting Materials**, Carpet	1
1			Credit 4.4	**Low-Emitting Materials**, Composite Wood	1
1			Credit 5	**Indoor Chemical & Pollutant Source Control**	1
		1	Credit 6.1	**Controllability of Systems**, Perimeter	1
		1	Credit 6.2	**Controllability of Systems**, Non-Perimeter	1
1			Credit 7.1	**Thermal Comfort**, Comply with ASHRAE 55-1992	1
1			Credit 7.2	**Thermal Comfort**, Permanent Monitoring System	1
		1	Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1
1			Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1

Innovation & Design Process — Possible Points 5

Y	?	N			
3	1	1		**Innovation & Design Process**	Possible Points 5
1			Credit 1.1	**Innovation in Design - Green Education**	1
1			Credit 1.2	**Innovation in Design: Green Housekeeping**	1
	1		Credit 1.3	**Innovation in Design: Water efficiency > 40%**	1
1			Credit 1.4	**Innovation in Design: Local regional > 40%**	1
1			Credit 2	**LEED™ Accredited Professional**	1

Sustainable Design Charette Summary

LEED® Certification: Under RCW 39.35D Science I will be designed to achieve a Leadership in Energy and Environmental Design (LEED®) certification at the silver level or higher. During the predesign study an eco-charrette was conducted that was intended to determine potential sustainable strategies for the project. Using LEED® 3.0 NC, an initial checklist was established to determine the LEED® credits that might be achieved through sustainable strategies. The following table represents how the project can meet or exceed the minimum LEED® silver standard.

16	9	1	Sustainable Sites		Possible Points: 26
Yes	?	No			
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	
	5		Credit 2	Development Density & Community Connectivity	
		1	Credit 3	Brownfield Redevelopment	
6			Credit 4.1	Alternative Transportation - Public Transportation Access	
1			Credit 4.2	Alternative Transportation - Bicycle Storage & Changing Rooms	
3			Credit 4.3	Alternative Transportation - Low-Emitting & Fuel-Efficient Vehicles	
2			Credit 4.4	Alternative Transportation - Parking Capacity	
	1		Credit 5.1	Site Development - Protect or Restore Habitat	
	1		Credit 5.2	Site Development - Maximize Open Space	
	1		Credit 6.1	Stormwater Design - Quantity Control	
	1		Credit 6.2	Stormwater Design - Quality Control	
1			Credit 7.1	Heat Island Effect - Non-Roof	
1			Credit 7.2	Heat Island Effect - Roof	
1			Credit 8	Light Pollution Reduction	

4	6		Water Efficiency		Possible Points: 10
Yes	?	No			
Y			Prereq 1	Water Use Reduction - 20% Reduction	
2	2		Credit 1	Water Efficient Landscaping	
	2		Credit 2	Innovative Wastewater Technologies	
2	2		Credit 3	Water Use Reduction	

12	15	8	Energy & Atmosphere		Possible Points: 35
Yes	?	No			
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
8	7	4	Credit 1	Optimize Energy Performance	
	3	4	Credit 2	On-Site Renewable Energy	
2			Credit 3	Enhanced Commissioning	
2			Credit 4	Enhanced Refrigerant Management	
	3		Credit 5	Measurement & Verification	
	2		Credit 6	Green Power	

5	2	7	Materials & Resources		Possible Points: 14
Yes	?	No			
Y			Prereq 1	Storage & Collection of Recyclables	

Yes	?	No	Credit	Description
		3	Credit 1.1	Building Reuse - Maintain Existing Walls, Floors & Roof
		1	Credit 1.2	Building Reuse - Maintain 50% of Interior Non-Structural Elements
2			Credit 2	Construction Waste Management
		2	Credit 3	Materials Reuse
2			Credit 4	Recycled Content
1	1		Credit 5	Regional Materials
		1	Credit 6	Rapidly Renewable Materials
	1		Credit 7	Certified Wood

12	3		Indoor Environmental Quality	Possible Points: 15
Yes	?	No		
Y			Prereq 1	Minimum IAQ Performance
Y			Prereq 2	Environmental Tobacco Smoke Control
1			Credit 1	Outdoor Air Delivery Monitoring
1			Credit 2	Increased Ventilation
1			Credit 3.1	Construction IAQ Management Plan - During Construction
1			Credit 3.2	Construction IAQ Management Plan - Before Occupancy
1			Credit 4.1	Low-Emitting Materials - Adhesives & Sealants
1			Credit 4.2	Low-Emitting Materials - Paints & Coatings
1			Credit 4.3	Low-Emitting Materials – Flooring Systems
1			Credit 4.4	Low-Emitting Materials - Composite Wood & Agrifiber Products
1			Credit 5	Indoor Chemical & Pollutant Source Control
1			Credit 6.1	Controllability of Systems - Lighting
	1		Credit 6.2	Controllability of Systems - Thermal Comfort
1			Credit 7.1	Thermal Comfort - Design
1			Credit 7.2	Thermal Comfort - Verification
	1		Credit 8.1	Daylight & Views - Daylight
	1		Credit 8.2	Daylight & Views, Views

6			Innovation & Design Process	Possible Points: 6
Yes	?	No		
1			Credit 1.1	Innovation in Design: Green Housekeeping
1			Credit 1.2	Innovation in Design: Specific Title TBD
1			Credit 1.3	Innovation in Design: Specific Title TBD
1			Credit 1.4	Innovation in Design: Specific Title TBD
1			Credit 1.5	Innovation in Design: Specific Title TBD
1			Credit 2	LEED* Accredited Professional

6			Regional Priority Credits	Possible Points: 4
Yes	?	No		
1			Credit 1.1	Regional Priority – SSc1
	1		Credit 1.2	Regional Priority – WEc1
	1		Credit 1.3	Regional Priority – WEc3
	1		Credit 1.4	Regional Priority – MRc7

56	38	16	Total	Possible Points: 110

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

Sustainable Building Report

Reported by: Ed Simpson
(360) 650-3231
Ed.Simpson@wwu.edu

Overview

Sustainable Building Report

Overview

Western Washington University continues to strive to be at the forefront of sustainable practices in Higher Education. Western was the first Higher Education institution in the country to purchase 100% of its electricity in the form of renewable energy through Renewable Energy Credits (RECs). Despite intense development in the area of campus REC purchases nationally, WWU is still listed in the top 20 nationally (#17) for purchase of green power. Recently, WWU students have approved an additional funding stream (~$280,000/year) to be used for campus efficiency and conservation projects. The first cycle of completed projects included building enhancements such as a 5kw solar array, high-speed hand driers, paper towel composting, and water bottle refilling stations.

In 2004, Western dedicated the first LEED certified Recreation Center (w/ Pool). This certification was the direct result of a request by the Associated Students who were funding the project by a quarterly fee on all students at Western. The LEED certification of the Wade King Student Recreation Center encouraged staff project managers at Western to require LEED design elements in the Academic Instructional Center (AIC) even though the state had not passed the LEED silver requirement for all new construction. As a consequence, when the state did pass the requirement Western was able to submit for and receive LEED certification even though, technically, the construction was 'grandfathered' and not required to be LEED certified at any level.

Western is entering its sixth year with a cross-campus sustainability committee with representation on staff, student and faculty levels. 2012 also marks the fourth year of the Office of Sustainability, the coordinating body of campus sustainability measures. Both entities are committed to making Western a national leader in campus sustainability in operations and academics. In 2010, the Office of Sustainability presented to, and received acceptance from, the WWU Board of Trustees the Western Climate Action Plan. This guidance plan specifies a 36% reduction by 2020 and a carbon-neutral campus by 2050. Additionally the campus has recently funded the "10x12" Initiative aimed at producing a 10% drop in utility expenditures by the end of 2012. Real-time energy use monitoring devices are currently being installed at a number of campus buildings which will assist in assessing effectiveness of various strategies on behavioral and operational levels. Additionally a $3.4 million ESCO project is hoped to gain significant savings in utility use campus-wide.

Projects

Wade King Student Recreation Center – 2004 – LEED Certified

Academic Instruction Center – 2009 – LEED Certified.

Buchanan Towers Addition (Student Residence Hall) – Project is complete, while designed to be LEED Gold certified the contractor for this project was terminated. None of the construction phase documentation was received and because of this the project was unable to be certified.

Miller Hall Renovation – Construction is complete and LEED certification is in review stage. Certification is expected summer 2012. The project is targeting LEED Silver or higher.

Carver Academic Renovation – This project is in design and is targeting LEED Silver or higher. Construction is scheduled for 2013 – 2015.

Training Efforts

All of our Facilities Design and Construction Management staff has had at least some introductory training on LEED and building sustainability. 6 of the staff have had USGBC LEED training with 2 of these individuals receiving LEED Certification.

Lessons Learned

The challenge continues to be to keep educating construction workers that all materials incorporated into the work must be reviewed and approved to assure that they do not install products that jeopardize LEED points. LEED status is a standing weekly project meeting agenda item so that issues such as this are brought up and the importance of the LEED process can be made known to all project participants.

Western continues to strengthen its process for assuring LEED certification goals on projects.

Recommended Improvements to the Legislation

As university campuses are seen as learning laboratories for development of sustainable practices, and LEED Silver is becoming almost commonplace in the green building arena, we recommend looking into higher levels of LEED certification as the state standard. With the emergence of cutting edge green building frameworks, such as the Living Building Challenge, the state will need to reassess what it means to be a leader in green building practices, esp. in the area of energy conservation. Looking into energy-conservation specific standards for both new and existing construction may be of use as well. Raising the bar will necessitate increased capital funding; however long-term operational costs of state buildings far outweigh the upfront expenses.

Sustainable Building Report Template

Reported by: *Azeem Hoosein*
Phone: 360 -867 - 6041
E-mail: hooseina@evergreen.edu

Overview

Short paragraph explaining the commitment to designing, building, and certifying to LEED Silver.
The Evergreen State College has established and committed to the goal of being carbon and waste neutrality by the year 2020. This sustainability focus has informed a process that is rethinking Campus operations and facilities planning at the College. The College 2007 strategic plan outlined the sustainability initiatives set by the College. Additionally, the College's new Campus Master Plan considers a wide range of opportunities to set the stage for making significant contributions towards balancing both carbon and waste production and includes transportation modes and patterns, energy production and use, food production, construction practices, waste stream management and student life and housing.

The College is committed to environmental sustainability and a comprehensive approach in regard to new and existing buildings. This includes sustainable design, building operating efficiencies, energy consumption, and water usage reduction. The College strives to make continuous improvements to provide a greener and sustainable Campus.

The CAB Renovation project was conceived under a student vote that dictated the project achieves LEED Gold certification. Day lighting, natural ventilation, rain water harvesting, energy efficient equipment, use of recycled materials are a few of the elements that will be incorporated into the building.

Projects

Project completed

Seminar II – 2004 – Achieved LEED Gold Certification.
Lab I – First Floor Renovation – 2007 – Achieved LEED Silver Certification
Campus Activities Building –2010 - Achieved LEED Gold Certification

Project Certification in Process

NA

Project in Bidding Phase

Lab I – Second Floor Renovation – 2012 – in process for LEED silver

Training Efforts

Short paragraph describing the training efforts provided for project management staff.

The project management staffs are trained on many aspects of sustainable construction including viewing Webcasts put on by various groups

Lessons Learned

What lessons were learned by your agency regarding the implementation of the LEED Silver requirement? What changes were made to your process that helped make your agency successful? Provide attachments as appropriate (samples of documents, spreadsheets, specs, etc.)

- Begin the LEED process as early as possible, preferably in the pre-design phase.
- Include the LEED cost for both design and construction as line item on the project budget spreadsheet.
- Move all LEED documentation parallel with the different phases of the project.
- Educate the Contractor early in the construction process to meet the requirements of LEED submittal to USGBC.

Recommended Improvements to the Legislation

Describe what improvements could be made to make achieving LEED Silver easier. This might include incentives, disincentives, or (others?).

- Create incentives for projects less than 5,000 sq ft. that meet the requirement of RCW 39.35D
- Provide an incentive for projects that do not meet RCW 39.35D due to the project complexity but attain LEED certification (became a LEED certified bldg.) e.g., historical buildings, existing bldg that cannot meet one or more prerequisite in one area.

New Metering Efforts and Challenges

Describe the standards or strategies established to meter energy and water in all LEED buildings. Include a description of the challenges encountered in getting meters installed and operational, and in establishing an on-going tracking and reporting system.

The college has meters to measure steam and chilled water from the central plant, electrical energy and domestic water to all major campus buildings. Staff read and record data from approximately 200 meters each month. There is an obvious commitment in terms of capital and labor to install meters and use the information, but sustainability was not the only driver. We have always kept meter data for charges to auxiliaries and for general management of buildings.

The problem has been how the data are recorded. We use our own spreadsheets to record data, but we must use Utility/Manager as required by our Resource Conservation Management contract with our utility (PSE). In addition, the Department of Enterprise Services requires reporting using EPA's Portfolio Manager. Having one, economical software package that allowed us to record sub-meter data and perform reporting functions to our regulated utility provider and DES would be more efficacious.

****

Submit this report to Stuart Simpson, GA Sustainable Building Advisor, by e-mail.
ssimpso@ga.wa.gov & sustainableBA@ga.wa.gov

This will satisfy annual reporting requirements dictated by RCW 39.35D.

Sustainable Building Report Template

Reported by: Stuart Simpson, Green Building Advisor
Department of Enterprise Services
Telephone: (360) 407-9376
Email: stuart.simpson@des.wa.gov

Overview

The Department of Enterprise Services (DES), as the lead agency for the implementation of the State Agency and Higher Education portion of the High-Performance Green Building statute is very committed to its success. DES has the highest concentration of Project Managers in the state responsible for management of the design and construction of State capital projects. Since the beginning of the LEED Silver requirement, DES is managing or has managed the design and construction of 54 out of the 125 projects being tracked (this includes exempted projects and projects currently on hold).

Several DES managed projects were certified prior to the requirement to meet or exceed LEED Silver certification. Many projects managed by DES have achieved LEED Gold and one LEED Platinum. The majority of the new projects are pursuing LEED Gold. This is a testament to DES's commitment to High-Performance Green building as well as the commitment by our clients to this goal. DES's Project Managers will continue to improve their knowledge of LEED in an effort to design and construct better and better buildings while minimizing the cost impacts of LEED.

Training Efforts

LEED training to project management staff has suffered due to agency cut backs in Green Building support and due to training budget cut backs. The project management staff, however, remains committed to the "at a minimum of LEED Silver" requirement.

DES's Green Building Advisor continues to provide free training to contractors selected for the State LEED projects upon request. This training helps to ensure successful completion of the project through the LEED certification process.

Projects

The projects that follow on the next page are DES managed projects required to meet the LEED Silver requirement. These projects are a mix of projects under design, construction, completed, and certified (exempt projects and projects "on hold" are not listed here).

LEED Projects in Design/Construction	Projected/Actual Completion Date	LEED Level Targeted or Achieved
Bellevue College - Science & Tech Bldg	11/1/2008	Gold
Bellevue College – Health Sciences Bldg	4/1/2013	Target-Silver
Bellingham TC – Campus Center	3/1/2012	Target-Gold
Cascadia CC - Center for the Arts, Tech, & Global Interact	4/1/2009	Target-Platinum
Columbia Basin C - Social Science Center - Visual Arts Bldg.	9/1/2012	Target-Gold
Columbia Basin C - Business Education	6/30/2009	Gold
Columbia Basin C - V Building Career & Tech Ed Center	6/1/2010	Target-Platinum
Edmonds CC - Meadowdale Hall Renovation	7/21/2009	Target-Silver
Everett CC - Undergraduate Education Center	11/5/2007	Silver
Everett CC – Student Fitness & Health Center	8/13/2010	Gold
Everett CC – Index Hall Replacement	4/1/2013	Target-Gold
Green River CC - General Classroom Bldg.	8/1/2011	Gold
Lake WA Tech - Allied Health Bldg.	4/1/2011	Silver
Grays Harbor College – Child Care Building	2/4/2010	Gold
North Seattle CC - Integrated Services Center	3/25/11	Gold
North Seattle CC – Technology Building Renewal	5/1/2013	Target-Silver
Seattle Central CC - Wood Construction Center	10/1/2011	Target-Gold
Skagit Valley CC - Science Bldg.	11/1/2008	Platinum
Skagit Valley CC - Academic & Student Support Building	10/1/2011	Target-Silver
Spokane CC – Tech Ed Building	3/6/2011	Target-Silver
Spokane CC – Building 7	11/10/2010	Target-Silver
Spokane Falls CC - Music Building	9/3/2010	Target-Silver
Spokane Falls CC - Classroom Bldg.	4/15/2011	Target-Silver
Spokane Falls CC - Business and Social Science	6/1/08	Gold
Spokane Falls CC - Early Learning Center	1/1/2011	Target-Gold
Spokane Falls CC – Science Building	2/25/2011	Gold
Walla Walla CC - Center for Water and Environ. Studies	4/1/2008	Silver
Military - Washington Youth Academy	11/1/2008	Silver
Centralia College-Science Complex	12/15/2008	Gold
Clark College - East County Satelite Campus	11/26/2008	Gold
Clover Park TC - Allied Heath Care Facility	12/1/2010	Target-Silver
Olympic College - Humanities Building	1/8/2010	Gold
Olympic College – Sophia Bremer Child Development Center	10/1/2010	Target-Silver
Peninsula College - Business & Humanities Center	3/28/2011	Gold
Lower Columbia College – Myklebust Gym Renovation	9/1/2013	Target-Silver
Lower Columbia College – Health Sciences	2/1/2013	Target-Silver
Pierce College - Ft. Steilacoom - Science & Tech Center	6/1/2009	Gold
Pierce Coll. - Puy - Communication, Arts & Allied Health	6/1/2009	Gold
South Puget Sound CC - Science Complex	8/1/2008	Gold
South Puget Sound CC – Vocational Tech Building	1/1/2011	Gold
South Puget Sound CC – Instructional Building 23	9/1/2010	Gold
South Puget Sound CC - Building 22 Renovation	1/2/2013	Target-Silver
Yakima Valley CC – Grandview Library	6/30/2011	Target-Silver
Tacoma CC-Early Childhood Edu. & Child Care Center	7/18/2008	Gold
Tacoma CC-Health Careers Center	1/1/2013	Target-Gold
Capitol Campus – O'Brien Building	10/12/2012	Target-Silver
WA School for the Deaf, New Voc. Ed. & Support Bldg	8/1/2009	Gold
WA School for the Blind, New Phys. Ed. Center	3/1/2009	Silver

Lessons Learned

- Make LEED experience part of the selection criteria for the Architect.
- Establish the LEED goals early in the design process through the use of an Eco-Charrette process. This half day process includes the design team, owner's representative, maintenance staff, future occupant representation, and the state project manager, and should be facilitated by someone knowledgeable about LEED.
- Participate in the DES LEED QA process to keep the project on track to achieve LEED Silver or better, and provide the data necessary for reporting progress to the Legislature.
- Establish the LEED Champion and Administrator for the project early in the design process. This person will be responsible for tracking LEED goals and assigning responsibilities related to LEED documentation and compliance.
- Share project experiences with other Project Managers related to LEED, good and bad, and learn from them.
- Continue to improve experience and knowledge base regarding LEED. LEED is continually being updated and it is necessary to keep up with the improvements.
- Make sure metering requirements are included in the project during the design phase.
- Hire the Commissioning (Cx) Agent no later that the Design Development phase to ensure their input in the design. Make sure the Cx Agent reviews the Construction Documents prior to 90% to incorporate Cx comments.
- Include meter design, installation and trend set-up as part of the Cx Agent's scope.
- DES continues to refine LEED Project Management Guidelines and provide these to DES's and other State Project Managers.

Recommended Improvements to the Legislation

Provide funding assistance to projects between 5,000 and 10,000 square feet. Implementation of the LEED certification process for projects between 5,000 and 10,000 square feet is very challenging given the limited design and construction budgets. The impact to these smaller projects, as a percentage, is far greater than for the larger projects. A similar level of effort is needed for LEED regardless of project size.

Provide incentives for cost effective energy improvements to projects. Some of the cost effective energy efficient design features have a higher first cost than traditional design. These features can have a payback that is under ten years, however, they compete with program requirements. DES could help implement such an incentive program through the Energy Life Cycle Cost Analysis (ELCCA) process. This could help to leverage utility incentives that could pay for a portion of the additional cost of the energy efficient item.

Require 0.5% of the MACC for a renewable energy system for State LEED buildings. At this time it is difficult to justify the expense of a renewable energy system on a State building, however, the benefits would be many:

- Contributes to the LEED Energy Optimization score,
- Contributes to the LEED Renewable Energy score,
- Creates a more stable renewable energy market that will create green jobs and increases competition,
- It will position Washington State well for the future as the costs for renewable energy systems become more cost effective by helping to create an infrastructure of designers and installers,

- State facilities would be positioned to help utilities meet their renewable energy goals set by I-937. This could leverage additional utility incentives to State facilities and income to the State facilities from the sale of renewable energy,
- It would increase the understanding of operational issues associated with renewable energy systems among State maintenance staff, and
- It would help to reduce CO_2 emissions that contribute to Climate Change.

New **Metering Efforts and Challenges**

DES, as the Design and Construction Project Manager for State projects is not the owner in most cases. As such, DES doesn't deal with the on-going challenges of using meters to track energy and water consumption. There have been difficulties ensuring the meters are installed properly and then proper interface is established with building automation systems to ensure trending and easy collection of consumption data. Because the focus is on getting the building up and operational, proper meter trending is often overlooked or takes a secondary position of importance.

DES Project Managers will continue to emphasize the importance of metering and to overcome the challenges of implementation.

Sustainable Building Report

Reported by: *Michael Kendall*
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Overview

Community Capital Facilities strongly urges all of its Competitive and Direct Appropriation recipients to achieve the LEED Silver Status whenever possible. However, Direct Appropriation recipients and their legislative sponsors continue to need greater education and understanding of the requirements mandated by the statute.

Projects

Active contracts overview: *74 projects have certified that they are going through the LEED process since its inception. Of those, 22 have been completed and achieved LEED Silver, 14 have achieved the higher LEED Gold certification, and 38 have not yet completed the LEED certification process. It was a pleasant surprise to see so many projects achieve the higher Gold status. See attachment for specific project details.*

Competitive grants overview: *With the completion of our 2013-2015 application intake on July 19, 2012, a total of 66 projects have applied for grant funding. Of those, 32 (48%) plan to achieve at least the LEED Silver certification - compared to 34% in 2011-2013, 23% in 2009-2011 and 20% in 2007-2009. Of those who received exemptions, 16 received a facility-type exemption, and 18 received a "not practicable" exemption. Any projects recommended for funding at the conclusion of the agency's review process will be submitted to the Governor for possible inclusion in the agency's 2013-2015 Capital Budget request. The Legislature will make the final determination concerning funding.*

Direct appropriations overview: *Capital Programs has been asked to administer 46 projects placed in the 2011-2013 Capital and 2012 Supplemental Capital Budgets by legislators or the Governor. We have no role in selecting these projects, and generally have no contact with the grantee until the budget is approved. As of the reporting date, 21 have executed contracts and provided us with information about their compliance with the LEED statute: one plans to achieve at least the LEED Silver certification, 12 have received a facility-type exemption, and eight have received a "not practicable" exemption. Not practicable exemptions are only issued when a project is completed, considered "piecemeal" or otherwise ineligible for LEED Certification. Cost of certification is not an eligible reason for receiving a not practicable exemption.*

Training Efforts

After two cycles (four years) of offering green building workshops to our applicants, this program was discontinued due to budgetary constraints.

Lessons Learned

- *Nonprofit organizations represent the majority of our grant recipients, and they are generally not required by other funding sources to enter the LEED process. Because these organizations must usually conduct time-intensive, independent fundraising campaigns to raise the non-state share of project costs, a key element in our role as grant officers is to convince nonprofits that LEED is cost-effective in the long term and good public policy - even though the initial construction costs will be higher.*
- *Projects in rural parts of the state were less familiar with LEED and often have fewer resources with which to comply with the law. This, however, is changing with time and awareness seems to be growing.*
- *Our projects are so diverse in terms of facility type as well as stage of development that a "one-size-fits-all" training program is not particularly efficient and effective.*
- *We have received a number of complaints from pro-green building architects and other professionals that the LEED process is not the most cost-effective approach for "greening-up" their projects.*

Recommended Improvements to the Legislation

Recommend a thorough examination of other sustainability efforts and programs in order to determine the cost-effectiveness of the LEED system.

New Metering Efforts and Challenges

N/A

Sustainable Building Report Template

Reported by:
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Overview

As noted in RCW 39.35D.080, affordable housing projects funded out of the state capital budget are exempt from the LEED Silver requirement but they must meet a sustainable building standard adapted in collaboration with stakeholders. The Evergreen Sustainable Development Standard (ESDS) is the product of that collaboration; it applies to projects funded with capital bond proceeds in the Washington State Housing Trust Fund (Housing Trust Fund).

While developing the ESDS, it was decided that projects could exceed the energy requirements of the Washington State Energy Code (WSEC). Subsequently, the mandatory requirements in the ESDS were written to significantly increase energy efficiency as compared to multifamily buildings just built to the WSEC.

The Evergreen Criteria, forms and instructions, and other information can be found at www.commerce.wa.gov/evergreen.

Projects

The projects listed below have been built under the ESDS. Projects that complied with the ESDS v1.3 were required to achieve a minimum of 15 percent energy efficiency over the 2006 WSEC as noted in the "ESDS Version" column. New construction and substantial rehab projects that complied with ESDS v2.0 were required to achieve a minimum of 7 percent energy efficiency over the 2009 WSEC.

ProjectName	County	# of Units	ESDS Version	Status
12th Avenue Arts	King	88	2.0	Awarded
4251 Aurora	King	71	2.0	Awarded
Appleway Court II	Spokane	40	2.0	Awarded
Cedarstone Apartments	King	15	2.0	Under Development
Cherry Park Apartments	Clark	14	2.0	Under Development
Clare View Senior	Spokane	185	2.0	Awarded
Cosecha Court-Granger Seasonal Housing	Yakima	76	1.3	Under Development
Delridge Supportive Housing	King	75	2.0	Awarded
Des Moines Family Housing	King	43	2.0	Awarded
East Oroville Harvest Park	Okanogan	76	1.3	Completed
Eklund Heights	Clallam	50	2.0	Awarded
Esperanza	Grant	128	2.0	Awarded

Evergreen Homes I	Whatcom	3	2.0	Under Development
Father Bach Haven (formerly Valor Haven)	Spokane	51	1.3	Under Development
Filbert Road	Snohomish	20	2.0	Awarded
Frances Haddon Morgan Center	Kitsap	10	2.0	Under Development
Hillside Terrace Apartments	Pierce	70	2.0	Awarded
Hoffman Apartments	Spokane	16	2.0	Awarded
Hudesman House Apartments	Stevens	14	2.0	Awarded
Impact Family Village	King	61	2.0	Awarded
Lariat Gardens	Walla Walla	50	2.0	Awarded
Mason County Shelter and Shelton Creek Apts	Mason	15	2.0	Under Development
MLK Family Housing at the Sound Transit Site	King	86	2.0	Awarded
Mt Baker Station Lofts	King	57	2.0	Awarded
Pine Meadows	Okanogan	10	2.0	Under Development
Pioneer Park Place	Spokane	29	2.0	Awarded
Plaza Roberto Maestas - Beloved Community	King	114	2.0	Awarded
Providence John Gabriel House	King	70	2.0	Awarded
Quincy Family Housing	Grant	51	2.0	Awarded
RD Preservation Portfolio	Snohomish	130	2.0	Awarded
Sail River Longhouse	Clallam	21	2.0	Awarded
Seventh Adult Family Home	King	5	2.0	Under Development
South Kirkland TOD	King	70	2.0	Awarded
Sprague Union Terrace	Spokane	37	2.0	Under Development
Spring Street	King	18	2.0	Under Development
Stratford Arms Rehab	Cowlitz	24	2.0	Awarded
Sunny View Village	Island	26	2.0	Awarded
Sylvan Place Apartments	Spokane	15	2.0	Under Development
Terry Home II	King	12	1.3	Awarded
Terry Home II	King	12	2.0	Under Development
Williams Apartments (was Pontius Apartments)	King	84	1.3	Under Development
Woods Creek Village	Snohomish	14	2.0	Awarded
Youth Haven	King	17	2.0	Awarded

Training Efforts

- The Housing Trust Fund presently has one dedicated staff member to manage ESDS policies and procedures, the evergreen program manager. The evergreen program manager attended the National Sustainable Building Advisor Institute, a nine-month course on areas of sustainable building and design such as energy and water efficiency, green materials, indoor environmental quality and health, job site operations and buildings operations and maintenance.
- The Evergreen project manager conducted a series of trainings on the principles of sustainable development as it relates to the ESDS in the spring of 2012 for ESDS support staff, stakeholders, public funders and construction verifiers.

Lessons Learned

1. In 2011, the ESDS criteria were revised to incorporate the changes to the WSEC. Through stakeholder collaboration, ESDS policies and procedures were also revised. The following are significant changes:
    - The ESDS now differentiates between substantial rehabilitation projects and moderate rehabilitation projects. Moderate rehabilitation projects under ESDS 1.3 were required to conduct improvements outside of their scope of work that could have required replacing systems that were in good working order and added significant cost. The new version of the ESDS requires moderate rehabilitation projects to only comply with ESDS measures within their scope of work.
    - Stakeholders expressed concern that the third party verification process did not have enough definition and clarity. Consequently, the Housing Trust Fund created Evergreen Binder Instructions to help facilitate a stronger verification process to ensure that the designated green building lead (Evergreen Coordinator) provides adequate information for the third party verifier to review.
2. The ESDS requirements are evaluated on the job site throughout construction and verified by a third party contractor. This allows the Housing Trust Fund to ensure that the sustainable building practices required are actually achieved in the project and as issues arise during development, the Housing Trust Fund can work with the project owner to ensure compliance with ESDS measures. This has proven to be a valuable tool for the Housing Trust Fund as well as the project owners in guaranteeing compliance.
3. The ESDS was created with mandatory criteria that produce buildings that are more energy efficient than the Washington State Energy Code, thus resulting in operating savings. However, the Housing Trust Fund does not have complete and accurate data for each specific project to generate potential operating savings calculations. For projects funded after Fall 2012, Commerce will incorporate more detailed report requirements that will help us identify potential savings.
4. As sustainable building practices become more routine, the ESDS should be updated to reflect what is realistically attainable and cost effective for our projects. For example, Energy Star appliances are now commonplace, so our current version of ESDS requires Energy Star appliances whereas it was optional in the previous version.

Recommended Improvements to the Legislation

None

New **Metering Efforts and Challenges**

Under the previous version of the ESDS, electricity metering was not mandatory but projects did receive optional points for metering. However, with the new revision of ESDS v2.0, electricity metering is now required for all new construction and substantial rehab projects. However, we do exempt shelters, single room occupancy and designated supportive housing dwelling units and seasonal farmworker projects from this requirement given the high turnover in these projects and the cost and administrative burden it creates for the owner.

Although most ESDS projects are individually metered, Commerce does not own or operate affordable housing units so we do not collect and analyze actual energy usage data. Additionally, the Environmental Protection Agency Energy Star program has not established an energy performance baseline for multifamily housing because the range of activity in multifamily buildings can cause operations to vary.

Department of Corrections

Reported by: Jack A Olson, Environmental manager
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Overview

Capital Programs' commitment to designing, building, and certifying to LEED Silver – Sustainability is part of the Department of Corrections' Strategic Plan as a means to develop more effective and efficient business practices, and to support the Priority of Government to protect the environment.

In 2004, Capital Programs established a policy to design and construct all new occupied buildings over 5,000 square feet and all major building renovations to at least LEED Silver Standards. This policy was in response to the Department's Sustainability Plan that included a goal of building green. The 2005 Legislature passed a law requiring these same two provisions for all state-funded building projects.

Projects

Projects Completed and Achieved LEED Certification

1. MONROE CORRECTIONAL COMPLEX – SOU Maintenance Building – Completed 2005 – Achieved LEED Silver.
2. MONROE CORRECTIONAL COMPLEX – Training Center – Completed 2005 – Achieved LEED Gold.
3. WASHINGTON STATE PENITENTIARY – Warehouse – Completed 2005 – Achieved LEED Silver.
4. MONROE CORRECTIONAL COMPLEX – IMU/Segregation Unit – Completed in 2006 – Achieved LEED Silver.
5. CORRECTIONAL INDUSTRIES – Warehouse/Headquarters – Completed 2006 – Achieved LEED Silver.
6. WASHINGTON STATE PENITENTIARY – North Close Security Complex. Seven separate buildings were individually certified at Silver – Completed August 2007 – Achieved LEED Silver
7. CEDAR CREEK CORRECTIONS CENTER – Perimeter Control Office (PCO) Building – Completed February 2009 –Achieved LEED Silver
8. AIRWAY HEIGHTS CORRECTIONS CENTER New Visitation Building – Completed June 2008 – Achieved LEED Silver
9. AIRWAY HEIGHTS CORRECTIONS CENTER Treatment Program Building –Completed May 2009 – Achieved LEED Silver

10. COYOTE RIDGE CORRECTIONS CENTER – Expansion – October 2008 – Achieved campus-wide LEED Gold; 22 buildings total.
11. MISSION CREEK CORRECTIONS CENTER for WOMEN – 100-Bed Expansion – Completed March 2010 – Achieved LEED Silver.
12. WASHINGTON CORRECTIONS CENTER FOR WOMEN- Health Care Facility – Completed January 2010 – Achieve LEED Silver.
13. WASHINGTON STATE PENITENTIARY - South Close Custody Expansion / Correctional Industries Warehouse – Completed September 2009 – Expect to achieve LEED Silver.
14. WASHINGTON STATE PENITENTIARY - South Close Custody Expansion / Health Services Building – Completed June 2010 – Achieve LEED Silver.
15. STAFFORD CREEK CORRECTIONAL CENTER – Furniture Factory – Construction underway – Expected completion date June 2011 – Expect to achieve LEED Silver.

Projects in Design or Construction

1. WASHINGTON STATE PENITENTIARY – Two housing units – in design. Projected completion date is January 2013. Expect to achieve LEED silver.

Training Efforts

Capital Programs has two employees who are LEED Certified, down from six due to staff moves. All of the project managers have taken some LEED modules/training. Management encourages all project managers to achieve certification, because we believe it is a valuable credential.

Lessons Learned

What lessons were learned by your agency regarding the implementation of the LEED Silver requirement? What changes were made to your process that helped make your agency successful? Provide attachments as appropriate (samples of documents, spreadsheets, specs, etc.)

- Obtaining LEED certification is becoming more and more complex; encourage project managers to take the training for certification at the earliest possible time.
- When constructing a “Green Building” – or LEED is a goal from day one, it becomes much easier and less expensive to achieve the goal. It is similar to our trying to meet ADA 15 years ago – we would do a typical design and then try and adjust or fix things so they were ADA compliant. It caused problems and increased the expense. Nowadays designers just design to ADA; it has become part of the standards. We saw this same process play out on the Coyote

Ridge Corrections Center project; it was designed to be energy and water efficient from day one, so there was no retrofitting or re-designing of systems.

- Obtaining LEED Silver was a priority on the Coyote Ridge Corrections Center Expansion project from the first day. Everyone bought into the concept. No special training of project management staff was necessary. Hiring the best available LEED professionals for design was a focus.
- It is a challenge, due to security requirements, on a small corrections campus to acquire necessary LEED points to achieve Site Development, Protect or Maintain Open Space, Restore Habitat and Development, and Maximize Open Space, these are all elements that make it challenging.
- The majority of structural wood is solid sawn and should be able to get FSC certification. The LSL studs (such as for mezzanine support and gable walls in which normal studs won't work) are not FSC certified. The frustration is LSL studs are more sustainable than FSC solid lumber because they are made out of wood "pieces" and glued together, in lieu of old growth. Unfortunately, LEED doesn't recognize the LSLs yet.
- The cost to implement/document LEED in smaller projects is larger than big projects from a percentage standpoint, largely because some of the same efforts are needed regardless of square footage.

Recommended Improvements to the Legislation

Describe what improvements could be made to make achieving LEED Silver easier. This might include incentives, disincentives, or (others?).

- Additional funding would be incentive to allow for inclusion of more green technology.
- Establish a funding pool for LEED green power points – for when the Owner has submitted for LEED and is close but has no additional funding available – as incentive to complete Silver.

Metering Efforts and Challenges

Describe the standards or strategies established to meter energy and water in all LEED buildings. Included a description of the challenges encountered in getting meters installed and operational, and in establishing an on-going tracking and reporting system.

- Metering has been a problem. Most of DOC's LEED Buildings were constructed prior to the metering requirement and therefore, individual meters were not installed. Correctional facilities typically have central meters for the entire campus. Even when meters are installed as part of the construction, DOC has not had the resources to monitor, operate and maintain the meters. If systems or resources are not in place to track the information it soon becomes useless. Experience has shown that meters require maintenance – especially electrical metering.

- DOC has included within their Capital Budget requests for funding to install individual building meters tied to a central computer monitor for most of their facilities. Due to the size and complexity of correctional facilities, individual metering is very expensive. Budget constraints have reduced the priority of metering and funding has not been available for installation, maintenance, or monitoring.

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Submit this report to Stuart Simpson, GA Sustainable Building Advisor, by e-mail.
ssimpso@ga.wa.gov & GAsustainableBA@ga.wa.gov

This will satisfy annual reporting requirements dictated by RCW 39.35D.

Sustainable Building Report Template

Reported by: Robert J. Hubenthal, Assistant Director, Capital Facilities MAnagement
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Overview

The Department of Social and Health Services Sustainability Plan states: *[We are] committed to the Principles of Sustainability as described in Executive Orders 02-03, 04-01, 05-01, and 07-02, and RCW 39.35D for the needs of the present and future generations. We are dedicated to improving the quality of life and promoting healthy environments for the communities in which we work and live. We will strive to reduce the natural, economic, and cultural environmental footprints of the Department.*

The DES/DSHS Team uses the processes developed with Department of Enterprise Services for managing projects with LEED requirements.

While we are committed to sustainable design, construction, and facility operations, we occasionally find ourselves without adequate financial resources to satisfy all LEED certification requirements. We embrace sustainable principles and we incorporate sustainable practices wherever practicable, but we struggle with LEED certification obstacles.

Projects	Current Phase	Size (GSF)	LEED Level	Status
Echo Glen Children's Center Housing Units Remodel, Phase 2A-2B	Occupied 6/23/09 2A 4/20/10 2B	26,088	LEED NC Silver	Awarded LEED Silver Feb. 2012
Echo Glen Children's Center Housing Units Remodel, Phase 3	Construction	27,240	LEED NC Silver	Goal
Green Hill School New Intensive Management Unit	Occupied 9/17/09	22,407	Not practicable	Exemption
Green Hill School New Health Center & Administration	Occupied 9/17/09	20,657	LEED NC Silver	Awarded LEED Silver July 2011
Western State Hospital New Kitchen & Commissary	Design	53,000	LEED NC Silver	Project not funded for construction

Training Efforts

Three project managers have attended the LEED New Construction Technical Review Workshops provided by Stuart Simpson. Two project managers were hired within the last seven months and this training

Lessons Learned

- Select design consultants with staff experienced in LEED design and certification.
- Start reviewing sustainable design opportunities and potential LEED credits early in the design process.
- Take a firm stand on the department's intent to meet LEED certification requirements and reinforce that message frequently with building users, consultants, and other stakeholders.
- Utilize eco-charettes.
- Review existing Credit Interpretation Requests (CIRs), and submit CIRs early in the process, if necessary.
- Budget $60,000-$100,000 for LEED documentation and processes to achieve LEED Silver.
- Plan for Enhanced Commissioning for building systems, measurement and verification, with an estimated budget of $23,000.
- Schedule should allow two months document review time with USGBC at the time of project closeout.

Recommended Improvements to the Legislation

Provide enough funding in the DSHS projects to review concepts that can incorporate long term savings for mechanical and utility systems.

Metering Efforts and Challenges

Submeters were installed to measure amount of gas, water and electrical usage for the new buildings, but the dollar cost is based on the campus meter rate. Green Hill School & Echo Glen Children's Center are not able to separate the building usage cost from the campus cost. They will be prorated. The hot water at Green Hill School is a campus system and is unable to be segregated.

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Submit this report to Stuart Simpson, DES Sustainable Building Advisor, by e-mail. stuart.simpson@des.wa.gov & sustainableBA@des.wa.gov

Due date: July 6, 2012

This will satisfy annual reporting requirements dictated by RCW 39.35D.

<u>Sustainable Building Report Template</u>

Reported by: Terri Sinclair-Olson, R.A., LEED AP
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Overview

The Washington State Department of Transportation's policy goals state that we "will enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment; and continuously improve the quality, effectiveness, and efficiency of the transportation system." This includes the construction of facilities that support the transportation system. We are committed to the principles of sustainability as described in RCW 47.04.280 and RCW 39.35D. We strive to design and deliver energy efficient and sustainable facilities and programs.

Projects

Alaska Way Viaduct Tunnel Operations Building – Status: Design-Build Contract issued Goal: Exemption request submitted 7/2/2012 – Projected Completion Date: June 2015.

SR 520 Bridge Maintenance Facilities – Status: Design Build Contract issued – Goal: LEED Silver – Projected Completion Date July 2014.

Eagle Harbor Maintenance Facilities – Status: Exemption Granted 7/30/2007 – Completion Date: May 2011.

Anacortes Ferry Terminal – Status: Schematic Design – Goal: LEED Silver – Projected Completion Date: Currently funded for design only.

Mukilteo Ferry Terminal – Status: EIS – Goal LEED Silver – Projected Completion Date: 2019

Seattle Ferry Terminal – Status: EA – Goal LEED Silver – Projected Completion Date: 2020

Bainbridge Island Ferry Terminal – Status: Design – Goal: TBD – Projected Completion Date: Currently funded for design only.

Olympic Region Headquarters – Status: Not Funded – Goal LEED Silver

Training Efforts

Two of six project delivery staff are LEED accredited professionals. Sustainability education is included in staff training plans. Project managers are encouraged to seek accreditation. The costs for training and testing are covered by the Agency.

Lessons Learned

Planning for LEED goals should to occur in the pre-design phase. Stakeholder awareness of the importance of the process and goals is critical for success. Funding needs to be identified for LEED planning, documentation and certification. Allow appropriate time for evaluation of design options.

Recommended Improvements to the Legislation

None.

Metering Efforts and Challenges

For LEED buildings WSDOT uses the DES guidelines for metering. Challenges include the ability to gather data in a format that can be readily used for agency reporting and funding approval for staff to accurately monitor and report utility usage.

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Submit this report to Stuart Simpson, GA Sustainable Building Advisor, by e-mail.
stuart.simpson@ga.wa.gov & sustainableBA@ga.wa.gov

Due date: August 3, 2012

This will satisfy some of the annual reporting requirements dictated by RCW 39.35D.

Sustainable Building Report

University of Washington (UW)/Capital Projects Office (CPO)
July 6, 2012

Overview

Reported by
Clara Simon, LEED AP, Sustainability Manager
University of Washington
Capital Projects Office
simonch@uw.edu, 206-543-2258

The University of Washington is committed to sustainability in the built environment as noted through actionable items listed below.

1. UW
    a. Rated #1 in Sustainability in Higher Education Institutions, Sierra Cool Schools, August 2011
    b. Rated in top 16 colleges in US on Green Hone Roll, Princeton Review, August 2011
    c. 19 LEED certified projects on UW properties with 19 in process
    d. Office of Environment Stewardship and Sustainability
    e. Over 500 academic classes on sustainability and environment
    f. Diverting 54% waste from landfills, 75% in construction waste
    g. Green cleaning in all UW buildings
    h. Transportation single car reduction program
    i. Bike transit systems with parking beyond local requirements
    j. Smart Grid in 175 buildings on Seattle campus – launching September 2012
    k. Climate Action Plan to achieve carbon neutrality by 2030
    l. 40 LEED APs on staff
2. CPO manages sustainability through a dedicated professional working exclusively on certifying LEED projects, and developing and implementing programs to increase successes in sustainability in the built environment
    a. LEED Projects http://f2.washington.edu/cpo/sustain/leed-projects
        i. LEED certified projects: 2 Platinum, 10 Gold, 5 Silver, 2 Certified
        ii. LEED Gold target for projects qualifying within LEED Minimum Program Requirements
        iii. LEED AP requirements for A/E team professionals, implemented through contract requirements, and with requirement for LEED documentation to be completed at the end of Construction Document phase to speed up project closeout
        iv. LEED AP requirements for Contractors through contract requirements: LEED AP on jobsite, develop and present LEED training program for subcontractors, use Built it LEED Toolkit, complete LEED documentation at Substantial Completion to speed up project closeout
    b. Other Projects – 300 to 400 projects annually

i. Developed and implemented a CPO SustainAbilities Scorecard by reviewing eight building rating processes and committed one year of resources for development http://f2.washington.edu/cpo/cpo-sustainabilities-scorecard -- recently launched program through A/E contract requirement

State Funded LEED Projects

1. Certified LEED-NC Projects
    a. Floyd and Delores Jones Playhouse Theatre, Seattle campus, major renovation, occupied 12/11/2008, Gold rating
    b. Clark Hall, Seattle campus, major renovation, occupied 6/15/2009, Gold rating
    c. Savery Hall, Seattle campus, major renovation, occupied 9/24/2009. Gold rating
    d. William H. Philip Hall, Tacoma campus, new construction, occupied 10/7/2008, Gold rating
    e. Joy Building, Tacoma campus, new construction, occupied 3/25/2011, Platinum rating
2. Completed LEED-NC Projects, Pending Certification
    a. Business Hall (formerly Balmer), occupancy 7/11/2012, Gold anticipated
3. In Process LEED-NC projects
    a. Burke Museum, Seattle campus, Predesign Phase, Platinum anticipated, design funding allocated in 2012 Supplemental Capital Budget
    b. Molecular Engineering Interdisciplinary Academic Building, occupancy 7/21/12, Gold anticipated
    c. Tioga Building, Tacoma campus, occupancy 9/10/2012, Gold anticipated
    d. Intellectual House, Seattle campus, occupancy 10/1/2014, Silver anticipated
    e. Science and Academic Building, Bothell campus, 9/20/2014, Silver anticipated

Training Efforts

1. CPO commitment:
    a. Students – hiring UW students to work on LEED projects, providing tours to campus students and visiting students from around the world, lecturing in classes on UW LEED project accomplishments
    b. A/E teams – provide team project kick-off, meet with team monthly to evaluate and educate on LEED results on project
    c. Contractors - Require training program of contractors for subcontractors
    d. Provide interdepartmental training on energy efficiency, such as LED lighting applications, UW's Climate Action Plan, sustainability requirements for carpet, low VOC implications on products
    e. Facilities Services Design Guidelines with embedded sustainability requirements, used by A/E teams

Lessons Learned

1. Through contracting hiring processes, require LEED AP professionals on design and construction teams

2. In hiring experienced design team members, include the LEED design of the project in basic services, and include only the LEED documentation as additional services. Provide clear language to be included in the basic A/E agreement, outlining responsibilities (see example - Attachment 1). Request that the LEED additional service proposal be listed by LEED prerequisite/credit and evaluate the amount of allocated proposed time, based upon past experience on LEED projects.
3. Achievement of energy points is the #1 way to increase a project's LEED rating. Spend time during predesign, to set goals.
4. Meet with design team monthly, and contractor monthly, during the length of the project.
5. Send all team members a copy of the certificate earned on a LEED project. This inspires pride of the success in the entire team.

Recommended Improvements to the Legislature

1. Historically, it costs the UW approximately $100,000 for the cost of LEED documentation, outside of the ELCCA and Commissioning. Since the UW has streamlined its processes and has an in-house professional to manage the process. It is assumed that it is costing other agencies higher dollars. More allocation of dollars is needed.
2. Dollars are needed to hire consultants to complete utility rebates.
3. On LEED Capital Projects, It would be helpful to have a fund to upfront energy and water savings enhancements that would make a project more efficient and pay back over time from the costs savings, similar to the ESCO process. Often, more energy efficient measures are not included in a project budget, because there is limited because dollars need to be expended to meet project programmatic requirements.
4. The LEED credit for Measurement and Verification is not pursued, because this is a process that occurs post-construction during the building's operation to verify energy and water savings. Funding for this credit would provide reassurances that the building is operating per desired.

Metering Efforts and Challenges

1. In the past two years, UW's Seattle campus was funded to design and implement Smart Grid on its campus and is scheduled to launch the process Fall, 2012. This process encompasses 175 buildings, and includes smart electricity meters and a dashboard interface to be able to read and report operating data. Up to this point it has been very difficult for the UW to be able to baseline its buildings on energy usage and comparing to actual usage, because gathering the data was too complex.
2. In June 2012, the UW's Seattle, Facilities Department, hired a Resource Conservation Manager, who's responsibility it is to report energy and water data on LEED projects funded through RCW 39.35D. This position was filled by the UW's Capital Project's Office, Project Manager for the Smart Grid project, as noted in item 1 above.

Appendix 4

Energy and Water Savings Reporting Spreadsheet

1. Energy/Water Consumption Contact List & Form Explanations
2. Columbia Basin College – B Business Bldg.
3. Columbia Basin College – Center for Career and Technical Educations
4. Echo Glen Children's Center – Phase 2 Cottages & Classroom
5. Everett Community College – Student Fitness Center
6. LWIT – Allied Health Bldg.
7. LWIT – Redmond Bldg.
8. Olympic College – Humanities & Student Services
9. Olympic College – Sophia Bremer Childcare Development Center
10. Peninsula College – Maier Hall, Bldg. E
11. Pierce College – Arts & Allied Health
12. Pierce College – Rainier 2013
13. Pierce College – Rainier 2014
14. Skagit Valley College – Angst Hall
15. Spokane Community College – Jenkins Wellness Center
16. Spokane Community College – Music
17. Spokane Community College – sn-w'ey'-mn (Business and Social Science)
18. Spokane Community College – Stannard Technical Education
19. SPSCC – Auto, Welding & Central Services
20. SSCC – Gene J Colin Bldg. Addition
21. Tacoma Community College – Bldg. 3 Early Learning Center
22. University of Washington – Floyd & Delores Jones Playhouse
23. WA Military Dept. – Dorm/Office
24. WA School for Blind – Kennedy Fitness Center 2013
25. WA School for Blind – Kennedy Fitness Center 2014
26. WA School for Deaf – Oliver Kastel Vocational Ed & Facilities Support Bldg.
27. Washington State University – Vancouver Engineering & Comp Sci Bldg.
28. Washington State University – Vancouver Undergraduate Bldg.
29. Edmonds Community College – Meadowdale Hall

Energy/Water Consumption Contact List

Agency/Inst.	Name	Phone	Position	Email	Facilities Managed
Bates Technical College	Marty Mattes	253-680-7156 253-377-	Director of Facilities/Operations	mmattes@bates.ctc.edu	
Bates Technical College	Larry Minnitti	253-6807149		lminnitti@bates.ctc.edu	
Bellevue College	Deric Gruen	425-564-2720		deric.gruen@bellevuecollege.edu	Bellevue College
Bellevue College	Teri Eidson				
Bellevue College	Cynthia Gross	425-564-4262	Operations Spec.	cynthia.gross@bellevuecollege.edu	
Bellingham Tech College	Dave Jungkuntz	360-752-8355	Facilities Manager	djungkuntz@btc.ctc.edu	
Big Bend Comm College	Todd Davis	509-750-8739	Director of Fac. & Oper	toddd@bigbend.edu	
Cascadia Comm College	Kim Clark	425-352-8204		kclark@cascadia.edu	
Centralia College	Gil Elder	360-736-9391 X434	Facilities Director	gelder@centralia.edu	Centralia CC
Centralia College	Andrea Dulaney			adulaney@centralia.edu	
Clark College	Stacey Mitcham	360-992-2438	Admin Assistant	smitcham@clark.edu	
Clark College	Jim Green	360-992-2408	Facilities Director	jgreen@clark.edu	Clark Coll. & E. Co. Sat. Campus
Clover Park Tech College	Mike Anderson	253-589-5529	Director of Plant Services		
Columbia Basin Comm. College	Chuck Schmidt			cschmidt@columbiabasin.edu	
Columbia Basin Comm. College	Brett Riley - Lead	509-542-4763	Dir.of Business Office Services	briley@columbiabasin.edu	Columbia Basin College; B Business 07-151;
Columbia Basin Comm. College	Chuck Schmidt	509-542-4747	Director Plant Operations	cschmidt@columbiabasin.edu	
Columbia Basin Comm. College	Brady Brooks	509-542-5546	Executive Assistant	bbrookes@columbiabasin.edu	Columbia Basin College
Columbia Basin College	Bill Saraceno	509-542-5546		vertreeb@cwu.edu	Columbia Basin College
Comm Colleges of Spokane	Dennis Dunham	509-533-8630	District Dir. of Facilities.	ddunham@ccs.spokane.edu	
Comm Colleges of Spokane	Jim Collen	509-533-8630	District Dir. of Maint.	jcollen@ccs.spokane.edu	
CWU	Bill Vertrees	509-963-1013	AVP for Faciltities	vertreeb@cwu.edu	CWU
CWU	Bill Yarwood	509-963-1120		yarwoodb@cwu.edu	CWU
CWU	Mickey Parker	509-963-1275	Assist. to VP Facilities	parkerm@cwu.edu	CWU
Dept. of Fish and Wildlife	Julie Howard	360-902-2205		julie.howard@dfw.wa.gov	
Dept. of Natural Resources					
Depart of Enterprise Services	Nancy Deakins	360-407-9333	APM EAS/DSHS	nancy.deakins@des.wa.gov	
Dept. of Soc. & Health Services	Bob Hubenthal	360-902-8168	Assist. Dir. Fac. Mgt.	Robert.Hubenthal@dshs.wa.gov	
Dept. of Soc. & Health Services	Jack Olson	902-7275	Assist. Program Manager	olsonj@dshs.wa.gov	
Dept. of Veteran Affairs					
DOC	Kent Nugen	360-725-8353	Deputy Ass. Director	kent.nugen@doc.wa.gov	DOC
DOC	Sam Harris	509-544-3678 Cell 509-528-6223	Plant Manager	srharris@doc1.wa.gov	Coyote Ridge Corrections Center
DOC	Gleen Jones	509-544-3686 Cell 509-205-8433	Facility Manager	grjones@DOC1.WA.GOV	Coyote Ridge Corrections Center
DSHS	Penny Koal	360-902-8156	Capital Programs Chief		
Eastern WA University	Shawn King	509-359-6878			
Edmonds Community College	Kao Saeteum	425-471-0389			
Edmonds Community College	Paul Doherty				
Edmonds Community College	Francisco Gomez	435-640-1674		francisco.gomez@email.edcc.edu	
Everett CC	Molly Beeman	425-388-9070	RCM		Everett Community College
Everett Comm College	Molly Beeman	425-388-9070			
Everett Comm College	Tom Watson				
EWU	Shawn King	509-359-4333	Director of Construction		EWU
Grays Harbor College	Tony Simone	360-538-4154	Chief of Campus Op		
Green River Comm. College		253-288-3459	Director of Facilities		
Highline Comm College - No LEED Blds	Suzy Holmes	206-870-3786	Assist. Dir. of Facilities		

Energy/Water Consumption Contact List

Agency/Inst.	Name	Phone	Position	Email	Facilities Managed
Highline Comm College	Barry Holldorf	206-870-3793	Director of Facilities		
Lk Washington Tech. College	Casey Huebner	425-739-8100 X8460			
Lake WA Tech. College	Tim Wheeler	425-739-8252	Director of Facilities		
Lk WA Inst. Tech	Casey Huebner	425-739-8100 X8460			Lk WA Institute of Technology
Lower Columbia College	Richard Hamilton	360-442-2263	Director of Campus Svcs.		
Military Dept.	Dianna Gethers (Point of Contact)	253-512-7992			
North Seattle Comm. College	Victor Kuo	206-934-4110	Dictor of Strategic Planning & Research		North Seattle College, Seattle Central College, South Seattle College
Olympic College	Bill Wilkie	360-475-7835			
Peninsula College					
Pierce College - both	Debby Aleckson	253-964-6565			
Pierce College - both	Jim Taylor	253-964-6588	Dir.Fac.& Const. Mgt.		
Renton Technical College	Barry Baker	425-235-5839	Facilities Manager		
Seattle Central Comm. College	Chuck Davis	206-934-4340	Dir. Fac. & Plant Ops		
Seattle Colleges	Steve Morgan	206-934-6454	Dir. of Fac. & Plant Op		
Seattle Vocational Institute					
Shoreline Community College	Bob Roehl	206-546-4514	Dir. Of Facilities & Plant		
Skagit Valley Coll.	Dave Scott	360-416-7751	Director of Facilities		Skagit Valley College
Skagit Valley College	Dave Scott	360-416-7751	Director of Facilities		
So Puget Sound Comm. College	Nancy McKinney	360-596-	Dean of Facilities		
So Puget Sound Comm. College	Guy Quinlan	360-596-5429	RCM		
So Seattle Community College	Steve Morgan	206-934-6454	Dir. of Fac. & Plant Op		
Spokane Falls Comm. College					
State Parks	Billie-Gwen Russell	360-902-8541	RCM		State Parks
State Parks	Billie-Gwen Russell	360-902-8541	RCM		State Parks
Tacoma CC	Dave Moffat	253-566-6047			Tacoma CC
Tacoma CC	Clint Steele				
Tacoma Community College	Dave Moffat	253-566-6047			
Tacoma Community College	Clint Steele				
TESC	Paul Smith	360-867-6115	Director of Facilities		The Evergreen State College
TESC	Azeem Hoosein	360-867-6041			The Evergreen State College
The Evergreen State College	Paul Smith	360 867-6115	Director of Facilities		The Evergreen State College
The Evergreen State College	Irene Hinkle	360-867-5073			
The Evergreen State College	Azeem Hoosein	360-867-6041			The Evergreen State College
University of WA - Bothell					
University of WA - Seattle	Guarrin T Sakagawa	206-543-4208			
University of WA - Seattle	Norm Menter	206-221-4269	Energy Manager		
University of WA - Tacoma	Milt Tremblay	253-692-4754			
UW	Norm Menter	206-221-4269	Energy Manager		UW Seattle
UWB	Tony Guerrero	425-352-3557		aguerrero@uwb.edu	
UWT	Milt Trembly	253-692-4754	Energy Manager		UW Tacoma
WA Sch.for the Deaf	Warren Pratt	360-418-4293	Facilities Manager		WA School for the Deaf
WA School for the Deaf	Warren Pratt	360-418-4293	Facilities Manager		
WA St. Military Dept.	Adriana Bunker	253-512-7992	RCM		Youth Acdy, Armories, Cmp. Murray

Energy/Water Consumption Contact List

Agency/Inst.	Name	Phone	Position	Email	Facilities Managed
WA St.Sch. Blind	Robert Tracey	360-696-6321 X131	Maint Supervisor		WA State School for the Blind
WA State School for the Blind	Rob Tracey	360-696-6321 X131	Maint Supervisor		
WA State University - Pullman					
WA State University - Spokane					
WA State University - Vancouver	Kevin Crowley	360-546-9706			
Walla Walla CC	Shane Loper-Lead	509-527-4571		shane.loper@wwcc.edu	Walla Walla CC
Walla Walla CC	Germaine B. Brown	509-526-4686		germaine.brown@wwcc.edu	Walla Walla CC
Wenatchee Valley College	Greg Randall		Assistant Director		
Western WA University					
Whatcom Community College	Brian Keeley	360-383-3375	Director of Facilities		
WSU - V	Jude Durfey	509-335-5572	Assist. to VP Facilities		WSU, WSUS & WSUV
WSU-V	Kevin G. Crowley	360-546-9591	Director of Fac		WSUV
WWU	Ed Simpson	360-650-3231	Capital Construction Mgr.		WWU
Yakima Valley College	Jeff Wood	509-574-4695	Dir. of Fac. & Ops		

Explanations

Building Name:	Name of the building
Institution Name:	Prison name, college name, institution site name, etc.
Location:	Nearest city or town
University/Agency:	Name of University or Agency; ie. UW, CWU, DSHS, DOC, etc.
Approx. Occupancy Date:	The date the building became occupied. This is important when determining if the building is still partly in the first year of operation.
Submitted By:	Person completing this form
Phone:	Phone number for the person completing this form
Email:	Email address of the person completing this form
Building Use:	Describe the major uses of the building; ie. Classrooms, Offices and Science Labs; Gym, Classroom and Lockers; Medium Security Housing; etc.
Primary HAVC:	Describe the primary HVAC system serving most or all of the building.
Building SF:	Square footage of conditioned space. Covered parking would not be included.
No. Lab Hoods:	Hoods have a big impact on energy use. Show the number of lab hoods in the building.
Other High Energy Equip.:	Welding equipment, server rooms, computer labs, etc. Show number and size of equipment load and/or square footage as appropriate.
Renewable Systems:	Describe the renewable energy systems installed on and in the building (ie. 10KW Solar PV panels, 100 SF of solar hot water panels, 5KW wind turbine, etc.)
Hours/Wk Use:	Average normal hours of use; ie. 50 hours/week, 24/7 = 168 hours/week, etc.
No. of People	Average number of people occupying the building during the occupied hours. Two different periods are provided in case of lower use periods, such summer quarter at colleges and universities.
Value from Renewables	Calculated energy cost savings based on sales of electricity, electricity offset, and/or thermal energy generated. Use energy cost per unit of energy to calculate savings.
Melded Elec. Rate ($/kWh):	The melded rate is calculated by taking the total electric bill divided by the total kWhs consumed. It would include the demand charge and any base charges.
Melded Gas Rate ($/therm):	The melded rate is calculated by taking the total gas bill divided by the total therms consumed. It would include the demand charge and any base charges.
Other Fuel Rate ($/MMBtu):	For central plants that use a fuel besides natural gas, calculate the cost per MMBtu. ($/Million Btu)
Metered Data:	List the following letters to indicate metered commodities: E=Electricity, G=Gas, S=Steam, HW=Hot Water, O=Other, W=Water (I.E. **E/G/W**)
Prorated Data:	List the following letters to indicate prorated commodities: E=Electricity, G=Gas, S=Steam, HW=Hot Water, O=Other, W=Water (I.E. **E/HW**)

ENERGY	Not all energy units below will be used in any one building. Only fill in the fuels that pertain to the facility.
Electricity (kWh)	Electricity usage in the building by month from the bill or submeter
Electricity ($)	Electricity cost from the bill or multiply the usage times the average cost per kWh taken from the overall campus bill
Gas (therms)	Gas usage in the building by month from the bill or submeter
Gas ($)	Gas cost from the bill or multiply the usage times the average cost per therm taken from the overall campus bill
Other: (KBtu)	Other usage such as propane, oil, wood, coal, etc. Provide usage in Btus. Convert gallons, cords, tons, etc. into KBtus (Thousands of Btus).
Other: ($)	Monthly cost of the "other" fuel
Chilled Water (KBtu)	Monthly KBtus of chilled water used in the facility when served by a central plant. Leave blank if the chiller is included in the electric units above.
Hot Water (KBtu)	Monthly KBtus of hot water used in the facility when served by a central plant. Leave blank if the hot water is included in the energy units above (gas, "other" or electric).
Steam (KBtu)	Monthly KBtus of steam used in the facility when served by a central plant. Leave blank if the steam is included in the energy units above (gas, "other" or electric).
Domestic HW (KBtu)	Enter the domestic hot water use only if provided by a central plant or from another building.
RENEWABLES	Renewable energy projects generating heat or electricity to the building. Electrical energy used may be reduced by the electricity generating renewable.
Solar Thermal (KBtu)	Monthly KBtus generated by the solar hot water heater and used in the facility.
Electrical (kWh)	Monthly kWhs generated by the photovoltaic panels, wind turbines or other renewable energy generating units
WATER	Collect measurements of all the different water resources being used or captured.
Interior water (gals)	Water used in the building for toilets, urinals, sinks, showers, etc. (total all water sources used IN the building)
Interior water/sewer ($)	Costs for water and sewer.
Domestic HW (gals)	Only provide this if domestic hot water is provided by a central plant or other outside the building.
Water captured (in)(gals)	Gallons of rain water, gray water or site water captured and used in the building for flushing toilets and urinals.
Reclaimed water (in)(gals)	Reclaimed water purchased from a city or sewer utility that is used **in** the building for flushing toilets and urinals.
Reclaimed water (in)($)	Cost of reclaimed water used in the building. Calculated based on water costs from provider.
Irrigation (gals)	Irrigation usage for the area defined by the LEED project area around the building. If this is not separated for the LEED project area, do not include this here.
Irrigation ($)	Cost of the water used for irrigation of the LEED project area.
Water captured (out)(gals)	Gallons of captured water used for irrigation. Rain water, gray water or other site water captured.
Reclaimed water(out)(gals)	Reclaimed water purchased from a city or sewer utility that is used for irrigation or other purposes outside the building.
Reclaimed water (out)($)	Cost of reclaimed water used outside the building (irrigation or other).

State LEED Project LEED Level Achieved: Silver **ANNUALIZED DATA FORM** Date: 1-Jun-14 Submit by email to: sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form Complete all applicable yellow boxes. **Submit as an Excel Spreadsheet**

Required per RCW 39.35D.030 (3)(b) **Due: June 2, 2014**

To print use legal size paper

Building Name:	B Business Building	**Submitted By:**	BILL SARACENO
Institution Name:	Columbia Basin College	**Phone:**	509 542 5546
Location:	2600 N. 20th Avenue, Pasco, WA	**Email:**	bsaraceno@columbiabasin.edu
University/Agency:	Columbia Basin College		
Approx. Occupancy Date:	Fall 2009		
Building Use:	Classroom instruction, cumputer labs, office areas		
Primary HVAC:	4 pipe fan coil system with dedicated outdoor air system, water cooled chiller, gas bo		
Building Square Footage:	22500		
No. of Lab Hoods:	0		
Other High Energy Using Equipment(describe):	Computer lab, server room		
Renewable Energy Systems (describe):	Viesmann, Model #DN 20 62 SF solar hot water panels		

		%/Year
Average Hours/Wk:	30	80
No. of People:	2300	
Average Hours/Wk:		
No. of People:		

Value from Renewables ($/yr):	
Melded Electric Rate ($/kWh):	$ 0.060
Melded Gas Rate ($/therm):	$ 1.75
Other Fuel Rate ($/MMBtu):	
List Other Fuel:	
Metered Data:	
Prorated Data:	

Year:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	17553	14553	14873	15937	15023	12713	13109	11556	13136	15786	14605	15861	174705
Electricity ($)	$ 1,053	$ 873	$ 892	$ 956	$ 901	$ 763	$ 787	$ 693	$ 788	$ 947	$ 876	$ 952	$ 10,482
Gas (therms)	962.1439	534.0175	340.6965	114.6108	20.2415	9.6099	6.7371	6.555	10.9856	143.4911	576.4022	1131.0759	3856.567
Gas ($)	$ 1,684	$ 935	$ 596	$ 201	$ 35	$ 17	$ 12	$ 11	$ 19	$ 251	$ 1,009	$ 1,979	$ 6,749
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	3,284	2,841	1,869	3,600	2,667	1,245	740	187	1,665	3,770	2,348	1011	25227
Interior water/sewer ($)													$ -
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person: 0.13710326 KBtu/SF/Year (EUI): 43.63334044 Energy $/SF/Year: $ 0.7658 Total Cost/SF/Year: 0.76583521

This form is used when Portfolio Manager data (total year data) is used or there is mixed data (monthly and annual). Enter the "total year data" in the "Jan" column.

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project **LEED Level Achieved:** Gold **Date:** 2-Jun-14 Submit by email to: sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Required per RCW 39.35D.030 (3)(b)

Submit as an Excel Spreadsheet

Due: June 2, 2014

To print use legal size paper

Building Name: CENTER FOR CAREER AND TECHNICAL EDUCATION

Institution Name: COLUMBIA BASIN COLLEGE

Location: 2600 N. 20TH AVENUE

University/Agency: COLUMBIA BASIN COLLEGE

Approx. Occupancy Date: Dec-10

Building Use: Career Education / welding / automotive / nuclear tech programs and instruction

Primary HVAC: 4 pipe fan coil system with dedicated outdoor air system, air cooled chiller, gas boile

Building Square Footage: 72241

No. of Lab Hoods: 32

Other High Energy Using Equipment(describe): Welding and automotive equipment, 3 server rooms

Renewable Energy Systems (describe): Viesmann, Model #DN 20 31 SF solar hot water panel

Submitted By: BILL SARACENO

Phone: 509 542 5546

Email: bsaraceno@columbiabasin.edu

		%/Year
Average Hours/Wk:	50	80
No. of People:	600	
Average Hours/Wk:		
No. of People:		

Value from Renewables ($/yr): $ -

Melded Electric Rate ($/kWh): $ 0.068

Melded Gas Rate ($/therm): $ 0.86

Other Fuel Rate ($/MMBtu): $ -

List Other Fuel:

Metered Data: E G W

Prorated Data:

Year:	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	102,800	113,200	97,200	102,400	116,000	119,600	156,400	144,800	108,400	114,400	93,600	108,000	1376800
Electricity ($)	$ 6,865	$ 7,620	$ 7,091	$ 6,430	$ 7,841	$ 8,012	$ 10,070	$ 9,154	$ 7,813	$ 8,191	$ 7,264	$ 7,785	$ 94,135
Gas (therms)	17,605	14,672	8,608	3,655	1,011	186	77	45	110	3,335	10,489	22,128	81921
Gas ($)	$ 14,030	$ 11,694	$ 6,865	$ 2,921	$ 816	$ 159	$ 72	$ 47	$ 98	$ 2,667	$ 9,997	$ 21,491	$ 70,857
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	42,897	45,774	47,032	149,411	185,420	263,695	265,154	150,904	103,992	106,905	110,949	62,581	1534714
Interior water/sewer ($)													$ -
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person: 31.9732083 KBtu/SF/Year (EUI): 178.4269542 Energy $/SF/Year: $ 2.28 Total Cost/SF/Year: 2.2839069

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project | **LEED Level Achieved:** | **ANNUALIZED DATA FORM** | **Date:** 30-May-14 | Submit by email to: sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b)

Due: June 2, 2014

To print use legal size paper

Building Name:	PHASE 2 COTTAGES: 13,12, 10, 9 & CLASSROOM
Institution Name:	ECHO GLEN CHILDERNS CENTER
Location:	SNOQUALMIE
University/Agency:	DEPARTMENT OF SOCIAL AND HEALTH SERVICES
Approx. Occupancy Date:	Apr-10
Building Use:	SECURE RESIDENTIAL HOUSING UNITS AND ATTACHED CLASSROOM
Primary HVAC:	INDEPENDENT GAS FIRED FORCED AIR HEATING UNITS- NO COLING
Building Square Footage:	28,140
No. of Lab Hoods:	0
Other High Energy Using Equipment(describe):	
Renewable Energy Systems (describe):	

Submitted By:	Steve Hardy/Terry Olson, EGCC/ Diana Peeples, Proj. Mgr.
Phone:	(360) 902-8347
Email:	hardysb@dshs.wa.gov and peepldu@dshs.wa.gov

		%/Year	
Res. Average Hours/Wk:	168	75	
No. of People:	78	64 resid/14staff	
Class. Average Hours/Wk:	30	25	
No. of People:	28	24 resid/4staff	

Value from Renewables ($/yr):	
Melded Electric Rate ($/kWh):	$ 0.074
Melded Gas Rate ($/therm):	$ 0.095
Other Fuel Rate ($/MMBtu):	
List Other Fuel:	
Metered Data:	
Prorated Data:	

Year:	2014	2014	2014	2014	2013	2013	2013	2013	2013	2013	2013	2013	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	49082	50685	45693	43014	37597	34730	30319	28153	35367	42213	48220	35301	480374
Electricity ($)	$ 3,632	$ 3,751	$ 3,381	$ 3,183	$ 2,782	$ 2,570	$ 2,244	$ 2,083	$ 2,617	$ 3,124	$ 3,568	$ 2,612	$ 35,548
Gas (therms)	3405	3980	3179	2422	1888	1609	1106	1217	975	2116	2664	2692	27253
Gas ($)	$ 323	$ 378	$ 302	$ 230	$ 179	$ 153	$ 105	$ 116	$ 93	$ 201	$ 253	$ 256	$ 2,589
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	34310	34310	34310	34310	34310	34310	34310	34310	34310	34310	34310	34310	411720
Interior water/sewer ($)	$ 294	$ 294	$ 294	$ 294	$ 285	$ 285	$ 285	$ 285	$ 285	$ 285	$ 285	$ 285	$ 3,456
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person: 62.8580153 | KBtu/SF/Year (EUI): 155.0936776 | Energy $/SF/Year: $ 1.3552 | Total Cost/SF/Year: 1.4780638

This form is used when Portfolio Manager data (total year data) is used or there is mixed data (monthly and annual). Enter the "total year data" in the "Jan" column.

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project **LEED Level Achieved:** Silver **Date:** 1-Jan-14 Submit by email to: Sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Required per RCW 39.35D.030 (3)(b)

Submit as an Excel Spreadsheet

Due: June 14, 2013

To print use legal size paper

Building Name:	EVCC Student Fitness Center
Institution Name:	Everett Community College
Location:	2206 Tower Street, Everett WA 98201
University/Agency:	Everett Community College
Approx. Occupancy Date:	Feb, 2012
Building Use:	Fitness Center/Gym
Primary HVAC:	ACCO Boiler
Building Square Footage:	49800
No. of Lab Hoods:	0
Other High Energy Using Equipment(describe):	Gym lighting/increased ventilation during public events (2500 people capacity) Varies depd on events
Renewable Energy Systems (describe):	None

Submitted By:	Molly Beeman	
Phone:	425-388-9070	
Email:	mbeeman@everettcc.edu	
		%/Year
Average Hours/Wk:	108	100%
No. of People:	Public	
Average Hours/Wk:		
No. of People:		

Value from Renewables ($/yr):	$ -
Melded Electric Rate ($/kWh):	
Melded Gas Rate ($/therm):	
Other Fuel Rate ($/MMBtu):	
List Other Fuel:	
Metered Data:	
Prorated Data:	

Year:													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	39645	39348	14773	31506	22186	29463	40112	41123	16695	17892	35835	39960	368538
Electricity ($)	$ 2,882	$ 2,859	$ 2,948	$ 2,146	$ 1,495	$ 2,006	$ 2,758	$ 2,855	$ 1,165	$ 1,218	$ 2,440	$ 2,721	$ 27,493
Gas (therms)	2680	2303	1811	1352	1025	252	392	289	351	1574	1889	2038	15956
Gas ($)	$ 2,896	$ 2,614	$ 2,251	$ 1,554	$ 1,192	$ 390	$ 596	$ 555	$ 462	$ 3,021	$ 3,627	$ 3,912	$ 23,070
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	97	134	149	134	119	52	38	45	75	90	14.51	120	1067.51
Interior water/sewer ($)	$ 44	$ 56	$ 60	$ 57	$ 48	$ 25	$ 18	$ 18	$ 30	$ 37	$ 44	$ 49	$ 486
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr: #VALUE! KBtu/SF/Year (EUI): 57.3 Energy $/SF/Year: $ 1.02 Total Cost/SF/Year: $ 1.03

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

Note: Water and Sewer are seperated on this building, only water is reflected in the data, which is averaged.

State LEED Project LEED Level Achieved: Silver **ANNUALIZED DATA FORM** Date: 12-May-14 Submit by email to: sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet
Due: June 2, 2014
To print use legal size paper

Required per RCW 39.35D.030 (3)(b)

Building Name: Allied Health Building
Institution Name: Lake Washington Institute of Technology
Location: Kirkland, WA
University/Agency: Lake Washington Institute of Technology
Approx. Occupancy Date: Jan-11
Building Use: Higher Education
Primary HVAC: Mitsubishi IVRF
Building Square Footage: 83700

Submitted By: Casey Huebner
Phone: (425) 576-5807
Email: casey.huebner@lwtech.edu

		%/Year
Average Hours/Wk:	60	83
No. of People:	300	
Average Hours/Wk:	80	100
No. of People:	50	

Value from Renewables ($/yr):
Melded Electric Rate ($/kWh): $ 0.085
Melded Gas Rate ($/therm):
Other Fuel Rate ($/MMBtu):
List Other Fuel:
Metered Data: E, W
Prorated Data:

No. of Lab Hoods: 3
Other High Energy Using Equipment(describe): Funeral coolers and exhaust, Building vac system (for medical tools)
Renewable Energy Systems (describe):

Year:	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	158029	131335	134439	95623	90297	89199	101601	96537	85967	106506	117263	147657	1354453
Electricity ($)	$ 13,432	$ 11,163	$ 11,427	$ 8,128	$ 7,675	$ 7,582	$ 8,636	$ 8,206	$ 7,307	$ 9,053	$ 9,967	$ 12,551	$ 115,129
Gas (therms)													0
Gas ($)													$ -
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)		33660		35156		48620		29172		22440		51612	220660
Interior water/sewer ($)		$ 675		$ 685		$ 781		$ 643		$ 59,534		$ 802	$ 63,120
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person: 7.37993311 KBtu/SF/Year (EUI): 55.21378299 Energy $/SF/Year: $ 1.3755 Total Cost/SF/Year: 2.12961177

This form is used when Portfolio Manager data (total year data) is used or there is mixed data (monthly and annual). Enter the "total year data" in the "Jan" column.
See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.
**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project — LEED Level Achieved: Silver — **ANNUALIZED DATA FORM** — Date: 19-May-14 — Submit by email to: sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b)

Due: June 2, ; 2014

To print use legal size paper

Building Name:	LWIT Redmond Building
Institution Name:	Lake Washington Institute of Technology
Location:	6505 76th Ave NE, Redmond
University/Agency:	LWIT
Approx. Occupancy Date:	2005
Building Use:	College classes and staff offices
Primary HVAC:	Rooftop Packaged cooling and ventalation, Rooftop boilers provide hot water to warm
Building Square Footage:	20,000
No. of Lab Hoods:	0
Other High Energy Using Equipment(describe):	
Renewable Energy Systems (describe):	

Submitted By:	Casey Huebner
Phone:	425 576-5807
Email:	casey.huebner@lwtech.edu

		%/Year
Average Hours/Wk:	52	80
No. of People:	217	
Average Hours/Wk:	52	20
No. of People:	12	

Value from Renewables ($/yr):	
Melded Electric Rate ($/kWh):	$ 0.115
Melded Gas Rate ($/therm):	$ 1.02
Other Fuel Rate ($/MMBtu):	
List Other Fuel:	
Metered Data:	
Prorated Data:	

Year:	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	18080	18560	18560	18160	16960	16320	17200	16960	17120	15760	18160	18000	209840
Electricity ($)	$ 1,876	$ 1,917	$ 1,877	$ 1,799	$ 1,686	$ 1,621	$ 1,820	$ 1,761	$ 1,763	$ 1,716	$ 1,880	$ 1,856	$ 21,572
Gas (therms)	1233.7	1681.4	1425.6	1095.9	781	316.8	69.46	47.4	48.61	295.8	768.83	1260.7	9025.2
Gas ($)	$ 1,226	$ 1,658	$ 1,411	$ 1,093	$ 788	$ 339	$ 102	$ 80	$ 82	$ 317	$ 768	$ 1,243	$ 9,107
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	500	600	600	600	700	6400	9300	19500	20500	15900	1600	800	77000
Interior water/sewer ($)	$ 146	$ 149	$ 149	$ 149	$ 152	$ 756	$ 1,059	$ 2,126	$ 2,230	$ 1,749	$ 230	$ 159	$ 9,054
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person: 4.375 — KBtu/SF/Year (EUI): 80.924704 — Energy $/SF/Year: $ 1.5340 — Total Cost/SF/Year: 1.9866445

This form is used when Portfolio Manager data (total year data) is used or there is mixed data (monthly and annual). Enter the "total year data" in the "Jan" column.

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project **LEED Level Achieved:** GOLD **Date:** 13-Jun-13 Submit by email to: Sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b)

Due: June 14, 2013

To print use legal size paper

Building Name: Humanities & Student Services (HSS)
Institution Name: Olympic College
Location: Bremerton
University/Agency: Olympic College
Approx. Occupancy Date: Mar. 10
Building Use: Classrooms and Offices
Primary HVAC: Chilled Water
Building Square Footage: 80956
No. of Lab Hoods: 0
Other High Energy Using Equipment(describe): None
Renewable Energy Systems (describe): None

Submitted By: Bill Wilkie
Phone: 360-475-7835
Email: bwilkie@olympic.edu

		%/Year
Average Hours/Wk:	112	67%
No. of People:	2800	
Average Hours/Wk:	112	67%
No. of People:	2800	

Value from Renewables ($/yr):
Melded Electric Rate ($/kWh): $ 0.090
Melded Gas Rate ($/therm): $ 1.04
Other Fuel Rate ($/MMBtu): $ 8.35
List Other Fuel:
Metered Data: E/G/HW/W
Prorated Data:

Year:	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	111713	112912	129343	94343	98211	99916.6	96959	145507	126791	127861	114394	114948	1372898.6
Electricity ($)	$ (494,533)	$ (288,235)	$ -	$ 225,271	$ 698,651	$ 810,569	$ 837,553	$ 1,327,449	$ 1,622,126	$ 1,943,088	$ 1,536,599	$ 2,098,945	$ 10,317,483
Gas (therms)													0
Gas ($)													$ -
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**	318441	238862	230181	303198	548113	261418	253473	276283	228314	303184	0	707847	3669314
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	57987	57987	748	748	58366	58366	60588	60588	46002	46002	30320	30320	508022
Interior water/sewer ($)	$ 757	$ 757	$ 19	$ 19	$ 759	$ 759	$ 133	$ 133	$ 107	$ 107	$ 558	$ 558	$ 4,664
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)	0	0	0	0	6443	6443	53439	53439	20466	20466	0	0	160696
Irrigation ($)	$ 12	$ 12	$ 12	$ 12	$ 23	$ 23	$ 101	$ 101	$ 46	$ 46	$ 13	$ 13	$ 414
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr: 135.4 KBtu/SF/Year (EUI): 103.2 Energy $/SF/Year: $ 128.17 Total Cost/SF/Year: $ 128.23

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.
**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project **LEED Level Achieved:** GOLD **Date:** 13-Jun-13 Submit by email to: Sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b)

Due: June 14, 2013

To print use legal size paper

Building Name: Sophia Bremer Childcare Development Center (SBCDC)
Submitted By: Bill Wilkie
Institution Name: SBCDC
Phone: 360-475-7835
Location: Bremerton, Wa.
Email: bwilkie@olympic.edu
University/Agency: Olympic College
Value from Renewables ($/yr):
Approx. Occupancy Date: Jan. 2011
Building Use: Classrooms
Primary HVAC: Heat Pumps
Building Square Footage: 16523
No. of Lab Hoods: 0

		%/Year
Average Hours/Wk:	105	65%
No. of People:	250	
Average Hours/Wk:	105	65%
No. of People:	250	

Melded Electric Rate ($/kWh): $ 0.088
Melded Gas Rate ($/therm): $ 0.56
Other Fuel Rate ($/MMBtu):
List Other Fuel:
Metered Data:
Prorated Data:

Other High Energy Using Equipment(describe): None
Renewable Energy Systems (describe): None

Year:	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	15012	14892	15981	13863	9190.8	8898.4	8238	9381	9112	9053	10429	12896	136946.2
Electricity ($)	$ 1,377	$ 1,197	$ 1,436	$ 1,388	$ 823	$ 712	$ 621	$ 786	$ 637	$ 781	$ 814	$ 905	$ 11,477
Gas (therms)	418	472	503	396	259	200	151	105	197	354	392	400	3847
Gas ($)	$ 430	$ 481	$ 520	$ 401	$ 266	$ 205	$ 157	$ 112	$ 201	$ 348	$ 355	$ 397	$ 3,873
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	20570	20570	23188	23188	16082	16082	36652	36652	20944	20944	12988	12988	260848
Interior water/sewer ($)	$ 230	$ 230	$ 250	$ 250	$ 196	$ 196	$ 352	$ 352	$ 233	$ 233	$ 167	$ 167	$ 2,854
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)	0	0	0	0	0	0	42636	42636	29546	29546			144364
Irrigation ($)	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 95	$ 95	$ 71	$ 71			$ 444
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr: 802.6 KBtu/SF/Year (EUI): 51.6 Energy $/SF/Year: $ 0.93 Total Cost/SF/Year: $ 1.10

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.
**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project — **LEED Level Achieved:** Gold — **Date:** 19-Feb-14 — Submit by email to: Sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Required per RCW 39.35D.030 (3)(b)

Submit as an Excel Spreadsheet

Due: June 1, 2013

To print use legal size paper

Building Name:	Maier Hall, Bldg. E
Institution Name:	Peninsula College
Location:	Port Angeles
University/Agency:	Peninsula College
Approx. Occupancy Date:	
Building Use:	Education/Theatre
Primary HVAC:	Water to Water Heatpump, Geothermal
Building Square Footage:	62950
No. of Lab Hoods:	0
Other High Energy Using Equipment(describe):	
Renewable Energy Systems (describe):	

Submitted By:	Rick Croot
Phone:	360-417-6553
Email:	RCroot@pencol.edu

		%/Year
Average Hours/Wk:	11	75%
No. of People:	13539	
Average Hours/Wk:	6	25%
No. of People:	2010	

Value from Renewables ($/yr):	$ -
Melded Electric Rate ($/kWh):	$ 0.056
Melded Gas Rate ($/therm):	$ -
Other Fuel Rate ($/MMBtu):	$ -
List Other Fuel:	
Metered Data:	
Prorated Data:	

Year:	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	113,360.00	107,200.00	103,280.00	72,000.00	86,320.00	63,440.00	53,440.00	64,320.00	58,080.00	71,760.00	93,440.00	85,920.00	972560
Electricity ($)	$ 6,043	$ 6,578	$ 5,601	$ 4,064	$ 4,643	$ 3,613	$ 3,035	$ 3,578	$ 3,352	$ 4,013	$ 5,128	$ 4,845	$ 54,493
Gas (therms)													0
Gas ($)													$ -
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	1,256.00	1,981.00	1,663.00	1,387.00	1,726.00	938.00	442.00	450.00	380.00	1,440.00	1,480.00	720.00	13863
Interior water/sewer ($)	$ 196	$ 273	$ 251	$ 232	$ 256	$ 201	$ 167	$ 168	$ 163	$ 236	$ 239	$ 186	$ 2,568
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)	10.00	0.00	0	0.00	12,940.00	22,310.00	8,540.00	650.00	1,040.00	1,130.00	0.00	0	46620
Irrigation ($)	$ 68	$ 68	$ 68	$ 68	$ 308	$ 483	$ 226	$ 80	$ 87	$ 89	$ 68	$ 68	$ 1,678
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr:	1.3	KBtu/SF/Year (EUI):	52.7	Energy $/SF/Year:	$ 0.87	Total Cost/SF/Year:	$ 0.91

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project | **LEED Level Achieved:** Gold | **Date:** 14-Jun-13 | Submit by email to: Sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Due: June 14, 2013

To print use legal size paper

Required per RCW 39.35D.030 (3)(b)

Building Name: Arts and Allied Health
Institution Name: Pierce College Puyallup
Location: 1601 39th Ave SE, Puyallup, WA 98374
University/Agency: Pierce College District
Approx. Occupancy Date: 7/15/2010
Building Use: Performing Arts and Health Care Instruction
Primary HVAC: Gas powered boilers with radiant floor heating and cooling and natural ventilation
Building Square Footage: 61,594
No. of Lab Hoods: None
Other High Energy Using Equipment(describe): None
Renewable Energy Systems (describe): None

Submitted By: Debby Aleckson
Phone: 253-964-6565
Email: daleckson@pierce.ctc.edu

		%/Year
Average Hours/Wk:	70	100%
No. of People:	370	
Average Hours/Wk:		
No. of People:		

Value from Renewables ($/yr):
Melded Electric Rate ($/kWh): $ 0.086
Melded Gas Rate ($/therm): $ 0.99
Other Fuel Rate ($/MMBtu):
List Other Fuel:
Metered Data: E,G,W
Prorated Data:

Year:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)							62500.75	68648	63576.3	60381.2	55860.5	55048.8	366015.55
Electricity ($)							$ 5,165	$ 5,558	$ 5,114	$ 5,215	$ 4,851	$ 4,738	$ 30,641
Gas (therms)	2490.01	3057.6	2724.1	2123.8	1212.8	682.1	573.9	339.8	638.4	858.1	1859.3	2517.7	19077.61
Gas ($)	$ 2,549	$ 3,123	$ 2,786	$ 2,172	$ 1,250	$ 724	$ 616	$ 379	$ 682	$ 905	$ 1,853	$ 2,370	$ 19,410
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)		32164		41888		55352		63580		44880		79288	317152
Interior water/sewer ($)		$ 369		$ 459		$ 464		$ 488		$ 434		$ 804	$ 3,017
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)		0		0		65824		237116		136884		0	439824
Irrigation ($)		$ 25		$ 25		$ 214		$ 706		$ 418		$ 25	$ 1,413
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr: 857.2 | KBtu/SF/Year (EUI): 51.2 | Energy $/SF/Year: $ 0.81 | Total Cost/SF/Year: $ 0.86

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.
**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project **LEED Level Achieved:** Gold **Date:** 14-Jun-13 Submit by email to: Sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b)

Due: June 14, 2013

To print use legal size paper

Building Name: Rainier

Institution Name: Pierce College Fort Steilacoom

Location: 9401 Farwest Drive SW, Lakewood, WA

University/Agency: Pierce College District

Approx. Occupancy Date: 2/25/2010

Building Use: Science Instruciton

Primary HVAC: See Note Below

Building Square Footage: 69,996.00

No. of Lab Hoods: 23

Other High Energy Using Equipment(describe): 3 boilers, 2 hot water heaters, 23 exhaust fans, 8 A/C units, 10 pumps, 1 cooling tower

Renewable Energy Systems (describe): Photo Voltaic Panels

Submitted By: Debby Aleckson

Phone: 253-964-6565

Email: daleckson@pierce.ctc.edu

		%/Year
Average Hours/Wk:	70	100%
No. of People:	626	
Average Hours/Wk:		
No. of People:		

Value from Renewables ($/yr):

Melded Electric Rate ($/kWh): $ 0.054

Melded Gas Rate ($/therm): $ 0.98

Other Fuel Rate ($/MMBtu):

List Other Fuel:

Metered Data:

Prorated Data:

Year:													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)							111267	114871	89166	88976	81123	79637	565040
Electricity ($)							$ 5,997	$ 6,192	$ 4,806	$ 4,796	$ 4,373	$ 4,292	$ 30,456
Gas (therms)	8251	6305.4	6549.7	4472.6	2997.6	2570.2	1748.8	1319.1	1643.6	3000	4082	5828	48768
Gas ($)	$ 8,184	$ 6,262	$ 6,503	$ 4,429	$ 2,981	$ 2,582	$ 1,768	$ 1,342	$ 1,663	$ 3,011	$ 3,845	$ 5,320	$ 47,889
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)	20.4	38	62.1	98.1	134	117	125	129	97.1	52.1	24.6	14.6	912
WATER													
Interior water (gals)							18740	40575	37251	12152	8673	2400	119791
Interior water/sewer ($)							$ 150	$ 324	$ 297	$ 97	$ 69	$ 19	$ 956
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr: 191.4 KBtu/SF/Year (EUI): 97.2 Energy $/SF/Year: $ 1.12 Total Cost/SF/Year: $ 1.13

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project LEED Level Achieved: Gold **ANNUALIZED DATA FORM** Date: 28-May-14 Submit by email to: sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form Complete all applicable yellow boxes. Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b) Due: June 2, 2014

To print use legal size paper

Building Name:	Rainier
Institution Name:	Pierce College Fort Steilacoom
Location:	9401 Farwest Drive SW, Lakewood, WA 98498
University/Agency:	Pierce College District
Approx. Occupancy Date:	2/25/2010
Building Use:	Science Instruction
Primary HVAC:	See Note Below
Building Square Footage:	69,996
No. of Lab Hoods:	23
Other High Energy Using Equipment(describe):	3 boilers, 2 hot water heaters, 23 exhaust fans, 8 A/C units, 10 pumps, 1 cooling tower
Renewable Energy Systems (describe):	Photo Voltaic Panels

Submitted By:	Debby Aleckson
Phone:	253-964-6565
Email:	daleckson17@aol.com

		%/Year
Average Hours/Wk:	70	100
No. of People:	626	
Average Hours/Wk:		
No. of People:		

Value from Renewables ($/yr):	
Melded Electric Rate ($/kWh):	$ 0.058
Melded Gas Rate ($/therm):	$ 0.96
Other Fuel Rate ($/MMBtu):	
List Other Fuel:	
Metered Data:	EGW
Prorated Data:	

Year:	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	81505.5	81505.5	80959	79812	88941	85776	96049	89607	86590	81269	78200	59137	989351
Electricity ($)	$ 4,696	$ 4,696	$ 4,665	$ 4,599	$ 5,125	$ 4,942	$ 5,534	$ 5,163	$ 4,989	$ 4,683	$ 4,506	$ 3,407	$ 57,006
Gas (therms)	7928.6	5349.9	4407.9	4983.5	2043.5	2296	844.2	728.5	904.8	3271.6	3711.4	5445.9	41915.8
Gas ($)	$ 7,602	$ 5,141	$ 4,238	$ 4,792	$ 1,975	$ 2,210	$ 831	$ 721	$ 887	$ 3,116	$ 3,544	$ 5,193	$ 40,250
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	10416	10416	7071	12735	61509	13374	24679	8647	9052	11605	8828	5942	184274
Interior water/sewer ($)	$ 167	$ 167	$ 113	$ 204	$ 987	$ 215	$ 396	$ 139	$ 145	$ 186	$ 142	$ 95	$ 2,956
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person: 2.94367412 KBtu/SF/Year (EUI): 108.1096864 Energy $/SF/Year: $ 1.3895 Total Cost/SF/Year: 1.4316849

This form is used when Portfolio Manager data (total year data) is used or there is mixed data (monthly and annual). Enter the "total year data" in the "Jan" column.

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

HVAC is a combination of types:

- Lab areas with fume hoods are served by a make-up air unit operating on 100% OSA and a central exhaust fan with reheat coil.
  The AHU includes HW and CHW coils and reheat air supplements heating needs.
  Individual room temperatures are controlled by duct mounted heating and cooling coils and Venturi control valves modulate supply and return airflow based on fume hood sash position to maintain negative air pressure within the labs.
- Perimeter office areas and conference rooms utilize operable windows for ventilation and radiant floor heating/cooling to maintain temperature.
- Most other areas (without fume hoods) are served by central AHU that includes heating and cooling coils.
  Individual rooms are controlled by fan powered VAV boxes with supplemental heating coils.

State LEED Project **LEED Level Achieved:** Platinum **Date:** 7-Jun-13 Submit by email to: Sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b)

Due: June 14, 2013

To print use legal size paper

Building Name:	Angst Hall (Science & Allied Health Building)	**Submitted By:**	Dave Scott
Institution Name:	Skagit Valley College	**Phone:**	360-4160-7751
Location:	2405 E. College Way, Mount Vernon, WA 98273	**Email:**	dave.scott@skagit.edu
University/Agency:	SBCTC		
Approx. Occupancy Date:	9/1/2009		
Building Use:	Classrooms, offices, science labs		
Primary HVAC:	VAV Terminal Units, local chiller, cetralized steam plant		
Building Square Footage:	67,942		
No. of Lab Hoods:	41		
Other High Energy Using Equipment(describe):			
Renewable Energy Systems (describe):	Rooftop Photovoltaic System		

		%/Year
Average Hours/Wk:	65	75%
No. of People:	520	
Average Hours/Wk:	40	25%
No. of People:	200	

Value from Renewables ($/yr):	$ 3,051.32
Melded Electric Rate ($/kWh):	$ 0.089
Melded Gas Rate ($/therm):	$ 0.69
Other Fuel Rate ($/MMBtu):	
List Other Fuel:	
Metered Data:	
Prorated Data:	

Year:	2013	2013	2013	2013	2013	2012	2012	2012	2012	2012	2012	2012	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	81,497	79,441	80,564	80,478	100,727	72,753	106,341	81,436	68,883	83,759	83,850	77,597	997326
Electricity ($)	$ 7,253	$ 7,070	$ 7,170	$ 7,163	$ 8,965	$ 6,475	$ 9,464	$ 7,248	$ 6,131	$ 7,455	$ 7,463	$ 6,906	$ 88,763
Gas (therms)	232	261	188	137	56	34	7	0	1	18	45	66	1045
Gas ($)	$ 191	$ 214	$ 157	$ 1,174	$ 54	$ 39	$ 17	$ 11	$ 11	$ 26	$ 46	$ 62	$ 2,002
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**	442,453.21	263,099.89	238,128.42	157,740.62	25,969.59	2093.7	30,670.00	35,611.85	56,811.37	118,528.59	227,745.69	350,676.45	1949529.375
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)	1546.43	1389.84	3151.92	3075.36	3984.74	3066.27	4528.71	4630.41	4636.5	2305.93	1401.26	567.07	34284.44
WATER													
Interior water (gals)	17,219.90	19,578.10	11,083	20,803.40	24,534.90	7,866.50	7,714.20	8,019.60	7,432.10	23,530.90	15,422	11,834	175038.6
Interior water/sewer ($)	$ 72	$ 82	$ 46	$ 87	$ 102	$ 33	$ 32	$ 34	$ 31	$ 98	$ 64	$ 49	$ 731
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr: 397.8 KBtu/SF/Year (EUI): 78.6 Energy $/SF/Year: $ 1.60 Total Cost/SF/Year: $ 1.61

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project LEED Level Achieved: Gold **ANNUALIZED DATA FORM** Date: 30-May-14 Submit by email to: sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form Complete all applicable yellow boxes. **Submit as an Excel Spreadsheet**

Required per RCW 39.35D.030 (3)(b) **Due: June 2, 2** 2014

To print use legal size paper

Building Name: Jenkins Wellness Center
Institution Name: Spokane Community College
Location: Spokane
University/Agency: Community Colleges of Spokane
Approx. Occupancy Date: 12/1/2010
Building Use: Classrooms
Primary HVAC: Gas
Building Square Footage: 35708

Submitted By: Dennis Dunham, District Director of Faciities
Phone: 509.533.8630
Email: dennis.dunham@ccs.spokane.edu

		%/Year
Average Hours/Wk:	N/A	
No. of People:	N/A	
Average Hours/Wk:	N/A	
No. of People:	N/A	

Value from Renewables ($/yr): $ -
Melded Electric Rate ($/kWh): $ 0.068
Melded Gas Rate ($/therm): $ 0.07
Other Fuel Rate ($/MMBtu): $ -
List Other Fuel: N/A
Metered Data: N/A
Prorated Data: N/A

No. of Lab Hoods: None
Other High Energy Using Equipment(describe): None
Renewable Energy Systems (describe): None

Year:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	0	0	0	0	0	0	0	0	0	0	44552	43027	87579
Electricity ($)													$ -
Gas (therms)	0	0	0	0	0	0	0	0	0	0	0	0	0
Gas ($)													$ -
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)													0
Interior water/sewer ($)													$ -
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person: #VALUE! KBtu/SF/Year (EUI): 8.368420186 Energy $/SF/Year: $ - Total Cost/SF/Year: 0

This form is used when Portfolio Manager data (total year data) is used or there is mixed data (monthly and annual). Enter the "total year data" in the "Jan" column.

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project LEED Level Achieved: Silver **ANNUALIZED DATA FORM** Date: 30-May-14 Submit by email to: sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form Complete all applicable yellow boxes. **Submit as an Excel Spreadsheet**

Required per RCW 39.35D.030 (3)(b) **Due: June 2, ;** 2014

To print use legal size paper

Building Name:	Music
Institution Name:	Spokane Falls Community College
Location:	Spokane
University/Agency:	Community Colleges of Spokane
Approx. Occupancy Date:	8/1/2010
Building Use:	Classrooms
Primary HVAC:	Gas
Building Square Footage:	25743
No. of Lab Hoods:	None
Other High Energy Using Equipment(describe):	None
Renewable Energy Systems (describe):	None

Submitted By:	Dennis Dunham, District Director of Faciities
Phone:	509.533.8630
Email:	dennis.dunham@ccs.spokane.edu

		%/Year
Average Hours/Wk:	N/A	
No. of People:	N/A	
Average Hours/Wk:	N/A	
No. of People:	N/A	

Value from Renewables ($/yr):	$ -
Melded Electric Rate ($/kWh):	
Melded Gas Rate ($/therm):	$ 0.07
Other Fuel Rate ($/MMBtu):	$ -
List Other Fuel:	N/A
Metered Data:	N/A
Prorated Data:	N/A

Year:													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	0	0	0	0	0	0	41729	54422	44047	29716	34434	32762	237110
Electricity ($)													$ -
Gas (therms)	0	0	0	0	0	0	0	0	0	0	38970	108090	147060
Gas ($)													$ -
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	0	0	0	0	0	0	0	0	0	0	0	0	0
Interior water/sewer ($)													$ -
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person: #VALUE! KBtu/SF/Year (EUI): 602.6888599 Energy $/SF/Year: $ - Total Cost/SF/Year: 0

This form is used when Portfolio Manager data (total year data) is used or there is mixed data (monthly and annual). Enter the "total year data" in the "Jan" column.

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project LEED Level Achieved: Gold **ANNUALIZED DATA FORM** Date: 30-May-14 Submit by email to: sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Due: June 2, ; 2014

To print use legal size paper

Required per RCW 39.35D.030 (3)(b)

Building Name: sn-w'ey'-mn (Business and Social Science)
Institution Name: Spokane Falls Community College
Location: Spokane
University/Agency: Community Colleges of Spokane
Approx. Occupancy Date: 6/1/2008
Building Use: Classrooms
Primary HVAC: Gas
Building Square Footage: 70533
No. of Lab Hoods: None
Other High Energy Using Equipment(describe): None
Renewable Energy Systems (describe): None

Submitted By: Dennis Dunham, District Director of Faciities
Phone: 509.533.8630
Email: dennis.dunham@ccs.spokane.edu

%/Year

Average Hours/Wk: N/A
No. of People: N/A
Average Hours/Wk: N/A
No. of People: N/A

Value from Renewables ($/yr): $ -
Melded Electric Rate ($/kWh): $ 0.068
Melded Gas Rate ($/therm): .07.73
Other Fuel Rate ($/MMBtu): $ -
List Other Fuel: N/A
Metered Data: N/A
Prorated Data: N/A

Year:													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)													0
Electricity ($)													$ -
Gas (therms)													0
Gas ($)													$ -
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)													0
Interior water/sewer ($)													$ -
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person: #VALUE! KBtu/SF/Year (EUI): 0 Energy $/SF/Year: #VALUE! Total Cost/SF/Year: #VALUE!

This form is used when Portfolio Manager data (total year data) is used or there is mixed data (monthly and annual). Enter the "total year data" in the "Jan" column.

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project LEED Level Achieved: Gold **ANNUALIZED DATA FORM** Date: 30-May-14 Submit by email to: sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form Complete all applicable yellow boxes. **Submit as an Excel Spreadsheet**

Required per RCW 39.35D.030 (3)(b) **Due: June 2, ;** 2014

To print use legal size paper

Building Name:	Stannard Technical Education	**Submitted By:**	Dennis Dunham, District Director of Faciities
Institution Name:	Spokane Community College	**Phone:**	509.533.8630
Location:	Spokane	**Email:**	dennis.dunham@ccs.spokane.edu
University/Agency:	Community Colleges of Spokane	**Value from Renewables ($/yr):**	$ -
Approx. Occupancy Date:	8/1/2011	%/Year	
Building Use:	Classrooms	**Average Hours/Wk:**	N/A
Primary HVAC:	Gas	**No. of People:**	N/A
Building Square Footage:	73514	**Average Hours/Wk:**	N/A
No. of Lab Hoods:	None	**No. of People:**	N/A
Other High Energy Using Equipment(describe):	Welding boothes, plasma cutter, CNC machines, Hydraulic machines		
Renewable Energy Systems (describe):	None		

Melded Electric Rate ($/kWh):	$ 0.068
Melded Gas Rate ($/therm):	$ 0.07
Other Fuel Rate ($/MMBtu):	$ -
List Other Fuel:	N/A
Metered Data:	N/A
Prorated Data:	N/A

Year:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	0	0	0	0	0	0	0	0	0	0	42069	38713	80782
Electricity ($)													$ -
Gas (therms)	0	0	0	0	0	0	0	0	0	0	42620	114970	157590
Gas ($)													$ -
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)													0
Interior water/sewer ($)													$ -
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person: #VALUE! KBtu/SF/Year (EUI): 218.1166606 Energy $/SF/Year: $ - Total Cost/SF/Year: 0

This form is used when Portfolio Manager data (total year data) is used or there is mixed data (monthly and annual). Enter the "total year data" in the "Jan" column.

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project | **LEED Level Achieved:** Gold | **ANNUALIZED DATA FORM** | **Date:** 14-May-13 | Submit by email to: SustainableBA@ga.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b)

Due: June 1, 2013

To print use legal size paper

Building Name:	Automotive, Welding and Central Services	**Submitted By:**	Guy F. Quinlan		
Institution Name:	South Puges Soind Community College	**Phone:**	(360)596-5429		
Location:	Olympia	**Email:**	gquinlan@spscc.ctc.edu		
University/Agency:	Higher Education			**Value from Renewables ($/yr):**	
Approx. Occupancy Date:	2010		%/Year		
Building Use:	Class Rooms, Open Car Bays, & Offices	**Average Hours/Wk:**	80 / 80	**Melded Electric Rate ($/kWh):**	$ 0.062
Primary HVAC:	Air to Air Heat Pump & Natural Gas Boiler	**No. of People:**	818	**Melded Gas Rate ($/therm):**	$ 0.82
Building Square Footage:	34851	**Average Hours/Wk:**	60 / 20	**Other Fuel Rate ($/MMBtu):**	
No. of Lab Hoods:	24	**No. of People:**	70	**List Other Fuel:**	
Other High Energy Using Equipment(describe):	24 Welding Machines, 23 Pc's			**Metered Data:**	E/G/W
Renewable Energy Systems (describe):				**Prorated Data:**	

Year:	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	44600	36903	36354	32348	32156	30731	23125	23174	24821	39795	38175	36995	399,177
Electricity ($)	$ 2,765	$ 2,288	$ 2,254	$ 2,006	$ 1,994	$ 1,905	$ 1,434	$ 1,437	$ 1,539	$ 2,467	$ 2,367	$ 2,294	$ 24,749
Gas (therms)	1212.7	1226.6	560.8	657	560.8	345.8	137.6	95.7	201.3	589.43	861.75	1072.81	7,522
Gas ($)	$ 1,342	$ 1,357	$ 638	$ 456	$ 395	$ 257	$ 122	$ 95	$ 163	$ 414	$ 529	$ 634	$ 6,402
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	5984		10098		11220		22066		44506		23936		117,810
Interior water/sewer ($)	$ 205		$ 219		$ 214		$ 372		$ 656		$ 349		$ 2,015
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person:	1.76256732	KBtu/SF/Year (EUI):	60.66	Energy $/SF/Year:	0.89	Total Cost/SF/Year:	0.95

This form is used when Portfolio Manager data (total year data) is used or there is mixed data (monthly and annual). Enter the "total year data" in the "Jan" column.

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project **LEED Level Achieved:** Silver **Date:** 8-Aug-13 Submit by email to: SustainableBA@ga.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Required per RCW 39.35D.030 (3)(b)

Submit as an Excel Spreadsheet

Due: June 1, 2013

To print use legal size paper

Building Name: Gene J Colin Building Addition

Institution Name: South Seattle Community College

Location: Seattle WA

University/Agency: SSCC

Approx. Occupancy Date: 6/8/2012

Building Use: Education, classroom and offices

Primary HVAC: Primary HVAC is a 100% OSA heat recovery unit with electric heater that seves a VR

Building Square Footage: 10400

No. of Lab Hoods: 0

Other High Energy Using Equipment(describe): none

Renewable Energy Systems (describe): energy dashboard

Submitted By: Andy Hartung - McGranahan Architects

Phone: 253-383-3084

Email: andy.hartung@mcgranahan.com

		%/Year
Average Hours/Wk:	50	100%
No. of People:	6	
Average Hours/Wk:		
No. of People:		

Value from Renewables ($/yr):

Melded Electric Rate ($/kWh): $ 0.063

Melded Gas Rate ($/therm):

Other Fuel Rate ($/MMBtu):

List Other Fuel:

Metered Data:

Prorated Data:

Year:													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	12498	8570	7632	7499	7532	7603	2442	2560	6673	7139	9346	11810	91304
Electricity ($)	$ 793	$ 544	$ 484	$ 476	$ 478	$ 482	$ 155	$ 162	$ 423	$ 453	$ 593	$ 749	$ 5,794
Gas (therms)													0
Gas ($)													$ -
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)													0
Interior water/sewer ($)													$ -
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr: - KBtu/SF/Year (EUI): 30.0 Energy $/SF/Year: $ 0.56 Total Cost/SF/Year: $ 0.56

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project **LEED Level Achieved:** GOLD **Date:** 25-Feb-14 Submit by email to: Sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form Complete all applicable yellow boxes. **Submit as an Excel Spreadsheet**

Required per RCW 39.35D.030 (3)(b) **Due: June 14, 2013**

To print use legal size paper

Building Name: TCC Building 3 Early Learning Center
Institution Name: Tacoma Community College
Location: 6501 south 19th street Tacoma WA
University/Agency: Tacoma Community College
Approx. Occupancy Date: Sep-08
Building Use: Daycare, 1 classroom for ESL, english, early child development
Primary HVAC: natural Gas hot water boiler, convectors, NO AHU, NO A/C
Building Square Footage: 13,000
No. of Lab Hoods: 0
Other High Energy Using Equipment(describe): Kitchen range and oven are natural gas fired
Renewable Energy Systems (describe): None

Submitted By: Dave Moffat
Phone: 253-566-6047
Email: dmoffat@tacomacc.edu

		%/Year
Average Hours/Wk:	50	96%
No. of People:	57	
Average Hours/Wk:	0	4%
No. of People:	0	

Value from Renewables ($/yr): $ -
Melded Electric Rate ($/kWh): $ 0.060
Melded Gas Rate ($/therm): $ 1.07
Other Fuel Rate ($/MMBtu): N/A
List Other Fuel: NONE
Metered Data: E/G/W
Prorated Data: E$

Year:	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	8691.8	8554	9397	7928.4	9335.8	6939.3	7937.8	7380.4	6783.6	9881	8227.6	10452	101508.7
Electricity ($)	$ 517	$ 512	$ 550	$ 491	$ 544	$ 437	$ 508	$ 464	$ 431	$ 547	$ 498	$ 579	$ 6,077
Gas (therms)	1719	1330	1119	1039	582	374	206	183	374	1282	1406	1723	11337.6
Gas ($)	1,699	1,323	1,114	1,042	595	395	232	210	392	1,260	1,385	1,691	$ 11,338
Other: (KBtu)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other: ($)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Chilled Water (KBtu)*	0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Water (KBtu)**	0	0	0	0	0	0	0	0	0	0	0	0	0
Steam (KBtu)**	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic HW (KBtu)**	0	0	0	0	0	0	0	0	0	0	0	0	0
RENEWABLES													
Solar Thermal (KBtu)	0	0	0	0	0	0	0	0	0	0	0	0	0
Electrical (kWh)	0	0	0	0	0	0	0	0	0	0	0	0	0
WATER													
Interior water (gals)	19100	22100	23400	10000	35900	20600	24300	16600	12300	22000	17100	14000	237400
Interior water/sewer ($)	$ 149	$ 172	$ 182	$ 78	$ 279	$ 160	$ 189	$ 129	$ 96	$ 171	$ 133	$ 109	$ 1,846
Domestic HW (gals)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water captured (in)(gals)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaimed water (in)(gals)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaimed water (in)($)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Irrigation (gals)	0	0	0	0	0	0	23299	0	0	0	0	0	23299
Irrigation ($)	$ -	$ -	$ -	$ -	$ -	$ -	$ 113	$ -	$ -	$ -	$ -	$ -	$ 113
Water captured (out)(gals)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaimed water(out)(gals)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaimed water (out)($)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Water Use/Person/Yr: 4,338.5 KBtu/SF/Year (EUI): 113.9 Energy $/SF/Year: $ 1.34 Total Cost/SF/Year: $ 1.48

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.
**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project — **LEED Level Achieved:** Gold — **Date:** 22-Jul-13 — Submit by email to: SustainableBA@ga.wa.gov

Energy and Water Consumption and Savings Reporting Form — Complete all applicable yellow boxes. — **Submit as an Excel Spreadsheet**

Required per RCW 39.35D.030 (3)(b) — **Due: August 1, 2013**

To print use legal size paper

Building Name: Floyd & Delores Jones Playhouse
Institution Name: University of Washington, School of Drama
Location: Seattle, Washington
University/Agency: University of Washington
Approx. Occupancy Date: Dec-08
Building Use: Performing Arts Theater
Primary HVAC: Heating only: Natural gas fired boiler, two pipe hydronic system to VAV boxes. AC for
Building Square Footage: 12,692
No. of Lab Hoods: none
Other High Energy Using Equipment(describe): Theater lighting and sound systems used approximately 300 hours/year
Renewable Energy Systems (describe): none

Submitted By: Norm Menter, Energy Manager, UW Facilities Services
Phone: 206-221-4269
Email: nmenter@u.washington.edu

		%/Year
Average Hours/Wk:	84	70%
No. of People:	20	
Average Hours/Wk:	28	15%
No. of People:	150	

Value from Renewables ($/yr): $ -
Melded Electric Rate ($/kWh): $ 0.055
Melded Gas Rate ($/therm): $ 0.67
Other Fuel Rate ($/MMBtu): N/A
List Other Fuel: N/A
Metered Data: E/G/W
Prorated Data: None

Year:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	12,280	12,200	9,960	11,800	10,240	9,440	7,560	8,120	9,440	9,640	10,600	15,520	126800
Electricity ($)	$ 675	$ 671	$ 548	$ 649	$ 563	$ 519	$ 416	$ 447	$ 519	$ 530	$ 583	$ 854	$ 6,974
Gas (therms)	736	616	587	290	138	110	18	38	110	39	414	518	3,614
Gas ($)	$ 493	$ 413	$ 393	$ 194	$ 93	$ 74	$ 12	$ 25	$ 74	$ 26	$ 278	$ 347	$ 2,421
Other: (KBtu)	N/A												0
Other: ($)	$ -												$ -
Chilled Water (KBtu)*	N/A												0
Hot Water (KBtu)**	N/A												0
Steam (KBtu)**	N/A												0
Domestic HW (KBtu)**	N/A												0
RENEWABLES													
Solar Thermal (KBtu)	N/A												0
Electrical (kWh)	N/A												0
WATER													
Interior water (gals)	4488		4488		5236		748				748		15708
Interior water/sewer ($)	$ 91		$ 91		$ 106		$ 15				$ 15		$ 317
Domestic HW (gals)	N/A												0
Water captured (in)(gals)	N/A												0
Reclaimed water (in)(gals)	N/A												0
Reclaimed water (in)($)	N/A												$ -
Irrigation (gals)	N/A												0
Irrigation ($)	N/A												$ -
Water captured (out)(gals)	N/A												0
Reclaimed water(out)(gals)	N/A												0
Reclaimed water (out)($)	N/A												$ -

Water Usage/Person: 430.356164 — KBtu/SF/Year (EUI): 62.55867397 — Energy $/SF/Year: $ 0.74 — Total Cost/SF/Year: 0.76520294

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.
**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project **LEED Level Achieved:** Silver **Date:** 1-Aug-13 Submit by email to: Sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Required per RCW 39.35D.030 (3)(b)

Submit as an Excel Spreadsheet

Due: August 1, 2013

To print use legal size paper

Building Name:	Dormitory / Office	**Submitted By:**	Adriana Bunker
Institution Name:	2	**Phone:**	(253) 512-7992
Location:	1207 Carver St - Bremerton, WA	**Email:**	Adriana.Bunker@mil.wa.gov
University/Agency:	WA State Military Department	**Value from Renewables ($/yr):**	
Approx. Occupancy Date:	Jan-09		
Building Use:	Dormitory / Office		
Primary HVAC:	Forced air gas		
Building Square Footage:	18050		
No. of Lab Hoods:	0		
Other High Energy Using Equipment(describe):	Laundry for the dormitory.		
Renewable Energy Systems (describe):	N/A		

		%/Year
Average Hours/Wk:	70	84
No. of People:	175	
Average Hours/Wk:	50	16
No. of People:	25	

Melded Electric Rate ($/kWh):	$ 0.099
Melded Gas Rate ($/therm):	$ 0.85
Other Fuel Rate ($/MMBtu):	$ -
List Other Fuel:	N/A
Metered Data:	Yes
Prorated Data:	No

Year:	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	18,096	16,859	16,639	17,342	17,000	15,570	15,719	17,495	14,319	16,844	16,413	15,880	198176
Electricity ($)	$ 1,778	$ 1,644	$ 1,669	$ 1,658	$ 1,657	$ 1,542	$ 1,548	$ 1,716	$ 1,419	$ 1,704	$ 1,663	$ 1,616	$ 19,613
Gas (therms)	1,720	1,829	1,795	1,263	957	601	411	594	710	1,235	1,836	2,059	15010
Gas ($)	$ 1,470	$ 1,563	$ 1,534	$ 1,082	$ 823	$ 521	$ 359	$ 515	$ 613	$ 1,032	$ 1,466	$ 1,612	$ 12,591
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	93,000	104,000	114,000	116,000	99,000	55,000	84,000	113,000	117,000	131,000	105,000	70,000	1201000
Interior water/sewer ($)	$ 249	$ 263	$ 286	$ 285	$ 262	$ 187	$ 236	$ 282	$ 287	$ 315	$ 266	$ 204	$ 3,122
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr:	79.5	KBtu/SF/Year (EUI):	120.6	Energy $/SF/Year:	$ 1.78	Total Cost/SF/Year:	$ 1.96

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project | **LEED Level Achieved:** Gold | **Date:** 1-Aug-13 | Submit by email to: SustainableBA@ga.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b)

Due: June 1, 2012

To print use legal size paper

Building Name:	Vancouver Undergraduate Building	**Submitted By:**	Kevin G. Crowley, EH&S Coordinator
Institution Name:	Washington State University Vancouver	**Phone:**	(360) 546-9706
Location:	Vancouver	**Email:**	kevin.g.crowley@vancouver.wsu.edu
University/Agency:	Washington State University		
Approx. Occupancy Date:	Aug-09		
Building Use:	Instruction and Departmental Offices		
Primary HVAC:	Gas-Fired Hot Water Boilers w/Radiant Panels & Central Cooling Plant		
Building Square Footage:	58,811		
No. of Lab Hoods:	0		
Other High Energy Using Equipment(describe):	Rm 100 Instructional PC Lab, x3 IDF Rooms, x1 MCF Room - Combined Area = 4,304 square feet		
Renewable Energy Systems (describe):	N/A		

		%/Year
Average Hours/Wk:	75	69
No. of People:	400	
Average Hours/Wk:	75	31
No. of People:	110	

Value from Renewables ($/yr):	$ -
Melded Electric Rate ($/kWh):	$ 0.059
Melded Gas Rate ($/therm):	$ 0.81
Other Fuel Rate ($/MMBtu):	$ -
List Other Fuel:	N/A
Metered Data:	E
Prorated Data:	G/W

Year:	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	2011	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	43,093.43	38,175.66	41,079.50	39,351.41	37,999.97	36,697.50	36,468.80	38,465.40	40,007.61	37,323.62	35,876.59	36,838.93	461378.42
Electricity ($)	$ 2,684	$ 2,378	$ 2,285	$ 2,202	$ 2,016	$ 1,922	$ 1,941	$ 2,163	$ 2,486	$ 2,407	$ 2,336	$ 2,354	$ 27,175
Gas (therms)	1,777.30	1,815.50	1,527.30	1,227	578.1	243.4	153.4	103.8	162	686.7	1,605.50	1,944.12	11824.12
Gas ($)	$ 1,377	$ 1,412	$ 1,218	$ 1,006	$ 505	$ 236	$ 151	$ 105	$ 158	$ 586	$ 1,234	$ 1,466	$ 9,452
Other: (KBtu)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other: ($)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Chilled Water (KBtu)*	0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Water (KBtu)**	0	0	0	0	0	0	0	0	0	0	0	0	0
Steam (KBtu)**	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic HW (KBtu)**	0	0	0	0	0	0	0	0	0	0	0	0	0
RENEWABLES													
Solar Thermal (KBtu)	0	0	0	0	0	0	0	0	0	0	0	0	0
Electrical (kWh)	0	0	0	0	0	0	0	0	0	0	0	0	0
WATER													
Interior water (gals)	32050	33649	28050	40366	30307	42316	62280	68701	100126	60724	32707	22308	553584
Interior water/sewer ($)	$ 641	$ 598	$ 605	$ 650	$ 610	$ 505	$ 549	$ 565	$ 1,060	$ 576	$ 514	$ 426	$ 7,298
Domestic HW (gals)	0	0	0	0	0	0	0	0	0	0	0	0	0
Water captured (in)(gals)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaimed water (in)(gals)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaimed water (in)($)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Irrigation (gals)	0	0	6284	2244	898	898	12717	17056	33662	5236	1646	0	80641
Irrigation ($)	$ 26	$ 26	$ 39	$ 30	$ 28	$ 28	$ 53	$ 62	$ 98	$ 37	$ 29	$ 26	$ 480
Water captured (out)(gals)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaimed water(out)(gals)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reclaimed water (out)($)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Water Usage/Person:	KBtu/SF/Year (EUI):	Energy $/SF/Year:	Total Cost/SF/Year:
17.8517897	46.87278178	$ 0.62	0.746875244

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project **LEED Level Achieved:** Silver **Date:** 30-Jul-13 Submit by email to: Sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b)

Due: August 1, 2013

To print use legal size paper

Building Name: Kennedy Fitness Center
Institution Name: Washington State School for the Blind
Location: Vancouver
University/Agency:
Approx. Occupancy Date: Aug-08
Building Use: Gymnasium/pool
Primary HVAC: Two HydroTherm KN-10 gas fired boilers
Building Square Footage: 29000
No. of Lab Hoods: 0
Other High Energy Using Equipment(describe):
Renewable Energy Systems (describe):

Submitted By: Robert Tracey
Phone: 360-696-6321
Email: rob.tracey@wssb.wa.gov

		%/Year
Average Hours/Wk:	89	75%
No. of People:	900	
Average Hours/Wk:	50	25%
No. of People:	450	

Value from Renewables ($/yr):
Melded Electric Rate ($/kWh): $ 0.074
Melded Gas Rate ($/therm): $ 0.93
Other Fuel Rate ($/MMBtu):
List Other Fuel: NA
Metered Data:
Prorated Data:

Year:	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	33000	33840	26520	27240	26120	26000	21960	19600	22960	27080	30320	31720	326360
Electricity ($)	$ 2,442	$ 2,504	$ 1,962	$ 2,016	$ 1,933	$ 1,924	$ 1,625	$ 1,450	$ 1,699	$ 2,004	$ 2,244	$ 2,347	$ 24,151
Gas (therms)	4590.8	3676.6	3193.7	3132.6	2359	1526.9	1218.1	287.3	399.3	1292.4	1744.3	2562.5	25983.5
Gas ($)	$ 4,269	$ 3,419	$ 2,970	$ 2,913	$ 2,194	$ 1,420	$ 1,133	$ 267	$ 371	$ 1,202	$ 1,622	$ 2,383	$ 24,165
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	2399	2399	2399	2399	2399	2399	2399	2399	2399	2399	2399	2399	28788
Interior water/sewer ($)	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 219
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr: 36.6 KBtu/SF/Year (EUI): 128.0 Energy $/SF/Year: $ 1.67 Total Cost/SF/Year: $ 1.67

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.
**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project — **LEED Level Achieved:** Silver — **ANNUALIZED DATA FORM** — **Date:** 20-May-14 — Submit by email to: sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form — Complete all applicable yellow boxes. — Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b) — Due: June 2, 2014

To print use legal size paper

Building Name: Kennedy Fitness Center
Institution Name: WA State School for the Blind
Location: Vancouver
University/Agency:
Approx. Occupancy Date: Aug-08
Building Use: Gymnasium/pool
Primary HVAC: two Hydro Therm KN10 gas fired boilers
Building Square Footage: 29000
No. of Lab Hoods: NA
Other High Energy Using Equipment(describe):
Renewable Energy Systems (describe):

Submitted By: Robert Tracey
Phone: 360-696-6321 ext 131
Email: rob.tracey@wssb.wa.gov

		%/Year
Average Hours/Wk:	89	0.75
No. of People:	900	
Average Hours/Wk:	50	0.25
No. of People:	450	

Value from Renewables ($/yr):
Melded Electric Rate ($/kWh): $ 0.074
Melded Gas Rate ($/therm): $ 0.94
Other Fuel Rate ($/MMBtu):
List Other Fuel:
Metered Data: G/W/E
Prorated Data: W

Year:	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	37320	15440	12240	12320	13920	26520	17000	19720	21640	26280	33360	36080	271840
Electricity ($)	$ 2,762	$ 1,143	$ 906	$ 912	$ 1,030	$ 1,962	$ 1,258	$ 1,459	$ 1,601	$ 1,945	$ 2,469	$ 2,670	$ 20,116
Gas (therms)	4082	3973.3	3233.1	2452.8	2291.3	1668	1286.4	628.3	430.2	1816.7	2861.4	4193.7	28917.2
Gas ($)	$ 3,837	$ 3,735	$ 3,039	$ 2,306	$ 2,154	$ 1,568	$ 1,209	$ 591	$ 404	$ 1,708	$ 2,690	$ 3,942	$ 27,182
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*	NA												0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	2945	2945	2945	2945	2945	2945	2945	2945	2945	2945	2945	2945	35340
Interior water/sewer ($)	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 18	$ 219
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person: 44.8761905 — KBtu/SF/Year (EUI): 131.6978648 — Energy $/SF/Year: $ 1.6310 — Total Cost/SF/Year: 1.63852855

This form is used when Portfolio Manager data (total year data) is used or there is mixed data (monthly and annual). Enter the "total year data" in the "Jan" column.

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project | **LEED Level Achieved:** GOLD | **ANNUALIZED DATA FORM** | **Date:** 15-May-14 | Submit by email to: sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b)

Due: June 2, 2014

To print use legal size paper

Building Name: Oliver Kastel Vocational Education & Facilities Support Building
Institution Name: Washington School for the Deaf
Location: 611 Grand Blvd. , Vancouver, Washington 98661
University/Agency: Center for Childhood Deafness and Hearing Loss (CDHL)
Approx. Occupancy Date: 9/25/2009
Building Use: Kitchen, Cafeteria, Auto, Grounds, Custodial, and Maintenance Shops
Primary HVAC: Ground Source Heat Pump
Building Square Footage: 21,700
No. of Lab Hoods: none
Other High Energy Using Equipment(describe):
Renewable Energy Systems (describe):

Submitted By: Warren H. Pratt - Facilities Manager
Phone: (360) 418-4293
Email: warren.pratt@cdhl.wa.gov

		%/Year
Average Hours/Wk:	40	75%
No. of People:	150	
Average Hours/Wk:	40	
No. of People:	10	

Value from Renewables ($/yr):
Melded Electric Rate ($/kWh):
Melded Gas Rate ($/therm):
Other Fuel Rate ($/MMBtu):
List Other Fuel:
Metered Data:
Prorated Data:

Year:	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	31680	31440	35760	34320	41520	40800	33360	36240	33840	32160	3540	33840	388500
Electricity ($)	$ 2,213	$ 2,200	$ 2,403	$ 2,136	$ 2,506	$ 2,544	$ 2,249	$ 2,383	$ 2,390	$ 2,338	$ 2,488	$ 2,426	$ 28,275
Gas (therms)	2581.9	2307	1517.9	1145.8	887.4	425.6	547.3	380.9	848.2	1492.6	2130.1	3599	17863.7
Gas ($)	$ 2,466	$ 2,165	$ 1,451	$ 1,083	$ 842	$ 412	$ 525	$ 370	$ 806	$ 1,410	$ 2,033	$ 3,425	$ 16,987
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	40392		45628		41888		21692		28424		36652		214676
Interior water/sewer ($)	$ 272		$ 288		$ 281		$ 244		$ 256		$ 272		$ 1,613
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Usage/Person: 1908.23111 | KBtu/SF/Year (EUI): 143.4070046 | Energy $/SF/Year: $ 2.0858 | Total Cost/SF/Year: 2.16012949

This form is used when Portfolio Manager data (total year data) is used or there is mixed data (monthly and annual). Enter the "total year data" in the "Jan" column.

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project **LEED Level Achieved:** Gold **Date:** 29-May-14 Submit by email to: SustainableBA@ga.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b)

Due: June 1, 2013

To print use legal size paper

Building Name: Vancouver Engineering & Computer Science Building
Institution Name: Washington State University Vancouver
Location: Vancouver
University/Agency: Washington State University
Approx. Occupancy Date: Oct-11
Building Use: Instruction, Research and Departmental Offices
Primary HVAC: Gas-Fired Hot Water Boilers w/Radiant Panels & Central Cooling Plant
Building Square Footage: 60,364

Submitted By: Kevin G. Crowley, EH&S Coordinator
Phone: (360) 546-9706
Email: kevin.g.crowley@vancouver.wsu.edu

		%/Year
Average Hours/Wk:	75	69%
No. of People:	400	
Average Hours/Wk:	75	31%
No. of People:	110	

Value from Renewables ($/yr):
Melded Electric Rate ($/kWh): $ 0.059
Melded Gas Rate ($/therm): $ 0.38
Other Fuel Rate ($/MMBtu):
List Other Fuel: N/A
Metered Data: E/G
Prorated Data: W

No. of Lab Hoods: 2
Other High Energy Using Equipment(describe): Server Room, x4 IDF Rooms, Mechanical Room - Combined Area = 11,970 square feet
Renewable Energy Systems (describe): N/A

Year:	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	2013	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	97,104.25	84,906.98	42,432.54	91,337.41	79,919.48	70,365.20	72,875.08	74,595.33	80,689.21	91,024.14	92,197.11	97,727.33	975174.06
Electricity ($)	$ 5,352	$ 4,776	$ 5,124	$ 5,135	$ 4,475	$ 4,321	$ 4,321	$ 4,212	$ 4,615	$ 5,104	$ 5,179	$ 5,433	$ 58,045
Gas (therms)	4,480.00	2,579.00	2,446.00	1,859.00	1,854.00	2,363.00	1,820.00	2,443.00	2,289.00	1,949.00	2,454.00	5,204.00	31740
Gas ($)	$ 2,912	$ 1,109	$ 856	$ 521	$ 389	$ 378	$ 273	$ 366	$ 412	$ 565	$ 1,006	$ 3,278	$ 12,066
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)	17,500	29,946	26,837	41,218	54,964	40,612	60,781	63,743	93,464	39,146	38,774	22,173	529158
Interior water/sewer ($)	$ 470	$ 501	$ 493	$ 493	$ 563	$ 527	$ 583	$ 581	$ 675	$ 517	$ 517	$ 457	$ 6,376
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)	0	0	0	0	0	9,986	2,805	35,458	23,227	4,825	2,244	561	79106
Irrigation ($)	$ 22	$ 22	$ 22	$ 23	$ 41	$ 46	$ 29	$ 109	$ 79	$ 34	$ 27	$ 23	$ 476
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr: 1,706.4 KBtu/SF/Year (EUI): 107.7 Energy $/SF/Year: $ 1.16 Total Cost/SF/Year: $ 1.27

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.
**Central plant and distribution systems combined annual average efficiency calculated at 65%.

State LEED Project LEED Level Achieved: Silver Date: 28-Aug-14 Submit by email to: Sustainability@des.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Required per RCW 39.35D.030 (3)(b)

Submit as an Excel Spreadsheet

Due: June 14, 2013

To print use legal size paper

Building Name:	Meadowdale Hall
Institution Name:	
Location:	20000 68th Ave W
University/Agency:	Edmonds Community College
Approx. Occupancy Date:	Apr-10
Building Use:	Classrooms and Instructional labs
Primary HVAC:	Central Plant Hydronic hot & chilled water system
Building Square Footage:	36100
No. of Lab Hoods:	0
Other High Energy Using Equipment(describe):	Computer lab - 1263 SF
Renewable Energy Systems (describe):	none

Submitted By:	Francisco Gomez
Phone:	425-640-1674
Email:	francisco.gomez@email.edcc.edu

		%/Year
Average Hours/Wk:	74	70%
No. of People:	425	
Average Hours/Wk:	59	30%
No. of People:	5	

Value from Renewables ($/yr):	$ -
Melded Electric Rate ($/kWh):	$ 0.150
Melded Gas Rate ($/therm):	
Other Fuel Rate ($/MMBtu):	
List Other Fuel:	
Metered Data:	
Prorated Data:	

Year:	2014	2014	2014	2013	2013	2013	2013	2013	2013	2013	2013	2013	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)	32253	30505	27517	38992	43196	32511	31372	31672	26007	33632	33275	32264	393196
Electricity ($)	$ 2,774	$ 2,432	$ 2,256	$ 2,924	$ 3,240	$ 2,438	$ 2,353	$ 2,375	$ 1,495	$ 2,892	$ 2,293	$ 2,775	$ 30,248
Gas (therms)													0
Gas ($)													$ -
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)													0
Interior water/sewer ($)													$ -
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr: - KBtu/SF/Year (EUI): 37.2 Energy $/SF/Year: $ 0.84 Total Cost/SF/Year: $ 0.84

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.

**Central plant and distribution systems combined annual average efficiency calculated at 65%.

Appendix 5

Metering and Measurement Reports

1. University of Washington – Clark Hall
2. Bellevue College – Science & Technology, Bldg. S
3. Centralia College – New Science Center
4. Grays Harbor College – Childcare Center
5. Pierce College Puyallup – Arts & Allied Health Bldg.
6. Tacoma Community College – Bldg. 3, Early Learning Center
7. University of Washington – Savery Hall
8. Washington State University – Vancouver Engineering & Comp Sci Bldg.
9. Washington State University – Vancouver Undergraduate Bldg.
10. Bellingham Technical College – Campus Center
11. Echo Glen Children's Center – Phase 2, Residential Housing Renovation
12. Pierce College Fort Steilacoom – Rainier

13 Edmonds Community College- Meadowdale Hall

Metering and Measurement Report - Clark Hall

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required in the event that the Energy and Water Consumption and Savings Reporting Form cannot be completed for a LEED Building or if some of the data in the reporting form is "prorated". Complete one of these Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: SustainableBA@ga.wa.gov   Due Date: August 1, 2013.

Building Name: Clark Hall
Institution Name: University of Washington
Approximate Occupancy Date: December 2008
Submitted By: Guarrin Sakagawa, Facilities Project Engineer, UW, Facilities Services Date: July 24, 2012
Phone: 206.543.4208 Email: sakagawa@uw.edu

(X) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).

Provide an explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity: Experiencing meter data collection problems. Data available from November 2012.

Gas/Steam/HW: The PLC storing the data was not set up for sufficient storage, early meter data lost. Data available from September 2012.

Water (interior): UW committed to having this data available from September 2012. It is available but there is less than one year's worth of data to report.

Other: Irrigation deduct meter, same status as water meter above.

Metering and Measurement Report - Bellevue College

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required to complete one of these M & M Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: sustainability@des.wa.gov Due Date: June 14, 2013.

Building Name: Science and Technology, Building S
Institution Name: Bellevue College
Approximate Occupancy Date: 6/2009
Submitted By: Deric Gruen Date: 6/10/2013
Phone: 425.564.2720 Email: deric.gruen@bellevuecollege.edu

(___) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).

Provide and explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity:

Based on sub-meter data – the annual data is correct, but monthly intervals are approximate.

The cost of electricity is prorated from the campus meter melded rate.

Gas/Steam/HW:

Water (interior):
Consumption is estimated based on irregular recordings of meter data, cost is pro-rated based on campus melded rate.

Other:

Metering and Measurement Report - Centralia College

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required to complete one of these M & M Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: sustainability@des.wa.gov Due Date: June 14, 2013.

Building Name: NEW SCIENCE CENTER
Institution Name: CENTRALIA COLLEGE
Approximate Occupancy Date: APRIL 1, 2009
Submitted By: GIL ELDER Date: June 6, 2013
Phone: 360.736.9391 X. 434 Email: GELDER@CENTRALIA.EDU
(___) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).

Provide and explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity: The data for the electricity is prorated due to three buildings share the same meter. There is a sub-meter installed for the building but at this time, the bugs are being worked out to achieve more accuracy in reporting.

Gas/Steam/HW: The Gas consumption is pulled off the monthly utility bills.

Water (interior): The water consumption is pulled off the monthly utility bills

Other: N/A

Metering and Measurement Report - Grays Harbor College

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required to complete one of these M & M Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: sustainability@des.wa.gov Due Date: June 14, 2013.

Building Name: __Childcare Center (1400 Building)______________________________
Institution Name: _____Grays Harbor College__________________________________
Approximate Occupancy Date: _________May 2010 ___________________________
Submitted By: Tony Simone_____________ Date: __May 16, 2013________________
Phone: _360-538-4154_____ Email: ___tsimone@ghc.edu______________________

(__X_) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).

Provide and explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity: Electricity:
The electricity is tracked through the building's EMCS and the PUD utility bills. The results are inputted into Portfolio Manager.

Gas/Steam/HW:
The Gas usage is also tracked through the building's EMCS and the utility bills. This is also inputted into Portfolio Manager.

Water (interior):
The Water is tracked through the building's EMCS and the utility bills. We are still having difficulty with the monitoring device that inputs to the EMCS. It has never worked correctly and we are in the process of trying to get it fixed. This is inputted into Portfolio Manager using the utility information.

Other:

Metering and Measurement Report- Pierce College AAH Building

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required to complete one of these M & M Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: sustainability@des.wa.gov   Due Date: June 14, 2013.

Building Name: _________Arts and Allied Health Building ________________
Institution Name: _________Pierce College Puyallup ___________________________
Approximate Occupancy Date: _________7-15-10______________________________
Submitted By: ___Debby Aleckson_______ Date: _____6-14-13_________________
Phone: __253-964-6565______ Email: ________daleckson@pierce.ctc.edu_______

(___) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).

Provide and explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity: As of June 2012 meter readings through the JCI metasys system have been made available. Utility invoice is for entire campus at this time. Costs established using melded electric rate.

Gas/Steam/HW: PSE utility invoices are used as the source for monthly information on therm use and cost.

Water (interior): As of June 2012 meter readings through the JCI metasys system have been made available. Water use and cost information is taken from the utility invoices.

Other:

Metering and Measurement Report - Tacoma Community College

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required to complete one of these M & M Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: sustainability@des.wa.gov Due Date: June 14, 2013.

Building Name: Building 3 (Annette B Weyerhaeuser) Early Learning Center
Institution Name: Tacoma Community College
Approximate Occupancy Date: 8-1-2008
Submitted By: Dave Moffat Date: 5-14-13
Phone: 253-566-6047 Email: dmoffat@tacomacc.edu

(___) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).

Provide and explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity: The electric meter is read and recorded 1 time per month, the demand is reset at the same time.

Gas: Natural gas readings are requested for the prior 12 month period from the gas utility for accuracy.

Water (interior): The Potable water meter is read and recorded 1 time per month. The Irrigation deduct meter is read and recorded 1 time per month.

Other: Additionally included is a water deduct meter for the Hydronic system. The total Potable water consumption is calculated by deducting the Hydronic system consumption from the potable consumption reading.

Metering and Measurement Report - University of Washington

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required in the event that the Energy and Water Consumption and Savings Reporting Form cannot be completed for a LEED Building or if some of the data in the reporting form is "prorated". Complete one of these Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: SustainableBA@ga.wa.gov   Due Date: August 1, 2013.

Building Name: Savery Hall
Institution Name: University of Washington
Approximate Occupancy Date: May 2010
Submitted By: Guarrin Sakagawa, Facilities Project Engineer, UW, Facilities Services Date: July 24, 2013
Phone: 206.543.4208 Email: sakagawa@uw.edu

(X) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).

Provide an explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity: UW committed to having electric meter data by September 2012 and the data is available. Less than one year of data to report.

Gas/Steam/HW: UW committed to collecting data from January 2013. Due to technical difficulties collection started May 2013. There is no data to report for CY 2012.

Water (interior): UW committed to collecting data from January 2013. Due to technical difficulties collection started July 2013. There is no data to report for CY 2012.

Other: Irrigation deduct meter, same status as water meter above.

Metering and Measurement Report - WSU Vancouver

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required to complete one of these M & M Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: sustainability@des.wa.gov Due Date: August 1, 2013.

Building Name: Vancouver Engineering & Computer Science Building
Institution Name: Washington State University Vancouver
Approximate Occupancy Date: 4 October 2011
Submitted By: Kevin G. Crowley, EH&S Coordinator, WSU Vancouver Date: 1 August 2013
Phone: (360) 546-9706 Email: kevin.g.crowley@vancouver.wsu.edu

(___) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).

Provide and explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity: kWhrs and kW demand are retrieved from the main electrical meter in the LEED building. This information is then cross-referenced to a monthly report that is generated automatically.

Gas/Steam/HW: The building is equipped with a natural gas meter which is read monthly. The readings from all gas meters on campus are collected and the contribution of each building is calculated as a percentage of the whole campus. These percentages are multiplied by either the number of therms or the dollar value on the campus' monthly natural gas bill to determine the natural gas costs and therms associated with the LEED building.

Water (interior): Water (interior) totals are calculated by dividing the volume of water used per month into the square footage of all occupied space on campus and then multiplying the quotient by the square footage of the LEED building. The campus is looking toward water meters in each building. The implementation date is unknown but LEED buildings will be prioritized.

Other:

Metering and Measurement Report - WSU Undergraduate Building

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required to complete one of these M & M Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: sustainability@des.wa.gov Due Date: August 1, 2013.

Building Name: Vancouver Undergraduate Building
Institution Name: Washington State University Vancouver
Approximate Occupancy Date: 31 August 2009
Submitted By: Kevin G. Crowley, EH&S Coordinator, WSU Vancouver Date: 1 August 2013
Phone: (360) 546-9706 Email: kevin.g.crowley@vancouver.wsu.edu

(___) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).

Provide and explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity: kWhrs and kW demand are retrieved from the main electrical meter in the LEED building. This information is then cross-referenced to a monthly report that is generated automatically.

Gas/Steam/HW: The building is equipped with a natural gas meter which is read monthly. The readings from all gas meters on campus are collected and the contribution of each building is calculated as a percentage of the whole campus. These percentages are multiplied by either the number of therms or the dollar value on the campus' monthly natural gas bill to determine the natural gas costs and therms associated with the LEED building.

Water (interior): Water (interior) totals are calculated by dividing the volume of water used per month into the square footage of all occupied space on campus and then multiplying the quotient by the square footage of the LEED building. The campus is looking toward water meters in each building. The implementation date is unknown but LEED buildings will be prioritized.

Other:

Metering and Measurement Report - Bellingham Technical College

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required to complete one of these M & M Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: sustainability@des.wa.gov Due Date: June 14, 2013.

Building Name: Campus Center (CC)
Institution Name: Bellingham Technical College
Approximate Occupancy Date: April 2012
Submitted By: Dave Jungkuntz, Facilities Manager Date: 6 March 2014
Phone: 360.752.8355 Email: djungkuntz@btc.ctc.edu

Compiled By: Wendy Riedy, Assistant to Facilities Manager Date: 6 March 2014
Phone: 360.752.8489 Email: wriedy@btc.ctc.edu

(___) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).

Provide an explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity: It is not possible to collect data at this time due to problematic install of sub-metering equipment and interface with building energy management system (EMS). We are working with the electrician, sub-contractor and EMS contractor to have resolved by July 1, 2014.

Gas/Steam/HW: Metered

Water (interior): Metered

Other:

Metering and Measurement Report - DSHS Echo Glen

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required in the event that the Energy and Water Consumption and Savings Reporting Form cannot be completed for a LEED Building or if some of the data in the reporting form is "prorated". Complete one of these Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: SustainableBA@ga.wa.gov Due Date: June 2, 2014.

Building Name: Phase 2-Residential Housing Unit Renovation for: Cottages 9, 10, 12, & 13 and Classroom
Institution Name: Echo Glen Children's Center

Approximate Occupancy Date: **Substantial Completion date April, 2010**
Submitted By: Diana Peeples Date: May 29, 2014
Phone: (360)902-8347 Email: peepldu@dshs.wa.gov

(___) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).
Provide and explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity:
Customer meters on all renovated buildings. The classroom is serviced by an electric heat pump. Circuit transformers installed on the electrical panel meters the building's power usage in "KW".
Gas/Steam/HW: Natural gas flow meter installed on the incoming gas line measures the building gas consumption in "cubic feet per hour".

Water (interior):
Water is supplied by domestic on-site campus wells. Water flow meter installed on the incoming domestic water line meter the building water consumption in "gallons per minute". Waste water is piped to a municipal sewer and the amount generated affects the costs.

Domestic Hot Water: BTU meter is installed at the hot water piping from the hot water heater measures energy used to heat water based on the gallon per minute flow rate and the temperature delta.

Metering and Measurement Report - Pierce College

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required to complete one of these M & M Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: sustainability@des.wa.gov Due Date: June 02, 2014.

Building Name: ______________Rainier_______________________ ______________
Institution Name: ___________Pierce College Fort Steilacoom ___________________
Approximate Occupancy Date: ____2/25/10_________________________________
Submitted By: ___Debby Aleckson_______ Date: _____________5/29/14__________
Phone: __253-964-6565_____ Email: __daleckson@pierce.ctc.edu_______________

(___) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).

Provide and explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity: The main building switchboard is equipped for interface to the EMCS system. Utility invoice is for entire campus at this time. Usage is taken from EMCS and costs are applied using a melded rate.

Gas/Steam/HW: PSE utility invoices are used as the source for monthly information on therm use and cost. The building is equipped with a dedicated gas meter. A pulse transmitter was provided and installed by PSE and trends via the EMCS system.

Water (interior): The building is equipped with a dedicated water meter and pulse transmitter that is programmed to trend via the EMCS system. Irrigation water is metered along with domestic water. There is a deduct meter for irrigation water, but it does not appear to be connected. There is also a deduct meter for the cooling tower domestic water use, but it is not hooked up at this time. Usage is taken from the EMCS and costs are applied using a melded rate

Other: Solar PV is metered and trended via a web-based system. This system is not interfaced with EMCS system. We are using Enphase statements for reports. Fixed array: http://www.sunnyportal.com
Rotary array: https://enlighten.enphaseenergy.com/

Appendix 6

LEED Building Cost and Performance Data

1. University of Washington – Business School Phase 2
2. University of Washington Tacoma – Joy Bldg.
3. Bellevue College – Science & Technology Bldg.
4. Cascadia Community College – Classroom Bldg. 2, Bothell
5. Green River Community College – Salish Hall, Auburn
6. LWIT – Allied Health Bldg., Kirkland
7. NSCC – Integrated Resource Center, Seattle
8. Peninsula College – Maier Hall
9. SCCC – Wood Construction Center, Seattle
10. Skagit Valley College – Angst Hall, Mount Vernon
11. Echo Glen Children's Center – Phase 2, Renovation
12. Peninsula College – Allied Health & Early Childhood

High-Performance Green Buildings

Post Construction Submittal (submit at substantial completion)

Received by GA:

Date: 7/1/2012

Submit to: sustainableba@ga.wa.gov

Project Name	Business School, Phase 2 (Balmer Hall)	Agency/Institution	360 - University of Washington
Project Number	201838	GA H-P Green Bldg.#	GA 08-011
Final Square Footage	70,518		

	Name	Agency or Firm	Phone	E-Mail
Submitted By	Clara Simon	UW Capital Projects	206-543-2258	simonch@uw.edu

	Name	Company	Phone	E-Mail
General Contractor	Kurt Winje	Sellen	206-805-7118	kurt.winje@sellen.com

Construction Related Costs	
Facility Construction Costs (Est.)	
Site Work & Related Costs* (Est.)	
Max.Allowable Construct.Costs(MACC)	

Consultant Related Costs	
A) A/E Fees (Base)	
B) Additional A/E Fees	
Other Consultant Services	Consultant Fees
C) Commissioning	
D) ELCCA	
F) Est.LEED Related from (B,C &D)	$ -
Total Consultant Fees (A,B,C &D)	$ -

Estimated Construction Costs Associated with LEED**	
Costs Assoc. w/LEED (Est.)	
Savings Assoc. w/LEED (Est.)	
Total Project Cost	
Total Added LEED Cost	

Payback for LEED	#DIV/0!

Energy and Water/Sewer Savings and Consumption Est.s (Taken from the LEED Submittal)	
Est. Annual Energy Savings (% $)	
Est. Annual Energy Savings ($/Yr)	
Est. Total Energy Use (kBtu/Yr)	
Est. Total Energy Use ($/Yr)	
Est. Renew. Energy Generated (kWh/yr)	$ -
Est. Renew. Energy Generated (Btuh/yr)	$ -
Est. Annual Water Savings (% $)	
Est. Annual Water Savings ($/Yr)	$ -
Est. Annual Water Use (Gals/Yr)	
Est. Annual Water Cost ($/Yr)	$ -
Est. Annual Sewer Savings ($/yr)	$ -
Est. Annual Sewer Savings (Gals/yr)	
Total Estimated Annual Savings	$ -

* Include demolition costs as part of site work.

** Make a best guess. Use conventional construction techniques as a base for comparison.

Est.Gas Use (therms/yr)	Est.Electric Use (kWh/yr)

Construction Waste Recycled (%)	Construction Waste Recycled (tons)
91	3657

This submittal includes the following:

- [x] Provide an updated LEED Checklist.
- [x] Provide a two to four page summary of strategies used to meet LEED Credits, include discussion of costs and savings.
- [x] Provide 10 pictures of the project illustrating the sustainable features and overall project (include descriptions)

	Gas	Electricity	Water	Other	Total
Utility Incentives Received	$ -	$ -	$ -	$ -	$ -

LEED Building Cost and Performance Data

Please complete this form to the best of your ability. This information is best completed by the State Project Manager responsible for the project and/or the Architect. Input data into yellow boxes.

Building Name/City:	Business Hall (formerly Balmer)
Building Gross Square Footage:	70,518
Number of Occupants:	598
Institution/University or Agency Name:	University of Washington
Submitted By Name/Phone:	Clara Simon 206-543-2258
LEED Level Achieved or (Expected)/Date:	Gold
LEED Version Used (e.g. V 2.2 or V 3.0)	LEED-NC v2.2

Building Cost Data

Consultant Costs	Costs*
Overall Consultant Fees:	$ 2,150,573.00
LEED Related Consultant Fees:	$ 72,069.00
Commissioning Fees:	$ 77,302.00
ELCCA Preparation Fees:	$ 29,838.00
* Use the Application for Payment, Agreement Invoice	

Overall Cost of LEED
$ (174,485.10)

Overall Project Cost (Consultant + Construction)
$ 25,510,595.90

Cost of LEED Compared to Overall Costs (%)
-0.7%

Building Construction Cost Per Square Foot
$ 300.63

LEED Submittal Fees:	$ 4,428.90
Soft Cost of LEED/Overall Consultant Fees (%):	3.6%

Construction Costs	Costs**		
Building Demolistion Cost (if applicable):	$ 1,735,120.00		
Site Work & Related Costs:	$ 466,210.00		
Building Construction Costs:	$ 21,199,999.00		
Max. Allowable Construction Costs (MACC):	$ 23,355,594.00		LEED Elements Description
Cost of LEED Element***:	$ 18,016.00	>	FSC Certified Wood
Cost of LEED Element***:	$ -	>	
Cost of LEED Element***:	$ -	>	
Cost of LEED Element***:	$ -	>	
Cost of LEED Element***:	$ -	>	
Cost of LEED Element***:	$ -	>	
Added LEED Construction Cost:	$ 18,016.00		List Elements not Installed or downsized due to LEED
Savings, Didn't Install Something****	$ 268,999.00	>	Construction Waste Recycling
Savings, Didn't Install Something****	$ -	>	
Savings, Didn't Install Something****	$ -	>	
LEED Related Construction Savings:	$ 268,999.00		

Total Added LEED Construction Costs:	$ (250,983.00)
Hard Cost of LEED/Overall Construction Costs (%):	-1%

**Use the Schedule of Values from Construction Invoice and Best Estimates

***Provide a best guess for cost. This could include solar panels, rain water capture system, or other feature that normally won't be pursued if not a LEED project.

****Didn't install something, such as a cooling system or greatly reduced the size due to natural ventilation.

Utility Incentives	Amount ($)		
Gas:	$ -		
Electric:	$ -		
Water:	$ -		Describe
Other:	$ -	>	Not Pursued Due to Consultant Cost Premium
Total Incentives:	$ -		

Utility Incentives as % of Building Costs
0.0%

LEED Building Performance Information

Total Savings Over Baseline (energy & water)	
$	679,270.00

Payback (Yrs)***
-0.256871494

LEED Attribute	Capture this data from the LEED submittal (LEED OnLine)					
Energy Effciency and Renewable Energy	**Proposed Building**		% Savings	$ Savings	**Baseline Building**	
	Units	$			Units	$
Electricity (kWh)	315,338	$ 17,345	31.0%	$ 8,701	459,114	$26,046
Gas (Therms)	9,867	$ 13,124	22.1%	$ 3,729	12,668	$ 16,853
Renewable Energy, Electricity (kWh)	-	$ -	#DIV/0!	$ -		
Renewable Energy, Heat (Btu)	-	$ -	#DIV/0!	$ -		
Total Btus, Dollars & Percents	2,062,949	$ 30,469	40.8%	$ 12,430		$ 42,899
Water Efficiency						
	Gallons/Yr	$	% Savings	$ Savings	Gallons/Yr	$
Water Use Reduction (water/sewer*)	149,106	$ 894,636	42.7%	$ 666,840.00	260,246	$ 1,561,476
Landscape Watering (irrigation water**)	-	$ -	#DIV/0!	$ -	-	$ -
Captured Water (irrigation or interior water)	-	$ -	Calculate >>	$ -		
Total Water Saving	149,106	$ 894,636	42.7%	$666,840	260,246	$ 1,561,476
Stormwater Management						
	Points 0-2					
Stormwater Control Quality and Quantity						
Alt. Transportation Sources & Walkability						
	Points					
Density & Community Connectivity	1					
Public Transportation	1					
Bike Racks & Showers	1					
Total Points	3					
Construction Waste Recycling						
	Tons	%				
Construction Waste Recycled	3657	0.9				
Use of Recycled Content Materials						
	$	%				
Recycled Content Materials	$ 1,393,836.00	26.0				
Use of Regional Materials						
	$	%				
Regional Materials	$ 1,169,190.00	22.0				
Protect Forests, Support Sustainable Forestry						
	Points					
Ceterified Wood	1					
Good Indoor Air Quality						
	Points					
Const. IAQ Management Plan	2					
Low-Emitting Materials	4					
Indoor Chemical & Pollutant Source Control	1					
Total Points	7					
Access to Natural Light						
	Points 0-2					
Daylight & Views	0					

* Default value used for water/sewer costs of $6/1000 gallons

**Default value used for irrigation water only $2.50/1000 gallons

*** Payback doesn't include many of the intangibles. These can result in greater savings than from energy and water alone. Increased productivity, reductions in sick leave, and worker retention can far outway utility savings. Also environmental benefits can be substantial in moving Washington to its goals. Government must lead by example.

Foster School of Business Phase 2—Balmer Hall

April 2012
Project Manager: Steve Tatge
Construction Manager: Dave Myers

PROJECT DESCRIPTION

This project replaced Balmer Hall with a new facility, primarily housing undergraduate classrooms, for the Michael G. Foster School of Business. The project also includes student organization offices; undergraduate and MBA program offices; specialized program offices with support spaces; and a multipurpose/dining room and catering kitchen. The Foster Library book stack space previously located in the Balmer basement has been rebuilt in the new building. A new loading dock/trash and recycling area were provided to serve the entire business school complex.

The new facility, currently named 'Business Hall' and totaling approximately 63,000 gross square feet, follows and connects to the privately-funded, first-phase PACCAR Hall project. Mackenzie Hall and the Bank of America Executive Education Center (BAEEC) comprise the rest of the Foster School complex.

In accordance with the requirements of the state of Washington, the project is designed to achieve Leadership in Energy and Environmental Design (LEED) Silver certification.

The architect is LMN Architects, the landscape architect is Swift and Company, and the general contractor/construction manager (GC/CM) is Sellen Construction. These three firms, all located in Seattle, had the same roles on the PACCAR Hall project.

Completed pedestrian bridge linking Business Hall with the Bank of America Executive Center

4

Newly expanded N3 Parking area at Mackenzie Hall, adjacent to project site

Anthony's Forum, the multipurpose/dining room

WELCOME CLARA
10101135 - UW - Business Hall (formerly Balmer)
LEED NC 2.2

LEED-Online Home | Credit Scorecard & Status | Project Summary | Team Admin | Documents | Formal Inquiries | Help | Project Selector | Sign Out

SCORECARD **CONSTRUCTION APPLICATION REVIEW**

Registration | Design Application | Design Review | Design Appeal | Design Appeal Review | Construction Application | Construction Review | Construction Appeal | Construction Appeal Review | Certification /Denial

MY ACTION ITEMS

Displays the next steps for the project. Depending on your project role, the project status and number of points anticipated or awarded; different action items will appear.

Your Project is currently under review. You will be notified via email when the review is complete. You may be asked for more information during this process.

You have 21 new Notifications

POTENTIAL LEED RATING

Displays LEED level which is based on number of points attempted. *

CERTIFIED SILVER GOLD PLATINUM

This Project has not achieved enough points for Certification.

* Actual Certification Level will be based on the number of points awarded and successful completion of all Prerequisites.

WORKFLOW STAGE HISTORY

Displays Workflow Stage History timeline.

Stage	Date Entered
Design & Construction Preliminary Application Submitted	5/18/2012 1:25:30 PM

PAYMENT SUMMARY

Displays payment status timeline.

Payment Type	Invoice Date	Sales Order	Status	Date Cleared
LEED-NC 2.2 Certification Design and Construction	05/18/2012	0011423071	Cleared	05/18/2012

ATTEMPTED CREDIT SUMMARY

Displays attempted points for the project by status.

Status	Points		
	Design	Construction	Total
Not Awarded:	Under Review	Under Review	Under Review
Earned:	Under Review	Under Review	Under Review
Denied:	Under Review	Under Review	Under Review
Total Attempted:	Under Review	Under Review	Under Review

DOWNLOAD ALL

The "Download All" feature can be used to download a .zip file that includes all templates, file uploads, and review comments for this project. The .zip file can be requested for a project once the project has achieved certification.

The Download All feature is not yet available for this project. Upon completion of the certification process, this feature will become available.

CREDIT SCORECARD

Displays all credits and points per LEED sections. Depending on project access, one can attach team members, view attempted credits or click credits to display template.

Collapse All Credit Categories

design construction

= Marked Complete = Needs Attention
= Not Marked Complete = Credit Assigned to You

24 **Points Documented** **Points Available:** 69

7 Sustainable Sites Possible Points: 14

SS	Prerequisite 1	Construction Activity Pollution Prevention	Civil Engineer	UnderReview	0
SS	Credit 1	Site Selection	Project Team Administrator	UnderReview	1
SS	Credit 2	Development Density & Community Connectivity	Architect	UnderReview	1

	SS	Credit 3	Brownfield Redevelopment	Project Team Administrator	UnderReview	1
	SS	Credit 4.1	Alternative Transportation: Public Transportation Access	Architect	UnderReview	1
	SS	Credit 4.2	**Alternative Transportation: Bicycle Storage & Changing Rooms**	Architect	UnderReview	1
	SS	Credit 4.3	Alternative Transportation: Low-Emitting & Fuel Efficient Vehicles	Not Attempted		1
	SS	Credit 4.4	Alternative Transportation: Parking Capacity	Architect	UnderReview	1
	SS	Credit 5.1	Site Development: Protect or Restore Habitat	Not Attempted		1
	SS	Credit 5.2	Site Development: Maximize Open Space	Architect	UnderReview	1
	SS	Credit 6.1	Stormwater Management: Quantity Control	Not Attempted		1
	SS	Credit 6.2	Stormwater Management: Quality Control	Not Attempted		1
	SS	Credit 7.1	Heat Island Effect: Non-Roof	Not Attempted		1
	SS	Credit 7.2	Heat Island Effect: Roof	Not Attempted		1
	SS	Credit 8	Light Pollution Reduction	Electrical	UnderReview	1
2		Water Efficiency			Possible Points:	5
	WE	Credit 1.1-1.2	Water Efficient Landscaping	Not Attempted		2
	WE	Credit 2	Innovative Wastewater Technologies	Not Attempted		1
	WE	Credit 3.1-3.2	Water Use Reduction	Mechanical	UnderReview	2
0		Energy & Atmosphere			Possible Points:	17
	EA	Prerequisite 1	Fundamental Commissioning of the Building Energy Systems	Commissioning Agent	UnderReview	0
	EA	Prerequisite 2	Minimum Energy Performance	Mechanical	UnderReview	0
	EA	Prerequisite 3	Fundamental Refrigerant Management	Mechanical	UnderReview	0
	EA	Credit 1	Optimize Energy Performance	Mechanical	UnderReview	10
	EA	Credit 2	On-Site Renewable Energy	Not Attempted		3
	EA	Credit 3	Enhanced Commissioning	Commissioning Agent	UnderReview	1
	EA	Credit 4	Enhanced Refrigerant Management	Not Attempted		1
	EA	Credit 5	Measurement & Verification	Not Attempted		1
	EA	Credit 6	Green Power	Not Attempted		1
5		Materials & Resources			Possible Points:	13
	MR	Prerequisite 1	Storage & Collection of Recyclables	Architect	UnderReview	0
	MR	Credit 1.1-1.2	Building Reuse	Not Attempted		2
	MR	Credit 1.3	Building Reuse, Non-Structural	Not Attempted		1
	MR	Credit 2	Construction Waste Management	Contractor	UnderReview	2
	MR	Credit 3	Resource Reuse	Not Attempted		2
	MR	Credit 4	Recycled Content	Contractor	UnderReview	2

	MR	Credit 4	Recycled Content		Contractor	UnderReview	2
	MR	Credit 5	**Regional Materials**		Contractor	UnderReview	2
	MR	Credit 6	Rapidly Renewable Materials		Not Attempted		1
	MR	Credit 7	Certified Wood		Contractor	UnderReview	1
7		Indoor Environmental Quality				Possible Points:	15
	EQ	Prerequisite 1	Minimum IAQ Performance		Mechanical	UnderReview	0
	EQ	Prerequisite 2	**Environmental Tobacco Smoke (ETS) Control**	★	Project Team Administrator	UnderReview	0
	EQ	Credit 1	Outdoor Air Delivery Monitoring		Mechanical	UnderReview	1
	EQ	Credit 2	Increased Ventilation		Mechanical	UnderReview	1
	EQ	Credit 3.1	Construction IAQ Management Plan: During Construction		Contractor	UnderReview	1
	EQ	Credit 3.2	Construction IAQ Management Plan: Before Occupancy		Contractor	UnderReview	1
	EQ	Credit 4.1	Low-Emitting Materials: Adhesives & Sealants		Contractor	UnderReview	1
	EQ	Credit 4.2	Low-Emitting Materials: Paints & Coatings		Contractor	UnderReview	1
	EQ	Credit 4.3	Low-Emitting Materials: Carpet Systems		Contractor	UnderReview	1
	EQ	Credit 4.4	Low-Emitting Materials: Composite Wood & Agrifiber		Contractor	UnderReview	1
	EQ	Credit 5	Indoor Chemical & Pollutant Source Control		Mechanical	UnderReview	1
	EQ	Credit 6.1	Controllability of Systems: Lighting		Electrical	UnderReview	1
	EQ	Credit 6.2	Controllability of Systems: Thermal Comfort		Not Attempted		1
	EQ	Credit 7.1	Thermal Comfort: Design		Mechanical	UnderReview	1
	EQ	Credit 7.2	Thermal Comfort: Verification	★	Project Team Administrator	UnderReview	1
	EQ	Credit 8.1	Daylighting & Views: Daylight 75% of Spaces		Not Attempted		1
	EQ	Credit 8.2	Daylighting & Views: Views for 90% of Spaces		Not Attempted		1
3		Innovation & Design Process				Possible Points:	5
	ID	Credit 1.1	Innovation in Design		Mechanical	UnderReview	1
	ID	Credit 1.2	**Innovation in Design**	★	Project Team Administrator	UnderReview	1
	ID	Credit 1.3	Innovation in Design	★	Project Team Administrator	UnderReview	1
	ID	Credit 1.4	**Innovation in Design**	★	Project Team Administrator	UnderReview	1
	ID	Credit 2	LEED Accredited Professional	★	Project Team Administrator	UnderReview	1

State LEED Project
Energy and Water Metering Plan

Submit to: GASustainableBA@ga.wa.gov
& Stuart Simpson: ssimpso@ga.wa.gov

Project Name: UW Business School, Phase 2 (Balmer Hall) Date: 4/26/11
Project Number: 201838/G 08-011
Institution or Agency Name: University of Washington
Submitted By: Clara Simon Phone: 206-543-2258
Email: simonch@uw.edu
State Project Manager: Stuart Simpson Phone: (360) 902-7199
Email: ssimpso@ga.wa.gov

Provide a brief description of how the following will be measured in the proposed LEED building. If the project will not be using a form of energy or irrigation shown below, simply indicate "NA" in that space. The description should be adequate to describe how the owner will measure the energy and water use on a monthly basis. The owner will in turn report that usage to General Administration on an annual basis per RCW 39.35D. This plan is to ensure that a monitoring strategy has been developed for each State LEED project. This plan must be submitted as part of the Construction Documents submittal in the GA LEED QA process.

Electricity: At the main building service switchboard is a multifunction owner meter that connections with existing campus power monitoring system. Power loads have been separated into different distribution systems. Large mechanical units have individual sub meters, smaller mechanical equipment are circuited to dedicated panelboards that are sub metered, elevator has separate sub meter, lighting loads has been separated to lighting only panelboards that are sub metered, large equipment such as trash compactors are sub metered and 120/208 volt receptacle and general use power have been separated and sub metered. All the sub meters are connected to the main building meter.

Gas: NA

Other heating fuel (oil, propane, wood, steam, or hot water): Campus steam is supplied to Paccar Hall (central plant) and converted to hot water for heating at Phase 2. A meter is provided at the steam main connection to the central plant. Metering for Phase 2 heating hot water is provided through DDC system.

Chilled water: Metered by DDC system with flow meter

Domestic Hot Water: Metered by DDC system with flow meter

Water: Metered by DDC system with flow meter

Irrigation: The irrigation flow sensor transmits water flow data via the building irrigation controller to the University of Washington central irrigation controller, where the data is compiled.

Reclaimed or captured water:NA

Renewable Energy Generated: NA

LEED Building Cost and Performance Data

Please complete this form to the best of your ability. This information is best completed by the State Project Manager responsible for the project and/or the Architect. Input data into yellow boxes.

Building Name/City:	UWT - Joy Building/Tacoma
Building Gross Square Footage:	46,238
Number of Occupants:	1,034
Institution/University or Agency Name:	University of Washington
Submitted By Name/Phone:	Clara Simon
LEED Level Achieved or (Expected)/Date:	Platinum
LEED Version Used (e.g. V 2.2 or V 3.0)	LEED-NC v2.2

Building Cost Data

Consultant Costs	Costs*
Overall Consultant Fees:	$ 2,500,000.00
LEED Related Consultant Fees:	$ 80,000.00
Commissioning Fees:	$ 130,000.00
ELCCA Preparation Fees:	$ 15,000.00
* Use the Application for Payment, Agreement Invoice	

LEED Submittal Fees:	$ 3,011.09
Soft Cost of LEED/Overall Consultant Fees (%):	3.3%

Overall Cost of LEED
$ 223,011.09

Overall Project Cost (Consultant + Construction)
$ 19,103,011.09

Cost of LEED Compared to Overall Costs (%)
1.2%

Building Construction Cost Per Square Foot
$ 313.33

Construction Costs	Costs**		
Building Demolition Cost (if applicable):	$ 1,500,000.00		
Site Work & Related Costs:	$ 612,058.00		
Building Construction Costs:	$ 14,487,942.00		
Max. Allowable Construction Costs (MACC):	$ 16,600,000.00		LEED Elements Description
Cost of LEED Element***:	$ 15,000.00	>	Installed low flow water fixtures
Cost of LEED Element***:	$ 325,000.00	>	Energy Savings Strategies: Spray Foam Insulation,
Cost of LEED Element***:	$ -	>	Window Upgrade, Operable Storefront Windows with
Cost of LEED Element***:	$ -	>	Natural Ventilation, VRF Mechanical with Heat
Cost of LEED Element***:	$ -	>	Recovery, Central Stair with Roof Monitor, Exterior
Cost of LEED Element***:	$ -	>	Exit Stair
Added LEED Construction Cost:	$ 340,000.00		List Elements not Installed or downsized due to LEED
Savings, Didn't Install Something****	$ 200,000.00	>	Reuse of masonry and timber, Heritage Artifacts,
Savings, Didn't Install Something****	$ -	>	exterior storefront shading from dock canopy
Savings, Didn't Install Something****	$ -	>	
LEED Related Construction Savings:	$ 200,000.00		

Total Added LEED Construction Costs:	$ 140,000.00
Hard Cost of LEED/Overall Construction Costs (%):	0.8%

**Use the Schedule of Values from Construction Invoice and Best Estimates

***Provide a best guess for cost. This could include solar panels, rain water capture system, or other feature that normally won't be pursued if not a LEED project.

****Didn't install something, such as a cooling system or greatly reduced the size due to natural ventilation.

Utility Incentives	Amount ($)	
Gas:	$ -	
Electric:	$ 75,000.00	
Water:	$ -	
Other:	$ -	>

Utility Incentives as % of Building Costs
0.5%

Describe

Total Incentives:	$ 75,000.00

LEED Building Performance Information

Total Savings Over Baseline (energy & water)	Payback (Yrs)***
$ 30,180.95	4.9

LEED Attribute	Capture this data from the LEED submittal (LEED OnLine)					
Energy Effciency and Renewable Energy	**Proposed Building**				**Baseline Building**	
	Units	$	% Savings	$ Savings	Units	$
Electricity (kWh)	424,299	$ 24,880	46.6%	$ 21,682	895,951	$ 46,562
Gas (Therms)	4,783	$ 5,299	59.3%	$ 7,732	11,997	$ 13,031
Renewable Energy, Electricity (kWh)	-	$ -	#DIV/0!	$ -		
Renewable Energy, Heat (Btu)	-	$ -	#DIV/0!	$ -	0	$ -
Total Btus, Dollars & Percents	1,926,432	$ 30,179	49.4%	$ 29,414	4,257,581	$ 59,593
Water Efficiency						
	Gallons/Yr	$	% Savings	$ Savings	Gallons/Yr	$
Water Use Reduction (water/sewer*)	163,936	$ 984	43.7%	$ 762.91	291,042	$ 1,747
Landscape Watering (irrigation water**)	1,356	$ 3	54.4%	$ 4.04	2,972	$ 7
Captured Water (irrigation or interior water)	-	$ -	Calculate >>	$ -		
Total Water Saving	165,292	$ 987	43.7%	$ 766.95	294,014	$ 1,754
Stormwater Management						
	Points 0-2					
Stormwater Control Quality and Quantity	1					
Alt. Transportation Sources & Walkability						
	Points					
Density & Community Connectivity	1					
Public Transportation	1					
Bike Racks & Showers	1					
Total Points	3					
Construction Waste Recycling						
	Tons	%				
Construction Waste Recycled	367.99	95.1				
Use of Recycled Content Materials						
	$	%				
Recycled Content Materials	$ 74,951.07	23.7				
Use of Regional Materials						
	$	%				
Regional Materials	$ 636,171.39	20.3				
Protect Forests, Support Sustainable Forestry						
	Points					
Ceterified Wood	1					
Good indoor Air Quality						
	Points					
Const. IAQ Management Plan	2					
Low-Emitting Materials	4					
Indoor Chemical & Pollutant Source Control	1					
Total Points	7					
Access to Natural Light						
	Points 0-2					
Daylight & Views	1					

* Default value used for water/sewer costs of $6/1000 gallons

**Default value used for irrigation water only $2.50/1000 gallons

*** Payback doesn't include many of the intangibles. These can result in greater savings than from energy and water alone. Increased productivity, reductions in sick leave, and worker retention can far outway utility savings. Also environmental benefits can be substantial in moving Washington to its goals. Government must lead by example.

LEED Building Cost and Performance Data

Please complete this form to the best of your ability. This information is best completed by the State Project Manager responsible for the project and/or the Architect. Input data into yellow boxes.

Building Name/City:	Science and Technology Building / Bellevue
Building Gross Square Footage:	62,882
Number of Occupants:	640
Institution/University or Agency Name:	Bellevue College
Submitted By Name/Phone:	Bob Colasurdo / (206)510 8147
LEED Level Achieved or (Expected)/Date:	Gold
LEED Version Used (e.g. V 2.2 or V 3.0)	LEED V2.2

Building Cost Data

Consultant Costs	Costs*
Overall Consultant Fees:	$ 2,071,579.00
LEED Related Consultant Fees:	$ 128,948.00
Commissioning Fees:	$ 66,360.00
ELCCA Preparation Fees:	$ 33,872.00
* Use the Application for Payment, Agreement Invoice	

LEED Submittal Fees:	$ 7,500.00
Soft Cost of LEED/Overall Consultant Fees (%):	6.6%

Overall Cost of LEED
$ 588,948.00

Overall Project Cost (Consultant + Construction)
$ 29,634,094.00

Cost of LEED Compared to Overall Costs (%)
2.0%

Building Construction Cost Per Square Foot
$ 414.97

Construction Costs	Costs**		
Building Demolition Cost (if applicable):	$ -		
Site Work & Related Costs:	$ 1,460,639.00		
Building Construction Costs:	$ 26,094,376.00		
Max. Allowable Construction Costs (MACC):	$ 27,555,015.00		LEED Elements Description
Cost of LEED Element***:	$ 60,000.00	>	Exterior Sunshades
Cost of LEED Element***:	$ 10,000.00	>	Contractor's LEED Administration
Cost of LEED Element***:	$ 65,000.00	>	Contractor's Comissioning Costs
Cost of LEED Element***:	$ 60,000.00	>	Skylights and Light Shelves for Daylighting
Cost of LEED Element***:	$ 35,000.00	>	Entry Grilles
Cost of LEED Element***:	$ 17,500.00	>	Separate Metering for power and water
Cost of LEED Element***:	$ 45,000.00	>	Lighting Controls
Cost of LEED Element***:	$ 160,000.00	>	Heat Recovery Systems
Added LEED Construction Cost:	$ 452,500.00		List Elements not Installed or downsized due to LEED
Savings, Didn't Install Something****	$ -	>	
Savings, Didn't Install Something****	$ -	>	
Savings, Didn't Install Something****	$ -	>	
LEED Related Construction Savings:	$ -		

Total Added LEED Construction Costs:	$ 452,500.00
Hard Cost of LEED/Overall Construction Costs (%):	2%

**Use the Schedule of Values from Construction Invoice and Best Estimates

***Provide a best guess for cost. This could include solar panels, rain water capture system, or other feature that normally won't be pursued if not a LEED project.

****Didn't install something, such as a cooling system or greatly reduced the size due to natural ventilation.

Utility Incentives	Amount ($)
Gas:	$ -
Electric:	$ -

Utility Incentives as % of Building Costs
0.0%

Water:	$ -		Describe
Other:	$ -	>	
Total Incentives:	$ -		

LEED Building Performance Information

Total Savings Over Baseline (energy & water)	Payback (Yrs)***
$ 33,744.00	17.45341394

LEED Attribute	Capture this data from the LEED submittal (LEED OnLine)					
Energy Efficiency and Renewable Energy	**Proposed Building**				**Baseline Building**	
	Units	$	% Savings	$ Savings	Units	$
Electricity (kWh)	1,124,264	$ 88,548	-30.1%	$ (20,490)	870,300	$ 68,058
Gas (Therms)	63,695	$ 67,490	44.3%	$ 53,706	114,688	$ 121,196
Renewable Energy, Electricity (kWh)	-	$ -	0.0%	$ -		
Renewable Energy, Heat (Btu)	-	$ -	0.0%	$ -		
Total Btus, Dollars & Percents	10,206,613	$ 156,038	21.3%	$ 33,216	14,439,134	$ 189,254
Water Efficiency						
	Gallons/Yr	$	% Savings	$ Savings	Gallons/Yr	$
Water Use Reduction (water/sewer*)	88,666	$ 532	49.8%	$ 528.00	176,721	$ 1,060
Landscape Watering (irrigation water**)	-	$ -	0.0%	$ -	-	$ -
Captured Water (irrigation or interior water)	-	$ -	0.0%	$ -		
Total Water Saving	88,666	$ 532	99.2%	$ 528.00	176,721	$ 1,060

Stormwater Management		
	Points 0-2	
Stormwater Control Quality and Quantity	0	
Alt. Transportation Sources & Walkability		
	Points	
Density & Community Connectivity	1	
Public Transportation	1	
Bike Racks & Showers	1	
Total Points	3	
Construction Waste Recycling		
	Tons	%
Construction Waste Recycled	1149.73	98.0
Use of Recycled Content Materials		
	$	%
Recycled Content Materials	$ 1,146,427.00	21.2
Use of Regional Materials		
	$	%
Regional Materials	$ 626,985.00	11.6
Protect Forests, Support Sustainable Forestry		
	Points	
Ceterified Wood	0	
Good indoor Air Quality		
	Points	
Const. IAQ Management Plan	1	
Low-Emitting Materials	4	
Indoor Chemical & Pollutant Source Control	1	
Total Points	6	
Access to Natural Light		
	Points 0-2	
Daylight & Views	1	

* Default value used for water/sewer costs of $6/1000 gallons

**Default value used for irrigation water only $2.50/1000 gallons

*** Payback doesn't include many of the intangibles. These can result in greater savings than from energy and water alone. Increased productivity, reductions in sick leave, and worker retention can far outway utility savings. Also environmental benefits can be substantial in moving Washington to its goals. Government must lead by example.

LEED Building Cost and Performance Data

Please complete this form to the best of your ability. This information is best completed by the State Project Manager responsible for the project and/or the Architect. Input data into yellow boxes.

Building Name/City:	Classroom Building #2 (GLA) Bothell
Building Gross Square Footage:	54,300
Number of Occupants:	800 FTE
Institution/University or Agency Name:	State Board of Community & Technical Colleges - Cascadia Community College
Submitted By Name/Phone:	Bob Kacel
LEED Level Achieved or (Expected)/Date:	Tracking Platinum 2012 or 2013
LEED Version Used (e.g. V 2.2 or V 3.0)	Ver 2.2

Building Cost Data

Consultant Costs	Costs*
Overall Consultant Fees:	$ 3,139,000.00
LEED Related Consultant Fees:	$ 117,301.00
Commissioning Fees:	$ 86,600.00
ELCCA Preparation Fees:	$ 50,215.00
* Use the Application for Payment, Agreement Invoice	

Overall Cost of LEED
$ 245,594.01

Overall Project Cost (Consultant + Construction)
$ 28,439,000.01

Cost of LEED Compared to Overall Costs (%)
0.9%

LEED Submittal Fees: $ -

Building Construction Cost Per Square Foot
$ 417.13

Soft Cost of LEED/Overall Consultant Fees (%): 3.7%

Construction Costs	Costs**		LEED Elements Description
Building Demolition Cost (if applicable):	$ 0.01		
Site Work & Related Costs:	$ 2,649,609.00		
Building Construction Costs:	$ 22,650,391.00		
Max. Allowable Construction Costs (MACC):	$ 25,300,000.01		LEED Elements Description
Cost of LEED Element***:	$ 80,000.00	>	Rainwater Collection/Storage System
Cost of LEED Element***:	$ -	>	Gray Water distribution system
Cost of LEED Element***:	$ 48,293.00	>	"Green" roofs
Cost of LEED Element***:		>	Exemplary Open Space
Cost of LEED Element***:	$ 0.01	>	Green Houskeeping
Cost of LEED Element***:	$ -	>	Integrated Pest Management
Added LEED Construction Cost:	$ 128,293.01		List Elements not Installed or downsized due to LEED
Savings, Didn't Install Something****	$ -	>	
Savings, Didn't Install Something****	$ -	>	
Savings, Didn't Install Something****	$ -	>	
LEED Related Construction Savings:	$ -		

Total Added LEED Construction Costs:	$ 128,293.01

Hard Cost of LEED/Overall Construction Costs (%): 1%

**Use the Schedule of Values from Construction Invoice and Best Estimates

***Provide a best guess for cost. This could include solar panels, rain water capture system, or other feature that normally won't be pursued if not a LEED project.

****Didn't install something, such as a cooling system or greatly reduced the size due to natural ventilation.

Utility Incentives	Amount ($)		
Gas:	$ -		
Electric:	$ -		
Water:	$ -		
Other:	$ -	>	

Utility Incentives as % of Building Costs
0.0%

Describe

Total Incentives:	$ -

LEED Building Performance Information

Total Savings Over Baseline (energy & water)
$ -

Payback (Yrs)***
#DIV/0!

LEED Attribute	Capture this data from the LEED submittal (LEED OnLine)					
Energy Effciency and Renewable Energy	**Proposed Building**				**Baseline Building**	
	Units	$	% Savings	$ Savings	Units	$
Electricity (kWh)	-	$ -	#DIV/0!	$ -	-	$ -
Gas (Therms)	-	$ -	#DIV/0!	$ -	-	$ -
Renewable Energy, Electricity (kWh)	-	$ -	#DIV/0!	$ -		
Renewable Energy, Heat (Btu)	-	$ -	#DIV/0!	$ -		
Total Btus, Dollars & Percents	-	$ -	#DIV/0!	$ -	-	$ -
Water Efficiency						
	Gallons/Yr	$	% Savings	$ Savings	Gallons/Yr	$
Water Use Reduction (water/sewer*)	-	$ -	#DIV/0!	$ -	-	$ -
Landscape Watering (irrigation water**)	-	$ -	#DIV/0!	$ -	-	$ -
Captured Water (irrigation or interior water)	-	$ -	Calculate >>	$ -		
Total Water Saving	-	$ -	#DIV/0!	$ -	-	$ -
Stormwater Management						
	Points 0-2					
Stormwater Control Quality and Quantity	2					
Alt. Transportation Sources & Walkability						
	Points					
Density & Community Connectivity	2					
Public Transportation	1					
Bike Racks & Showers	1					
Total Points	4					
Construction Waste Recycling						
	Tons	%				
Construction Waste Recycled						
Use of Recycled Content Materials						
	$	%				
Recycled Content Materials						
Use of Regional Materials						
	$	%				
Regional Materials						
Protect Forests, Support Sustainable Forestry						
	Points					
Ceterified Wood	1					
Good indoor Air Quality						
	Points					
Const. IAQ Management Plan	2					
Low-Emitting Materials	4					
Indoor Chemical & Pollutant Source Control	1					
Total Points	7					
Access to Natural Light						
	Points 0-2					
Daylight & Views	1					

* Default value used for water/sewer costs of $6/1000 gallons

**Default value used for irrigation water only $2.50/1000 gallons

*** Payback doesn't include many of the intangibles. These can result in greater savings than from energy and water alone. Increased productivity, reductions in sick leave, and worker retention can far outway utility savings. Also environmental benefits can be substantial in moving Washington to its goals. Government must lead by example.

LEED Building Cost and Performance Data

Please complete this form to the best of your ability. This information is best completed by the State Project Manager responsible for the project and/or the Architect. Input data into yellow boxes.

Building Name/City:	GRCC Health & Science Replacement Building (Salish Hall) / Auburn, WA
Building Gross Square Footage:	82,792
Number of Occupants:	948
Institution/University or Agency Name:	Green River Community College
Submitted By Name/Phone:	Jim Shanahan/206-682-8300
LEED Level Achieved or (Expected)/Date:	LEED Silver/June 26, 2012
LEED Version Used (e.g. V 2.2 or V 3.0)	V2.2

Building Cost Data

Consultant Costs	Costs*
Overall Consultant Fees:	$ 3,588,383.51
LEED Related Consultant Fees:	$ 93,930.00
Commissioning Fees:	$ 22,205.80
ELCCA Preparation Fees:	$ 42,813.00
* Use the Application for Payment, Agreement Invoice	

LEED Submittal Fees:	$ 6,452.00
Soft Cost of LEED/Overall Consultant Fees (%):	2.8%

Overall Cost of LEED
$ 221,382.00

Overall Project Cost (Consultant + Construction)
$ 25,024,169.19

Cost of LEED Compared to Overall Costs (%)
0.9%

Building Construction Cost Per Square Foot
$ 214.09

Construction Costs	Costs**		LEED Elements Description
Building Demolition Cost (if applicable):	$ 247,518.10		
Site Work & Related Costs:	$ 3,456,532.03		
Building Construction Costs:	$ 17,725,283.55		
Max. Allowable Construction Costs (MACC):	$ 21,429,333.68		
Cost of LEED Element***:	$ 12,000.00	>	Alternative Transporation - Bike Racks
Cost of LEED Element***:	$ 54,000.00	>	External SunShades
Cost of LEED Element***:	$ 25,000.00	>	Solar Leaf Demonstration Project
Cost of LEED Element***:	$ 10,000.00	>	Contractors LEED Documentation
Cost of LEED Element***:	$ 45,000.00	>	Lighting Controls (Daylight zoneing and occupancy)
Cost of LEED Element***:	$ 40,000.00	>	Skylights and Additional Windows for Daylighting
Added LEED Construction Cost:	$ 186,000.00		List Elements not Installed or downsized due to LEED
Savings, Didn't Install Something****	$ 15,000.00	>	No Airconditioning in Faculty offices
Savings, Didn't Install Something****	$ 30,000.00	>	Reduced Ceilings/Floor Coverings/Finishes
Savings, Didn't Install Something****	$ 20,000.00	>	Omit Irrigation at Woodland Enhancement Planting
LEED Related Construction Savings:	$ 65,000.00		

Total Added LEED Construction Costs:	$ 121,000.00
Hard Cost of LEED/Overall Construction Costs (%):	0.56%

**Use the Schedule of Values from Construction Invoice and Best Estimates

***Provide a best guess for cost. This could include solar panels, rain water capture system, or other feature that normally won't be pursued if not a LEED project.

****Didn't install something, such as a cooling system or greatly reduced the size due to natural ventilation.

Utility Incentives	Amount ($)
Gas:	$ -
Electric:	$ -
Water:	$ -
Other:	$ - >
Total Incentives:	$ -

Utility Incentives as % of Building Costs
0.0%

Describe

LEED Building Performance Information

Total Savings Over Baseline (energy & water)	Payback (Yrs)***
$ 34,388.16	6.4

LEED Attribute	Capture this data from the LEED submittal (LEED OnLine)					
Energy Effciency and Renewable Energy	**Proposed Building**				**Baseline Building**	
	Units	$	% Savings	$ Savings	Units	$
Electricity (kWh)	872,907	$ 78,932	11.6%	$ 10,395	1,005,746	$ 89,327
Gas (Therms)	6,287	$ 7,484	75.5%	$ 23,080	28,530	$ 30,564
Renewable Energy, Electricity (kWh)	-	$ -	#DIV/0!	$ -		
Renewable Energy, Heat (Btu)	-	$ -	#DIV/0!	$ -		
Total Btus, Dollars & Percents	3,607,932	$ 86,416	27.9%	$ 33,475	6,285,611	$ 119,891
Water Efficiency						
	Gallons/Yr	$	% Savings	$ Savings	Gallons/Yr	$
Water Use Reduction (water/sewer*)	249,340	$ 1,496	33.3%	$ 746.77	373,802	$ 2,243
Landscape Watering (irrigation water**)	65,431	$ 164	50.4%	$ 166.39	131,986	$ 330
Captured Water (irrigation or interior water)	-	$ -	Calculate >>	$ -		
Total Water Saving	314,771	$ 1,660	35.5%	$ 913.16	505,788	$ 2,573
Stormwater Management						
	Points 0-2					
Stormwater Control Quality and Quantity	1					
Alt. Transportation Sources & Walkability						
	Points					
Density & Community Connectivity	0					
Public Transportation	1					
Bike Racks & Showers	1					
Total Points	2					
Construction Waste Recycling						
	Tons	%				
Construction Waste Recycled	353	98.8				
Use of Recycled Content Materials						
	$	%				
Recycled Content Materials	$ 1,767,439.00	34.9				
Use of Regional Materials						
	$	%				
Regional Materials	$ 760,690.00	15.0				
Protect Forests, Support Sustainable Forestry						
	Points					
Ceterified Wood	1					
Good indoor Air Quality						
	Points					
Const. IAQ Management Plan	1					
Low-Emitting Materials	4					
Indoor Chemical & Pollutant Source Control	0					
Total Points	5					
Access to Natural Light						
	Points 0-2					
Daylight & Views	1					

* Default value used for water/sewer costs of $6/1000 gallons

**Default value used for irrigation water only $2.50/1000 gallons

*** Payback doesn't include many of the intangibles. These can result in greater savings than from energy and water alone. Increased productivity, reductions in sick leave, and worker retention can far outway utility savings. Also environmental benefits can be substantial in moving Washington to its goals. Government must lead by example.

LEED Building Cost and Performance Data

Please complete this form to the best of your ability. This information is best completed by the State Project Manager responsible for the project and/or the Architect. Input data into yellow boxes.

Building Name/City:	Allied Health Building Kirkland
Building Gross Square Footage:	83,554
Number of Occupants:	
Institution/University or Agency Name:	Lake Washington Institute of Technology
Submitted By Name/Phone:	Ross Whitehead, Schreiber Starling & Lane / 206-682-8300
LEED Level Achieved or (Expected)/Date:	Silver anticipated 8/2012
LEED Version Used (e.g. V 2.2 or V 3.0)	Ver 2.2

Building Cost Data

Consultant Costs	Costs*
Overall Consultant Fees:	$ 3,015,389.80
LEED Related Consultant Fees:	$ 29,000.00
Commissioning Fees:	$ 162,700.00
ELCCA Preparation Fees:	$ 24,343.00
* Use the Application for Payment, Agreement Invoice	

Overall Cost of LEED
$ 327,294.00

Overall Project Cost (Consultant + Construction)
$ 24,205,873.20

Cost of LEED Compared to Overall Costs (%)
1.4%

Building Construction Cost Per Square Foot
$ 239.59

LEED Submittal Fees: $ -

Soft Cost of LEED/Overall Consultant Fees (%): 1.0%

Construction Costs	Costs**		
Building Demolition Cost (if applicable):	$ 36,000.00		
Site Work & Related Costs:	$ 1,135,672.00		
Building Construction Costs:	$ 20,018,811.40		
Max. Allowable Construction Costs (MACC):	$ 21,190,483.40		LEED Elements Description
Cost of LEED Element***:	$ 76,500.00	>	Certified Wood
Cost of LEED Element***:	$ 38,838.00	>	Daylighting Light Louvers (interior)
Cost of LEED Element***:	$ 90,706.00	>	Louver Window Shade (exterior)
Cost of LEED Element***:	$ 83,500.00	>	Enhanced Commissioning
Cost of LEED Element***:	$ 32,000.00	>	Entrance Grate & Mats
Cost of LEED Element***:	$ 0.00	>	Low VOC materials
Added LEED Construction Cost:	$ 321,544.00		List Elements not Installed or downsized due to LEED
Savings, Didn't Install Something****	$ 23,250.00	>	Irrigation System (260,000 gal/yr savings)
Savings, Didn't Install Something****	$ -	>	
Savings, Didn't Install Something****	$ -	>	
LEED Related Construction Savings:	$ 23,250.00		

Total Added LEED Construction Costs: $ 298,294.00

Hard Cost of LEED/Overall Construction Costs (%): 1.4%

**Use the Schedule of Values from Construction Invoice and Best Estimates

***Provide a best guess for cost. This could include solar panels, rain water capture system, or other feature that normally won't be pursued if not a LEED project.

****Didn't install something, such as a cooling system or greatly reduced the size due to natural ventilation.

Utility Incentives	Amount ($)	
Gas:	$ 0.00	
Electric:	$ 0.00	
Water:	$ -	
Other:	$ -	>

Utility Incentives as % of Building Costs
0.0%

Describe

Total Incentives:	$ -

LEED Building Performance Information

Total Savings Over Baseline (energy & water)		Payback (Yrs)***
$ 29,800.00		11.0

LEED Attribute	Capture this data from the LEED submittal (LEED OnLine)					
Energy Effciency and Renewable Energy	**Proposed Building**				**Baseline Building**	
	Units	$	% Savings	$ Savings	Units	$
Electricity (kWh)	868,377	$ 61,018	32.1%	$ 28,832	1,272,191	$ 89,850
Gas (Therms)	-	$ -	#DIV/0!	$ -	-	$ -
Renewable Energy, Electricity (kWh)	-	$ -	#DIV/0!	$ -		
Renewable Energy, Heat (Btu)	-	$ -	#DIV/0!	$ -		
Total Btus, Dollars & Percents	2,963,771	$ 61,018	32.1%	$ 28,832	4,341,988	$ 89,850
Water Efficiency						
	Gallons/Yr	$	% Savings	$ Savings	Gallons/Yr	$
Water Use Reduction (water/sewer*)	48,546	$ 291	52.3%	$ 319.00	101,715	$ 610
Landscape Watering (irrigation water**)	-	$ -	100.0%	$ 649.00	259,546	$ 649
Captured Water (irrigation or interior water)	-	$ -	Calculate >>	$ -	0	$ -
Total Water Saving	48,546	$ 291	76.9%	$ 968.00	361,261	$ 1,259

Stormwater Management		
	Points 0-2	
Stormwater Control Quality and Quantity	0	
Alt. Transportation Sources & Walkability		
	Points	
Density & Community Connectivity	1	
Public Transportation	1	
Bike Racks & Showers	1	
Total Points	3	
Construction Waste Recycling		
	Tons	%
Construction Waste Recycled	702	91.0
Use of Recycled Content Materials		
	$	%
Recycled Content Materials	$ 1,869,816.94	41.6
Use of Regional Materials		
	$	%
Regional Materials	$ 1,106,017.00	22.8
Protect Forests, Support Sustainable Forestry		
	Points	
Certified Wood	1	
Good indoor Air Quality		
	Points	
Const. IAQ Management Plan	1	
Low-Emitting Materials	1	
Indoor Chemical & Pollutant Source Control	0	
Total Points	2	
Access to Natural Light		
	Points 0-2	
Daylight & Views	0	

* Default value used for water/sewer costs of $6/1000 gallons

**Default value used for irrigation water only $2.50/1000 gallons

*** Payback doesn't include many of the intangibles. These can result in greater savings than from energy and water alone. Increased productivity, reductions in sick leave, and worker retention can far outway utility savings. Also environmental benefits can be substantial in moving Washington to its goals. Government must lead by example.

LEED Building Cost and Performance Data

Please complete this form to the best of your ability. This information is best completed by the State Project Manager responsible for the project and/or the Architect. Input data into yellow boxes.

Building Name/City:	Integrated Resource Center / Seattle
Building Gross Square Footage:	47,500
Number of Occupants:	
Institution/University or Agency Name:	SBCTC/ North Seattle Community College
Submitted By Name/Phone:	
LEED Level Achieved or (Expected)/Date:	Gold October 2011
LEED Version Used (e.g. V 2.2 or V 3.0)	Ver 2.2

Building Cost Data

Consultant Costs	Costs*
Overall Consultant Fees:	$ 2,053,223.00
LEED Related Consultant Fees:	$ 112,985.00
Commissioning Fees:	$ 60,320.00
ELCCA Preparation Fees:	$ 31,968.00

* Use the Application for Payment, Agreement Invoice

LEED Submittal Fees:	$ 1,980.00
Soft Cost of LEED/Overall Consultant Fees (%):	5.6%

Overall Cost of LEED
$ 231,565.00

Overall Project Cost (Consultant + Construction)
$ 16,622,807.00

Cost of LEED Compared to Overall Costs (%)
1.4%

Building Construction Cost Per Square Foot
$ 216.04

Construction Costs	Costs**		
Building Demolistion Cost (if applicable):	$ 233,069.00		
Site Work & Related Costs:	$ 858,543.00		
Building Construction Costs:	$ 10,261,888.00		
Max. Allowable Construction Costs (MACC):	$ 14,567,604.00		LEED Elements Description
Cost of LEED Element***:	$ 60,000.00	>	Green roof
Cost of LEED Element***:	$ 280,000.00	>	Raised access floor system
Cost of LEED Element***:	$ 20,000.00	>	Enhanced commissioning
Cost of LEED Element***:	$ 5,000.00	>	High Efficiency Boiler
Cost of LEED Element***:		>	
Cost of LEED Element***:	$ -	>	
Added LEED Construction Cost:	$ 365,000.00		List Elements not Installed or downsized due to LEED
Savings, Didn't Install Something****	$ 150,000.00	>	Less supply air ductwork
Savings, Didn't Install Something****	$ 7,200.00	>	Smaller pumps required
Savings, Didn't Install Something****	$ 91,200.00	>	Smaller AHU
LEED Related Construction Savings:	$ 248,400.00		

Total Added LEED Construction Costs:	$ 116,600.00
Hard Cost of LEED/Overall Construction Costs (%):	1%

**Use the Schedule of Values from Construction Invoice and Best Estimates

***Provide a best guess for cost. This could include solar panels, rain water capture system, or other feature that normally won't be pursued if not a LEED project.

****Didn't install something, such as a cooling system or greatly reduced the size due to natural ventilation.

Utility Incentives	Amount ($)	
Gas:	$ -	
Electric:	$ -	
Water:	$ -	
Other:	$ -	>
Total Incentives:	$ -	

Utility Incentives as % of Building Costs
0.0%

Describe

LEED Building Performance Information

Total Savings Over Baseline (energy & water)	Payback (Yrs)***
$ 6,967.27	33.2

LEED Attribute	Capture this data from the LEED submittal (LEED OnLine)					
Energy Effciency and Renewable Energy	**Proposed Building**				**Baseline Building**	
	Units	$	% Savings	$ Savings	Units	$
Electricity (kWh)	293,392	$ 16,760	12.0%	$ 2,284	330,661	$ 19,044
Gas (Therms)	1,328	$ 1,947	58.2%	$ 2,709	3,685	$ 4,656
Renewable Energy, Electricity (kWh)	-	$ -	#DIV/0!	$ -		
Renewable Energy, Heat (Btu)	-	$ -	#DIV/0!	$ -		
Total Btus, Dollars & Percents	1,134,140	$ 18,707	21.1%	$ 4,993	1,497,007	$ 23,700
Water Efficiency						
	Gallons/Yr	$	% Savings	$ Savings	Gallons/Yr	$
Water Use Reduction (water/sewer*)	325,539	$ 1,953	46.3%	$ 1,685.73	606,494	$ 3,639
Landscape Watering (irrigation water**)	32,014	$ 80	78.3%	$ 288.54	147,429	$ 369
Captured Water (irrigation or interior water)	-	$ -	Calculate >>	$ -		
Total Water Saving	357,553	$ 2,033	49.3%	$ 1,974.27	753,923	$ 4,008

Stormwater Management		
	Points 0-2	
Stormwater Control Quality and Quantity	0	
Alt. Transportation Sources & Walkability		
	Points	
Density & Community Connectivity	1	
Public Transportation	1	
Bike Racks & Showers	1	
Total Points	3	
Construction Waste Recycling		
	Tons	%
Construction Waste Recycled	200.69	95.7
Use of Recycled Content Materials		
	$	%
Recycled Content Materials	$ 721,935.00	24.5
Use of Regional Materials		
	$	%
Regional Materials	$ -	0.0
Protect Forests, Support Sustainable Forestry		
	Points	
Ceterified Wood	0	
Good indoor Air Quality		
	Points	
Const. IAQ Management Plan	2	
Low-Emitting Materials	3	
Indoor Chemical & Pollutant Source Control	1	
Total Points	6	
Access to Natural Light		
	Points 0-2	
Daylight & Views	2	

* Default value used for water/sewer costs of $6/1000 gallons

**Default value used for irrigation water only $2.50/1000 gallons

*** Payback doesn't include many of the intangibles. These can result in greater savings than from energy and water alone. Increased productivity, reductions in sick leave, and worker retention can far outway utility savings. Also environmental benefits can be substantial in moving Washington to its goals. Government must lead by example.

LEED Building Cost and Performance Data

Please complete this form to the best of your ability. This information is best completed by the State Project Manager responsible for the project and/or the Architect. Input data into yellow boxes.

Building Name/City:	Business & Humanities Center - Maier Hall / Port Angeles
Building Gross Square Footage:	63,221
Number of Occupants:	790
Institution/University or Agency Name:	Peninsula College
Submitted By Name/Phone:	Carl Dominguez/ 206-443-3448
LEED Level Achieved or (Expected)/Date:	LEED Gold/ May 21, 2012
LEED Version Used (e.g. V 2.2 or V 3.0)	V 2.2

Building Cost Data

Consultant Costs	Costs*
Overall Consultant Fees:	$ 4,487,262.00
LEED Related Consultant Fees:	$ 109,649.00
Commissioning Fees:	$ 113,670.00
ELCCA Preparation Fees:	$ 18,288.00

* Use the Application for Payment, Agreement Invoice

LEED Submittal Fees:	$ 3,097.00
Soft Cost of LEED/Overall Consultant Fees (%):	2.5%

Overall Cost of LEED
$ 402,746.00

Overall Project Cost (Consultant + Construction)
$ 27,390,359.00

Cost of LEED Compared to Overall Costs (%)
1.5%

Building Construction Cost Per Square Foot
$ 281.55

Construction Costs	Costs**		
Building Demolistion Cost (if applicable):	$ 440,000.00		
Site Work & Related Costs:	$ 2,260,000.00		
Building Construction Costs:	$ 17,800,000.00		
Max. Allowable Construction Costs (MACC):	$ 22,900,000.00		LEED Elements Description
Cost of LEED Element***:	$ 76,000.00	>	Operable windows - manual/ motorized
Cost of LEED Element***:	$ 44,000.00	>	Ceiling fans
Cost of LEED Element***:	$ 500,000.00	>	Geothermal well field
Cost of LEED Element***:	$ 50,000.00	>	Epiphytic (moss) roof
Cost of LEED Element***:	$ 70,000.00	>	Chilled beams
Cost of LEED Element***:		>	
Added LEED Construction Cost:	$ 740,000.00		List Elements not Installed or downsized due to LEED
Savings, Didn't Install Something****	$ 250,000.00	>	Reduced mech cooling - smaller HVAC system due to ventilat
Savings, Didn't Install Something****	$ 200,000.00	>	Stormwater discharge to wetland - no detention tank
Savings, Didn't Install Something****	$ -	>	
LEED Related Construction Savings:	$ 450,000.00		

Total Added LEED Construction Costs:	$ 290,000.00
Hard Cost of LEED/Overall Construction Costs (%):	1.3%

**Use the Schedule of Values from Construction Invoice and Best Estimates

***Provide a best guess for cost. This could include solar panels, rain water capture system, or other feature that normally won't be pursued if not a LEED project.

****Didn't install something, such as a cooling system or greatly reduced the size due to natural ventilation.

Utility Incentives	Amount ($)	
Gas:	$ -	
Electric:	$ -	
Water:	$ -	
Other:	$ -	>
Total Incentives:	$ -	

Utility Incentives as % of Building Costs
0.0%

Describe

LEED Building Performance Information

Total Savings Over Baseline (energy & water)	Payback (Yrs)***
$ 17,064.51	23.6

LEED Attribute	Capture this data from the LEED submittal (LEED OnLine)					
Energy Effciency and Renewable Energy	**Proposed Building**				**Baseline Building**	
	Units	$	% Savings	$ Savings	Units	$
Electricity (kWh)	625,685	$ 32,176	32.8%	$ 15,740	901,674	$ 47,916
Gas (Therms)	2,479	$ 3,328	0.0%	$ -	2,479	$ 3,328
Renewable Energy, Electricity (kWh)	-	$ -	#DIV/0!	$ -		
Renewable Energy, Heat (Btu)	-	$ -	#DIV/0!	$ -		
Total Btus, Dollars & Percents	2,383,363	$ 35,504	30.7%	$ 15,740	3,325,313	$ 51,244
Water Efficiency						
	Gallons/Yr	$	% Savings	$ Savings	Gallons/Yr	$
Water Use Reduction (water/sewer*)	67,446	$ 67	91.9%	$ 762.51	138,327	$ 830
Landscape Watering (irrigation water**)	163,965	$ 410	57.8%	$ 562.00	388,888	$ 972
Captured Water (irrigation or interior water)	-	$ -	Calculate >>	$ -		
Total Water Saving	231,411	$ 477	73.5%	$ 1,324.51	527,215	$ 1,802

LEED Attribute		
Stormwater Management		
	Points 0-2	
Stormwater Control Quality and Quantity	2	
Alt. Transportation Sources & Walkability		
	Points	
Density & Community Connectivity	0	
Public Transportation	1	
Bike Racks & Showers	1	
Total Points	2	
Construction Waste Recycling		
	Tons	%
Construction Waste Recycled	315	84.0
Use of Recycled Content Materials		
	$	%
Recycled Content Materials	$ 1,160,642.00	22.0
Use of Regional Materials		
	$	%
Regional Materials	$ 923,568.00	17.0
Protect Forests, Support Sustainable Forestry		
	Points	
Ceterified Wood	1	
Good indoor Air Quality		
	Points	
Const. IAQ Management Plan	2	
Low-Emitting Materials	3	
Indoor Chemical & Pollutant Source Control	1	
Total Points	6	
Access to Natural Light		
	Points 0-2	
Daylight & Views	2	

* Default value used for water/sewer costs of $6/1000 gallons

**Default value used for irrigation water only $2.50/1000 gallons

*** Payback doesn't include many of the intangibles. These can result in greater savings than from energy and water alone. Increased productivity, reductions in sick leave, and worker retention can far outway utility savings. Also environmental benefits can be substantial in moving Washington to its goals. Government must lead by example.

LEED Building Cost and Performance Data

Please complete this form to the best of your ability. This information is best completed by the State Project Manager responsible for the project and/or the Architect. Input data into yellow boxes.

Building Name/City:	SCCC Wood Construction Center; Seattle
Building Gross Square Footage:	58,700
Number of Occupants:	200
Institution/University or Agency Name:	Seattle Central Community College
Submitted By Name/Phone:	Stephen J. Starling
LEED Level Achieved or (Expected)/Date:	Mar-13
LEED Version Used (e.g. V 2.2 or V 3.0)	V2.2

Building Cost Data

Consultant Costs	Costs*
Overall Consultant Fees:	$ 2,661,810.70
LEED Related Consultant Fees:	$ 98,411.00
Commissioning Fees:	$ 71,865.00
ELCCA Preparation Fees:	$ 11,210.00
* Use the Application for Payment, Agreement Invoice	

LEED Submittal Fees:	$ 3,972.00
Soft Cost of LEED/Overall Consultant Fees (%):	3.8%

Overall Cost of LEED
$ 177,761.00

Overall Project Cost (Consultant + Construction)
$ 19,513,281.14

Cost of LEED Compared to Overall Costs (%)
0.9%

Building Construction Cost Per Square Foot
$ 266.34

Construction Costs	Costs**		
Building Demolistion Cost (if applicable):	$ 186,380.06		
Site Work & Related Costs:	$ 1,027,000.00		
Building Construction Costs:	$ 15,634,118.38		
Max. Allowable Construction Costs (MACC):	$ 16,847,498.44		LEED Elements Description
Cost of LEED Element***:	$ 3,500.00	>	Alt. Transporat. - Bike Storage
Cost of LEED Element***:	$ 4,000.00	>	Alt. Transporat. - Low Emitting & Fuel Eff. Vehicles
Cost of LEED Element***:	$ 30,000.00	>	Enhanced Commissioning
Cost of LEED Element***:	$ 10,000.00	>	Store/Collect. of Recyclables (Waste wood Recycling)
Cost of LEED Element***:	$ 15,000.00	>	Measurement and Verificatons - Separate Metering
Cost of LEED Element***:	$ 22,878.00	>	Contractor's Commissioning Costs
Cost of LEED Element***:	$ 50,000.00	>	Heat Recovery
Cost of LEED Element***:	$ 10,000.00	>	Contractor LEED Adminstration
Cost of LEED Element***:	$ 25,000.00	>	Rapidly Renewable Materials (Ipe Wood Decking/Siding)
Added LEED Construction Cost:	$ 170,378.00		List Elements not Installed or downsized due to LEED
Savings, Didn't Install Something****	$ 50,000.00	>	No Air Conditioning in Shop Wing
Savings, Didn't Install Something****	$ 45,000.00	>	Reduced Ceilings/Floor Coverings/Finishes
Savings, Didn't Install Something****	$ -	>	
LEED Related Construction Savings:	$ 95,000.00		

Total Added LEED Construction Costs:	$ 75,378.00
Hard Cost of LEED/Overall Construction Costs (%):	0.45%

**Use the Schedule of Values from Construction Invoice and Best Estimates

***Provide a best guess for cost. This could include solar panels, rain water capture system, or other feature that normally won't be pursued if not a LEED project.

****Didn't install something, such as a cooling system or greatly reduced the size due to natural ventilation.

Utility Incentives	Amount ($)
Gas:	$ -
Electric:	$ -

Utility Incentives as % of Building Costs
0.0%

Water:	$ -	>	Describe
Other:	$ -		
Total Incentives:	$ -		

LEED Building Performance Information

Total Savings Over Baseline (energy & water)	Payback (Yrs)***
$ 8,016.92	22.2

LEED Attribute	Capture this data from the LEED submittal (LEED OnLine)					
Energy Effciency and Renewable Energy	**Proposed Building**				**Baseline Building**	
	Units	$	% Savings	$ Savings	Units	$
Electricity (kWh)	285,141	$ 29,572	17.9%	$ 6,438	-	$ 36,010
Gas (Therms)	992	$ 843	60.1%	$ 1,270	2,413	$ 2,113
Renewable Energy, Electricity (kWh)	-	$ -	#DIV/0!	$ -		
Renewable Energy, Heat (Btu)	-	$ -	#DIV/0!	$ -		
Total Btus, Dollars & Percents	1,072,386	$ 30,415	20.2%	$ 7,708	241,300	$ 38,123
Water Efficiency						
	Gallons/Yr	$	% Savings	$ Savings	Gallons/Yr	$
Water Use Reduction (water/sewer*)	38,562	$ 231	47.7%	$ 210.82	73,698	$ 442
Landscape Watering (irrigation water**)	34,091	$ 85	53.5%	$ 98.11	73,333	$ 183
Captured Water (irrigation or interior water)	-	$ -	Calculate >>	$ -		
Total Water Saving	72,653	$ 317	49.4%	$ 308.92	147,031	$ 626
Stormwater Management						
	Points 0-2					
Stormwater Control Quality and Quantity	0					
Alt. Transportation Sources & Walkability						
	Points					
Density & Community Connectivity	1					
Public Transportation	1					
Bike Racks & Showers	1					
Total Points	3					
Construction Waste Recycling						
	Tons	%				
Construction Waste Recycled	236	97.0				
Use of Recycled Content Materials						
	$	%				
Recycled Content Materials	$ 1,185,000	35.0				
Use of Regional Materials						
	$	%				
Regional Materials	$ 510,000.00	15.0				
Protect Forests, Support Sustainable Forestry						
	Points					
Ceterified Wood	1					
Good indoor Air Quality						
	Points					
Const. IAQ Management Plan	1					
Low-Emitting Materials	1					
Indoor Chemical & Pollutant Source Control	1					
Total Points	3					
Access to Natural Light						
	Points 0-2					
Daylight & Views	0					

* Default value used for water/sewer costs of $6/1000 gallons

**Default value used for irrigation water only $2.50/1000 gallons

*** Payback doesn't include many of the intangibles. These can result in greater savings than from energy and water alone. Increased productivity, reductions in sick leave, and worker retention can far outway utility savings. Also environmental benefits can be substantial in moving Washington to its goals. Government must lead by example.

LEED Building Cost and Performance Data

Please complete this form to the best of your ability. This information is best completed by the State Project Manager responsible for the project and/or the Architect. Input data into yellow boxes.

Building Name/City:	Angst Hall, Mount Vernon, WA
Building Gross Square Footage:	65,900
Number of Occupants:	678
Institution/University or Agency Name:	Skagit Valley College
Submitted By Name/Phone:	Keith Schreiber, Schreiber Starling& Lane Architects (206) 682-8300
LEED Level Achieved or (Expected)/Date:	Platinum
LEED Version Used (e.g. V 2.2 or V 3.0)	LEED 2.2

Building Cost Data

Consultant Costs	Costs*
Overall Consultant Fees:	$ 2,587,013.00
LEED Related Consultant Fees:	$ 118,868.00
Commissioning Fees:	$ 72,996.00
ELCCA Preparation Fees:	$ 19,364.00
* Use the Application for Payment, Agreement Invoice	

Overall Cost of LEED
$ 532,667.00

Overall Project Cost (Consultant + Construction)
$ 25,136,700.00

Cost of LEED Compared to Overall Costs (%)
2.1%

LEED Submittal Fees: $ 7,660.00

Building Construction Cost Per Square Foot
$ 315.30

Soft Cost of LEED/Overall Consultant Fees (%): 4.9%

Construction Costs	Costs**		
Building Demolition Cost (if applicable):	$ 191,900.00		
Site Work & Related Costs:	$ 1,571,977.00		
Building Construction Costs:	$ 20,778,150.00		
Max. Allowable Construction Costs (MACC):	$ 22,542,027.00		LEED Elements Description
Cost of LEED Element***:	$ 231,389.00	>	35 KW Photovoaltic Array
Cost of LEED Element***:	$ -	>	
Cost of LEED Element***:	$ 10,000.00	>	Contractor's LEED Administration
Cost of LEED Element***:	$ -	>	
Cost of LEED Element***:	$ 66,400.00	>	Skylight for daylighting of interior offices
Cost of LEED Element***:	$ 36,000.00	>	Entry foot grilles
Cost of LEED Element***:	$ 17,400.00	>	Separate metering of power and water
Cost of LEED Element***:	$ 44,950.00	>	Lighting Controls (Daylight zoning & occupancy)
Cost of LEED Element***:	$ -	>	
Added LEED Construction Cost:	$ 406,139.00		List Elements not Installed or downsized due to LEED
Savings, Didn't Install Something****	$ -	>	
Savings, Didn't Install Something****	$ -	>	
Savings, Didn't Install Something****	$ -	>	
LEED Related Construction Savings:	$ -		

Total Added LEED Construction Costs:	$ 406,139.00

Hard Cost of LEED/Overall Construction Costs (%): 2%

**Use the Schedule of Values from Construction Invoice and Best Estimates

***Provide a best guess for cost. This could include solar panels, rain water capture system, or other feature that normally won't be pursued if not a LEED project.

****Didn't install something, such as a cooling system or greatly reduced the size due to natural ventilation.

Utility Incentives	Amount ($)
Gas:	$ -

Utility Incentives as % of Building Costs
1.3%

Electric:	$ -
Water:	$ -
Other:	$ 264,650.00
Total Incentives:	$ 264,650.00

>

Describe
Grant for PV system design and installation

LEED Building Performance Information

Total Savings Over Baseline (energy & water)	Payback (Yrs)***
$ 44,920.00	5.966540516

LEED Attribute	Capture this data from the LEED submittal (LEED OnLine)					
Energy Effciency and Renewable Energy	**Proposed Building**				**Baseline Building**	
	Units	$	% Savings	$ Savings	Units	$
Electricity (kWh)	397,500	$ 29,372	47.5%	$ 26,559	696,433	$ 55,931
Gas (Therms)	23,549	$ 25,179	33.9%	$ 12,886	35,776	$ 38,065
Renewable Energy, Electricity (kWh)	35,108.00	$ 2,601	100.0%	$ 2,601		
Renewable Energy, Heat (Btu)	-	$ -	0.0%	$ -	0	$ -
Total Btus, Dollars & Percents	3,591,744	$ 51,950	80.9%	$ 42,046	5,954,526	$ 93,996
Water Efficiency						
	Gallons/Yr	$	% Savings	$ Savings	Gallons/Yr	$
Water Use Reduction (water/sewer*)	117,200	$ 702	48.0%	$ 648.00	225,524	$ 1,350
Landscape Watering (irrigation water**)	172,352	$ 1,032	38.3%	$ 2,226.00	543,148	$ 3,258
Captured Water (irrigation or interior water)	-	$ -	0.0%	$ -	0	$ -
Total Water Saving	289,552	$ 1,734	165.7%	$ 2,874.00	768,672	$ 4,608

Stormwater Management		
	Points 0-2	
Stormwater Control Quality and Quantity	2	
Alt. Transportation Sources & Walkability		
	Points	
Density & Community Connectivity	1	
Public Transportation	1	
Bike Racks & Showers	1	
Total Points	3	
Construction Waste Recycling		
	Tons	%
Construction Waste Recycled	749.1	97.1
Use of Recycled Content Materials		
	$	%
Recycled Content Materials	$ 1,039,281.83	23.8
Use of Regional Materials		
	$	%
Regional Materials	$ 1,090,424.13	25.0
Protect Forests, Support Sustainable Forestry		
	Points	
Ceterified Wood	1	
Good indoor Air Quality		
	Points	
Const. IAQ Management Plan	1	
Low-Emitting Materials	1	
Indoor Chemical & Pollutant Source Control	1	
Total Points	3	
Access to Natural Light		
	Points 0-2	
Daylight & Views	1	

* Default value used for water/sewer costs of $6/1000 gallons

**Default value used for irrigation water only $2.50/1000 gallons

*** Payback doesn't include many of the intangibles. These can result in greater savings than from energy and water alone. Increased productivity, reductions in sick leave, and worker retention can far outway utility savings. Also environmental benefits can be substantial in moving Washington to its goals. Government must lead by example.

LEED Building Cost and Performance Data

Please complete this form to the best of your ability. This information is best completed by the State Project Manager responsible for the project and/or the Architect. Input data into yellow boxes.

Building Name/City:	Phase II - Renovation of Housing Units, 9,10,12,13 & Classroom
Building Gross Square Footage:	28,140
Number of Occupants:	64 residents/12/staff/4 edu
Institution/University or Agency Name:	DSHS/Echo Glen Children's Center
Submitted By Name/Phone:	Diana Peeples, Project Manager/ 360-902-8347
LEED Level Achieved or (Expected)/Date:	Silver Rating
LEED Version Used (e.g. V 2.2 or V 3.0)	LEED v2.2

Building Cost Data

Consultant Costs	Costs*
Overall Consultant Fees:	$ 727,398.00
LEED Related Consultant Fees:	$ 39,760.00
Commissioning Fees:	$ 35,500.00
ELCCA Preparation Fees:	$ 8,800.00
* Use the Application for Payment, Agreement Invoice	

LEED Submittal Fees:	$ 40,000.00
Soft Cost of LEED/Overall Consultant Fees (%):	11.0%

Overall Cost of LEED
$ 230,760.00

Overall Project Cost (Consultant + Construction)
$ 7,667,398.00

Cost of LEED Compared to Overall Costs (%)
3.0%

Building Construction Cost Per Square Foot
$ 286.07

Construction Costs	Costs**		LEED Elements Description
Building Demolistion Cost (if applicable):	$ 447,763.00		
Site Work & Related Costs:	$ 1,578,900.00		
Building Construction Costs:	$ 8,049,900.00		
Max. Allowable Construction Costs (MACC):	$ 6,900,000.00		LEED Elements Description
Cost of LEED Element***:	$ 32,000.00	>	EPA Engery Star roof system
Cost of LEED Element***:	$ 96,000.00	>	Low flow metered plumbing fixtures
Cost of LEED Element***:	$ 23,000.00	>	Measurement & Verification plan
Cost of LEED Element***:	$ -	>	No HCFC & Halons in HVAC system
Cost of LEED Element***:	$ -	>	Heat Islands, roof
Cost of LEED Element***:	$ -	>	
Added LEED Construction Cost:	$ 151,000.00		List Elements not Installed or downsized due to LEED
Savings, Didn't Install Something****	$ -	>	
Savings, Didn't Install Something****	$ -	>	
Savings, Didn't Install Something****	$ -	>	
LEED Related Construction Savings:	$ -		

Total Added LEED Construction Costs:	$ 151,000.00
Hard Cost of LEED/Overall Construction Costs (%):	2%

**Use the Schedule of Values from Construction Invoice and Best Estimates

***Provide a best guess for cost. This could include solar panels, rain water capture system, or other feature that normally won't be pursued if not a LEED project.

****Didn't install something, such as a cooling system or greatly reduced the size due to natural ventilation.

Utility Incentives	Amount ($)	
Gas:	$ -	
Electric:	$ -	
Water:	$ -	
Other:	$ -	>
Total Incentives:	$ -	

Utility Incentives as % of Building Costs
0.0%

Describe

LEED Building Performance Information

Total Savings Over Baseline (energy & water)	Payback (Yrs)***
$ 8,095.00	28.5

LEED Attribute	Capture this data from the LEED submittal (LEED OnLine)					
Energy Effciency and Renewable Energy	**Proposed Building**				**Baseline Building**	
	Units	$	% Savings	$ Savings	Units	$
Electricity (kWh)	167,456	$ 13,305	8.0%	$ 1,217	182,425	$ 14,522
Gas (Therms)	32,415	$ 39,609	13.6%	$ 5,908	37,518	$ 45,517
Renewable Energy, Electricity (kWh)	-	$ -	#DIV/0!	$ -		
Renewable Energy, Heat (Btu)	-	$ -	#DIV/0!	$ -		
Total Btus, Dollars & Percents	3,813,027	$ 52,914	11.9%	$ 7,125	4,374,417	$ 60,039
Water Efficiency						
	Gallons/Yr	$	% Savings	$ Savings	Gallons/Yr	$
Water Use Reduction (water/sewer*)	411,720	$ 3,882	28.3%	$ 970.00	578,160	$ 4,852
Landscape Watering (irrigation water**)	-	$ -	#DIV/0!	$ -	-	$ -
Captured Water (irrigation or interior water)	-	$ -	Calculate >>	$ -		
Total Water Saving	411,720	$ 3,882	20.0%	$ 970.00	578,160	$ 4,852
Stormwater Management						
	Points 0-2					
Stormwater Control Quality and Quantity	1					
Alt. Transportation Sources & Walkability						
	Points					
Density & Community Connectivity	0					
Public Transportation	0					
Bike Racks & Showers	1					
Total Points	1					
Construction Waste Recycling						
	Tons	%				
Construction Waste Recycled	135.57	97.6				
Use of Recycled Content Materials						
	$	%				
Recycled Content Materials		12.4				
Use of Regional Materials						
	$	%				
Regional Materials		59.9				
Protect Forests, Support Sustainable Forestry						
	Points					
Ceterified Wood						
Good indoor Air Quality						
	Points					
Const. IAQ Management Plan	1					
Low-Emitting Materials	4					
Indoor Chemical & Pollutant Source Control						
Total Points	5					
Access to Natural Light						
	Points 0-2					
Daylight & Views	2					

* Default value used for water/sewer costs of $6/1000 gallons

**Default value used for irrigation water only $2.50/1000 gallons

*** Payback doesn't include many of the intangibles. These can result in greater savings than from energy and water alone. Increased productivity, reductions in sick leave, and worker retention can far outway utility savings. Also environmental benefits can be substantial in moving Washington to its goals. Government must lead by example.

Figure 3.1 Environmental Design Considerations Form

Environmental Design Consideration

Version 1.0 July 2005

Project Title:	Allied Health and Early Childhood	Date:	29 August 2014
Owner:	Peninsula College	Owner's Rep:	Laura Price
Owner's Project No:	30000126	Owner's Phone No:	360.417.6263
Owner's E-mail:	Lprice@pencol.edu	Owner's Fax No:	
Completed by:	Cheryl Cohen	Phone No:	
Firm:	Schacht Aslani Architects	E-mail:	
Bldg Type:	Education and Childcare		
Approx. sq. ft:	41,650 ☑ New	☐ Remodel	☐ Addition

The following are elements of an energy efficient design and can contribute to LEED™ points. Check 'Yes' to indicate items that will be considered in the High Performance Alternative of the Energy Life Cycle Cost Analysis

			Yes	No	N/A
	Site Considerations		**Yes**	**No**	**N/A**
1)	Building orientated to optimize energy efficiency		☑	☐	☐
2)	Landscaping to provide solar shading		☐	☑	☐
	Envelope				
3)	Energy StarTM compliant roof		☑	☐	☐
4)	Roof insulation to meet or exceed R-30 rigid or R-38 batt*		☑	☐	☐
5)	Wall insulation with		☐	☐	☐
	a)	wood studs, R-19 batt insulation*	☐	☐	☑
	b)	metal studs, R-19 and rigid insulation on the exterior*	☑	☐	☐
	c)	mass wall, R-10 rigid insulation*	☐	☐	☑
6)	Windows:				
	a)	U=0.45 or lower*	☑	☐	☐
	b)	SHGC=0.45 (reduced cooling load) or lower*	☑	☐	☐
	c)	Exceed 50% Visual Light Transmittance (increased daylighting)*	☑	☐	☐
7)	Skylights U=0.60 or lower*		☑	☐	☐
8)	Doors U=0.50 or lower*		☑	☐	☐
	Lighting				
9)	Incorporate daylighting in over 50% of occupied critical visual task areas		☑	☐	☐
10)	Automated daylight harvesting controls		☑	☐	☐
11)	Lumen maintenance controls (metal halide with electronic balast)		☐	☑	☐
12)	Fluorescent lighting for the gym, multipurpose, commons or other High Bay application		☐	☐	☑
13)	Lighting power densities will meet or be lower than the following*		☐	☐	☐
	a)	Classroom: 1.15 watts per square foot (w/sf)	☑	☐	☐
	b)	Gym: 1.00 w/sf (1.8 w/sf over competitive area)	☐	☐	☑
	c)	Office: 1.10 w/sf	☑	☐	☐
	d)	Library: 1.30 w/sf	☐	☐	☑
	e)	Corridor: 0.70 w/sf	☑	☐	☐

* Represents ELCCA prescriptive elements

	Renewable Energy		Yes	No	N/A
14)	Incorporate solar photovoltaic (PV) technology:		☑	☐	☐
	a)	for general building power	☑	☐	☐
	b)	for isolated loads in remote locations (e.g. crosswalks)	☐	☑	☐
15)	Solar water heater		☐	☑	☐
16)	Wind power		☐	☑	☐
17)	Heat recovery systems		☑	☐	☐
18)	Geothermal		☐	☑	☐
	Water Conservation				
19)	Waterless Urinals		☐	☑	☐
20)	Rain water/gray water collection systems		☐	☑	☐
21)	Water efficient landscaping		☑	☐	☐
22)	Water efficient fixtures		☑	☐	☐
23)	Automated lavatory faucets		☑	☐	☐
	HVAC & Electrical				
24)	Natural ventilation in lieu of mechanical cooling or partly so		☑	☐	☐
25)	Displacement ventilation		☑	☐	☐
26)	Thermal Storage		☑	☐	☐
27)	Premium efficiency motors		☑	☐	☐
28)	Independent Building Commissioning Agent hired by owner		☑	☐	☐
29)	Variable flow fans and pumping systems		☑	☐	☐
30)	Heat recovery systems (between supply and exhaust)		☑	☐	☐
31)	Evaporative cooling to augment or replace mechanical cooling		☐	☑	☐
32)	High efficiency boilers		☑	☐	☐
33)	High efficiency chillers		☑	☐	☐
	Controls				
34)	Building automation system		☑	☐	☐
35)	Carbon Dioxide monitoring (gym/multipurpose/commons, etc.)		☑	☐	☐
36)	Demand control ventilation		☑	☐	☐
	Uninterruptible Power				
37)	Fuel cells for uninterruptible power systems		☐	☑	☐

List other energy efficient items or strategies that will be considered:

Submit to DES by E-Mail: ELCCA@ga.wa.gov

Appendix 7

Exempt Declaration

1. City of Bellingham - Bellingham Federal Building
2. Fort Vancouver National Trust – Quarter Master & Dental Surgery Project
3. Foss Waterway Seaport – Balfour Dock Building/Tacoma
4. Grays Harbor Historical Seaport – Seaport Landing
5. Historic Seattle – Washington Hall Restoration Project
6. Pacific Science Center – Yamasaki Courtyard Restoration Project
7. WWU Exemption Declaration – Buchanan Towers
8. DOT – Alaska Way Viaduct Replacement
9. Peninsula College – Fort Worden Building

DEPARTMENT OF PUBLIC WORKS - FACILITIES
210 Lottie Street, Bellingham, WA 98225
Telephone (360) 778-7830 FAX (360) 778-7901

May 8, 2014

Attn:
Department of Enterprise Services
State of Washington

Re:
High-Performance Green Buildings Exemption Declaration Form Submittal
for Bellingham Federal Building Rehabilitation: Phases II & III, Project Number EF.0110

The Bellingham Federal Building is listed on the National Register of Historic Places. This renovation project aims to create a new office workplace and renovate the existing systems of the historic building. An important objective of the project is to meet the sustainable goals of the federal and state government for public facilities.

The project includes the necessary components of mechanical, electrical, and plumbing system upgrades, in addition to improved life safety measures and an interior tenant fit-out, to create a healthy environment for the building occupants and the general public. The design intent of the project is to strive for implementation of sustainable practices and procedures as required by a LEED certified Core and Shell project.

While the renovation of the Bellingham Federal Building will strive to follow LEED guidelines for certification, the ambitious schedule and restricted budget make it unlikely that is objective will be met. Additionally, the construction boundaries encompass only a portion of the building, making the project unable to achieve LEED certification.

Sincerely,

James Simpson
Facilities Project Manager

High-Performance Green Buildings

Exemption Declaration

Received by DES:	

Date: 05/08/2014

Submit to: Sustainability@des.wa.gov

Project Name:	Bellingham Federal Building	Agency/Institution	City of Bellingham
Project Number:	EF.0110		

	Name	Agency	Phone	E-Mail
Submitted By:	James Simpson	Facilities Management, City of Bellingham	(360) 778-7973	jsimpson@cob.rg

Conceptual Construction Cost Estimate	$4,200,000
Total Facility Square Footage Estimate	39,218 sf
Project Location/Address	104 West Magnolia Street, Bellingham, WA

Facility Type Exemption*	Exempt Space Approx. %	Agency Representative Signature Block
Transmitter Building	n/a	
Pumping Station	n/a	n/a
Hospital (not including skilled nursing)	n/a	Signature
Research Facilities with Laboratories	n/a	Name: n/a
		Title: n/a

"Not Practicable" Exemption**	Yes/No	Agency Representative Signature Block
The project will seek US Green Bldg. Council LEED Certification***	Yes	James Simpson 05/08/14
The project will participate in the DES LEED QA process**	Yes	
The project will take no further action regarding LEED.	No	Signature
		Name: James Simpson
		Title: Facilities Project Manager

This Exemption Submittal includes the following:

Provide a one page description of why the exemption is being sought on Agency Letterhead.	Y		
Provide a LEED Checklist indicating which LEED Credits may be "practicable" for the project.	Y	LEED Score attempting	48

* If a "Facility Type" exemption is requested and verified, no further submittals are required.

** If a "Not Practicable" exemption is requested, the project should pursue LEED to the level that is "practicable" for the project. Projects are encouraged to participate in the DES LEED QA process and subsequent annual reporting of the energy and water/sewer consumption to DES. This will demonstrate a "Good Faith" effort consistent with the intent of RCW 39.35D. Complete the appropriate DES LEED QA forms as the project progresses through the design and construction process. Feedback from DES will help projects to achieve the proposed LEED goal and will help to maximize utility incentives.

Form Last Updated April 2006

*** If the project continues to seek LEED Certification the project should also participate in the DES LEED QA process.

LEED v4 for BD+C: Core and Shell

Project Checklist

Bellingham Federal Building

May-14

Y	?	N			
			Credi 1	Integrative Process	1

Y	?	N		Location and Transportation	Possible Points: 20
X			Credit 1	LEED for Neighborhood Development Location	20
X			Credit 2	Sensitive Land Protection	2
X			Credit 3	High Priority Site	3
	X		Credit 4	Surrounding Density and Diverse Uses	6
X			Credit 5	Access to Quality Transit	6
X			Credit 6	Bicycle Facilities	1
	X		Credit 7	Reduced Parking Footprint	1
	X		Credit 8	Green Vehicles	1

Y	?	N		Sustainable Sites	Possible Points: 11
Y			Prereq 1	Construction Activity Pollution Prevention	Required
		X	Credit 1	Site Assessment	1
		X	Credit 2	Site Development--Protect or Restore Habitat	2
		X	Credit 3	Open Space	1
		X	Credit 4	Rainwater Management	3
		X	Credit 5	Heat Island Reduction	2
X			Credit 6	Light Pollution Reduction	1
	X		Credit 7	Tenant Design and Construction Guidelines	1

Y	?	N		Water Efficiency	Possible Points: 11
Y			Prereq 1	Outdoor Water Use Reduction	Required
Y			Prereq 2	Indoor Water Use Reduction	Required
Y			Prereq 3	Building-Level Water Metering	Required
X			Credit 1	Outdoor Water Use Reduction	2
X			Credit 2	Indoor Water Use Reduction	6
		X	Credit 3	Cooling Tower Water Use	2
X			Credit 4	Water Metering	1

Y	?	N		Energy and Atmosphere	Possible Points: 33
Y			Prereq 1	Fundamental Commissioning and Verification	Required
Y			Prereq 2	Minimum Energy Performance	Required
Y			Prereq 3	Building-Level Energy Metering	Required
Y			Prereq 4	Fundamental Refrigerant Management	Required
		X	Credit 1	Enhanced Commissioning	6
X			Credit 2	Optimize Energy Performance	18
			Credit 3	Advanced Energy Metering	1
		X	Credit 4	Demand Response	2
		X	Credit 5	Renewable Energy Production	3
		X	Credit 6	Enhanced Refrigerant Management	1

Y	?	N			
		X	Credit 7	Green Power and Carbon Offsets	2
			Materials and Resources	**Possible Points:**	**14**
Y			Prereq 1	Storage and Collection of Recyclables	Required
Y			Prereq 2	Construction and Demolition Waste Management Planning	Required
X			Credit 1	Building Life-Cycle Impact Reduction	6
X			Credit 2	Building Product Disclosure and Optimization - Environmental Product Declarations	2
X			Credit 3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
X			Credit 4	Building Product Disclosure and Optimization - Material Ingredients	2
X			Credit 5	Construction and Demolition Waste Management	2
			Indoor Environmental Quality	**Possible Points:**	**10**
Y			Prereq 1	Minimum Indoor Air Quality Performance	Required
Y			Prereq 2	Environmental Tobacco Smoke Control	Required
X			Credit 1	Enhanced Indoor Air Quality Strategies	2
X			Credit 2	Low-Emitting Materials	3
X			Credit 3	Construction Indoor Air Quality Management Plan	1
X			Credit 5	Daylight	3
	X		Credit 6	Quality Views	1
			Innovation	**Possible Points:**	**6**
	X		Credit 1	Innovation	5
X			Credit 2	LEED Accredited Professional	1
			Regional Priority	**Possible Points:**	**4**
X			Credit 1	Regional Priority: Specific Credit	1
	X		Credit 2	Regional Priority: Specific Credit	1
	X		Credit 3	Regional Priority: Specific Credit	1
	X		Credit 4	Regional Priority: Specific Credit	1
	48		**Total**	**Possible Points:**	**110**

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

General O.O. Howard House • 750 Anderson Street • Vancouver, Washington 98661
360-992-1800 • Fax: 360-992-1810 • www.fortvan.org

May 13, 2014

FORT VANCOUVER
National Trust

Dear Sustainable Building Advisor,

We are respectfully seeking a High-Performance Green Building exemption for the upcoming "Quartermaster and Dental Surgery Renovation Project" located in the West Vancouver Barracks of Fort Vancouver National Site, in the Fort Vancouver National Historic District of Vancouver, WA. Respective addresses for the buildings to be rehabilitated are: 630 Fort Vancouver Way, Vancouver, WA 98661 and 619 Barnes St., Vancouver, WA 98661.

An "Non-Practicable" exemption is being sought for a few reasons:

1. The buildings are listed on the Federal, State and County Historic Registers and are required to reflect their original state by whatever means possible and practical to ensure that history of the Site is most accurately depicted.
2. Federal legislation under Department of Interior Standards, Sec. 106, requires strict adherence to observing the guidelines and measures set forth by the Department.
3. The conceptual design drawings depict compliance to Section 106.
4. It is simply not possible to achieve LEED Silver status with the limited improvements being made on this project.
5. The only elements that will comply would be EnergyStar rated appliances, plumbing fixtures, and HVAC split-system heat pumps. The scope of this project is very small, as the gross square footage of the two buildings combined is 3,365 sq.ft. The elements listed amount to a handful of sinks, toilets, faucets, a few kitchen appliances and two heat pump split-systems. For clarification the plumbing fixtures will be low-flow, low consumption.The composition roofing shingles approved by the Washington State Department of Archaeology and Historic Preservation are made up of a percentage of recycled materials. ***Please note that we seek to be as LEED compliant/energy efficient as possible within the constraints we are given.***

While the total project costs are estimated at $960,272.00. Highest estimated replacement value for the two buildings would be approximately $1,117,750.00. Please feel free to contact me with any questions you may have regarding this project and this request. I look forward to your response.

Best Regards,

Kaare A. Hyde

Kaare A. Hyde | Facilities Manager
Fort Vancouver National Trust
General O.O. Howard House
750 Anderson St.
Vancouver, WA 98661
Direct: 360-992-1816
Website: www.fortvan.org

High-Performance Green Buildings

Exemption Declaration

Received by DES:	

Date: 5/13/14

Submit to: Sustainability@des.wa.gov

Project Name:	Quartermaster & Dental Surgery Renovation Project	Agency/Institution: Fort Vancouver National Trust
Project Number:		

	Name	Agency	Phone	E-Mail
Submitted By:	KAARE A. HYDE	FORT VANCOUVER TRUST	360-992-1816	kaare.hyde@fortvan.org

Conceptual Construction Cost Estimate	$915,272
Total Facility Square Footage Estimate	3,365 ft.^{2}
Project Location/Address	630 Ft. Vancouver Way, Vancouver, WA 98661, 619 Barnes St. Vancouver, WA 98661

Facility Type Exemption*	Exempt Space Approx. %
Transmitter Building	N/A
Pumping Station	N/A
Hospital (not including skilled nursing)	N/A
Research Facilities with Laboratories	N/A

Agency Representative Signature Block

Kaare A. Hyde

Signature

Name: KAARE A. HYDE

Title: FACILITIES MANAGER

"Not Practicable" Exemption**	Yes/No
The project will seek US Green Bldg. Council LEED Certification***	NO
The project will participate in the GA LEED QA process**	NO
The project will take no further action regarding LEED.	YES

Agency Representative Signature Block

Kaare A. Hyde

Signature

Name: KAARE A. HYDE

Title: FACILITIES MANAGER

This Exemption Submittal includes the following:

- Provide a one page description of why the exemption is being sought on Agency Letterhead. ☒
- Provide a LEED Checklist indicating which LEED Credits may be "practicable" for the project. ☐ LEED Score attempting:

* If a "Facility Type" exemption is requested and verified, no further submittals are required.

** If a "Not Practicable" exemption is requested, the project should pursue LEED to the level that is "practicable" for the project. Projects are encouraged to participate in the DES LEED QA process and subsequent annual reporting of the energy and water/sewer consumption to DES. This will demonstrate a "Good Faith" effort consistent with the intent of RCW 39.35D. Complete the appropriate DES LEED QA forms as the project progresses through the design and construction process. Feedback from DES will help projects to achieve the proposed LEED goal and will help to maximize utility incentives.

*** If the project continues to seek LEED Certification the project should also participate in the DES LEED QA process.

Form Last Updated April 2006

FOSS WATERWAY
SEAPORT
Discover by Doing

459-A East 15th Street
Tacoma, WA 98402
P 253.272.2750
F 253.272.3023
www.fosswaterwayseaport.org

The Foss Waterway Seaport is not seeking LEED certification for the renovation and restoration of the Balfour Dock building at 705 Dock Street in Tacoma for the following reasons:

- The large interior volume of existing 1900 historical warehouse cannot be reduced without very significant impact on the historical character of the building.
- The thermal performance of the historical walls, windows and roof have been improved but limited for historical preservation. This limits the amount of potential LEED Energy and Atmosphere credits.
- The existing building site is developed and limits the amount of storm water, heat island and restoration of habitat sustainable site credits possible.
- Some existing building elements are reusable but the amount of material and resource credits is limited to the extent of material that is not at the end of its life.
- The amount of potential day light and views is limited by conformance to preservation to historical openings.

LEED for Existing Buildings: Operations & Maintenance
Registered Building Checklist

Project Name: Foss Waterway Seaport
Project Address: 705 Dock Street, Tacoma

Yes	?	No			
7	0	0	**Sustainable Sites**		**12** Points
		0	Credit 1	**LEED Certified Design and Construction**	1
1			Credit 2	**Building Exterior and Hardscape Management Plan**	1
1			Credit 3	**Integrated Pest Management, Erosion Control, and Landscape Management Plan**	1
		0	Credit 4.1	**Alternative Commuting Transportation,** 10%	1
1			Credit 4.2	**Alternative Commuting Transportation,** 25%	1
		0	Credit 4.3	**Alternative Commuting Transportation,** 50%	1
		0	Credit 4.4	**Alternative Commuting Transportation,** 75% or greater	1
1			Credit 5	**Reduced Site Disturbance - Protect or Restore Open Space**	1
1			Credit 6	**Stormwater Management**	1
1			Credit 7.1	**Heat Island Reduction -** Non-Roof	1
		0	Credit 7.2	**Heat Island Reduction -** Roof	1
1			Credit 8	**Light Pollution Reduction**	1

Yes	?	No			
4	0	0	**Water Efficiency**		**10** Points
Y			Prereq 1	**Minimum Indoor Plumbing Fixture and Fitting Efficiency**	Required
1			Credit 1.1	**Water Performance Measurement** - whole building metering	1
1			Credit 1.2	**Water Performance Measurement** - submetering	1
1			Credit 2.1	**Additional Indoor Plumbing Fixture and Fitting Efficiency,** 10%	1
		0	Credit 2.2	**Additional Indoor Plumbing Fixture and Fitting Efficiency,** 20%	1
		0	Credit 2.3	**Additional Indoor Plumbing Fixture and Fitting Efficiency,** 30%	1
1			Credit 3.1	**Water Efficient Landscaping -** Reduce Potable Water Use by 50%	1
		0	Credit 3.2	**Water Efficient Landscaping** - Reduce Potable Water Use by 75%	1
		0	Credit 3.3	**Water Efficient Landscaping** - Reduce Potable Water Use by 100%	1
		0	Credit 4.1	**Cooling Tower Water Management -** Chemical Management	1
		0	Credit 4.2	**Cooling Tower Water Management -** Non-Potable Water Source Use	1

Yes	?	No			
6	0	0	**Energy & Atmosphere**		**30** Points
Y			Prereq 1	**Energy Efficiency Best Management Practices** - Planning, Documentation, and Opportunity Assessment	Required
Y			Prereq 2	**Minimum Energy Efficiency Performance**	Required
Y			Prereq 3	**Refrigerant Management** - Ozone Protection	Required
			Credit 1	**Optimize Energy Efficiency Performance**	15
1			Credit 2.1	**Existing Building Commissioning -** Investigation and Analysis	2
1			Credit 2.2	**Existing Building Commissioning -** Implementation	2
1			Credit 2.3	**Existing Building Commissioning -** Ongoing Commissioning	2
1			Credit 3.1	**Performance Measurement -** Building Automation System	1
1			Credit 3.2	**Performance Measurement -** System-Level Metering, 40%	1
		0	Credit 3.3	**Performance Measurement -** System-Level Metering, 80%	1
1			Credit 4.1	**Renewable Energy -** On-site 3% / Off-site 25%	1
		0	Credit 4.2	**Renewable Energy** - On-site 6% / Off-site 50%	1
		0	Credit 4.3	**Renewable Energy** - On-site 9% / Off-site 75%	1
		0	Credit 4.4	**Renewable Energy** - On-site 12% / Off-site 100%	1
		0	Credit 5	**Refrigerant Management**	1
1			Credit 6	**Emissions Reduction Reporting**	1

Yes	?	No			
5	0	0		**Materials & Resources**	**14** Points
Y			Prereq 1	**Sustainable Purchasing Policy**	Required
Y			Prereq 2	**Solid Waste Management Policy**	Required
1			Credit 1.1	**Sustainable Purchasing** - Ongoing Consumables, 40%	1
		0	Credit 1.2	**Sustainable Purchasing** - Ongoing Consumables, 60%	1
		0	Credit 1.3	**Sustainable Purchasing** - Ongoing Consumables, 80%	1
1			Credit 2.1	**Sustainable Purchasing** - Durable Goods, electric	1
1			Credit 2.2	**Sustainable Purchasing** - Durable Goods, furniture	1
		0	Credit 3	**Sustainable Purchasing** - Facility Alterations and Additions	1
1			Credit 4.1	**Sustainable Purchasing** - Reduced Mercury in Lamps, 90 pg/lum-hr	1
1			Credit 4.2	**Sustainable Purchasing** - Reduced Mercury in Lamps, 70 pg/lum-hr	1
		0	Credit 5	**Sustainable Purchasing -** Food	1
		0	Credit 6	**Solid Waste Management -** Waste Stream Audit	1
1			Credit 7.1	**Solid Waste Management -** Ongoing Consumables, 50%	1
		0	Credit 7.2	**Solid Waste Management -** Ongoing Consumables, 70%	1
		0	Credit 8	**Solid Waste Management -** Durable Goods	1
		0	Credit 9	**Solid Waste Management -** Facility Alterations and Additions	1

Yes	?	No			
12	0	0		**Indoor Environmental Quality**	**19** Points
Y			Prereq 1	**Outdoor Air Introduction and Exhaust Systems**	Required
Y			Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	Required
Y			Prereq 3	**Green Cleaning Policy**	Required
1			Credit 1.1	**IAQ Best Management Practices -** IAQ Management Program	1
1			Credit 1.2	**IAQ Best Management Practices -** Outdoor Air Delivery Monitoring	1
		0	Credit 1.3	**IAQ Best Management Practices -** Increased Ventilation	1
1			Credit 1.4	**IAQ Best Management Practices -** Reduce Particulates in Air Distribution	1
1			Credit 1.5	**IAQ Best Management Practices -** IAQ Management for Facility Alterations and Additions	1
1			Credit 2.1	**Occupant Comfort -** Occupant Survey	1
1			Credit 2.2	**Occupant Comfort -** Occupant Controlled Lighting	1
1			Credit 2.3	**Occupant Comfort -** Thermal Comfort Monitoring	1
		0	Credit 2.4	**Occupant Comfort -** Daylight and Views, 50% Daylight / 45% Views	1
		0	Credit 2.5	**Occupant Comfort -** Daylight and Views, 75% Daylight / 90% Views	1
1			Credit 3.1	**Green Cleaning -** High Performance Cleaning Program	1
1			Credit 3.2	**Green Cleaning -** Custodial Effectiveness Assessment, < 3	1
		0	Credit 3.3	**Green Cleaning -** Custodial Effectiveness Assessment, < 2	1
1			Credit 3.4	**Green Cleaning -** Sustainable Cleaning Products and Materials, 30%	1
		0	Credit 3.5	**Green Cleaning -** Sustainable Cleaning Products and Materials, 60%	1
		0	Credit 3.6	**GreenCleaning -** Sustainable Cleaning Products and Materials, 90%	1
1			Credit 3.7	**Green Cleaning -** Sustainable Cleaning Equipment	1
1			Credit 3.8	**Green Cleaning -** Entryway Systems	1
1			Credit 3.9	**Green Cleaning -** Indoor Integrated Pest Management	1

Yes	?	No			
2	0	0		**Innovation in Operations**	**7** Points
1			Credit 1.1	**Innovation in Operations**	1
		0	Credit 1.2	**Innovation in Operations**	1
		0	Credit 1.3	**Innovation in Operations**	1
		0	Credit 1.4	**Innovation in Operations**	1
1			Credit 2	**LEED® Accredited Professional**	1
1			Credit 3	**Documenting Sustainable Building Cost Impacts**	2

Yes	?	No		
36	0	0	**Project Totals (pre-certification estimates)**	92 Points

30	0	0	**Certified:** 34-42 points, **Silver:** 43-50 points, **Gold:** 51-67 points, **Platinum:** 68-92

High-Performance Green Buildings
Exemption Declaration

Received by DES:

Date: 5/15/14

Submit to: Sustainability@des.wa.gov

Project Name:	SEAPORT LANDING	Agency/Institution	GRAYS HARBOR HISTORICAL SEAPORT
Project Number:			

	Name	Agency	Phone	E-Mail
Submitted By:	LES BOLTON	GHHSA	360-581-1488	LES@HISTORICALSEAPORT.ORG

Conceptual Construction Cost Estimate: 5,314,493.22

Total Facility Square Footage Estimate: 32,910

Project Location/Address: 500 NORTH CUSTER ABERDEEN, WA 98520

Facility Type Exemption*	Exempt Space Approx. %
Transmitter Building	
Pumping Station	
Hospital (not including skilled nursing)	
Research Facilities with Laboratories	

Agency Representative Signature Block

Signature

Name:

Title:

"Not Practicable" Exemption**	Yes/No
The project will seek US Green Bldg. Council LEED Certification***	YES
The project will participate in the GA LEED QA process**	YES
The project will take no further action regarding LEED.	

Agency Representative Signature Block

Signature

Name: LES BOLTON

Title: EXECUTIVE DIRECTOR

This Exemption Submittal includes the following:

- [ ] Provide a one page description of why the exemption is being sought on Agency Letterhead.
- [x] Provide a LEED Checklist indicating which LEED Credits may be "practicable" for the project. LEED Score attempting: 41

* If a "Facility Type" exemption is requested and verified, no further submittals are required.

** If a "Not Practicable" exemption is requested, the project should pursue LEED to the level that is "practicable" for the project. Projects are encouraged to participate in the DES LEED QA process and subsequent annual reporting of the energy and water/sewer consumption to DES. This will demonstrate a "Good Faith" effort consistent with the intent of RCW 39.35D. Complete the appropriate DES LEED QA forms as the project progresses through the design and construction process. Feedback from DES will help projects to achieve the proposed LEED goal and will help to maximize utility incentives.

*** If the project continues to seek LEED Certification the project should also participate in the DES LEED QA process.

Form Last Updated April 2006

LEED for New Construction v 2.2
Registered Project Checklist

Project Name: SEAPORT LANDING

Project Address: 500 NORTH CUSTERABERDEEN, WA 98520

Yes	?	No		
44	4		**Project Totals** (Pre-Certification Estimates)	69 Points
GOLD			**Certified**: 26-32 points **Silver**: 33-38 points **Gold**: 39-51 points **Platinum**: 52-69 points	

Yes	?	No			
11			**Sustainable Sites**		14 Points
Yes			Prereq 1	**Construction Activity Pollution Prevention**	Required
1			Credit 1	**Site Selection**	1
1			Credit 2	**Development Density & Community Connectivity**	1
1			Credit 3	**Brownfield Redevelopment**	1
0			Credit 4.1	**Alternative Transportation**, Public Transportation	1
0			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
1			Credit 4.3	**Alternative Transportation**, Low-Emitting & Fuel Efficient Vehicles	1
1			Credit 4.4	**Alternative Transportation**, Parking Capacity	1
1			Credit 5.1	**Site Development**, Protect or Restore Habitat	1
1			Credit 5.2	**Site Development**, Maximize Open Space	1
1			Credit 6.1	**Stormwater Design**, Quantity Control	1
1			Credit 6.2	**Stormwater Design**, Quality Control	1
0			Credit 7.1	**Heat Island Effect**, Non-Roof	1
1			Credit 7.2	**Heat Island Effect**, Roof	1
1			Credit 8	**Light Pollution Reduction**	1

Yes	?	No			
3			**Water Efficiency**		5 Points
1			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
0			Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
1			Credit 2	**Innovative Wastewater Technologies**	1
0			Credit 3.1	**Water Use Reduction**, 20% Reduction	1
1			Credit 3.2	**Water Use Reduction**, 30% Reduction	1

LEED for New Construction v 2.2
Registered Project Checklist

Yes	?	No				
12			Energy & Atmosphere			17 Points
Yes			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**		Required
Yes			Prereq 1	**Minimum Energy Performance**		Required
Yes			Prereq 1	**Fundamental Refrigerant Management**		Required

***Note for EAc1:** All LEED for New Construction projects registered after June 26, 2007 are required to achieve at least two (2) points.

Yes	?	No				
10			Credit 1	**Optimize Energy Performance**		1 to 10
				Credit 1.1	10.5% New Buildings / 3.5% Existing Building Renovations	1
				Credit 1.2	14% New Buildings / 7% Existing Building Renovations	2
				Credit 1.3	17.5% New Buildings / 10.5% Existing Building Renovations	3
				Credit 1.4	21% New Buildings / 14% Existing Building Renovations	4
				Credit 1.5	24.5% New Buildings / 17.5% Existing Building Renovations	5
				Credit 1.6	28% New Buildings / 21% Existing Building Renovations	6
				Credit 1.7	31.5% New Buildings / 24.5% Existing Building Renovations	7
				Credit 1.8	35% New Buildings / 28% Existing Building Renovations	8
				Credit 1.9	38.5% New Buildings / 31.5% Existing Building Renovations	9
			-->	Credit 1.10	42% New Buildings / 35% Existing Building Renovations	10
1			Credit 2	**On-Site Renewable Energy**		1 to 3
			-->	Credit 2.1	2.5% Renewable Energy	1
				Credit 2.2	7.5% Renewable Energy	2
				Credit 2.3	12.5% Renewable Energy	3
0			Credit 3	**Enhanced Commissioning**		1
0			Credit 4	**Enhanced Refrigerant Management**		1
0			Credit 5	**Measurement & Verification**		1
1			Credit 6	**Green Power**		1

LEED for New Construction v 2.2
Registered Project Checklist

Yes	?	No			
5			**Materials & Resources**		**13 Points**
Yes			Prereq 1	**Storage & Collection of Recyclables**	Required
1			Credit 1.1	**Building Reuse,** Maintain 75% of Existing Walls, Floors & Roof	1
0			Credit 1.2	**Building Reuse,** Maintain 95% of Existing Walls, Floors & Roof	1
1			Credit 1.3	**Building Reuse,** Maintain 50% of Interior Non-Structural Elements	1
0			Credit 2.1	**Construction Waste Management**, Divert 50% from Disposal	1
1			Credit 2.2	**Construction Waste Management**, Divert 75% from Disposal	1
0			Credit 3.1	**Materials Reuse**, 5%	1
1			Credit 3.2	**Materials Reuse**, 10%	1
0			Credit 4.1	**Recycled Content**, 10% (post-consumer + 1/2 pre-consumer)	1
0			Credit 4.2	**Recycled Content**, 20% (post-consumer + 1/2 pre-consumer)	1
0			Credit 5.1	**Regional Materials**, 10% Extracted, Processed & Manufactured	1
0			Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured	1
0			Credit 6	**Rapidly Renewable Materials**	1
1			Credit 7	**Certified Wood**	1

Yes	?	No			
12			**Indoor Environmental Quality**		**15 Points**
Yes			Prereq 1	**Minimum IAQ Performance**	Required
Yes			Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	Required
0			Credit 1	**Outdoor Air Delivery Monitoring**	1
1			Credit 2	**Increased Ventilation**	1
1			Credit 3.1	**Construction IAQ Management Plan,** During Construction	1
1			Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1
1			Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1
1			Credit 4.2	**Low-Emitting Materials**, Paints & Coatings	1
1			Credit 4.3	**Low-Emitting Materials**, Carpet Systems	1
1			Credit 4.4	**Low-Emitting Materials**, Composite Wood & Agrifiber Products	1
0			Credit 5	**Indoor Chemical & Pollutant Source Control**	1
1			Credit 6.1	**Controllability of Systems**, Lighting	1
1			Credit 6.2	**Controllability of Systems**, Thermal Comfort	1
1			Credit 7.1	**Thermal Comfort,** Design	1
1			Credit 7.2	**Thermal Comfort,** Verification	1
0			Credit 8.1	**Daylight & Views,** Daylight 75% of Spaces	1
1			Credit 8.2	**Daylight & Views,** Views for 90% of Spaces	1

LEED for New Construction v 2.2
Registered Project Checklist

Yes	?	No				
1	4		**Innovation & Design Process**			5 Points
	1		Credit 1.1	**Innovation in Design:**	Provide Specific Title	1
	1		Credit 1.2	**Innovation in Design:**	Provide Specific Title	1
	1		Credit 1.3	**Innovation in Design:**	Provide Specific Title	1
	1		Credit 1.4	**Innovation in Design:**	Provide Specific Title	1
1			Credit 2	**LEED® Accredited Professional**		1

HISTORIC SEATTLE
Educate Advocate Preserve

1117 Minor Ave.
Seattle, WA 98101

Tel. 206.622.6952
Fax. 206.622.1197

www.HistoricSeattle.org
info@HistoricSeattle.org

MEMORANDUM

TO: Janet Rogerson, Heritage Capital Projects Fund Coordinator
FROM: Kji Kelly, Deputy Director
DATE: May 15, 2014
SUBJECT: **High-Performance Green Buildings Exemption Declaration - "Not Practicable" Exemption**

An exemption was granted from meeting LEED silver standards for Washington Hall Rehabilitation Phases 1 and 2. Historic Seattle is asking for an exemption for Phase 3 as well. Our organization does however continue to make incremental energy efficient improvements to the building. These items include:

- Installation of insulation in both the exterior walls and attic
- Restoration of exterior windows
- Rehabilitation of the boiler system
- Installation of insulation on boiler piping
- Installation of wireless thermostat controls
- Installation of low flow toilets

Historic Seattle will most certainly demonstrate a "good faith" effort to be consistent with the intent of RCW 39.35D. We currently are participating in the City of Seattle's Energy Benchmarking Program utilizing the Energy Star Portfolio Manager.

High-Performance Green Buildings

Exemption Declaration

Received by DES:	

Date: 15-May-14

Submit to: Sustainability@des.wa.gov

Project Name: Washington Hall Restoration Project	Agency/Institution	
Project Number:		

Submitted By:	Name	Agency	Phone	E-Mail
	Eugenia Woo	Historic Seattle	206.622.6952	eugeniaw@historicseattle.org

Conceptual Construction Cost Estimate	
Total Facility Square Footage Estimate	
Project Location/Address	

Facility Type Exemption*	Exempt Space Approx. %	Agency Representative Signature Block
Transmitter Building		
Pumping Station		
Hospital (not including skilled nursing)		Signature
Research Facilities with Laboratories		Name:
		Title:

"Not Practicable" Exemption**	Yes/No	Agency Representative Signature Block
The project will seek US Green Bldg. Council LEED Certification***	No	Eugenia Woo
The project will participate in the DES LEED QA process**	Yes	
The project will take no further action regarding LEED.	No	Signature
		Name: Eugenia Woo
		Title: Director of Preservation Services

This Exemption Submittal includes the following:

Provide a one page description of why the exemption is being sought on Agency Letterhead.	X
Provide a LEED Checklist indicating which LEED Credits may be "practicable" for the project.	

LEED Score attempting

* If a "Facility Type" exemption is requested and verified, no further submittals are required.

** If a "Not Practicable" exemption is requested, the project should pursue LEED to the level that is "practicable" for the project. Projects are encouraged to participate in the DES LEED QA process and subsequent annual reporting of the energy and water/sewer consumption to DES. This will demonstrate a "Good Faith" effort consistent with the intent of RCW 39.35D. Complete the appropriate DES LEED QA forms as the project progresses through the design and construction process. Feedback from DES will help projects to achieve the proposed LEED goal and will help to maximize utility incentives.

*** If the project continues to seek LEED Certification the project should also participate in the DES LEED QA process.

Form Last Updated April 2006

ATTACHMENT J
HIGH-PERFORMANCE GREEN BUILDINGS EXEMPTION DECLARATION FROM
Pacific Science Center

May 15, 2014

Re: High-Performance Green Buildings Exemption Declaration

To Whom It May Concern

Pacific Science Center seeks a High Performance Green Buildings exemption for HCPF 2015-2017 as related to the Yamasaki Courtyard Restoration Project-Stair Repair and Terrazzo Cleaning. The project encompasses the exterior stairs located at the main entry point to the Yamasaki Courtyard as well as the deep cleaning and sealing of the Courtyard's terrazzo walkway surfaces. While the total project encompasses 55,000 sq. ft., less than 5000 sq. ft. involves actual stair repair work. The total project cost does not exceed 50% of the assessed value and no architectural review is required for this work. In addition, Pacific Science Center is part of the Living Building Challenge with the goal of achieving net zero water and energy within two decades. As a landmark, no significant new building can be anticipated and all efforts are focused on repair, maintenance and sustainability.

Sincerely,

Scott McConnell

Facilities Manager

PACIFIC SCIENCE CENTER

200 Second Avenue N
Seattle, Washington
98109-4895

206-443-2001
pacificsciencecenter.org

Pacific Science Center is an independent not-for-profit educational institution that inspires lifelong interest in science, math and technology by engaging diverse communities through interactive and innovative exhibits and programs.

High-Performance Green Buildings

Exemption Declaration

Received by DES:

Date: 14-May-14

Submit to: Sustainability@des.wa.gov

Project Name:	Yamasak Courtyard Renewal Project - Stair Repair & T	Agency/Institution	Pacific Science Center
Project Number:			

Submitted By:	Name	Agency	Phone	E-Mail

Conceptual Construction Cost Estimate

Total Facility Square Footage Estimate

Project Location/Address

Facility Type Exemption*	Exempt Space Approx. %	Agency Representative Signature Block
Transmitter Building		
Pumping Station		
Hospital (not including skilled nursing)		Signature
Research Facilities with Laboratories		Name:
		Title:

"Not Practicable" Exemption**	Yes/No	Agency Representative Signature Block
The project will seek US Green Bldg. Council LEED Certification***	No	
The project will participate in the DES LEED QA process**	No	
The project will take no further action regarding LEED.	Yes	Signature
		Name:
		Title: Facilites Manager

This Exemption Submittal includes the following:

Provide a one page description of why the exemption is being sought on Agency Letterhead. x

Provide a LEED Checklist indicating which LEED Credits may be "practicable" for the project. n/a — LEED Score attempting

* If a "Facility Type" exemption is requested and verified, no further submittals are required.

** If a "Not Practicable" exemption is requested, the project should pursue LEED to the level that is "practicable" for the project. Projects are encouraged to participate in the DES LEED QA process and subsequent annual reporting of the energy and water/sewer consumption to DES. This will demonstrate a "Good Faith" effort consistent with the intent of RCW 39.35D. Complete the appropriate DES LEED QA forms as the project progresses through the design and construction process. Feedback from DES will help projects to achieve the proposed LEED goal and will help to maximize utility incentives.

*** If the project continues to seek LEED Certification the project should also participate in the DES LEED QA process.

Form Last Updated April 2006

WESTERN
WASHINGTON UNIVERSITY

Business and Financial Affairs
Office of Facilities Development and Capital Budget
516 High Street, MS 9122
Bellingham, Washington 98225
360-650-3350

June 4, 2012

Stuart Simpson
Green Building Advisor
Department of Enterprise Services
P.O. Box 41012
Olympia, WA 98504-1012

Re: Exemption Declaration for Buchanan Towers Addition

Dear Stuart:

This letter is to notify you of Western's need to seek an exemption from the LEED certificate requirement for our Buchanan Towers Addition project (Student Residence Hall). While the project was designed to be LEED Gold certified, the contractor for this project was terminated due to non-performance. None of the construction phase documentation was received and because of this the project was unable to be certified.

This project was bond funded through our Housing and Dining System and was not funded by the state.

Sincerely,

Ed Simpson, AIA
Assistant Director Facilities Development
360-650-3231
Ed.Simpson@wwu.edu

516 High Street, MS 9122
Bellingham, Washington 98225
360-650-3350

July 2, 2012

Mr. Stuart Simpson
Sustainability Coordinator
Department of General Administration
PO Box 41012
Olympia, WA 98504

Re: Alaskan Way Viaduct Replacement Program - SR 99 Tunnel Project
North Operations Building, Design Development – Request for Exemption

Dear Mr. Simpson:

This letter is to advise your office that the Washington State Department of Transportation is seeking an exemption from the LEED Silver Certification requirement on the SR 99 Tunnel Project north operations building. Due to the specialized nature of the building it isn't possible to meet the Energy & Atmosphere Prerequisite 2 which requires demonstrating a 10% improvement in the building performance rating. This building provides power for not only the basic building systems, but in addition all the tunnel systems located in the building and the tunnel systems located in the two-mile long tunnel. The majority of the building will be used for tunnel electrical, mechanical, and communications equipment. Approximately 12% of the space is for tunnel maintenance staff and 32% is for tunnel maintenance shops. The systems located in the building are in operation every day, 24 hours a day, 7 days a week supporting the tunnel.

Although WSDOT is asking for this exemption, please be assured that we are performing the work required to meet the requirements for 52 LEED credits. Some of the ways the LEED credits are being met and other design considerations include:

- Siting: The building was sited to make use of a parcel of land that due to the tunnel location would have been unusable by a private developer.
- Square footage: Through a value engineering exercise and the design/builder's design, the building's square footage has been reduced.
- Limited parking / use of alternative transportation modes: Since the building is located in an urban area and is within walking distance of numerous bus routes we are only providing parking for the WSDOT fleet vehicles and car/van pools.
- Landscaping: We have worked with the City of Seattle to maximize the plantings around the building and along the streets. The plantings have been selected for their durability and low water usage. Even though they're not on the site and can't count towards the credit for reduction of heat gain, we are providing funding for 181 trees for the north portal area (81 replacement trees and 100 new trees).
- Other credits: We are meeting many of the credit requirements for ventilation, air quality, day lighting for staff offices and crew rooms, and use of recycled materials.

- Commissioning: The design and construction of the building is through a WSDOT design/build contract. For project commissioning the design/builder is required to meet one of the following guidelines: GSA – General Service Administration Commissioning Guidelines, ACG – Associated Commissioning Group Guidelines, or BCx – Building Commissioning Guidelines. The design/builder is required to provide the commissioning agent (CxA), who shall be certified and registered by ACG or BCx. The CxA must be separate from the designer. All tunnel and building systems are required by contract to be commissioned. Other than the CxA being contracted through the design/build contractor, our project requirements meet the LEED EA Credit 3 requirements.

I am attaching the following documents for your review:

- Exemption Declaration
- Updated LEED checklist
- Environmental Design Considerations.

If you have any questions, please call me at 206-440-4399 or email hilmod@wsdot.wa.gov.

Sincerely,

Diane M Hilmo

Diane M. Hilmo, P.E.
Project Manager

Cc: sustainable@ga.wa.gov
Terri Sinclair-Olson
Susan Everett

SR 99 Alaskan Way Viaduct Replacement - Tunnel, North Tunnel Operations Building						
LEED-NC v 3						Draft JUNE 26, 2012
	CREDIT INTENT & DESCRIPTION	POSSIBLE POINTS	YES	??	NO	STRATEGY
	SUSTAINABLE SITES					
Prerequisite 1	**Construction Activity Pollution Prevention** **Intent: To reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation.**					
	Create and implement an erosion and sedimentation control plan for all construction activities associated with the project. The plan must conform to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit OR local standards and codes, whichever is more stringent. The plan must describe the measures implemented to accomplish the following objectives: Prevent loss of soil during construction by storm water run-off and/or wind erosion, including protecting topsoil by stock-piling for reuse. Prevent sedimentation of storm sewer or receiving streams. Prevent polluting the air with dust and particulate matter. See reference guide for further information.	REQ	YES			An erosion and sedimentation control plans have been developed for all construction activities. Stabilization strategies may include (seeding, mulching) and structural strategies (earth dikes, silt fencing, sediment traps and/or sediment basins). The site does not contain existing topsoil. Storm water will not be discharged into a stream, dust and particulate matter permit requirements will be complied with.
Credit 1	**Site Selection** **Intent: To avoid development of inappropriate sites and reduce the environmental impact from the location of a building on a site.**					
	Do not develop buildings, hardscapes, roads or parking area on portions of sites that meet any one of the following criteria:	1	1			LEED boundary is the property line. The site was previously an office building and parking lot.
	.. Prime farmland as defined by the USDA in United States Code of Federal Regulations Title 7, Volume 6, Parts 400 to 699, Section 657.5 (citation 7CFR657.5).					Not farmland
	.. Previously undeveloped land whose elevation is lower than 5 feet above the elevation of the 100-year flood as defined by FEMA.					Previously developed
	.. Land specifically identified as habitat for any species on the Federal or State threatened or endangered lists					Previously developed
	.. Within 100 feet of any wetlands as defined by United State Code of Federal Regulations 40 CFR, Parts 230-233 and Part 22, and isolated wetlands or areas of special concern identified by state or local rule, OR within setback distances from wetlands prescribed in state or local regulations, as defined by local or state rule or law, whichever is more stringent.					Not near wetland
	.. Previously undeveloped land that is within 50 feet of a water body, defined as seas, lakes, rivers, streams and tributaries which support or could support fish, recreation or industrial use, consistent with the terminology of the Clean Water Act.					Previously developed
	.. Land which prior to acquisition for the project was public parkland, unless land of equal or greater value as parkland is accepted in trade by the public land (Park Authority projects are exempt)					Not parkland
Credit 2	**Development Density & Community Connectivity** **Intent: To channel development to urban areas with existing infrastructure, protecting green fields and preserve habitat and natural resources.**					
	OPTION 1. DEVELOPMENT DENSITY - Construct or renovate building on a previously developed site AND in a community with a minimum density of 60,000 sq. ft. .. per acre net. (Note: density calculation must include the area of the project being built and is based on a typical two-story downtown development.)					
	OPTION 2. COMMUNITY CONNECTIVITY - Construct or renovate building on a site that meets the following criteria: Is located on a previously developed site, is within 1/2 mile of a residential zone or neighborhood with an average density of 10 units per acre net, is within 1/2 mile of at least 10 Basic Services and has pedestrian access between the building and the services. See reference guide for further information.	5	5			The site is located on a previously developed site, is within 1/2 mile of a residential zone with an average density of 10 units per acre net, it is within 1/2 mile of at least 10 Basic Services and has pedestrian access between the building and the services.
Credit 3	**Brownfield Redevelopment** **Intent: To rehabilitate damaged sites where development is complicated by environmental contamination, reducing pressure on undeveloped land.**					
	OPTION 1. Develop on a site documented as contaminated (by means of an ASTM E1903-97 Phase II Environmental Site Assessment or a local Voluntary Cleanup Program).	1	1			Either Option 1 or Option 2 will be met. Per the project Environmental Baseline Report PCE, TCE and VOCs have been

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	OPTION 2: Develop on a site defined as a brown field by a local state or federal government agency					found in the vicinity due to several dry cleaners previously located
Credit 4	**Alternative Transportation** **Intent: To reduce pollution and land development impacts from automobile use.**					
	4.1 OPTION 1: Locate project within 1/2 mile walking distance (measured from main building entrance) of an existing-or planned and funded-commuter rail, light rail or subway station. OPTION 2: Locate project within 1/4 mile walking distance of 1 or more stops for two or more public or campus or private bus lines usable by building occupants.	6	6			Option 2 Documentation will be provided showing the location of the multiple bus lines and stops within 1/4 mile walking distance.
	4.2 For commercial or institutional buildings, provide secure bicycle racks and/or storage (within 200 yards of a building entrance) for 5% or more of all bldg. users (measured at peak periods), AND, provide shower and changing facilities in the building, or within 200 yards of a building entrance, for 0.5% of Full-Time Equivalent (FTE) occupants. OR For residential buildings, provide covered storage facilities for securing bicycles for 15% or more of building occupants in lieu of changing/shower facilities.	1	1			Shower and changing facilities will be provided (4 showers (2-Men, 2-Women) and secure bike parking to be provided within the building. 17 FTEs will report on a daily basis to the building. (Regional Priority Credit)
	4.3 OPTION 1: Provide preferred parking for low-emitting and fuel-efficient vehicles for 5% of the total vehicle parking capacity of the site. Providing a discounted parking rate is an acceptable substitute for preferred parking for low-emitting and fuel-efficient vehicles. Incentive: Parking rate must be discounted at least 20%, available to all customers, publicly posted and available for a minimum of 2 yrs. OPTION 2: Install alternative-fuel refueling stations for 3% of the total vehicle parking capacity of the site (liquid or gaseous fueling facilities must be separately ventilated or located outdoors.)	3		3		Option 1: Parking is only provided for WSDOT maintenance vehicle fleet. The majority of WSDOT maintenance vehicles use diesel which is required to have a minimum of 10% ethanol. Newer vehicles can use E85. Electrical plug-ins for tunnel maintenance vehicles are provided in the building.
	4.4 OPTION 1: Size parking capacity to meet but not exceed minimum local zoning requirements and provide preferred parking for carpools or van pools for 5% of the total provided parking spaces. OPTION 2: For projects that provide parking for less than 5% of FTE building occupants - provide preferred parking for carpools or van pools, marked as such, for 5% of total provided parking spaces. Providing a discounted parking rate is an acceptable substitute for preferred parking for low-emitting and fuel-efficient vehicles. Incentive: Parking rate must be discounted at least 20%, available to all customers, publicly posted and available for a minimum of 2 yrs. OPTION 3: Provide no new parking.	2	2			Option 1: City of Seattle Municipal Code SMC 23.54.015, minimum parking requirements are up to the discretion of the Director for unique building uses not shown on the SMC parking tables. Off street parking shall be provided for all fleet vehicles. These spaces do not count toward the minimum parking requirements. The parking lot is for WSDOT maintenance vehicle fleet. 2 spaces will be provided for car/van pool vehicles. (Regional Priority Credit)
Credit 5	**Site Development** **Intent: To conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.**					
	5.1 PROTECT OR RESTORE HABITAT - On Greenfield sites, limit all site disturbance to the following parameters: 40 feet beyond the building perimeter, 10 feet beyond surface walkways, patios, surface parking and utilities less than 12 inches in diameter; 15 feet beyond primary roadway curbs and main utility branch trenches; and 25 feet beyond constructed areas with permeable surface (such as pervious paving areas, storm water detention facilities and playing fields) that require additional staging areas to limit compaction in the constructed area -OR - on previously developed or graded sites, restore or protect a minimum of 50% of the site area (excluding the building footprint) or 20% of the total site (including building footprint) whichever is greater with native or adapted vegetation. Projects earning SS Credit 2: Development Density & Community Connectivity may include vegetated roof surface in this calculation if the plants are native or adapted, provide habitat and promote biodiversity	1			1	
	Intent: Provide a high ration of open space to development footprint to promote biodiversity.					
	5.2 MAXIMIZE OPEN SPACE - Sites with local zoning open space requirements: Reduce the development footprint (defined as the total area of the building footprint, hardscape, access roads and parking) and/or provide vegetated open space within the project boundary such that the amount of open space exceeds local zoning requirements by 25% -OR- Sites with no local zoning requirements (i.e., some university campuses, military bases): Provide vegetated open space area adjacent to building that is equal to the building footprint -OR- Sites with zoning ordinance but no open space requirement: Provide vegetated open space equal to 20% of the project's site area. For projects that earn SS Credit 2, vegetated roof areas and pedestrian oriented hardscape can contribute to credit compliance. A minimum of 25% of the open space counted must be vegetated	1	1			Total open space on site is 31% of total area within property lines, which includes pedestrian oriented hardscape, and vegetated portion of this open space is 40% Documentation: The project asbuilts and calculations will be provided.

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	CREDIT INTENT & DESCRIPTION	POSSIBLE POINTS	YES	??	NO	STRATEGY
Credit 6	**Storm water Design** **Intent: To limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from storm water runoff and eliminating contaminants.**					
	6.1 **QUANTITY CONTROL** : CASE 1, OPTION 1: Sites with EXISTING IMPERVIOUSNESS 50% OR LESS - Implement a storm water management plan that prevents the post-development peak discharge rate and quantity from exceeding the pre-development peak discharge rate and quantity for the one-and two-year, 24-hour design storms -OR- OPTION 2:Implement a storm water management plan that protects receiving stream channels from excessive erosion. The storm water management plan must include a stream channel protection strategy and quantity control strategies. CASE 2. EXISTING IMPERVIOUSNESS IS GREATER THAN 50% - Implement a storm water management plan that results in a 25% decrease in the volume of storm water runoff from the two-year, 24-hour design storm.	1	1			CASE 2 detention vault provided under building
	Intent: Reduce or eliminate water pollution of natural water flows by managing storm water runoff.					
	6.2 QUALITY CONTROL: Implement a storm water management plan that reduces impervious cover, promotes infiltration, and captures and treats the storm water runoff from 90% of the average annual rainfall using acceptable best management practices (BMPs). BMPs used to treat runoff must be capable of removing 80% of the average annual post development total suspended solids (TSS) load based on existing monitoring reports. BMPs are considered to meet these criteria if: (1) they are designed in accordance with standards and specifications from a state or local program that has adopted these performance standards, OR (2) there exists in-field performance monitoring data demonstrating compliance with the criteria. Data must conform to accepted protocol (e.g., Technology Acceptance Reciprocity Partnership [TARP], Washington State Department of Ecology) for BMP monitoring.	1			1	
Credit 7	**Heat Island Effect** **Intent: To reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impacts to microclimates and human and wildlife habitats.**					
	7.1 **NON-ROOF**: OPTION 1 - Use any combination of the following strategies for 50% of the site hardscape (including roads, sidewalks, courtyards and parking lots): shade (from existing tree canopy or within 5 years of installation), shade from structures covered by solar panels that produce energy used to offset some nonrenewable resource use, shade from architectural devices or structures that have a solar reflectance index (SRI) of at least 29, hardscape materials with a SRI of at least 29, use of an open grid pavement system (at least 50% pervious) -OR: OPTION 2 - Place a minimum of 50% of parking spaces under cover (defined as underground, under deck, under roof, or under a building). Any roof used to shade or cover parking must have an SRI of at least 29, be a vegetated roof or covered by solar panels that produce energy used to offset some nonrenewable resource use.	1	1			Achieve with use of SRI 29 hardscape and shade trees for 50% of hardscape.
	7.2 **ROOF**: OPTION 1: Use roofing materials having a Solar Reflectance Index (SRI) equal to or greater than the values in the reference guide table for a minimum of 75% of the roof surface. OPTION 2: Install a vegetated roof for at least 50% of the roof area. OPTION 3: Install high albedo and vegetated room surfaces that, in combination, meet the criteria shown in the reference guide	1	1			Option 1: Roof material to be selected to meet SRI requirements.
Credit 8	**Light Pollution Reduction** **Intent: Minimize light trespass from the building and site, reduce sky-glow to increase night sky access, improve nighttime visibility through glare reduction, and reduce development impact on nocturnal environments.**					

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	Project teams must comply with 1 of the 2 options for interior lighting and the requirement for exterior lighting. INTERIOR LIGHTING: OPTION 1: Reduce the input power (by automatic device) of all nonemergency interior luminaries with a direct line of sight to any openings in the envelope (translucent or transparent) by at least 50% between 11 p.m. and 5 a.m. After-hours override may be provided by a manual or occupant-sensing device provided the override lasts no more than 30 minutes. OR - OPTION 2: All openings in the envelope (translucent or transparent) with a direct line of sight to any nonemergency luminaries must have shielding (controlled/closed by automatic device for a resultant transmittance of less than 10% between 11 p.m. and 5 a.m.) AND EXTERIOR LIGHTING: Light areas only as required for safety and comfort. Lighting power densities must not exceed ANSI/ASHRAE/ IESNA Standard 90.1-2007, without amendments. See reference guide for further information.	1	1			Interior Lighting - Option 1. Exterior Lighting - only areas required to be lit for safety and comfort will be lit.
	SUSTAINABLE SITES TOTAL	26	21	3	2	
	WATER EFFICIENCY					
Prerequisite 1	**Water Use Reduction** **Intent: To increase water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.**					
	Employee strategies that in aggregate use 20% less water than the water use baseline calculated for the building (not including irrigation). Calculate the baseline according to the commercial baselines indicated in the reference guide.	REQ	YES			Install flow restrictors and/or reduced flow aerators on lavatory sinks and shower fixtures; install automatic faucet sensors, install low flow, high efficiency fixtures.
Credit 1	**Water Efficient Landscaping** **Intent: To limit or eliminate the use of potable water, or other natural surface or subsurface water resources available on or near the project site, for landscape irrigation.**					
	OPTION 1: REDUCE BY 50%: Reduce potable water consumption for irrigation by 50% from calculated mid-summer baseline case. Reductions must be attributed to any combination of the following items: Plant species, density & microclimate factor, irrigation efficiency, use of captured rainwater, recycled wastewater or water treated and conveyed by a public agency specifically for non-potable uses.	2	2			Plantings are being provided to meet this credit. WSDOT policy is to turn off irrigation once plantings are established.
	OPTION 2: Achieve Option 1 and: Use only captured rainwater, recycled wastewater, recycled gray water, or water treated and conveyed by a public agency specifically for non-potable uses for irrigation -OR- Install landscaping that does not require permanent irrigation systems. Temporary irrigation systems used for plant establishment are allowed only if removed within one year of installation.	2			2	
Credit 2	**Innovative Wastewater Technologies** **Intent: To reduce wastewater generation and potable water demand while increasing the local aquifer recharge.**					
	OPTION 1: Reduce potable water use for building sewage conveyance by 50% through the use of water-conserving fixtures (water closets, urinals) or non-potable water (captured rainwater, recycled gray water, and on-site or municipally treated wastewater). -OR OPTION 2 - Treat 50% of wastewater on-site to tertiary standards. Treated water must be infiltrated or used on-site.	2			2	
Credit 3	**Water Use Reduction** **Intent: To further increase water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.**					
	Employ strategies that in aggregate use **30%** less water than the water use baseline calculated for the building (not including irrigation) after meeting Energy Policy Act of 1992, 2005 and UBC or IBC 2006 fixture performance requirements. Calculations are based on estimated occupant usage and must include only the following fixtures and fixture fittings (as applicable to the project scope): water closets, urinals, lavatory faucets, showers, kitchen sink faucets and pre-rinse spray valves.	2	2			Use ultra-low flow fixtures with sensors.

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	Employ strategies that in aggregate use **35%** less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Calculations are based on estimated occupant usage and shall include only the following fixtures: water closets, urinals, lavatory faucets, showers and kitchen sinks.	1			1	
	Employ strategies that in aggregate use **40%** less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Calculations are based on estimated occupant usage and shall include only the following fixtures: water closets, urinals, lavatory faucets, showers and kitchen sinks.	1			1	
	WATER EFFICIENCY TOTAL					
		10	**4**	**0**	**6**	
	ENERGY & ATMOSPHERE					
Prerequisite 1	**Fundamental Commissioning of the Building Energy Systems** **Intent: To verify that the project's energy related systems are installed, calibrated and perform according to the WSDOT's project requirements, basis of design, and construction documents.**					
	1) Benefits of commissioning include reduced energy use, lower operating costs, reduced contractor callbacks, better building documentation, improved occupant productivity and verification that the systems perform in accordance with the WSDOT's project requirements.	**REQ**	**YES**			Commissioning agent will be provided by contractor. Building GSF is under 50,000 GSF so the commissioning agent can be on the design or construction team if they have experience on at least 2 previous projects. The Design/Builder will provide a commissioning agent in conformance with the contract requirements.
Prerequisite 2	**Minimum Energy Performance** **Intent: To establish the minimum level of energy efficiency for the proposed building and systems to reduce environmental and economic impacts associated with excessive energy use.**					
	OPTION 1: WHOLE BUILDING ENERGY SIMULATION - Demonstrate a 10% improvement in the proposed building performance rating for new buildings, or a 5% improvement in the proposed building performance rating for major renovations to existing buildings, compared with the baseline building performance. Calculate the baseline building performance rating according to the building performance rating method in Appendix G of ANSI/ASHRAE/IESNA 90.1-2007 (with errata but without addenda) using a computer simulation model for the whole building project.	**REQ**			**NO**	Option 1 can not be met. The building provides electricity for the tunnel equipment located inside the building, 2 miles of tunnel systems, tunnel maintenance shops, and tunnel crew offices and support spaces. Final electrical connected load calculations have not been completed. However based on tunnel systems connected loads compared to the building systems connected loads it isn't possible to demonstrate a 10% improvement in the building's performance rating.
	OPTION 2: PRESCRIPTIVE COMPLIANCE PATH: Appendix Advanced Energy Design Guide - Comply with the prescriptive measures of the Advanced Energy Design Guide appropriate to the project scope. See reference guide for compliance paths.	**REQ**			**NO**	Option 2 can not be met because there is no ASHRAE Advanced Energy Design Guide that applies to this unique building type.
	OPTION 3: PRESCRIPTIVE COMPLIANCE PATH: Advanced Buildings Core Performance Guide - Comply with the prescriptive measures identified in the Advanced Buildings Core Performance Guide developed by the New Buildings Institute. See reference guide for requirements.	**REQ**			**NO**	Option 3 can not be met because there is no Advanced Building Core Performance Guide that applies to this unique building type.
Prerequisite 3	**CFC Reduction in HVAC&R Equipment** **Intent: To reduce stratospheric ozone depletion.**					
	Zero use of CFC-based refrigerants in new base building HVAC&R systems. When reusing existing base building HVAC equipment, complete a comprehensive CFC phase-out conversion prior to project completion. Phase-out plans extending beyond the project completion date will be considered on their merits.	**REQ**	**YES**			No CFC based refrigerants will be used.
Credit 1	**Optimize Energy Performance** **Intent: To achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.**					

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	Select one of the three compliance paths described in the reference guide. OPTION 1: WHOLE BUILDING ENERGY SIMULATION (1-19 points) Calculate baseline building performance according to Appendix G of ANSI/ASHRAE/IESNA standard 90.1-2007 (with errata but without addenda). OPTION 2: PRESCRIPTIVE COMPLIANCE PATH: ASHRAE Advanced Energy Design Guide (1 point) OPTION 3: PRESCRIPTIVE COMPLIANCE PATH: Advanced Buildings Core Performance Guide (1-3 points)	19			19	The building provides electricity for the tunnel equipment located inside the building, 2 miles of tunnel systems, tunnel maintenance shops, and tunnel crew offices and support spaces. Final electrical connected load calculations have not been completed. However based on tunnel systems connected loads compared to the building systems connected loads it isn't possible to demonstrate the following improvements in the building's performance rating to gain these points. 12% - 1 point, 14% - 2 points, 16% - 3 points, 18% - 4 points, 20% - 5 points, etc. up to 48% - 19 points, (Regional Priority Credit - Option 1 48%)
Credit 2	**On-Site Renewable Energy** **Intent: To encourage and recognize increasing levels of on-site renewable energy self-supply in order to reduce environmental and economical impacts associated with fossil fuel energy use.**					
	Use on-site renewable energy systems to offset building energy cost. Calculate project performance by expressing the energy produced by the renewable systems as a percentage of the building's annual energy cost and using the table in the reference guide to determine the number of points achieved. %RENEWABLE ENERGY: 1%=1 POINT, 3%=2 POINTS, 5%=3 POINTS, 7%=4 POINTS, 9%= 5 POINTS, 11%= 6 POINTS, 13%= 7 POINTS. See reference guide for further information.	7			7	(Regional Priority Credit - 13%)
Credit 3	**Enhanced Commissioning** **Intent: To begin the commissioning process early in the design process and execute additional activities after systems performance verification is completed.**					
	Implement or have a contract in place to implement the following additional commissioning process activities in addition to the requirements of EA Prerequisite 1 and in accordance with this LEED-V3 Reference Guide, 2009 Edition: 1. Prior to the start of the construction documents phase, designate an independence Commissioning Authority to lead, review, and oversee the completion of all commissioning process activities. See reference guide. 2. CxA must conduct, at a minimum, one commissioning design review of the WSDOT's Project Requirements, Basis of Design, and design documents prior to mid-construction documents phase and back-check the review comments in the subsequent design submission. 3. CxA must review contractor submittals applicable to systems being commissioned. 4. Develop a systems manual. 5. Verify the requirements for training operating personnel and building occupants are completed. 6. The CxA must be involved in reviewing building operation with O&M staff and occupants within 10 months after substantial completion.	2				Under the WSDOT design/build contract requirements commissioning will be done by the Design/Builder's CxA.
Credit 4	**Enhanced Refrigerant Management** **Intent: To reduce ozone depletion and support early compliance with the Montreal Protocol while minimizing direct contributions to global warming.**					
	Option 1: Do not use refrigerants. **Option 2**: Select refrigerants and HVAC&R that minimize or eliminate the emission of compounds that contribute to ozone depletion and global climate change AND do not install fire suppression systems that contain ozone-depleting substances (CFC's, HCFCs or Halons. See reference guide for further information.	2	2			Option 2.
Credit 5	**Measurement and Verification** **Intent: To provide for the ongoing accountability of building energy consumption over time.**					

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	Option1: Develop and implement a Measurement & Verification (M&V) Plan consistent with Option D: Calibrated Simulation (Savings Estimation Method 2), or **Option 2**: Develop and implement a Measurement & Verification (M&V) Plan consistent with Option B: Energy Conservation Measure Isolation, as specified in the International Performance Measurement & Verification Protocol. The M&V period shall cover a period of no less than one year of post-construction occupancy.	3			3	Metering is being provided in compliance with Code requirements.
Credit 6	**Green Power** **Intent: To encourage the development and use of grid-source, renewable energy technologies on a net zero pollution basis.**					
	Engage in at least a two year renewable energy contract to provide at least 35% of the building's electricity from renewable sources as defined by the Center for Resource Solutions (CRS) Green-e product certification requirements. All purchases of green power shall be based on the quantity of energy consumed, not the cost. DETERMINE THE BASELINE ELECTRICITY USE: Use the annual electricity consumption from the results of EA Credit 1 OR ESTIMATE BASELINE ELECTRICITY USE: use the Dept. of Energy Commercial Buildings Energy Consumption Survey database to determine the estimated electricity use.	2			2	
	ENERGY & ATMOSPHERE TOTAL					
		35	2	0	31	
	MATERIALS & RESOURCES					
Prerequisite 1	**Storage & collection of recyclables** **Intent: To facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills.**					
	Provide an easily accessible dedicated area that serves the entire building and is dedicated to the collection and storage of non-hazardous materials for recycling including (at a minimum) paper, corrugated cardboard, glass, plastics, and metals.	REQ	YES			An area located in the receiving area will be dedicated to the collection and storage of non-hazardous materials for recycling including paper, corrugated cardboard, plastics, and metals.
Credit 1	**Building Reuse - Maintain Existing Walls, Floors and Roof** **Intent: To extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.**					
	1.1 Building Reuse - Maintain Existing Walls, Floors and Roof. Maintain at least **55%** of the existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained. If the project includes an addition to an existing building that is more than 2 times the sq. ft. of the existing building, this credit is not applicable.	1			1	(Regional Priority Credit - 55%)
	1.1 Building Reuse - Maintain Existing Walls, Floors and Roof. Maintain at least **75%** of the existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained. If the project includes an addition to an existing building that is more than 2 times the sq. ft. of the existing building, this credit is not applicable.	1			1	
	1.1 Building Reuse - Maintain Existing Walls, Floors and Roof. Maintain at least **95%** of the existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained. If the project includes an addition to an existing building that is more than 2 times the sq. ft. of the existing building, this credit is not applicable.	1			1	
	1.2 Building Reuse - Maintain Interior Nonstructural Elements: Use existing interior nonstructural elements (e.g., interior walls, doors, floor coverings and ceiling systems) in at least 50% (by area) of the competed building, including additions. If the project includes an addition with square footage more than 2 times the square footage of the existing building, this credit is not applicable	1			1	

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Credit 2	**Const Waste Management** **Intent: To divert construction, demolition, and land clearing debris from disposal in landfills and incineration facilities. Redirect recyclable recovered resources back to the manufacturing process and reusable materials to appropriate sites.**					
	(Divert 50% from Disposal) Recycle and/or salvage at least **50%** of non-hazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or commingled. Excavated soil and land clearing debris does not contribute to this credit. Calculations can be done by weight or volume, but must be consistent throughout.	1	1			Construction waste disposal firm will sort and recycle or salvage construction waste or debris.
	(Divert 75% from Disposal) Recycle and/or salvage an additional 25% beyond MR Credit 2.1 (75% total) of non-hazardous construction and demolition debris.	1	1			Construction waste disposal firm will sort and recycle or salvage construction waste or debris.
Credit 3	**Materials Reuse** **Intent: To reuse building materials and products to reduce demand for virgin materials and reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources**					
	3.1 (5%) Use salvaged, refurbished or reused materials, the sum of which constitutes at least **5%**, based on cost, of the total value of materials on the project. Mechanical, electrical and plumbing components and specialty items such as elevators and equipment cannot be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR credits 3-7.	1			1	Concrete rubble to be reused through project. Furniture will be reused from other WSDOT locations.
	3.1 (10%) Use salvaged, refurbished or reused materials for an additional 5% beyond MR Credit 3.1 (**10%** total, based on cost).	1			1	
Credit 4	**Recycled Content** **Intent: To increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from the extraction and processing of virgin materials.**					
	(10% post consumer + 1/2 pre-consumer) Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least **10%** (based on cost) of the total value of the materials in the project. The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of the assembly to determine the recycled content value. Mechanical, electrical and plumbing components and specialty items such as elevators shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included providing it is included consistently in MR credits 3-7. Recycled content shall be defined in accordance with the ISO 14021.	1	1			Establish a project goal for recycled content materials and identify material suppliers that can achieve this goal. Materials that could assist in reaching this goal: steel, rebar (90% recycled content), concrete, CMU, carpeting, ceiling tiles, metal panels.
	(20% post consumer + 1/2 pre-consumer) Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes an additional **10%** beyond MR Credit 4.1 (total 20%, based on cost) of the total materials in the project.	1			1	
Credit 5	**Local/Regional materials** **Intent: To increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.**					
	(10% Extracted, Processed & Manufactured Regionally) Use building materials or products that have been extracted, harvested or recovered and manufactured, within 500 miles of the project site for a minimum of **10%** (based on costs) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) must contribute to the regional value. Mechanical, electrical and plumbing components and specialty items such as elevators and equipment shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR credits 3-7.	1	1			Concrete will be locally manufactured. Other possible materials include: precast, concrete, gypsum, glass, millwork, carpet, plantings, compost, and signage.
	(20% Extracted, Processed & Manufactured Regionally) Use building materials or products that have been extracted, harvested or recovered and manufactured, within a radius of 500 miles of the project site for an additional 10% beyond MR Credit 5.1 (total of **20%** based on cost) of the materials value.	1			1	

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	CREDIT INTENT & DESCRIPTION	POSSIBLE POINTS	YES	??	NO	STRATEGY
Credit 6	**Rapidly renewable materials** **Intent: Reduce the use and depletion of finite raw, and long life-cycle renewable materials by replacing them with rapidly renewable materials.**					
	Use rapidly renewable building materials and products for 2.5% of the total value of all building materials and products used in the project, based on cost. Rapidly renewable building materials and products are made from plants that are typically harvested with a ten-year cycle or shorter.	1			1	
Credit 7	**Certified Wood** **Intent: To encourage environmentally responsible forest management.**					
	Use a minimum of 50% (based on cost) of wood-based materials and products that are certified in accordance with the Forest Stewardship Council's (FSC) Principles and Criteria, for wood building components. These components include, but are not limited to, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes. Only include materials permanently installed in the project. Wood products purchased for temporary use on the project (e.g., formwork, bracing, scaffolding, sidewalk protection and guard rails) may be included in the calculation at the project team's discretion. If any such materials are included, all such materials must be included in the calculation. Furniture may be included, providing it is included consistently in MR Credits 3-7.	1	1			Obtaining credit will depend on market availability and costs
	MATERIALS & RESOURCES TOTAL					
		14	5	0	9	
	INDOOR ENVIRONMENTAL QUALITY					
Prerequisite 1	**Minimum Indoor Air Quality Performance** **Intent: To establish minimum indoor air quality (IAQ) performance to enhance indoor air quality in buildings, thus contributing to the comfort and well being of the occupants**					
	Meet the minimum requirements of Sections 4 through 7 of ASHRAE 62.1 - 2007, Ventilation for Acceptable Indoor Air Quality (with errata but without addenda). Mechanical ventilation systems must be designed using the Ventilation Rate Procedure or the applicable local code, whichever is more stringent. Naturally ventilated buildings shall comply with ASHRAE 62.1-2007, paragraph 5.1 (with errata but without addenda	REQ	YES			
Prerequisite 2	**Environmental Tobacco Smoke Control** **Intent: To minimize exposure of building occupants, indoor surfaces, and ventilation air distribution systems to Environmental Tobacco Smoke (ETS).**					
	OPTION 1: Prohibit smoking in the building. Locate any exterior designated smoking areas at least 25 ft. away from entries, outdoor air intakes and operable windows. Provide signage to allow smoking in designated areas.	REQ	YES			WSDOT does not allow smoking in state buildings, and will designate exterior smoking area in accordance with state and local laws.
	OPTION 2: Prohibit smoking in the building except in designated smoking areas. Locate any exterior designated smoking areas at least 25 ft. away from entries, outdoor air intakes and operable windows. Provide designated smoking rooms designed to contain, capture and remove ETS from the building. At a minimum, the smoking room must be directly exhausted to the outdoors, away from air intakes and building entry paths, with no re-circulation of ETS-containing air to non-smoking areas and enclosed with impermeable deck -to-deck partitions. (See reference manual for additional requirements.)					
	OPTION 3: (for residential buildings only) Prohibit smoking in all common areas of the building. Locate any exterior designated smoking areas at least 25 ft away from entries, outdoor air intakes and operable windows opening to common areas. Minimize uncontrolled pathways for ETS transfer between individual residential units by sealing penetrations in walls, ceilings and floors in the residential units, and by sealing vertical chases adjacent to the units. All doors in the residential units leading to common hallways shall be weather-stripped or pressurized to minimize air leakage into the hallway. (See reference manual for additional requirements.)					
Credit 1	**Outdoor Air Delivery Monitoring** **Intent: To provide capacity for ventilation system monitoring to help promote occupant comfort and well being.**					

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	Install permanent monitoring systems to ensure that ventilation systems maintain design minimum requirements. Configure all monitoring equipment to generate an alarm when the airflow values or carbon dioxide (CO_2) levels vary by 10% or more from the design values via, either a building automation system alarm to the building operator or a visual or audible alert to the building occupants. (See reference manual for requirements for mechanically ventilated and naturally ventilated spaces.)	1	1			
Credit 2	**Increase Ventilation** **Intent: To provide additional outdoor air ventilation to improve indoor air quality and promote occupant comfort, well-being and productivity.**					
	For mechanically ventilated spaces - increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum rates required by ASHRAE standard 62.1-2007 (with errata but without addenda) as determined by IEQ Prerequisite 1. For naturally ventilated spaces - design natural ventilation systems for occupied spaces to meet the recommendations set forth in the Carbon Trust Good Practice Guide 237 (1998). Determine that natural ventilation is an effective strategy for the project by following the flow diagram process shown in Figure 1.18 of the CIBSE Applications Manual 10:2005, Natural ventilation in non-domestic buildings. See reference manual for additional requirements)	1			1	Could create an energy penalty. Mechanical system is only 100% OSA below 70 F when in cooling mode.
Credit 3	**Construction IAQ Management Plan** **Intent: To reduce indoor air quality problems resulting from construction or renovation and promote the comfort and well-being of construction workers and building occupants.**					
	3.1 **During Construction**: Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the building as follows: During construction meet or exceed the recommended Control Measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guideline for Occupied Buildings under Construction, 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter 3) AND protect stored on-site or installed absorptive materials from moisture damage, AND if permanently installed air handlers are used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 must be used at each return air grille, as determined by ASHRAE 52.2 - 1999. Replace all filtration media immediately prior to occupancy.	1	1			IAQ will be developed.
	3.2 **Before Occupancy** (OPTION 1, FLUSH-OUT): After construction, prior to occupancy and with all interior finishes installed, install new filtration media and perform a building flush-out by supplying a total air volume of 14,000 cu. ft... of outdoor air per sq. ft... of floor area while maintaining an internal temperature of at least 60 degrees and relative humidity no higher than 60%. OR If occupancy is desired prior to completion of the flush-out, the space may be occupied following delivery of a minimum of 3500 cu. ft... of outdoor air per sq. ft... of floor area to the space. (See reference guide for further information)	1	1			Option 1 : Building will be flushed out.
	3.2 **Before Occupancy** (OPTION 2, AIR QUALITY TESTING): Conduct baseline IAQ testing, after construction ends and prior to occupancy, using testing protocols consistent with the US EPA Compendium of Methods for the Determination of Air Pollutants in Indoor Air and as additionally detailed in the LEED reference guide for Green Building Design and Construction, 2009 Edition. See reference guide for additional requirements.					
Credit 4	**Low-Emitting Materials** **Intent: To reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.**					
	4.1 Adhesives & Sealants: All adhesives and sealants used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the requirements of the following reference standards. (See reference guide for further information.)	1	1			Specify low-VOC materials in construction documents. Ensure that VOC limits are clearly stated in each section of the specifications where adhesives and sealants are addressed. Common products to evaluate include general construction adhesives, flooring adhesives, fire-stopping sealants, caulking, duct sealants, plumbing adhesives, and cove base adhesives.

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	4.2 Paints & Coatings: Paints and coatings used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the following criteria. (See reference guide for additional requirements)	1	1			Specify low-VOC paints and coatings in construction documents. Ensure that VOC limits are clearly stated in each section of the specifications where paints and coatings are addressed. Track the VOC content of all interior paints and coatings during construction.
	4.3 Carpet Systems: All carpet installed in the building interior must meet the testing and product requirements of the Carpet and Rug Institute's Green Label Plus program. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label Plus program. All carpet adhesive shall meet the requirements of EQ Credit 4.1: VOC limit of 50 g/L. See reference guide for hard flooring, setting adhesives and grout.	1	1			Clearly specify requirements for product testing and/or certification in the construction documents. Select products that are either certified under the Green Label Plus program or for which testing has been done by qualified independent laboratories in accordance with the appropriate requirements.
	4.4 Composite Wood & Agri-fiber Products: Composite wood or agrifiber products used on the interior of the building (defined as inside of the weatherproofing system) shall contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies shall contain no added urea-formaldehyde resins. Composite wood and agrifiber products are defined as: particleboard, medium density fiberboard (MDF), plywood, wheat board, strawboard, panel substrates and door cores. Materials considered fixtures, furniture, and equipment (FF&E) are not considered base building elements and are not included.	1	1			Specify wood and agrifiber products that contain no added urea-formaldehyde resins. Specify laminating adhesives for field and shop applied assemblies that contain no added urea-formaldehyde resins.
Credit 5	**Indoor chemical & pollutant source control** **Intent: To minimize building occupant exposure to potentially hazardous particulates and chemical pollutants.**					
	Design to minimize & control pollutant entry into buildings and later cross-contamination of regularly occupied areas.					
	Employ permanent entryway systems at least ten feet long in the primary direction of travel to capture dirt & particulates entering the building at regularly used exterior entrances. Acceptable entryway systems include permanently installed grates, grilles or slotted systems that allow for cleaning underneath. Roll-out mats are acceptable only when maintained on a weekly basis by a contracted service organization. Sufficiently exhaust each space where hazardous gases or chemicals may be present or used (including garages, housekeeping/laundry areas, shops of any kind, science labs, prep rooms and copying/printing rooms), to create negative pressure with respect to adjacent spaces with the doors to the room closed. For each of these spaces, provide self-closing doors and deck to deck partitions or a hard lid ceiling. (See reference guide for further information). In mechanically ventilated buildings, install new air filtration media in regularly occupied areas prior to occupancy; these filters must provide a Minimum Efficiency Reporting Value of 13 or better. Filtration should be applied to process both return and outside air that is to be delivered as supply air.	1			1	An entryway system will be installed in entry vestibules. Janitor's closets will have dedicated ventilation.
	Provide containment (i.e. a closed container for storage for off-site disposal in a regulatory compliant storage area, preferably outside the building) for appropriate disposal of hazardous liquid wastes in places where water and chemical concentrate mixing occurs (e.g., housekeeping, janitorial and science labs).					All hazardous liquid wastes scheduled for disposal will be contained in the appropriate container.
Credit 6	**Controllability of systems** **Intent: To provide a high level of lighting system control and/or thermal comfort system control by individual occupants or groups in multi-occupant spaces (i.e., classrooms or conference areas) to promote their productivity, comfort and well-being.**					
	6.1 **Lighting**: Provide individual lighting controls for 90% (minimum) of the building occupants to enable adjustments to suit individual task needs and preferences. AND Provide lighting system controls for all shared multi-occupant spaces to enable adjustment that meets group needs and preferences.	1	1			Occupant control of systems will be used where applicable.

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	6.2 **Thermal Comfort**: Provide individual comfort controls for 50% (minimum) of the building occupants to enable adjustments to meet individual needs and preferences Operable windows can be used in lieu of controls for occupants located 20 feet inside and 10 feet to either side of the operable part of a window (See reference guide for further information). AND Provide comfort system controls for all shared multi-occupant spaces to enable adjustments to meet group needs and preferences. (See reference guide for further information)	1	1			Building will have 17 FTEs. Occupant control of systems will be used where applicable. In multi-occupant spaces, provide one accessible means of control over thermal comfort in the space. Thermal comfort controls will be provided for 50% of occupants.
Credit 7	**Thermal Control** **Intent: To provide a comfortable thermal environment that supports occupant productivity and well-being. Provide for the assessment of building thermal comfort over time.**					
	7.1 **Design:** Design HVAC systems and the building envelope to meet the requirements of ASHRAE Standard 55-2004, Thermal Comfort Conditions for Human Occupancy. Demonstrate design compliance in accordance with the Section 6.1.1 Documentation.	1	1			Will meet ASHRAE 55.
	7.2 **Verification:** Agree to conduct a thermal comfort survey of building occupants within a period of six to 18 months after occupancy. This survey should collect anonymous responses about thermal comfort in the building including an assessment of overall satisfaction with thermal performance and identification of thermal comfort-related problems. Agree to develop a plan for corrective action if the survey results indicate that more than 20% of occupants are dissatisfied with thermal comfort in the building. This plan should include measurement of relevant environmental variables in problem areas in accordance with ASHRAE Standard 55-2004.	1	1			WSDOT to send out survey to meet this credit and will follow up on items identified by at least 20% of the survey respondents.
Credit 8	**Daylight and Views** **Intent: To provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.**					
	8.1 - OPTION 1: Simulation - Demonstrate through computer simulations that 75% or more of all regularly occupied areas achieving daylight luminance levels of a minimum of 25 foot-candles. See reference guide for further information.	1				
	8.1 - OPTION 2: Prescriptive - For side lighting daylight zone - See reference guide for further information. For Top -lighting daylight Zone - See reference guide for further information.		1			Will be verified in final design, only spaces regularly occupied, shops will not be included in the evaluation.
	8.1 - OPTION 3: DAYLIGHT MEASUREMENT - Demonstrate, through records of indoor light measurements, that a minimum daylight illumination level of 25 foot-candles has been achieved in at least 75% (1 point) or 90% (2 points) of all regularly occupied areas. See reference guide for further information					
	8.1 - OPTION 4: COMBINATION - Any of the above calculation methods may be combined to document the minimum daylight illumination in at least 75% (1 point) or 90% (2 points) of all regularly occupied spaces. See reference guide for further information					
	8.2 Views for 90% of Spaces: Achieve direct line of sight to the outdoor environment via vision glazing between 30" and 90" above the finish floor for building occupants in 90% of all regularly occupied areas. Determine the area with direct line of sight by totaling the regularly occupied square footage that meets the following criteria: See reference guide for further information.	1	1			Only spaces regularly occupied to be included in the evaluation.
	INDOOR ENVIRONMENTAL QUALITY TOTAL	15	13	0	2	

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	CREDIT INTENT & DESCRIPTION	POSSIBLE POINTS	YES	??	NO	STRATEGY
	INNOVATION & DESIGN/BUILD PROCESS					
	Intent: To provide design teams and projects the opportunity to be awarded points for exceptional performance above requirements set by the LEED-NC Green Building Rating System and/or innovative performance in Green Building categories not specifically addressed by the LEED Green Building Rating System. Note, innovations credits do not apply, if product/strategy aids in achievement of an existing LEED credit.					
Credit 1.1	Innovation/Process	1			1	
Credit 1.2	Innovation/Process	1	1			Green building operations/ housekeeping - exclusive use of non-toxic cleaning products to maintain building. Product MSDS will be provided.
Credit 1.3	Innovation/Process	1	1			Provide an educational program on the environmental and human health benefits of the green building practices implemented; which might include 1) displays on benefits of green buildings, windows viewing green features, real-time energy consumption data displays, 2) events or tours focused on educational outreach.
Credit 1.4	Innovation/Process	1	1			Buildings serving bored tunnel - demonstrate intent to reduce site disturbance through implementing a tunnel boring strategy. Create a narrative that describes the environmental benefits and significance of tunnel boring versus extensive trenching.
Credit 1.5	Innovation/Process	1			1	Operational strategies - Tunnel's energy use and air quality monitoring systems for the tunnel will be controlled remotely by facilities management system.
Credit 2	Accredited Professional At least one principal participant of the project team shall be a LEED Accredited Professional (AP).	1	1			A LEED accredited architect prepared the LEED Checklist. The Design/Builder will provide a LEED accredited person during construction.
	INNOVATION & DESIGN/BUILD PROCESS TOTAL	6	4	0	2	

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	CREDIT INTENT & DESCRIPTION	POSSIBLE POINTS	YES	??	NO	STRATEGY
	Regional Priority					
	Through USGBC's regional councils, chapters and affiliates, regionally specific environmental priorities were identified. Depending on a project's specific location, six LEED credits that address regionally prioritized environmental issues have been assigned "bonus points." That means that a project can be awarded up to four extra points – one point each – for up to four of the priority credits.					
Credit 1.1	Regional Priority	1	1			SS c3 - Brownfield Redevelopment
Credit 1.2	Regional Priority	1	1			SS c4.2 - Alternative Transportation - showers and bike racks
Credit 1.3	Regional Priority	1	1			SS c4.4 - Alternative Transportation - Parking Capacity
Credit 1.4	Regional Priority	1			1	EA c1 - Optimize Energy Performance
Credit 1.5	Regional Priority	1			1	EA c2 - On-Site Energy Performance
Credit 1.6	Regional Priority	1			1	MR c1 1 - Building Reuse
	REGIONAL PRIORITY TOTAL - 4 points maximum	6	3	0	3	
	SUSTAINABLE SITES TOTAL	26	21	3	2	
	WATER EFFICIENCY TOTAL	10	4	0	6	
	ENERGY & ATMOSPHERE TOTAL	35	2	0	31	
	MATERIALS & RESOURCES TOTAL	14	5	0	9	
	INDOOR ENVIRONMENTAL QUALITY TOTAL	15	13	0	2	
	INNOVATION & DESIGN/BUILD PROCESS TOTAL	6	4	0	2	
	REGIONAL PRIORITY TOTAL - 4 points maximum	6	3	0	3	
	TOTAL PROJECT LEED POINTS:	112	52	3	55	

CERTIFICATION LEVELS: (100 base points; 6 possible I in D, and 4 Regional Priority points)

Certified 40-49 points
Silver 50-59 points
Gold 60-79 points
Platinum 80 points and above

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	CREDIT INTENT & DESCRIPTION **SUSTAINABLE SITES**	POSSIBLE POINTS	YES	??	NO	STRATEGY
Prerequisite 1	**Construction Activity Pollution Prevention** **Intent: To reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation.**					
	Create and implement an erosion and sedimentation control plan for all construction activities associated with the project. The plan must conform to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit OR local standards and codes, whichever is more stringent. The plan must describe the measures implemented to accomplish the following objectives: Prevent loss of soil during construction by storm water run-off and/or wind erosion, including protecting topsoil by stock-piling for reuse. Prevent sedimentation of storm sewer or receiving streams. Prevent polluting the air with dust and particulate matter. See reference guide for further information.	REQ	YES			An erosion and sedimentation control plans have been developed for all construction activities. Stabilization strategies may include (seeding, mulching) and structural strategies (earth dikes, silt fencing, sediment traps and/or sediment basins). The site does not contain existing topsoil. Storm water will not be discharged into a stream, dust and particulate matter permit requirements will be complied with.
Credit 1	**Site Selection** **Intent: To avoid development of inappropriate sites and reduce the environmental impact from the location of a building on a site.**					
	Do not develop buildings, hardscapes, roads or parking area on portions of sites that meet any one of the following criteria:	1	1			LEED boundary is the property line. The site was previously an office building and parking lot.
	.. Prime farmland as defined by the USDA in United States Code of Federal Regulations Title 7, Volume 6, Parts 400 to 699, Section 657.5 (citation 7CFR657.5).					Not farmland
	.. Previously undeveloped land whose elevation is lower than 5 feet above the elevation of the 100-year flood as defined by FEMA.					Previously developed
	.. Land specifically identified as habitat for any species on the Federal or State threatened or endangered lists					Previously developed
	.. Within 100 feet of any wetlands as defined by United State Code of Federal Regulations 40 CFR, Parts 230-233 and Part 22, and isolated wetlands or areas of special concern identified by state or local rule, OR within setback distances from wetlands prescribed in state or local regulations, as defined by local or state rule or law, whichever is more stringent.					Not near wetland
	.. Previously undeveloped land that is within 50 feet of a water body, defined as seas, lakes, rivers, streams and tributaries which support or could support fish, recreation or industrial use, consistent with the terminology of the Clean Water Act.					Previously developed
	.. Land which prior to acquisition for the project was public parkland, unless land of equal or greater value as parkland is accepted in trade by the public land (Park Authority projects are exempt)					Not parkland
Credit 2	**Development Density & Community Connectivity** **Intent: To channel development to urban areas with existing infrastructure, protecting green fields and preserve habitat and natural resources.**					
	OPTION 1: DEVELOPMENT DENSITY - Construct or renovate building on a previously developed site AND in a community with a minimum density of 60,000 sq. ft... per acre net. (Note: density calculation must include the area of the project being built and is based on a typical two-story downtown development.)					
	OPTION 2: COMMUNITY CONNECTIVITY - Construct or renovate building on a site that meets the following criteria: Is located on a previously developed site, is within 1/2 mile of a residential zone or neighborhood with an average density of 10 units per acre net, is within 1/2 mile of at least 10 Basic Services and has pedestrian access between the building and the services. See reference guide for further information.	5	5			The site is located on a previously developed site, is within 1/2 mile of a residential zone with an average density of 10 units per acre net, it is within 1/2 mile of at least 10 Basic Services and has pedestrian access between the building and the services.
Credit 3	**Brownfield Redevelopment** **Intent: To rehabilitate damaged sites where development is complicated by environmental contamination, reducing pressure on undeveloped land.**					
	OPTION 1: Develop on a site documented as contaminated (by means of an ASTM E1903-97 Phase II Environmental Site Assessment or a local Voluntary Cleanup Program).	1	1			Either Option 1 or Option 2 will be met. Per the project Environmental Baseline Report contaminants found in the ground

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	OPTION 2. Develop on a site defined as a brown field by a local state or federal government agency.					water are petroleum hydrocarbons, PAHs,and metals. Ground
Credit 4	**Alternative Transportation** **Intent: To reduce pollution and land development impacts from automobile use.**					
	4.1 OPTION 1: Locate project within 1/2 mile walking distance (measured from main building entrance) of an existing-or planned and funded-commuter rail, light rail or subway station. OPTION 2: Locate project within 1/4 mile walking distance of 1 or more stops for two or more public or campus or private bus lines usable by building occupants.	6	6			Option 1: The site is located within 1/2 mile of a commuter rail station and a light rail station.
	4.2 For commercial or institutional buildings, provide secure bicycle racks and/or storage (within 200 yards of a building entrance) for 5% or more of all bldg users (measured at peak periods), AND, provide shower and changing facilities in the building, or within 200 yards of a building entrance, for 0.5% of Full-Time Equivalent (FTE) occupants. OR For residential buildings, provide covered storage facilities for securing bicycles for 15% or more of building occupants in lieu of changing/shower facilities.	1			1	This building is not an occupied building. FTEs = 0. Tunnel Maintenance staff will come from off site to perform tunnel maintenance activities as needed. (Regional Priority Credit)
	4.3 OPTION 1: Provide preferred parking for low-emitting and fuel-efficient vehicles for 5% of the total vehicle parking capacity of the site. Providing a discounted parking rate is an acceptable substitute for preferred parking for low-emitting and fuel-efficient vehicles. Incentive: Parking rate must be discounted at least 20%, available to all customers, publicly posted and available for a minimum of 2 yrs. OPTION 2: Install alternative-fuel refueling stations for 3% of the total vehicle parking capacity of the site (liquid or gaseous fueling facilities must be separately ventilated or located outdoors.)	3		3		Option 1: Parking is only provided for WSDOT maintenance vehicle fleet (7 vehicles). The majority of WSDOT maintenance vehicles use diesel which is required to have a minimum of 10% ethanol. Newer vehicles can use E85. Electrical plug-ins for tunnel maintenance vehicles are provided in the building.
	4.4 OPTION 1: Size parking capacity to meet but not exceed minimum local zoning requirements and provide preferred parking for carpools or van pools for 5% of the total provided parking spaces. OPTION 2: For projects that provide parking for less than 5% of FTE building occupants - provide preferred parking for carpools or van pools, marked as such, for 5% of total provided parking spaces. Providing a discounted parking rate is an acceptable substitute for preferred parking for low-emitting and fuel-efficient vehicles. Incentive: Parking rate must be discounted at least 20%, available to all customers, publicly posted and available for a minimum of 2 yrs. OPTION 3: Provide no new parking.	2	2			Option 1: City of Seattle Municipal Code SMC 23.54.015, minimum parking requirements are up to the discretion of the Director for unique building uses not shown on the SMC parking tables. Off street parking shall be provided for all fleet vehicles. These spaces do not count toward the minimum parking requirements. Or Option 3: No parking will be provided for employees. (Regional Priority Cred t)
Credit 5	**Site Development** **Intent: To conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.**					
	5.1 PROTECT OR RESTORE HABITAT - On Greenfield sites, limit all site disturbance to the following parameters. 40 feet beyond the building perimeter, 10 feet beyond surface walkways, patios, surface parking and utilities less than 12 inches in diameter; 15 feet beyond primary roadway curbs and main utility branch trenches; and 25 feet beyond constructed areas with permeable surface (such as pervious paving areas, storm water detention facilities and playing fields) that require additional staging areas to limit compaction in the constructed area -OR - on previously developed or graded sites, restore or protect a minimum of 50% of the site area (excluding the building footprint) or 20% of the total site (including building footprint) whichever is greater with native or adapted vegetation. Projects earning SS Credit 2: Development Density & Community Connectivity may include vegetated roof surface in this calculation if the plants are native or adapted, provide habitat and promote biodiversity.	1			1	
	Intent: Provide a high ration of open space to development footprint to promote biodiversity.					

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	5.2 MAXIMIZE OPEN SPACE - Sites with local zoning open space requirements: Reduce the development footprint (defined as the total area of the building footprint, hardscape, access roads and parking) and/or provide vegetated open space within the project boundary such that the amount of open space exceeds local zoning requirements by 25% -OR- Sites with no local zoning requirements (i.e., some university campuses, military bases): Provide vegetated open space area adjacent to building that is equal to the building footprint -OR- Sites with zoning ordinance but no open space requirement: Provide vegetated open space equal to 20% of the project's site area. For projects that earn SS Credit 2, vegetated roof areas and pedestrian oriented hardscape can contribute to credit compliance. A minimum of 25% of the open space counted must be vegetated.	1			1	
Credit 6	**Storm water Design** **Intent: To limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from storm water runoff and eliminating contaminants.**					
	6.1 **QUANTITY CONTROL**: CASE 1, OPTION 1: Sites with EXISTING IMPERVIOUSNESS 50% OR LESS - Implement a storm water management plan that prevents the post-development peak discharge rate and quantity from exceeding the pre-development peak discharge rate and quantity for the one-and two-year, 24-hour design storms -OR- OPTION 2:Implement a storm water management plan that protects receiving stream channels from excessive erosion. The storm water management plan must include a stream channel protection strategy and quantity control strategies. CASE 2: EXISTING IMPERVIOUSNESS IS GREATER THAN 50% - Implement a storm water management plan that results in a 25% decrease in the volume of storm water runoff from the two-year, 24-hour design storm.	1			1	
	Intent: Reduce or eliminate water pollution of natural water flows by managing storm water runoff.					
	6.2 QUALITY CONTROL: Implement a storm water management plan that reduces impervious cover, promotes infiltration, and captures and treats the storm water runoff from 90% of the average annual rainfall using acceptable best management practices (BMPs). BMPs used to treat runoff must be capable of removing 80% of the average annual post development total suspended solids (TSS) load based on existing monitoring reports. BMPs are considered to meet these criteria if: (1) they are designed in accordance with standards and specifications from a state or local program that has adopted these performance standards, OR (2) there exists in-field performance monitoring data demonstrating compliance with the criteria. Data must conform to accepted protocol (e.g., Technology Acceptance Reciprocity Partnership [TARP], Washington State Department of Ecology) for BMP monitoring.	1			1	
Credit 7	**Heat Island Effect** **Intent: To reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impacts to microclimates and human and wildlife habitats.**					
	7.1 **NON-ROOF**: OPTION 1 - Use any combination of the following strategies for 50% of the site hardscape (including roads, sidewalks, courtyards and parking lots): shade (from existing tree canopy or within 5 years of installation), shade from structures covered by solar panels that produce energy used to offset some nonrenewable resource use, shade from architectural devices or structures that have a solar reflectance index (SRI) of at least 29, hardscape materials with a SRI of at least 29, use of an open grid pavement system (at least 50% pervious) -OR- OPTION 2 - Place a minimum of 50% of parking spaces under cover (defined as underground, under deck, under roof, or under a building). Any roof used to shade or cover parking must have an SRI of at least 29, be a vegetated roof or covered by solar panels that produce energy used to offset some nonrenewable resource use.	1	1			Achieve with use of SRI 29 hardscape and shade trees for 50% of hardscape.
	7.2 **ROOF**: OPTION 1: Use roofing materials having a Solar Reflectance Index (SRI) equal to or greater than the values in the reference guide table for a minimum of 75% of the roof surface. OPTION 2: Install a vegetated roof for at least 50% of the roof area. OPTION 3: Install high albedo and vegetated room surfaces that, in combination, meet the criteria shown in the reference guide.	1	1			Option 1: Roof material to be selected to meet SRI requirements.
Credit 8	**Light Pollution Reduction**					

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	CREDIT INTENT & DESCRIPTION	POSSIBLE POINTS	YES	??	NO	STRATEGY
	Intent: Minimize light trespass from the building and site, reduce sky-glow to increase night sky access, improve nighttime visibility through glare reduction, and reduce development impact on nocturnal environments.					
	Project teams must comply with 1 of the 2 options for interior lighting and the requirement for exterior lighting. INTERIOR LIGHTING. OPTION 1: Reduce the input power (by automatic device) of all nonemergency interior luminaries with a direct line of sight to any openings in the envelope (translucent or transpare nt) by at least 50% between 11 p.m. and 5 a.m. After-hours override may be provided by a manual or occupant-sensing device provided the override lasts no more than 30 minutes. OR - OPTION 2: All openings in the envelope (translucent or transparent) with a direct line of sight to any nonemergency luminaries must have shielding (controlled/closed by automatic device for a resultant transmittance of less than 10% between 11 p m and 5 a m) AND EXTERIOR LIGHTING: Light areas only as required for safety and comfort. Lighting power densities must not exceed ANS /ASHRAE/ IESNA Standard 90.1-2007, without amendments See reference guide for further information	1	1			Interior Lighting - Option 1. Exterior Lighting - only areas required to be lit for safety and comfort will be lit.
	SUSTAINABLE SITES TOTAL	26	18	3	5	
	WATER EFFICIENCY					
Prerequisite 1	**Water Use Reduction** **Intent: To increase water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.**					
	Employee strategies that in aggregate use 20% less water than the water use baseline calculated for the building (not including irrigation) Calculate the basel ne accord ng to the commercial basel nes indicated in the reference guide.	REQ	YES			Install flow restrictors and/or reduced flow aerators on lavatory sinks and shower fixtures; install automatic faucet sensors, install low flow, high efficiency fixtures.
Credit 1	**Water Efficient Landscaping** **Intent. To limit or eliminate the use of potable water, or other natural surface or subsurface water resources available on or near the project site, for landscape irrigation.**					
	OPTION 1. REDUCE BY 50%: Reduce potable water consumption for irrigation by 50% from calculated mid-summer baseline case. Reductions must be attributed to any combination of the following items: Plant species, density & microclimate factor, irrigation efficiency, use of captured rainwater, recycled wastewater or water treated and conveyed by a public agency specifically for non-potable uses.	2	2			Plantings are being provided to meet this credit. WSDOT policy is to turn off irrigation once plantings are established.
	OPTION 2. Achieve Option 1 and: Use only captured rainwater, recycled wastewater, recycled gray water, or water treated and conveyed by a public agency specifically for non-potable uses for irrigation -OR- Install landscaping that does not require permanent irrigation systems. Temporary irrigation systems used for plant establishment are allowed only if removed within one year of installation	2			2	
Credit 2	**Innovative Wastewater Technologies** **Intent: To reduce wastewater generation and potable water demand while increasing the local aquifer recharge.**					
	OPTION 1. Reduce potable water use for building sewage conveyance by 50% through the use of water-conserving fixtures (water closets, urinals) or non-potable water (captured rainwater, recycled gray water, and on-site or municipally treated wastewater) -OR OPTION 2 - Treat 50% of wastewater on-site to tertiary standards. Treated water must be infiltrated or used on-site.	2			2	
Credit 3	**Water Use Reduction** **Intent: To further increase water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.**					

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	Employ strategies that in aggregate use **30%** less water than the water use baseline calculated for the building (not including irrigation) after meeting Energy Policy Act of 1992, 2005 and UBC or IBC 2006 fixture performance requirements. Calculations are based on estimated occupant usage and must include only the following fixtures and fixture fittings (as applicable to the project scope): water closets, urinals, lavatory faucets, showers, kitchen sink faucets and pre-rinse spray valves.	2	2			Use ultra-low flow fixtures with sensors.
	Employ strategies that in aggregate use **35%** less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Calculations are based on estimated occupant usage and shall include only the following fixtures: water closets, urinals, lavatory faucets, showers and kitchen sinks.	1			1	
	Employ strategies that in aggregate use **40%** less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Calculations are based on estimated occupant usage and shall include only the following fixtures: water closets, urinals, lavatory faucets, showers and kitchen sinks.	1			1	
	WATER EFFICIENCY TOTAL					
		10	4	0	6	
	ENERGY & ATMOSPHERE					
Prerequisite 1	**Fundamental Commissioning of the Building Energy Systems** **Intent: To verify that the project's energy related systems are installed, calibrated and perform according to the WSDOT's project requirements, basis of design, and construction documents.**					
	1) Benefits of commissioning include reduced energy use, lower operating costs, reduced contractor callbacks, better building documentation, improved occupant productivity and verification that the systems perform in accordance with the WSDOT's project requirements.	REQ	YES			Commissioning agent will be provided by contractor. Building GSF is under 50,000 GSF so the commissioning agent can be on the design or construction team if they have experience on at least 2 previous projects. The Design/Builder will provide a commissioning agent in conformance with the contract requirements.
Prerequisite 2	**Minimum Energy Performance** **Intent: To establish the minimum level of energy efficiency for the proposed building and systems to reduce environmental and economic impacts associated with excessive energy use.**					
	OPTION 1: WHOLE BUILDING ENERGY SIMULATION - Demonstrate a 10% improvement in the proposed building performance rating for new buildings, or a 5% improvement in the proposed building performance rating for major renovations to existing buildings, compared with the baseline building performance. Calculate the baseline building performance rating according to the building performance rating method in Appendix G of ANSI/ASHRAE/IESNA 90.1-2007 (with errata but without addenda) using a computer simulation model for the whole building project.	REQ			NO	Option 1 can not be met. The building provides electricity for the tunnel equipment located inside the building, 2 miles of tunnel systems, a lay down shop for repairing/maintaining tunnel systems, an office, break room, restrooms (for use by employees performing tunnel maintenance/repairs), and a garage for 7 WSDOT fleet maintenance vehicles. The building is not occupied on a daily basis. The draft electrical connected load calculations show only 10% of the building's load is for the garage, lay down room, office, and small break room. It won't be possible to demonstrate a 10% improvement in the building's performance rating.
	OPTION 2: PRESCRIPTIVE COMPLIANCE PATH: Appendix Advanced Energy Design Guide - Comply with the prescriptive measures of the Advanced Energy Design Guide appropriate to the project scope. See reference guide for compliance paths.					Option 2 can not be met because there is no ASHRAE Advanced Energy Design Guide that applies to this unique building type.
	OPTION 3: PRESCRIPTIVE COMPLIANCE PATH: Advanced Buildings Core Performance Guide - Comply with the prescriptive measures identified in the Advanced Buildings Core Performance Guide developed by the New Buildings Institute. See reference guide for requirements.					Option 3 can not be met because there is no Advanced Building Core Performance Guide that applies to this unique building type.
Prerequisite 3	**CFC Reduction in HVAC&R Equipment**					

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	CREDIT INTENT & DESCRIPTION	POSSIBLE POINTS	YES	??	NO	STRATEGY
	Intent: To reduce stratospheric ozone depletion.					
	Zero use of CFC-based refrigerants in new base building HVAC&R systems. When reusing existing base building HVAC equipment, complete a comprehensive CFC phase-out conversion prior to project completion. Phase-out plans extending beyond the project completion date will be considered on their merits.	REQ	YES			No CFC based refrigerants will be used.
Credit 1	**Optimize Energy Performance** **Intent: To achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.**					
	Select one of the three compliance paths described in the reference guide. OPTION 1: WHOLE BUILDING ENERGY SIMULATION (1-19 points) Calculate baseline building performance according to Appendix G of ANSI/ASHRAE/IESNA standard 90.1-2007 (with errata but without addenda). OPTION 2: PRESCRIPTIVE COMPLIANCE PATH: ASHRAE Advanced Energy Design Guide (1 point) OPTION 3. PRESCRIPTIVE COMPLIANCE PATH: Advanced Buildings Core Performance Guide (1-3 points)	19			19	The building provides electricity for the tunnel equipment located inside the building, 2 miles of tunnel systems, a lay down shop for repairing/maintaining tunnel systems, an office, break room, restrooms (for use by employees performing tunnel maintenance/repairs), and a garage for 7 WSDOT fleet maintenance vehicles. The building is not occupied on a daily basis. The draft electrical connected load calculations show only 10% of the building's load is for the garage, lay down room, office, and break room. It won't be possible to demonstrate the following improvements in the building's performance rating to gain these points. 12% - 1 point, 14% - 2 points, 16% - 3 points, 18% - 4 points, 20% - 5 points, etc. up to 48% - 19 points; (Regional Priority Credit - Option 1 48%)
Credit 2	**On-Site Renewable Energy** **Intent: To encourage and recognize increasing levels of on-site renewable energy self-supply in order to reduce environmental and economical impacts associated with fossil fuel energy use.**					
	Use on-site renewable energy systems to offset building energy cost. Calculate project performance by expressing the energy produced by the renewable systems as a percentage of the building's annual energy cost and using the table in the reference guide to determine the number of points achieved. %RENEWABLE ENERGY: 1%=1 POINT, 3%=2 POINTS, 5%=3 POINTS, 7%=4 POINTS, 9%= 5 POINTS, 11%= 6 POINTS, 13%= 7 POINTS. See reference guide for further information.	7			7	(Regional Priority Credit - 13%)
Credit 3	**Enhanced Commissioning** **Intent: To begin the commissioning process early in the design process and execute additional activities after systems performance verification is completed.**					
	Implement or have a contract in place to implement the following additional commissioning process activities in addition to the requirements of EA Prerequisite 1 and in accordance with this LEED-V3 Reference Guide, 2009 Edition: 1. Prior to the start of the construction documents phase, designate an independence Commissioning Authority to lead, review, and oversee the completion of all commissioning process activities. See reference guide. 2. CxA must conduct, at a minimum, one commissioning design review of the WSDOT's Project Requirements, Basis of Design, and design documents prior to mid-construction documents phase and back-check the review comments in the subsequent design submission. 3. CxA must review contractor submittals applicable to systems being commissioned. 4. Develop a systems manual. 5. Verify the requirements for training operating personnel and building occupants are completed. 6. The CxA must be involved in reviewing building operation with O&M staff and occupants within 10 months after substantial completion.	2				Under the WSDOT design/build contract requirements commissioning will be done by the Design/Builder's CxA.
Credit 4	**Enhanced Refrigerant Management**					

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	Intent: To reduce ozone depletion and support early compliance with the Montreal Protocol while minimizing direct contributions to global warming.					
	Option 1: Do not use refrigerants. **Option 2**: Select refrigerants and HVAC&R that minimize or eliminate the emission of compounds that contribute to ozone depletion and global climate change AND do not install fire suppression systems that contain ozone-depleting substances (CFC's, HCFCs or Halons. See reference guide for further information.	2	2			Option 2.
Credit 5	**Measurement and Verification** **Intent: To provide for the ongoing accountability of building energy consumption over time.**					
	Option1: Develop and implement a Measurement & Verification (M&V) Plan consistent with Option D: Calibrated Simulation (Savings Estimation Method 2), or **Option 2**. Develop and implement a Measurement & Verification (M&V) Plan consistent with Option B: Energy Conservation Measure Isolation, as specified in the International Performance Measurement & Verification Protocol. The M&V period shall cover a period of no less than one year of post-construction occupancy.	3			3	Metering is being provided in compliance with Code requirements.
Credit 6	**Green Power** **Intent: To encourage the development and use of grid-source, renewable energy technologies on a net zero pollution basis.**					
	Engage in at least a two year renewable energy contract to provide at least 35% of the building's electricity from renewable sources as defined by the Center for Resource Solutions (CRS) Green-e product certification requirements. All purchases of green power shall be based on the quantity of energy consumed, not the cost. DETERMINE THE BASELINE ELECTRICITY USE: Use the annual electricity consumption from the results of EA Credit 1 OR ESTIMATE BASELINE ELECTRICITY USE: use the Dept. of Energy Commercial Buildings Energy Consumption Survey database to determine the estimated electricity use.	2			2	
	ENERGY & ATMOSPHERE TOTAL	35	2	0	31	
	MATERIALS & RESOURCES					
Prerequisite 1	**Storage & collection of recyclables** **Intent: To facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills.**					
	Provide an easily accessible dedicated area that serves the entire building and is dedicated to the collection and storage of non-hazardous materials for recycling including (at a minimum) paper, corrugated cardboard, glass, plastics, and metals.	REQ	YES			An area located in the receiving area will be dedicated to the collection and storage of non-hazardous materials for recycling including paper, corrugated cardboard, plastics, and metals.
Credit 1	**Building Reuse - Maintain Existing Walls, Floors and Roof** **Intent: To extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.**					
	1.1 Building Reuse - Maintain Existing Walls, Floors and Roof. Maintain at least **55%** of the existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained. If the project includes an addition to an existing building that is more than 2 times the sq. ft. of the existing building, this credit is not applicable.	1			1	(Regional Priority Credit - 55%)
	1.1 Building Reuse - Maintain Existing Walls, Floors and Roof. Maintain at least **75%** of the existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained. If the project includes an addition to an existing building that is more than 2 times the sq. ft. of the existing building, this credit is not applicable.	1			1	

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	CREDIT INTENT & DESCRIPTION	POSSIBLE POINTS	YES	??	NO	STRATEGY
	1.1 Building Reuse - Maintain Existing Walls, Floors and Roof. Maintain at least **95%** of the existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained. If the project includes an addition to an existing building that is more than 2 times the sq. ft. of the existing building, this credit is not applicable.	1			1	
	1.2 Building Reuse - Maintain Interior Nonstructural Elements: Use existing interior nonstructural elements (e.g., interior walls, doors, floor coverings and ceiling systems) in at least 50% (by area) of the competed building, including additions. If the project includes an addition with square footage more than 2 times the square footage of the existing building this credit is not applicable.	1			1	
Credit 2	**Const Waste Management** **Intent: To divert construction, demolition, and land clearing debris from disposal in landfills and incineration facilities. Redirect recyclable recovered resources back to the manufacturing process and reusable materials to appropriate sites.**					
	(Divert 50% from Disposal) Recycle and/or salvage at least **50%** of non-hazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or commingled. Excavated soil and land clearing debris does not contribute to this credit. Calculations can be done by weight or volume, but must be consistent throughout.	1	1			Construction waste disposal firm will sort and recycle or salvage construction waste or debris
	(Divert 75% from Disposal) Recycle and/or salvage an additional 25% beyond MR Credit 2.1 (75% total) of non-hazardous construction and demolition debris.	1	1			Construction waste disposal firm will sort and recycle or salvage construction waste or debris.
Credit 3	**Materials Reuse** **Intent: To reuse building materials and products to reduce demand for virgin materials and reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources**					
	3.1 (5%) Use salvaged, refurbished or reused materials, the sum of which constitutes at least **5%**, based on cost, of the total value of materials on the project. Mechanical, electrical and plumbing components and specialty items such as elevators and equipment cannot be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR credits 3-7.	1			1	Concrete rubble to be reused through project. Furniture will be reused from other WSDOT locations.
	3 1 (10%) Use salvaged, refurbished or reused materials for an additional 5% beyond MR Credit 3.1 (**10%** total, based on cost)	1			1	
Cred 1 4	**Recycled Content** **Intent: To increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from the extraction and processing of virgin materials.**					
	(10% post consumer + 1/2 pre-consumer) Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least **10%** (based on cost) of the total value of the materials in the project. The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of the assembly to determine the recycled content value. Mechanical, electrical and plumbing components and specialty items such as elevators shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included providing it is included consistently in MR credits 3-7. Recycled content shall be defined in accordance with the ISO 14021.	1	1			Establish a project goal for recycled content materials and identify material suppliers that can achieve this goal. Materials that could assist in reaching this goal. steel, rebar (90% recycled content), concrete, CMU, carpeting, ceiling tiles, metal panels.
	(20% post consumer + 1/2 pre-consumer) Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes an additional **10%** beyond MR Credit 4 1 (total 20% based on cost) of the total materials in the project	1			1	
Credit 5	**Local/Regional materials** **Intent: To increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.**					

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	CREDIT INTENT & DESCRIPTION	POSSIBLE POINTS	YES	??	NO	STRATEGY
	(10% Extracted, Processed & Manufactured Regionally) Use building materials or products that have been extracted, harvested or recovered and manufactured, within 500 miles of the project site for a minimum of **10%** (based on costs) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) must contribute to the regional value. Mechanical, electrical and plumbing components and specialty items such as elevators and equipment shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR credits 3-7.	1	1			Concrete will be locally manufactured. Other possible materials include: precast, concrete, gypsum, glass, millwork, carpet, plantings, compost, and signage.
	(20% Extracted, Processed & Manufactured Regionally) Use building materials or products that have been extracted, harvested or recovered and manufactured, within a radius of 500 miles of the project site for an additional 10% beyond MR Credit 5.1 (total of **20%** based on cost) of the materials value.	1			1	
Credit 6	**Rapidly renewable materials** **Intent: Reduce the use and depletion of finite raw, and long life-cycle renewable materials by replacing them with rapidly renewable materials.**					
	Use rapidly renewable building materials and products for 2.5% of the total value of all building materials and products used in the project, based on cost. Rapidly renewable building materials and products are made from plants that are typically harvested with a ten-year cycle or shorter.	1			1	
Credit 7	**Certified Wood** **Intent: To encourage environmentally responsible forest management.**					
	Use a minimum of 50% (based on cost) of wood-based materials and products that are certified in accordance with the Forest Stewardship Council's (FSC) Principles and Criteria, for wood building components. These components include, but are not limited to, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes. Only include materials permanently installed in the project. Wood products purchased for temporary use on the project (e.g., formwork, bracing, scaffolding, sidewalk protection and guard rails) may be included in the calculation at the project team's discretion. If any such materials are included, all such materials must be included in the calculation. Furniture may be included, providing it is included consistently in MR Credits 3-7	1	1			Obtaining credit will depend on market availability and costs.
	MATERIALS & RESOURCES TOTAL	14	5	0	9	
	INDOOR ENVIRONMENTAL QUALITY					
Prerequisite 1	**Minimum Indoor Air Quality Performance** **Intent: To establish minimum indoor air quality (IAQ) performance to enhance indoor air quality in buildings, thus contributing to the comfort and well being of the occupants**					
	Meet the minimum requirements of Sections 4 through 7 of ASHRAE 62.1 - 2007, Ventilation for Acceptable Indoor Air Quality (with errata but without addenda). Mechanical ventilation systems must be designed using the Ventilation Rate Procedure or the applicable local code, whichever is more stringent. Naturally ventilated buildings shall comply with ASHRAE 62.1-2007, paragraph 5.1 (with errata but without addenda	REQ	YES			
Prerequisite 2	**Environmental Tobacco Smoke Control** **Intent: To minimize exposure of building occupants, indoor surfaces, and ventilation air distribution systems to Environmental Tobacco Smoke (ETS).**					
	OPTION 1: Prohibit smoking in the building. Locate any exterior designated smoking areas at least 25 ft. away from entries, outdoor air intakes and operable windows. Provide signage to allow smoking in designated areas.	REQ	YES			WSDOT does not allow smoking in state buildings, and will designate exterior smoking area in accordance with state and local laws.

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	OPTION 2: Prohibit smoking in the building except in designated smoking areas. Locate any exterior designated smoking areas at least 25 ft. away from entries, outdoor air intakes and operable windows. Provide designated smoking rooms designed to contain, capture and remove ETS from the building. At a minimum, the smoking room must be directly exhausted to the outdoors, away from air intakes and building entry paths, with no re-circulation of ETS-containing air to non-smoking areas and enclosed with impermeable deck -to-deck partitions. (See reference manual for additional requirements.)					
	OPTION 3: (for residential buildings only) Prohibit smoking in all common areas of the building. Locate any exterior designated smoking areas at least 25 ft away from entries, outdoor air intakes and operable windows opening to common areas. Minimize uncontrolled pathways for ETS transfer between individual residential units by sealing penetrations in walls, ceilings and floors in the residential units, and by sealing vertical chases adjacent to the units. All doors in the residential units leading to common hallways shall be weather-stripped or pressurized to minimize air leakage into the hallway. (See reference manual for additional requirements.)					
Credit 1	**Outdoor Air Delivery Monitoring** **Intent: To provide capacity for ventilation system monitoring to help promote occupant comfort and well being.**					
	Install permanent monitoring systems to ensure that ventilation systems maintain design minimum requirements. Configure all monitoring equipment to generate an alarm when the airflow values or carbon dioxide (CO2) levels vary by 10% or more from the design values via, either a building automation system alarm to the building operator or a visual or audible alert to the building occupants. (See reference manual for requirements for mechanically ventilated and naturally ventilated spaces.)	1	1			
Credit 2	**Increase Ventilation** **Intent: To provide additional outdoor air ventilation to improve indoor air quality and promote occupant comfort, well-being and productivity.**					
	For mechanically ventilated spaces - increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum rates required by ASHRAE standard 62.1-2007 (with errata but without addenda) as determined by IEQ Prerequisite 1. For naturally ventilated spaces - design natural ventilation systems for occupied spaces to meet the recommendations set forth in the Carbon Trust Good Practice Guide 237 (1998). Determine that natural ventilation is an effective strategy for the project by following the flow diagram process shown in Figure 1.18 of the CIBSE Applications Manual 10:2005, Natural ventilation in non-domestic buildings. See reference manual for additional requirements)	1			1	
Credit 3	**Construction IAQ Management Plan** **Intent: To reduce indoor air quality problems resulting from construction or renovation and promote the comfort and well-being of construction workers and building occupants.**					
	3.1 **During Construction**: Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the building as follows: During construction meet or exceed the recommended Control Measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guideline for Occupied Buildings under Construction, 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter 3) AND protect stored on-site or installed absorptive materials from moisture damage, AND if permanently installed air handlers are used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 must be used at each return air grille, as determined by ASHRAE 52.2 - 1999. Replace all filtration media immediately prior to occupancy.	1	1			IAQ will be developed.
	3.2 **Before Occupancy** (OPTION 1, FLUSH-OUT): After construction, prior to occupancy and with all interior finishes installed, install new filtration media and perform a building flush-out by supplying a total air volume of 14,000 cu. ft... of outdoor air per sq. ft... of floor area while maintaining an internal temperature of at least 60 degrees and relative humidity no higher than 60%. OR If occupancy is desired prior to completion of the flush-out, the space may be occupied following delivery of a minimum of 3500 cu. ft... of outdoor air per sq. ft... of floor area to the space. (See reference guide for further information)	1	1			Option 1 : Building will be flushed out.

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	3.2 **Before Occupancy** (OPTION 2, AIR QUALITY TESTING): Conduct baseline IAQ testing, after construction ends and prior to occupancy, using testing protocols consistent with the US EPA Compendium of Methods for the Determination of Air Pollutants in Indoor Air and as additionally detailed in the LEED reference guide for Green Building Design and Construction, 2009 Edition. See reference guide for additional requirements.					
Credit 4	**Low-Emitting Materials** **Intent: To reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.**					
	4.1 Adhesives & Sealants: All adhesives and sealants used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the requirements of the following reference standards. (See reference guide for further information.)	1	1			Specify low-VOC materials in construction documents. Ensure that VOC limits are clearly stated in each section of the specifications where adhesives and sealants are addressed. Common products to evaluate include general construction adhesives, flooring adhesives, fire-stopping sealants, caulking, duct sealants, plumbing adhesives, and cove base adhesives.
	4.2 Paints & Coatings: Paints and coatings used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the following criteria: (See reference guide for additional requirements)	1	1			Specify low-VOC paints and coatings in construction documents. Ensure that VOC limits are clearly stated in each section of the specifications where paints and coatings are addressed. Track the VOC content of all interior paints and coatings during construction.
	4.3 Carpet Systems: All carpet installed in the building interior must meet the testing and product requirements of the Carpet and Rug Institute's Green Label Plus program. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label Plus program. All carpet adhesive shall meet the requirements of EQ Credit 4.1: VOC limit of 50 g/L. See reference guide for hard flooring, setting adhesives and grout.	1	1			Clearly specify requirements for product testing and/or certification in the construction documents. Select products that are either certified under the Green Label Plus program or for which testing has been done by qualified independent laboratories in accordance with the appropriate requirements.
	4.4 Composite Wood & Agri-fiber Products: Composite wood or agrifiber products used on the interior of the building (defined as inside of the weatherproofing system) shall contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies shall contain no added urea-formaldehyde resins. Composite wood and agrifiber products are defined as: particleboard, medium density fiberboard (MDF), plywood, wheat board, strawboard, panel substrates and door cores. Materials considered fixtures, furniture, and equipment (FF&E) are not considered base building elements and are not included.	1	1			Specify wood and agrifiber products that contain no added urea-formaldehyde resins. Specify laminating adhesives for field and shop applied assemblies that contain no added urea-formaldehyde resins.
Credit 5	**Indoor chemical & pollutant source control** **Intent: To minimize building occupant exposure to potentially hazardous particulates and chemical pollutants.**					
	Design to minimize & control pollutant entry into buildings and later cross-contamination of regularly occupied areas:					
	Employ permanent entryway systems at least ten feet long in the primary direction of travel to capture dirt & particulates entering the building at regularly used exterior entrances. Acceptable entryway systems include permanently installed grates, grilles or slotted systems that allow for cleaning underneath. Roll-out mats are acceptable only when maintained on a weekly basis by a contracted service organization. Sufficiently exhaust each space where hazardous gases or chemicals may be present or used (including garages, housekeeping/laundry areas, shops of any kind, science labs, prep rooms and copying/printing rooms), to create negative pressure with respect to adjacent spaces with the doors to the room closed. For each of these spaces, provide self-closing doors and deck to deck partitions or a hard lid ceiling. (See reference guide for further information). In mechanically ventilated buildings, install new air filtration media in regularly occupied areas prior to occupancy; these filters must provide a Minimum Efficiency Reporting Value of 13 or better. Filtration should be applied to process both return and outside air that is to be delivered as supply air.	1			1	An entryway system will be installed in entry vestibules. Janitor's closets will have dedicated ventilation.

SR 99 Alaskan Way Viaduct Replacement - Tunnel, South Tunnel Operations Building						JUNE 26, 2012 (draft)
LEED-NC v 3						
	CREDIT INTENT & DESCRIPTION	POSSIBLE POINTS	YES	??	NO	STRATEGY
	Provide containment (i.e. a closed container for storage for off-site disposal in a regulatory compliant storage area, preferably outside the building) for appropriate disposal of hazardous liquid wastes in places where water and chemical concentrate mixing occurs (e.g., housekeeping, janitorial and science labs).					All hazardous liquid wastes scheduled for disposal will be contained in the appropriate container.
Credit 6	**Controllability of systems** **Intent: To provide a high level of lighting system control and/or thermal comfort system control by individual occupants or groups in multi-occupant spaces (i.e., classrooms or conference areas) to promote their productivity, comfort and well-being.**					
	6.1 **Lighting**: Provide individual lighting controls for 90% (minimum) of the building occupants to enable adjustments to suit individual task needs and preferences. AND Provide lighting system controls for all shared multi-occupant spaces to enable adjustment that meets group needs and preferences.	1	1			Occupant control of systems will be used where applicable.
	6.2 **Thermal Comfort**: Provide individual comfort controls for 50% (minimum) of the building occupants to enable adjustments to meet individual needs and preferences. Operable windows can be used in lieu of controls for occupants located 20 feet inside and 10 feet to either side of the operable part of a window. (See reference guide for further information). AND Provide comfort system controls for all shared multi-occupant spaces to enable adjustments to meet group needs and preferences. (See reference guide for further information).	1	1			Building is unoccupied. Controls will be placed where applicable.
Credit 7	**Thermal Control** **Intent: To provide a comfortable thermal environment that supports occupant productivity and well-being. Provide for the assessment of building thermal comfort over time.**					
	7.1 **Design:** Design HVAC systems and the building envelope to meet the requirements of ASHRAE Standard 55-2004, Thermal Comfort Conditions for Human Occupancy. Demonstrate design compliance in accordance with the Section 6.1.1 Documentation.	1	1			Will meet ASHRAE 55.
	7.2 **Verification:** Agree to conduct a thermal comfort survey of building occupants within a period of six to 18 months after occupancy. This survey should collect anonymous responses about thermal comfort in the building including an assessment of overall satisfaction with thermal performance and identification of thermal comfort-related problems. Agree to develop a plan for corrective action if the survey results indicate that more than 20% of occupants are dissatisfied with thermal comfort in the building. This plan should include measurement of relevant environmental variables in problem areas in accordance with ASHRAE Standard 55-2004.	1	1			WSDOT to send out survey to meet this credit and will follow up on items identified by at least 20% of the survey respondents.
Credit 8	**Daylight and Views** **Intent: To provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.**					
	8.1 - OPTION 1: Simulation - Demonstrate through computer simulations that 75% or more of all regularly occupied areas achieving daylight luminance levels of a minimum of 25 foot-candles. See reference guide for further information.	1				
	8.1 - OPTION 2: Prescriptive - For side lighting daylight zone - See reference guide for further information. For Top -lighting daylight Zone - See reference guide for further information.		1			Will be verified in final design, only spaces regularly occupied, shops will not be included in the evaluation.
	8.1 - OPTION 3: DAYLIGHT MEASUREMENT - Demonstrate, through records of indoor light measurements, that a minimum daylight illumination level of 25 foot-candles has been achieved in at least 75% (1 point) or 90% (2 points) of all regularly occupied areas. See reference guide for further information.					
	8.1 - OPTION 4: COMBINATION - Any of the above calculation methods may be combined to document the minimum daylight illumination in at least 75% (1 point) or 90% (2 points) of all regularly occupied spaces. See reference guide for further information.					
	8.2 Views for 90% of Spaces: Achieve direct line of sight to the outdoor environment via vision glazing between 30" and 90" above the finish floor for building occupants in 90% of all regularly occupied areas. Determine the area with direct line of sight by totaling the regularly occupied square footage that meets the following criteria: See reference guide for further information.	1	1			**So Ops** - The Shop and the Office are the only (intermittently) occupied spaces in this building. This credit can be met by providing re-lights between Shop and Vehicle bays for direct line of sight through glazed garage bay doors to the outdoors.
	INDOOR ENVIRONMENTAL QUALITY TOTAL	15	13	0	2	

SR 99 Alaskan Way Viaduct Replacement - Tunnel, South Tunnel Operations Building

LEED-NC v 3

JUNE 26, 2012 (draft)

	CREDIT INTENT & DESCRIPTION	POSSIBLE POINTS	YES	??	NO	STRATEGY
	INNOVATION & DESIGN/BUILD PROCESS					
	Intent: To provide design teams and projects the opportunity to be awarded points for exceptional performance above requirements set by the LEED-NC Green Building Rating System and/or innovative performance in Green Building categories not specifically addressed by the LEED Green Building Rating System. Note, Innovations credits do not apply, if product/strategy aids in achievement of an existing LEED credit.					
Credit 1.1	**Innovation/Process**	1			1	
Credit 1.2	**Innovation/Process**	1	1			Green building operations/ housekeeping - exclusive use of non-toxic cleaning products to maintain building. Product MSDS will be provided.
Credit 1.3	**Innovation/Process**	1	1			Provide an educational program on the environmental and human health benefits of the green building practices implemented; which might include 1) displays on benefits of green buildings, windows viewing green features, real-time energy consumption data displays, 2) events or tours focused on educational outreach.
Credit 1.4	**Innovation/Process**	1	1			Buildings serving bored tunnel - demonstrate intent to reduce site disturbance through implementing a tunnel boring strategy. Create a narrative that describes the environmental benefits and significance of tunnel boring versus extensive trenching.
Credit 1.5	**Innovation/Process**	1			1	Operational strategies - Tunnel's energy use and air quality monitoring systems for the tunnel will be controlled remotely by facilities management system.
Credit 2	**Accredited Professional**	1	1			A LEED accredited architect prepared the LEED Checklist. The Design/Builder will provide a LEED accredited person during construction.
	At least one principal participant of the project team shall be a LEED Accredited Professional (AP).					
	INNOVATION & DESIGN/BUILD PROCESS TOTAL	6	4	0	2	

SR 99 Alaskan Way Viaduct Replacement - Tunnel, South Tunnel Operations Building						JUNE 26, 2012 (draft)
LEED-NC v 3						
	CREDIT INTENT & DESCRIPTION	POSSIBLE POINTS	YES	??	NO	STRATEGY
	Regional Priority					
	Through USGBC's regional councils, chapters and affiliates, regionally specific environmental priorities were identified. Depending on a project's specific location, six LEED credits that address regionally prioritized environmental issues have been assigned "bonus points." That means that a project can be awarded up to four extra points – one point each – for up to four of the priority credits.					
Credit 1.1	Regional Priority	1	1			SS c3 - Brownfield Redevelopment
Credit 1.2	Regional Priority	1			1	SS c4.2 - Alternative Transportation - showers and bike racks
Credit 1.3	Regional Priority	1	1			SS c4.4 - Alternative Transportation - Parking Capacity
Credit 1.4	Regional Priority	1			1	EA c1 - Optimize Energy Performance
Credit 1.5	Regional Priority	1			1	EA c2 - On-Site Energy Performance
Credit 1.6	Regional Priority					MR c1.1 - Building Reuse
	REGIONAL PRIORITY TOTAL - 4 points maximum	5	2	0	3	
	SUSTAINABLE SITES TOTAL	26	18	3	5	
	WATER EFFICIENCY TOTAL	10	4	0	6	
	ENERGY & ATMOSPHERE TOTAL	35	2	0	31	
	MATERIALS & RESOURCES TOTAL	14	5	0	9	
	INDOOR ENVIRONMENTAL QUALITY TOTAL	15	13	0	2	
	INNOVATION & DESIGN/BUILD PROCESS TOTAL	6	4	0	2	
	REGIONAL PRIORITY TOTAL - 4 points maximum	5	2	0	3	
	TOTAL PROJECT LEED POINTS:	111	48	3	58	

CERTIFICATION LEVELS: (100 base points; 6 possible I in D, and 4 Regional Priority points)

Certified 40-49 points
Silver 50-59 points
Gold 60-79 points
Platinum 80 points and above

PENINSULA COLLEGE

September 22, 2014

Sidney Hunt
Department of Enterprise Services
Engineering & Architectural Services
1500 Jefferson Street SE
PO Box 41401
Olympia, WA 98504-1401
sidney.hunt@des.wa.gov

Re: Project 2012-050 – Fort Worden Building 202 Renovation

Dear Sidney Hunt:

Peninsula College is requesting an exemption for the Fort Worden Building 202 renovation project from the requirement of RCW 39.35D.030, that the project be designed, constructed and certified to at least the LEED silver standard.

This project involves the renovation of an historic building on the Fort Worden State Park campus. The building was originally constructed around 1901 and the renovation will comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties as well as other historic preservation requirements. The project renovates the approximately 14,000 square foot building into a higher education facility with classrooms, a learning lab, student study space, reception, advising and faculty offices.

The rehabilitation of historic buildings creates some unique conditions and certain constraints. At the end of schematic design it became necessary to pursue a less expensive mechanical system than was originally anticipated. The initial LEED checklist for the project was on the borderline for achieving LEED Silver with a far more expensive mechanical system and the less expensive mechanical system selected was deemed not a good candidate for LEED points. Other renovation requirements meant that additional funds for enhancing building performance to the level of LEED silver were not available.

While the college is requesting an exemption from the LEED silver requirement, it should be noted that upgrades to the building with renovation should significantly impact building performance overall. The project has received a Department of Commerce Energy Efficiency Grant. Energy conservation measures include upgrades to the building envelope, lighting and controls, domestic heating plant and plumbing. The Investment Grade Audit completed for the grant submission projects a reduction of the EUI from a baseline of 39.8 to 19.2.

Peninsula College is committed to sustainability and the goal on this project is to implement as many measures as possible to achieve a rating near or at LEED silver. The college, along with the design team and the contractor will work in good faith to ensure as many measures as

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possible are met. In addition, to the extent the college can participate or facilitate energy and water consumption reporting after construction, it will. This project is located at Fort Worden State Park and within the campus area managed by the Fort Worden Public Development Authority.

A copy of the LEED checklist, completed during schematic design, is attached. This checklist assumes the mechanical system later deemed to be cost prohibitive.

Peninsula College is dedicated to ensuring that Fort Worden Building 202 is an efficient and sustainable facility and will continue to seek opportunities to integrate LEED standards as the project progresses.

If you have any questions, please feel free to contact Laura Price, Capital Coordinator, at 360-417-6263 or lprice@pencol.edu. Thank you.

Sincerely,

Deborah Frazier
Vice-President for Finance and Administration

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LEED 2009 for New Construction and Major Renovations

Project Checklist

Fort Worden Building 202 Renovation

Schematic Design - 20 June 2012

Y	?	N			
8	1	17	**Sustainable Sites**	Possible Points:	**26**
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	1
2		3	Credit 2	Development Density and Community Connectivity	5
		1	Credit 3	Brownfield Redevelopment	1
1		5	Credit 4.1	Alternative Transportation—Public Transportation Access	6
1			Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
		3	Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
		2	Credit 4.4	Alternative Transportation—Parking Capacity	2
1			Credit 5.1	Site Development—Protect or Restore Habitat	1
1			Credit 5.2	Site Development—Maximize Open Space	1
		1	Credit 6.1	Stormwater Design—Quantity Control	1
		1	Credit 6.2	Stormwater Design—Quality Control	1
1			Credit 7.1	Heat Island Effect—Non-roof	1
		1	Credit 7.2	Heat Island Effect—Roof	1
	1		Credit 8	Light Pollution Reduction	1

3	1	6	**Water Efficiency**	Possible Points:	**10**
Y			Prereq 1	Water Use Reduction—20% Reduction	
		4	Credit 1	Water Efficient Landscaping	2 to 4
		2	Credit 2	Innovative Wastewater Technologies	2
3	1		Credit 3	Water Use Reduction	2 to 4

11	8	16	**Energy and Atmosphere**	Possible Points:	**35**
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
6	6	7	Credit 1	Optimize Energy Performance	1 to 19
		7	Credit 2	On-Site Renewable Energy	1 to 7
1	1		Credit 3	Enhanced Commissioning	2
1		1	Credit 4	Enhanced Refrigerant Management	2
1	1	1	Credit 5	Measurement and Verification	3
2			Credit 6	Green Power	2

11		3	**Materials and Resources**	Possible Points:	**14**
Y			Prereq 1	Storage and Collection of Recyclables	
3			Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
2			Credit 3	Materials Reuse	1 to 2

Y	?	N			
			Materials and Resources, Continued		
2			Credit 4	Recycled Content	1 to 2
1		1	Credit 5	Regional Materials	1 to 2
		1	Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1

10	3	2	**Indoor Environmental Quality**	Possible Points:	**15**
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
1			Credit 1	Outdoor Air Delivery Monitoring	1
		1	Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
1			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
	1		Credit 6.1	Controllability of Systems—Lighting	1
		1	Credit 6.2	Controllability of Systems—Thermal Comfort	1
	1		Credit 7.1	Thermal Comfort—Design	1
	1		Credit 7.2	Thermal Comfort—Verification	1
1			Credit 8.1	Daylight and Views—Daylight	1
1			Credit 8.2	Daylight and Views—Views	1

6			**Innovation and Design Process**	Possible Points:	**6**
1			Credit 1.1	Innovation in Design: Specific Title	1
1			Credit 1.2	Innovation in Design: Specific Title	1
1			Credit 1.3	Innovation in Design: Specific Title	1
1			Credit 1.4	Innovation in Design: Specific Title	1
1			Credit 1.5	Innovation in Design: Specific Title	1
1			Credit 2	LEED Accredited Professional	1

1	1	2	**Regional Priority Credits**	Possible Points:	**4**
1			Credit 1.1	Regional Priority: Specific Credit	1
	1		Credit 1.2	Regional Priority: Specific Credit	1
		1	Credit 1.3	Regional Priority: Specific Credit	1
		1	Credit 1.4	Regional Priority: Specific Credit	1

50	14	46	**Total**	Possible Points:	**110**

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

High-Performance Green Buildings

Exemption Declaration

Received by DES:		Date:	22-Sep-14
		Submit to:	Sustainability@des.wa.gov

Project Name:	Fort Worden Building 202 Project	Agency/Institution	Peninsula College
Project Number:	2012-050		

	Name	Agency	Phone	E-Mail
Submitted By:	Deborah Frazier	Peninsula College	360-417-6202	dfrazier@pencol.edu

Conceptual Construction Cost Estimate	$4,455,000
Total Facility Square Footage Estimate	14,000
Project Location/Address	Building 202, Fort Worden State Park, Port Townsend, WA

Facility Type Exemption*	Exempt Space Approx. %	Agency Representative Signature Block
Transmitter Building		
Pumping Station		
Hospital (not including skilled nursing)		Signature
Research Facilities with Laboratories		Name:
		Title:

"Not Practicable" Exemption**	Yes/No	Agency Representative Signature Block
The project will seek US Green Bldg. Council LEED Certification***	No	
The project will participate in the GA LEED QA process**	Yes - as possible	
The project will take no further action regarding LEED.		Signature
		Name: Deborah Frazier
		Title: Vice-President for Finance and Administration

This Exemption Submittal includes the following:

Provide a one page description of why the exemption is being sought on Agency Letterhead.	X		
Provide a LEED Checklist indicating which LEED Credits may be "practicable" for the project.	X	LEED Score attempting	50

* If a "Facility Type" exemption is requested and verified, no further submittals are required.

** If a "Not Practicable" exemption is requested, the project should pursue LEED to the level that is "practicable" for the project.
Projects are encouraged to participate in the DES LEED QA process and subsequent annual reporting of the energy and water/sewer consumption to DES. This will demonstrate a "Good Faith" effort consistent with the intent of RCW 39.35D.
Complete the appropriate DES LEED QA forms as the project progresses through the design and construction process.
Feedback from DES will help projects to achieve the proposed LEED goal and will help to maximize utility incentives.

*** If the project continues to seek LEED Certification the project should also participate in the DES LEED QA process.

Form Last Updated
April 2006

Appendix 8

Instructions and Forms

1. LEED Quality Assurance Process Guidelines Instructions
2. High-Performance Green Buildings – Exemption Declaration Form
3. High-Performance Green Buildings – Pre-Design/Schematic Design Submittal Form
4. High-Performance Green Buildings – Design Development Submittal Form
5. High-Performance Green Buildings – Construction Documents Submittal Form
6. High-Performance Green Buildings – Alternative Wood LEED Point Compliance Form
7. Environmental Design Considerations Form
8. State LEED Project Energy & Water Metering Plan
9. Metering and Measurement Report Template
10. Sustainable building Report Template
11. Energy & Water Consumption & Savings Report Form
12. LEED Building Cost & Performance Data Form
13. Explanations

State of Washington

Leadership in Energy and Environmental Design

(LEED™)

Quality Assurance Process

Guidelines

For State Agency/College

and

University Facilities

Administered by:

The Department of Enterprise Services

Background

With the passage of Engrossed Substitute Senate Bill 5509 – Related to High Performance Green Building, State facilities will now be designed and built to the LEED™ Silver standard. LEED™ is a Green Building Rating System developed by the US Green Building Council. A non-profit consensus based organization made up of architect and engineering firms, product manufacturers, and federal, state and local government agencies. The bill has now been transferred into statute at RCW 39.35.D. The pertinent sections in RCW 39.35D reads as follows:

39.35.D 030 (1) All major facility projects of public agencies receiving any funding in a state capital budget, or projects financed through a financing contract as defined in RCW 39.94.020, must be designed, constructed, and certified to at least the LEED silver standard. This subsection applies to major facility projects that have not entered the design phase prior to the effective date of this section and to the extent appropriate LEED silver standards exist for that type of building or facility.

The Department of Enterprise Services (formerly General Administration (GA)) was given a leadership role in the development of procedures to ensure the state is successful in this effort. The pertinent section in the legislation reads as follows:

39.35.D 060 (1)(a) The Department (DES), in consultation with affected public agencies, shall develop and issue guidelines for administering this chapter for public agencies. The purpose of the guidelines is to define a procedure and method for employing and verifying activities necessary for certification to at least the LEED silver standard for major facility projects.

DES is also responsible for reporting to the Governor and the Legislature related to progress implementing this chapter as stated in the following section:

39.35.D 030 (3)(a) Public agencies, under this section, shall monitor and document ongoing operating savings resulting from major facility projects designed, constructed, and certified as required under this section.

(b) Public agencies, under this section, shall report annually to the department on major facility projects and operating savings.

(4) The department shall consolidate the reports required in subsection (3) of this section into one report and report to the governor and legislature by September 1st of each even-numbered year beginning in 2006 and ending in 2016. In its report, the department shall also report on the implementation of this chapter, including reasons why the LEED standard was not used as required by section 2 (5)(b) of this act. The department shall make recommendations regarding the ongoing implementation of this chapter, including a discussion of incentives and disincentives related to implementing this chapter.

In response to the passage of ESSB 5509 DES assembled a committee of the Affected Agencies, as instructed in the legislation, and developed the following guidelines and process. DES would like to thank the Affected Agencies Committee for their commitment to this effort.

Original Affected Agencies Committee

Keith Bloom, Washington State University
Tom Henderson, State Com. & Tech College Board
Pete Babington, Highline Comm. College
Nancy Deakins, Dept. of Soc. & Health Services
Paul Szumlanski, DES, E & A Services
JR Fulton, University of Washington
Pam Jenkins, Dept. of Corrections
John Havens, Military
Bill Shisler, Dept. of Transportation

Contact

DES Contact: Sidney Hunt, Sustainable Building Advisor, Program Lead
Phone: (360) 407-9357 E-Mail : sustainability@des.wa.gov

Introduction

The process outlined below will help ensure projects are on the right path to attain LEED™ Silver certification through the US Green Building Council (USGBC). This process applies to all new major facility project construction and renovation projects over 5,000 GSF, where the renovation costs exceed 50% of the building assessed value. Some projects may be exempt based on the following criteria:

39.35.D 020 (b) "Major facility project" does not include: (i) Projects for which the department, public school district, or other applicable agency and the design team determine the LEED silver standard or the Washington sustainable school design protocol to be not practicable; or (ii) transmitter buildings, pumping stations, hospitals, research facilities primarily used for sponsored laboratory experimentation, laboratory research, or laboratory training in research methods, or other similar building types as determined by the department. When the LEED silver standard is determined to be not practicable for a project, then it must be determined if any LEED standard is practicable for the project. If LEED standards or the Washington sustainable school design protocol are not followed for the project, the public school district or public agency shall report these reasons to the department.

For the projects that apply, the forms needed to complete the State LEED™ Quality Assurance Process are available for download at: www.des.wa.gov. Once at the website select "Submittal Forms".

To complete the forms, fill in the information requested in the blank spaces in yellow. Also make sure to attach the associated forms and information that are indicated on each of the DES Submittal forms. This site also has information regarding Frequently Asked Questions (FAQs) and other helpful information regarding the process and LEED™. DES Submittal Forms, and associated forms and information should be submitted by e-mailed to: Sustainability@des.wa.gov . This e-mail address can also be used for correspondence related to this process.

Projects For Which No Submittal is Required

If a project is new construction under 5,000 GSF or is a renovation project with a cost of less than 50% of the assessed value, it is exempt. No submittal is required. Assessed value can be based on County Assessors records, or replacement value, it is the owner's choice.

For projects where the design was initiated before July 24, 2005, no submittal is required.

The State Project Manager and/or owner's representative can determine if no submittal is required. If there is a question about whether a project would need to complete a form, contact the Sustainable Building Advisor at the Department of Enterprise Services at (360) 407-9376.

Exemption Declaration

The Architect or owner's representative will complete the Exemption Declaration form, if applicable. If an exemption is not being sought, skip this section and move to the Pre-Design/Schematic Design section.

Non-occupied buildings, hospitals, and laboratory facilities are exempt. A teaching lab, however, would not necessarily be exempt. The "Facility Type Exemption Declaration" must be completed and submitted during Pre-Design or if there is no Pre-Design, then early in Schematic Design.

There may be some unusual circumstances where LEED™ Silver is "not practicable". An explanation for using the "Not Practicable" Exemption Declaration form is required. The Not Practicable Exemption Declaration can be submitted during Pre-Design, early in Schematic Design, or at any time during the design or construction process when it is determined that compliance with RCW 39.35D is "not practicable".

This one form is used for either Exemption Declaration. The form must include the signature of a senior administrator level position, with the authority to make decisions that will be included in the DES High-Performance Green Building Biennial Report to the Governor and the Legislature. A LEED™ Checklist and one page description of why the exemption is being sought must also be included with the form.

DES Response

The DES-Sustainable Building Advisor (DES-SBA) will phone the agency contact to discuss the project if there is a question about the exemption. If the facility does not have a 100% Facility Type Exemption there will be discussion regarding partial compliance and/or submittal recommendations.

If a "Not Practicable" Exemption is being sought, the DES-SBA will phone the agency contact to discuss the recommended LEED™ compliance level, submittals, and reporting. For instance, if LEED™ Silver can not be accomplished, then LEED™ Certified may be appropriate. Certification through the US Green Building Council is required, however, this may also be a tipping point for a project budget. Compliance with the LEED™ Silver standard, without certification may be desired due to budget constraints or other mitigating circumstances. In this case, completion of the DES LEED™ Quality Assurance process may be one way to demonstrate a "good faith" effort to meet the intent of the statute.

Pre-Design / Schematic Design Submittal

The Architect or owner's representative will complete the DES Pre-Design/Schematic QA Submittal and associated forms and information after the "eco-charrette" or sustainable building workshop, when a LEED™ Checklist has been prepared. This submittal includes an Environmental Design Considerations form and LEED™ Checklist along with the DES LEED™ QA Submittal. If the project does not have Pre-Design, submit this form and associated documents at Schematic Design. If submittal data has changed from the submittal sent in at Pre-Design, prepare and submit a new Schematic Design DES LEED™ QA Submittal.

DES Response

Comments on the Green Building goals will be provided by the DES-SBA along with identification of free technical and financial assistance, including utility incentive programs and contact names and phone numbers. There is also information regarding the Environmental Design Considerations and Building Commissioning Considerations. Attachments may include utility incentive applications.

Design Development Submittal

The Architect or owner's representative will complete the DES Design Development QA Submittal and associated forms. Project header information can be copied from the Pre-Design/Schematic Design QA Submittal form. The DD QA Submittal includes an updated LEED™ Checklist and a Summary of Green Building Strategies to satisfy the selected LEED™ Credits (1 to 3 page summary). This DES LEED™ QA Submittal must occur at the end of the Design Development phase.

DES Response

A list of potential utility incentive measures may be included, as appropriate, along with comments related to the LEED™ Scorecard and strategies. Suggested items for inclusion in the Construction Documents and for the Pre-Bid and Pre-Construction Conferences will also be included.

Construction Documents Submittal

The Architect or owner's representative will complete the DES LEED^{TM} QA Submittal for the Construction Documents phase and associated forms and information. Project header information can be copied from the Design Development form to expedite completion of this submittal. This submittal also includes an updated LEED^{TM} Checklist and an updated Summary of Green Building Strategies to satisfy selected LEED^{TM} Credits (2 to 4 pages). This submittal must also include an Energy and Water Metering Plan. A template for this plan is provided on the DES Green Building website. This DES LEED^{TM} QA Submittal must occur at 90% through the Construction Documents phase.

DES Response

Comments will be provided by the DES-SBA as appropriate. This will include suggested activities for successful LEED^{TM} implementation concerning the contractor, and securing utility incentives.

Post Construction Submittal

The Architect or owner's representative will complete the DES LEED^{TM} QA Submittal for Post Construction and associated forms and information. This QA Submittal also includes an updated LEED^{TM} Checklist, an updated Summary Report of Green Building strategies to satisfy selected LEED^{TM} Credits (2 to 4 pages), and a Case Study. A Case Study template is provided as a guide on the DES Green Building webpage in the DES LEED^{TM} QA section. If the LEED Certification process is not complete, indicate "Projected" LEED level on the Case Study. Please send in the updated Case Study once certification is complete. These DES Submittals must occur at Substantial Completion or soon thereafter. This is the final step for the design team.

DES Response

Comments will be provided by the DES-SBA as appropriate. The Case Study will be place on the DES Green Building website and will be included in the Green Building Biennial Report to the Legislature.

Annual Energy and Water Consumption Reporting

The owner is required to provide energy and water consumption, as well as renewable energy and water capture qualities in an annual report to DES. A form has been developed for this purpose and can be found on the DES Green Building webpage in the DES LEED^{TM} QA section. These should be completed and submitted to DES by June 1st of each year. This is required through 2016 per the RCW 39.35D statute. If the owner has had difficulties with collecting the actual electricity and/or heating energy (gas, steam, hot water, etc.) data, then a Metering and Measurement Report must also be submitted. This report should also be submitted if some or all of the data is prorated.

This data is compiled and presented in the Biennial Green Building Report to the legislature.

Contact the DES Sustainable Building Advisor if you have any questions about this reporting requirement.

Closing Comment

The information submitted in this LEED^{TM} Quality Assurance Process is needed for determining project status to achieve the LEED^{TM} Silver standard. The DES LEED^{TM} QA Submittal forms, associated information, and LEED^{TM} Checklists will be used for the following:

- reporting to the Governor's Office and Legislature

- to identify projects that may need additional assistance to achieve LEED^{TM} Silver
- preparing case studies
- determining the cost effectiveness of building to the LEED^{TM} Silver standard
- learning how to best navigate the LEED^{TM} process through the US Green Building Council
- sharing best practices

DES will work to provide information back to the affected agencies through direct emails and/or web site postings so that the State as a whole can be more successful at meeting this ambitious goal.

High-Performance Green Buildings

Exemption Declaration

Received by DES:

Date:

Submit to: Sustainability@des.wa.gov

Project Name:		Agency/Institution	
Project Number:			

	Name	Agency	Phone	E-Mail
Submitted By:				

Conceptual Construction Cost Estimate

Total Facility Square Footage Estimate

Project Location/Address

Facility Type Exemption*	Exempt Space Approx. %	Agency Representative Signature Block
Transmitter Building		
Pumping Station		
Hospital (not including skilled nursing)		Signature
Research Facilities with Laboratories		Name:
		Title:

"Not Practicable" Exemption**	Yes/No	Agency Representative Signature Block
The project will seek US Green Bldg. Council LEED Certification***		
The project will participate in the GA LEED QA process**		
The project will take no further action regarding LEED.		Signature
		Name:
		Title:

This Exemption Submittal includes the following:

Provide a one page description of why the exemption is being sought on Agency Letterhead. ☐

Provide a LEED Checklist indicating which LEED Credits may be "practicable" for the project. ☐ LEED Score attempting

* If a "Facility Type" exemption is requested and verified, no further submittals are required.

** If a "Not Practicable" exemption is requested, the project should pursue LEED to the level that is "practicable" for the project.
Projects are encouraged to participate in the DES LEED QA process and subsequent annual reporting of the
energy and water/sewer consumption to DES. This will demonstrate a "Good Faith" effort consistent with the intent of RCW 39.35D.
Complete the appropriate DES LEED QA forms as the project progresses through the design and construction process.
Feedback from DES will help projects to achieve the proposed LEED goal and will help to maximize utility incentives.

*** If the project continues to seek LEED Certification the project should also participate in the DES LEED QA process.

High-Performance Green Buildings

Pre-Design/Schematic Design Submittal (submit after the eco-charrette)

Received by DES:

Date:

Submit to: Sustainability@des.wa.gov

Project Name			Agency/Institution	
Project Number				
Building Use				

	Name	Agency or Firm	Phone	E-Mail
Submitted By				

Conceptual Construction Cost Estimate

Total Facility Square Footage Estimate

Project Location/Address

	Yes / No
Has the project been registered with the US Green Building Council?	

	Begin SD (Date)	Begin DD (Date)	Begin CD (Date)	Begin Construction (Date)	End Construction (Date)
Project Schedule					

This submittal includes the following:

1 Provide a completed Environmental Design Considerations form *

2 Provide an updated LEED Checklist*

* These are required by the new Energy Life Cycle Cost Analysis (ELCCA) process

Provide a list of the following:	Name	Agency or Firm	Phone	E-Mail
State Project Manager				
Agency Representative				
Architect				
LEED Submittal Preparation By				

Form Last Updated
April 2006

High-Performance Green Buildings

Design Development Submittal (submit at the end of DD)

Received by DES :	Date:	
	Submit to:	Sustainability@des.wa.gov

Project Name			Agency/Institution	
Project Number				

	Name	Agency or Firm	Phone	E-Mail
Submitted By				

This submittal includes the following:	
1 Provide an updated LEED Checklist	
2 Provide a one to three page summary of strategies used to meet LEED Credits	

Form Last Updated
April 2006

High-Performance Green Buildings

Construction Documents Submittal (submit at 90% CD)

Received by DES :

Date:

Submit to: Sustainability@des.wa.gov

Project Name:			Agency/Institution:	
Project Number:				

	Name	Agency or Firm	Phone	E-Mail
Submitted By:				

This submittal includes the following:	
1 Provide an updated LEED Checklist	☐
2 Provide a two to four page summary of strategies used to meet LEED Credits	☐
3 Provide the Energy and Water Metering Plan	☐

Form Last Updated
April 2006

High-Performance Green Buildings

Received by DES:

Date:

Alternative LEED Point Compliance Form: Use of Sustainable Forest Initiative 3rd Party Certified or Washington Wood

Submit to:

Project Name			Agency/Institution
Project Number			

	Name	Agency or Firm	Phone
Submitted By			

Compliance Path Selected (check box):

1) Credible 3rd Party (SFI Certified Wood)

2) Washington Forest Practices Act

Required submittal information:

Complete, print, scan and submit the LEED Template for MR c 7 Certified Wood as if the project was going to comply with the LEED MR c 7 credit. This is to provide the value ($) compliance calculation. This must be accompanied by the credible 3rd party documentation or documentation demonstrating that the wood came from forests regulated under the Washington Forest Practices Act.

This information should also be scanned and submitted to DES. Submit information by email attachment

Figure 3.1 Environmental Design Considerations Form

Environmental Design Consideration

Version 1.0 July 2005

Project Title:		Date:	
Owner:		Owner's Rep:	
Owner's Project No:		Owner's Phone No:	
Owner's E-mail:		Owner's Fax No:	
Completed by:		Phone No:	
Firm:		E-mail:	
Bldg Type:			
Approx. sq. ft:	☐ New	☐ Remodel	☐ Addition

The following are elements of an energy efficient design and can contribute to LEED™ points. Check 'Yes' to indicate items that will be considered in the High Performance Alternative of the Energy Life Cycle Cost Analysis

			Yes	No	N/A
	Site Considerations				
1)	Building orientated to optimize energy efficiency		☐	☐	☐
2)	Landscaping to provide solar shading		☐	☐	☐
	Envelope				
3)	Energy StarTM compliant roof		☐	☐	☐
4)	Roof insulation to meet or exceed R-30 rigid or R-38 batt*		☐	☐	☐
5)	Wall insulation with		☐	☐	☐
	a)	wood studs, R-19 batt insulation*	☐	☐	☐
	b)	metal studs, R-19 and rigid insulation on the exterior*	☐	☐	☐
	c)	mass wall, R-10 rigid insulation*	☐	☐	☐
6)	Windows:				
	a)	U=0.45 or lower*	☐	☐	☐
	b)	SHGC=0.45 (reduced cooling load) or lower*	☐	☐	☐
	c)	Exceed 50% Visual Light Transmittance (increased daylighting)*	☐	☐	☐
7)	Skylights U=0.60 or lower*		☐	☐	☐
8)	Doors U=0.50 or lower*		☐	☐	☐
	Lighting				
9)	Incorporate daylighting in over 50% of occupied critical visual task areas		☐	☐	☐
10)	Automated daylight harvesting controls		☐	☐	☐
11)	Lumen maintenance controls (metal halide with electronic balast)		☐	☐	☐
12)	Fluorescent lighting for the gym, multipurpose, commons or other High Bay application		☐	☐	☐
13)	Lighting power densities will meet or be lower than the following*		☐	☐	☐
	a)	Classroom: 1.15 watts per square foot (w/sf)	☐	☐	☐
	b)	Gym: 1.00 w/sf (1.8 w/sf over competitive area)	☐	☐	☐
	c)	Office: 1.10 w/sf	☐	☐	☐
	d)	Library: 1.30 w/sf	☐	☐	☐
	e)	Corridor: 0.70 w/sf	☐	☐	☐

* Represents ELCCA prescriptive elements

	Renewable Energy		Yes	No	N/A
14)	Incorporate solar photovoltaic (PV) technology:		☐	☐	☐
	a)	for general building power	☐	☐	☐
	b)	for isolated loads in remote locations (e.g. crosswalks)	☐	☐	☐
15)	Solar water heater		☐	☐	☐
16)	Wind power		☐	☐	☐
17)	Heat recovery systems		☐	☐	☐
18)	Geothermal		☐	☐	☐
	Water Conservation				
19)	Waterless Urinals		☐	☐	☐
20)	Rain water/gray water collection systems		☐	☐	☐
21)	Water efficient landscaping		☐	☐	☐
22)	Water efficient fixtures		☐	☐	☐
23)	Automated lavatory faucets		☐	☐	☐
	HVAC & Electrical				
24)	Natural ventilation in lieu of mechanical cooling or partly so		☐	☐	☐
25)	Displacement ventilation		☐	☐	☐
26)	Thermal Storage		☐	☐	☐
27)	Premium efficiency motors		☐	☐	☐
28)	Independent Building Commissioning Agent hired by owner		☐	☐	☐
29)	Variable flow fans and pumping systems		☐	☐	☐
30)	Heat recovery systems (between supply and exhaust)		☐	☐	☐
31)	Evaporative cooling to augment or replace mechanical cooling		☐	☐	☐
32)	High efficiency boilers		☐	☐	☐
33)	High efficiency chillers		☐	☐	☐
	Controls				
34)	Building automation system		☐	☐	☐
35)	Carbon Dioxide monitoring (gym/multipurpose/commons, etc.)		☐	☐	☐
36)	Demand control ventilation		☐	☐	☐
	Uninterruptible Power				
37)	Fuel cells for uninterruptible power systems		☐	☐	☐

List other energy efficient items or strategies that will be considered:

Submit to DES by E-Mail: ELCCA@ga.wa.gov

State LEED Project
Energy and Water Metering Plan

Submit to: GASustainableBA@ga.wa.gov
& Stuart Simpson: stuart.simpson@des.wa.gov

Project Name: project name Date: date
Project Number: project number
Institution or Agency Name: Institution or Agency Name
Submitted By: Name Phone: phone #
Email: email address
State Project Manager: Name Phone: phone #
Email: email address

Provide a brief description of how the following will be measured in the proposed LEED building. If the project will not be using a form of energy or irrigation shown below, simply indicate "NA" in that space. The description should be adequate to describe how the owner will measure the energy and water use on a monthly basis. The owner will in turn report that usage to General Administration on an annual basis per RCW 39.35D. This plan is to ensure that a monitoring strategy has been developed for each State LEED project. This plan must be submitted as part of the Construction Documents submittal in the GA LEED QA process.

Electricity:

Gas:

Other heating fuel (oil, propane, wood, steam, or hot water): fuel

Chilled water:

Domestic Hot Water:

Water:

Irrigation:

Reclaimed or captured water:

Renewable Energy Generated:

Metering and Measurement Report (Template)

This purpose of this report is to document issues related to the gathering of energy and water consumption data.

It is required in the event that the Energy and Water Consumption and Savings Reporting Form cannot be completed for a LEED Building or if some of the data in the reporting form is “prorated”. Complete one of these Reports for each LEED building that is not represented by an Energy and Water Consumption and Savings Reporting Form (Excel Spreadsheet), or where some of the data is prorated. This report will be included in the Green Building Report to the Legislature.

Submit completed report(s) to: SustainableBA@ga.wa.gov Due Date: June 1, 2012.

Building Name: ____

Institution Name: ____

Approximate Occupancy Date: _________________________________

Submitted By: ____ Date: _____________

Phone: _____________________ Email: ____

(___) This building will not be participating in reporting energy and water data per RCW 39.35D. (check if applicable).

Provide and explanation of the metering and/or measurement systems established. Indicate if there have been any problems collecting the needed data. Also indicate when problems will be resolved:

Electricity:

Gas/Steam/HW:

Water (interior):

Other:

Sustainable Building Report Template

Reported by: *Name*
Phone
E-mail

Overview

Short paragraph explaining the commitment to designing, building, and certifying to LEED Silver.

Projects

Project Name – Substantial Completion or Occupancy Date – Achieved LEED Level.
Project Name – Substantial Completion or Occupancy Date – Achieved LEED Level.
Project Name – Phase of Design or Const. – Projected Completion Date – Expected LEED Level.
Project Name – Phase of Design or Const. – Projected Completion Date – Expected LEED Level.

Training Efforts

Short paragraph describing the LEED/High Performance training efforts provided for project management staff.

Lessons Learned

What lessons were learned by your agency regarding the implementation of the LEED Silver requirement? What changes were made to your process that helped make your agency successful? Provide attachments as appropriate (samples of documents, spreadsheets, specs, etc.)

Recommended Improvements to the Legislation

Describe what improvements could be made to make achieving LEED Silver easier. This might include incentives, disincentives, or (others?).

New **Metering Efforts and Challenges**

Describe the standards or strategies established to meter energy and water in all LEED buildings. Include a description of the challenges encountered in getting meters installed and operational, and in establishing an on-going tracking and reporting system.

****

Submit this report to Stuart Simpson, DES Sustainable Building Advisor, by e-mail.
stuart.simpson@des.wa.gov & sustainableBA@des.wa.gov

This report should be no more than three pages. No photographs or LEED Checklists please. LEED Certified projects should have a Case Study prepared with photos and LEED Checklist submitted separately. See the Case Study Template, and completed case studies and previous Sustainable Building Reports in the 2010 Green Building Report: http://www.ga.wa.gov/eas/green/

Due date: July 6, 2012

This will satisfy some of the annual reporting requirements dictated by RCW 39.35D.

State LEED Project **LEED Level Achieved:** **Date:** Submit by email to: SustainableBA@ga.wa.gov

Energy and Water Consumption and Savings Reporting Form

Complete all applicable yellow boxes.

Submit as an Excel Spreadsheet

Required per RCW 39.35D.030 (3)(b)

Due: June 1, 2012

To print use legal size paper

Building Name:
Institution Name:
Location:
University/Agency:
Approx. Occupancy Date:
Building Use:
Primary HVAC:
Building Square Footage:

Submitted By:
Phone:
Email:

%/Year
Average Hours/Wk:
No. of People:
Average Hours/Wk:
No. of People:

Value from Renewables ($/yr):
Melded Electric Rate ($/kWh):
Melded Gas Rate ($/therm):
Other Fuel Rate ($/MMBtu):
List Other Fuel:
Metered Data:
Prorated Data:

No. of Lab Hoods:
Other High Energy Using Equipment(describe):
Renewable Energy Systems (describe):

Year:													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ENERGY													
Electricity (kWh)													0
Electricity ($)													$ -
Gas (therms)													0
Gas ($)													$ -
Other: (KBtu)													0
Other: ($)													$ -
Chilled Water (KBtu)*													0
Hot Water (KBtu)**													0
Steam (KBtu)**													0
Domestic HW (KBtu)**													0
RENEWABLES													
Solar Thermal (KBtu)													0
Electrical (kWh)													0
WATER													
Interior water (gals)													0
Interior water/sewer ($)													$ -
Domestic HW (gals)													0
Water captured (in)(gals)													0
Reclaimed water (in)(gals)													0
Reclaimed water (in)($)													$ -
Irrigation (gals)													0
Irrigation ($)													$ -
Water captured (out)(gals)													0
Reclaimed water(out)(gals)													0
Reclaimed water (out)($)													$ -

Water Use/Person/Yr: #DIV/0! KBtu/SF/Year (EUI): #DIV/0! Energy $/SF/Year: #DIV/0! Total Cost/SF/Year: #DIV/0!

See Below for Explanations regarding data for each of the cells

*Chiller and distribution systems combined efficiency calculated at 2 KW/Ton.
**Central plant and distribution systems combined annual average efficiency calculated at 65%.

LEED Building Cost and Performance Data

Please complete this form to the best of your ability. This information is best completed by the State Project Manager responsible for the project and/or the Architect. Input data into yellow boxes.

Building Name/City:	
Building Gross Square Footage:	
Number of Occupants:	
Institution/University or Agency Name:	
Submitted By Name/Phone:	
LEED Level Achieved or (Expected)/Date:	
LEED Version Used (e.g. V 2.2 or V 3.0)	

Building Cost Data

Consultant Costs	Costs*
Overall Consultant Fees:	$ -
LEED Related Consultant Fees:	$ -
Commissioning Fees:	$ -
ELCCA Preparation Fees:	$ -
* Use the Application for Payment, Agreement Invoice	

LEED Submittal Fees:	$ -
Soft Cost of LEED/Overall Consultant Fees (%):	#DIV/0!

Overall Cost of LEED
$ -

Overall Project Cost (Consultant + Construction)
$ -

Cost of LEED Compared to Overall Costs (%)
#DIV/0!

Building Construction Cost Per Square Foot
#VALUE!

Construction Costs	Costs**		
Building Demolition Cost (if applicable):	$ -		
Site Work & Related Costs:	$ -		
Building Construction Costs:	$ -		
Max. Allowable Construction Costs (MACC):	$ -		LEED Elements Description
Cost of LEED Element***:	$ -	>	
Cost of LEED Element***:	$ -	>	
Cost of LEED Element***:	$ -	>	
Cost of LEED Element***:	$ -	>	
Cost of LEED Element***:	$ -	>	
Cost of LEED Element***:	$ -	>	
Added LEED Construction Cost:	$ -		List Elements not Installed or downsized due to LEED
Savings, Didn't Install Something****:	$ -	>	
Savings, Didn't Install Something****:	$ -	>	
Savings, Didn't Install Something****:	$ -	>	
LEED Related Construction Savings:	$ -		

Total Added LEED Construction Costs:	$ -
Hard Cost of LEED/Overall Construction Costs (%):	#DIV/0!

**Use the Schedule of Values from Construction Invoice and Best Estimates

***Provide a best guess for cost. This could include solar panels, rain water capture system, or other feature that normally won't be pursued if not a LEED project.

****Didn't install something, such as a cooling system or greatly reduced the size due to natural ventilation.

Utility Incentives	Amount ($)	
Gas:	$ -	
Electric:	$ -	
Water:	$ -	
Other:	$ -	>
Total Incentives:	$ -	

Utility Incentives as % of Building Costs
#DIV/0!

Describe

Form Last Updated
August 2012

LEED Building Performance Information

Total Savings Over Baseline (energy & water)	Payback (Yrs)***
$ -	#DIV/0!

LEED Attribute	Capture this data from the LEED submittal (LEED OnLine)					
Energy Effciency and Renewable Energy	Proposed Building				Baseline Building	
	Units	$	% Savings	$ Savings	Units	$
Electricity (kWh)	-	$ -	#DIV/0!	$ -	-	$ -
Gas (Therms)	-	$ -	#DIV/0!	$ -	-	$ -
Renewable Energy, Electricity (kWh)	-	$ -	#DIV/0!	$ -		
Renewable Energy, Heat (Btu)	-	$ -	#DIV/0!	$ -		
Total Btus, Dollars & Percents	-	$ -	#DIV/0!	$ -	-	$ -
Water Efficiency						
	Gallons/Yr	$	% Savings	$ Savings	Gallons/Yr	$
Water Use Reduction (water/sewer*)	-	$ -	#DIV/0!	$ -	-	$ -
Landscape Watering (irrigation water**)	-	$ -	#DIV/0!	$ -	-	$ -
Captured Water (irrigation or interior water)	-	$ -	Calculate >>	$ -		
Total Water Saving	-	$ -	#DIV/0!	$ -	-	$ -

LEED Attribute		
Stormwater Management		
	Points 0-2	
Stormwater Control Quality and Quantity		
Alt. Transportation Sources & Walkability		
	Points	
Density & Community Connectivity		
Public Transportation		
Bike Racks & Showers		
Total Points	0	
Construction Waste Recycling		
	Tons	%
Construction Waste Recycled		
Use of Recycled Content Materials		
	$	%
Recycled Content Materials		
Use of Regional Materials		
	$	%
Regional Materials		
Protect Forests, Support Sustainable Forestry		
	Points	
Ceterified Wood		
Good indoor Air Quality		
	Points	
Const. IAQ Management Plan		
Low-Emitting Materials		
Indoor Chemical & Pollutant Source Control		
Total Points	0	
Access to Natural Light		
	Points 0-2	
Daylight & Views		

Also Submit:

A Case Study (Template Provided @ ga.wa.gov/eas/green)	
Final LEED Scorecard	

* Default value used for water/sewer costs of $6/1000 gallons

**Default value used for irrigation water only $2.50/1000 gallons

*** Payback doesn't include many of the intangibles. These can result in greater savings than from energy and water alone. Increased productivity, reductions in sick leave, and worker retention can far outway utility savings. Also environmental benefits can be substantial in moving Washington to its goals. Government must lead by example.

Form Last Updated
August 2012

Explanations

Building Name:	Name of the building
Institution Name:	Prison name, college name, institution site name, etc.
Location:	Nearest city or town
University/Agency:	Name of University or Agency; ie. UW, CWU, DSHS, DOC, etc.
Approx. Occupancy Date:	The date the building became occupied. This is important when determining if the building is still in the first year of operation.
Submitted By:	Person completing this form
Phone:	Phone number for the person completing this form
Email:	Email address of the person completing this form
Building Use:	Describe the major uses of the building; ie. Classrooms, Offices and Science Labs; Gym, Classroom and Lockers; Medium Security Housing; etc.
Primary HAVC:	Describe the primary HVAC system serving most or all of the building.
Building SF:	Square footage of conditioned space. Covered parking would not be included.
No. Lab Hoods:	Hoods have a big impact on energy use. Show the number of lab hoods in the building.
Other High Energy Equip.:	Welding equipment, server rooms, computer labs, etc. Show number and size of equipment load and/or square footage as appropriate.
Renewable Systems:	Describe the renewable energy systems installed on and in the building (ie. 10KW Solar PV panels, 100 SF of solar hot water panels, 5KW wind turbine, etc.)
Hours/Wk Use:	Average normal hours of use; ie. 50 hours/week, 24/7 = 168 hours/week, etc.
No. of People	Average number of people occupying the building during the occupied hours. Two different periods are provided in case of lower use periods, such summer quarter at colleges and universities.
Value from Renewables	Calculated energy cost savings based on sales of electricity, electricity offset, and/or thermal energy generated. Use energy cost per unit of energy to calculate savings.
Melded Elec. Rate ($/kWh):	The melded rate is calculated by taking the total electric bill divided by the total kWhs consumed. It would include the demand charge and any base charges.
Melded Gas Rate ($/therm):	The melded rate is calculated by taking the total gas bill divided by the total therms consumed. It would include the demand charge and any base charges.
Other Fuel Rate ($/MMBtu):	For central plants that use a fuel besides natural gas, calculate the cost per MMBtu. ($/Million Btu)
Metered Data:	List the following letters to indicate metered commodities: E=Electricity, G=Gas, S=Steam, HW=Hot Water, O=Other, W=Water (I.E. **E/G/W**)
Prorated Data:	List the following letters to indicate prorated commodities: E=Electricity, G=Gas, S=Steam, HW=Hot Water, O=Other, W=Water (I.E. **E/HW**)

ENERGY	Not all energy units below will be used in any one building. Only fill in the fuels that pertain to the facility.
Electricity (kWh)	Electricity usage in the building by month from the bill or submeter
Electricity ($)	Electricity cost from the bill or multiply the usage times the average cost per kWh taken from the overall campus bill
Gas (therms)	Gas usage in the building by month from the bill or submeter
Gas ($)	Gas cost from the bill or multiply the usage times the average cost per therm taken from the overall campus bill
Other: (KBtu)	Other usage such as propane, oil, wood, coal, etc. Provide usage in Btus. Convert gallons, cords, tons, etc. into KBtus (Thousands of Btus).
Other: ($)	Monthly cost of the "other" fuel
Chilled Water (KBtu)	Monthly KBtus of chilled water used in the facility when served by a central plant. Leave blank if the chiller is included in the electric units above.
Hot Water (KBtu)	Monthly KBtus of hot water used in the facility when served by a central plant. Leave blank if the hot water is included in the energy units above (gas, "other" or electric).
Steam (KBtu)	Monthly KBtus of steam used in the facility when served by a central plant. Leave blank if the steam is included in the energy units above (gas, "other" or electric).
Domestic HW (KBtu)	Enter the domestic hot water use only if provided by a central plant or from another building.
RENEWABLES	Renewable energy projects generating heat or electricity to the building. Electrical energy used may be reduced by the electricity generating renewable.
Solar Thermal (KBtu)	Monthly KBtus generated by the solar hot water heater and used in the facility.
Electrical (kWh)	Monthly kWhs generated by the photovoltaic panels, wind turbines or other renewable energy generating units
WATER	Collect measurements of all the different water resources being used or captured.
Interior water (gals)	Water used in the building for toilets, urinals, sinks, showers, etc. (total all water sources used IN the building)
Interior water/sewer ($)	Costs for water and sewer.
Domestic HW (gals)	Only provide this if domestic hot water is provided by a central plant or other outside the building.
Water captured (in)(gals)	Gallons of rain water, gray water or site water captured and used in the building for flushing toilets and urinals.
Reclaimed water (in)(gals)	Reclaimed water purchased from a city or sewer utility that is used **in** the building for flushing toilets and urinals.
Reclaimed water (in)($)	Cost of reclaimed water used in the building. Calculated based on water costs from provider.
Irrigation (gals)	Irrigation usage for the area defined by the LEED project area around the building. If this is not separated for the LEED project area, do not include this here.
Irrigation ($)	Cost of the water used for irrigation of the LEED project area.
Water captured (out)(gals)	Gallons of captured water used for irrigation. Rain water, gray water or other site water captured.
Reclaimed water(out)(gals)	Reclaimed water purchased from a city or sewer utility that is used for irrigation or other purposes outside the building.
Reclaimed water (out)($)	Cost of reclaimed water used outside the building (irrigation or other).

Appendix 9

CPWR Data Brief: Green Construction Update, February 2014, Vol.3

CPWR DATA BRIEF

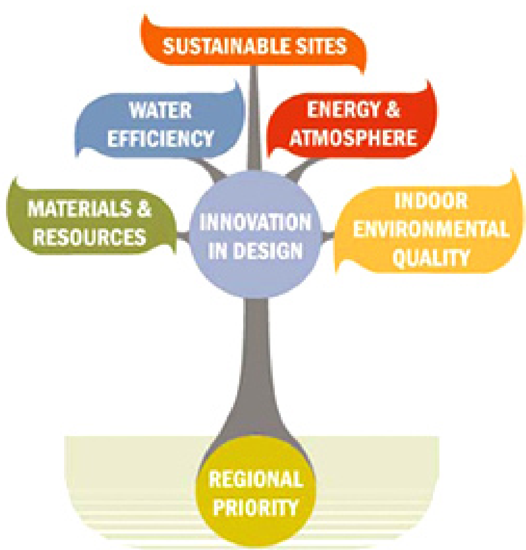
FEBRUARY 2014 Vol. 3 No. 1 WWW.CPWR.COM

Green Construction Update

CPWR Data Center: Xiuwen Sue Dong, DrPH, Julie A. Largay, MPH, and Xuanwen Wang, PhD

Green construction is a growing sector in the current global economy, particularly in the U.S. market. You may have read a sentence like that many times and wondered … just how large is this market? Is it continuing to expand? What trades and businesses in the construction sector are seeing the most work? Are employers conducting safety training for workers on the use of green products and technologies? And just where are all those green jobs happening? You will find answers within this Data Brief.

The Data Brief is based on information from the U.S. Bureau of Labor Statistics (BLS), the U.S. Green Building Council (USGBC) and McGraw-Hill Construction, and includes the following topics: 1) the rise of LEED (Leadership in Energy and Environmental Design) registration and certification by types of projects, U.S. regions, and states, 2) green job growth in construction and other industries, and 3) safety training on green technologies required by employers. Some topics were previously covered by *The Construction Chart Book: The U.S. Construction Industry and Its Workers*, produced in April of 2013. The Data Brief updates and expands on that LEED program and green jobs information.



Above: LEED Credit Categories. LEED certification is one way to quantify green construction. More information available at http://www.usgbc.org/leed/rating-systems

KEY FINDINGS

- The annual number of LEED certifications has increased exponentially – from two (2) projects in 2000 to 5,577 projects in 2013.
- The Construction industry had nearly half-a-million green jobs in 2011, accounting for almost 9% of the industry overall.
- Jobs in green construction grew by 27.1% between 2010 and 2011, more than six times the growth rate for all industries combined (4.5%).
- Among construction subsectors, Residential Building experienced significant growth (83.6%) between 2010 and 2011.
- In 2012, about one in four large employers required safety training on green technologies, higher than the average of about one in six for all employers combined.

Image Source: RadioWorld. Sustainable Facilities and LEED Certification: A Broadcaster's Guide. April 12, 2010. http://www.rwonline.com/article/sustainable-facilities-and-leed-certification--a-broadcaster%E2%80%99s-guide/3079

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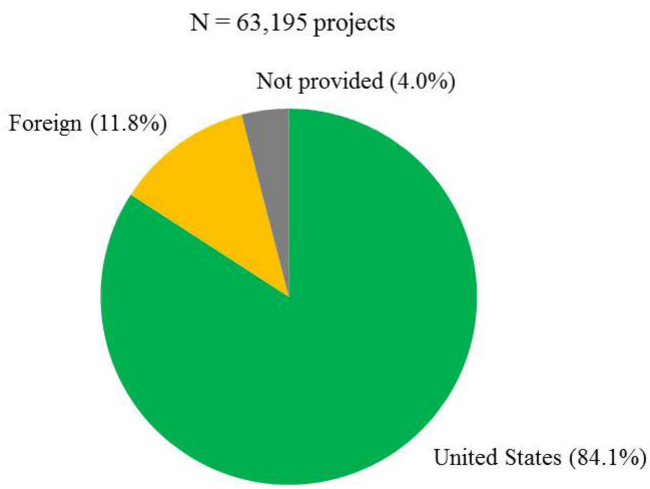
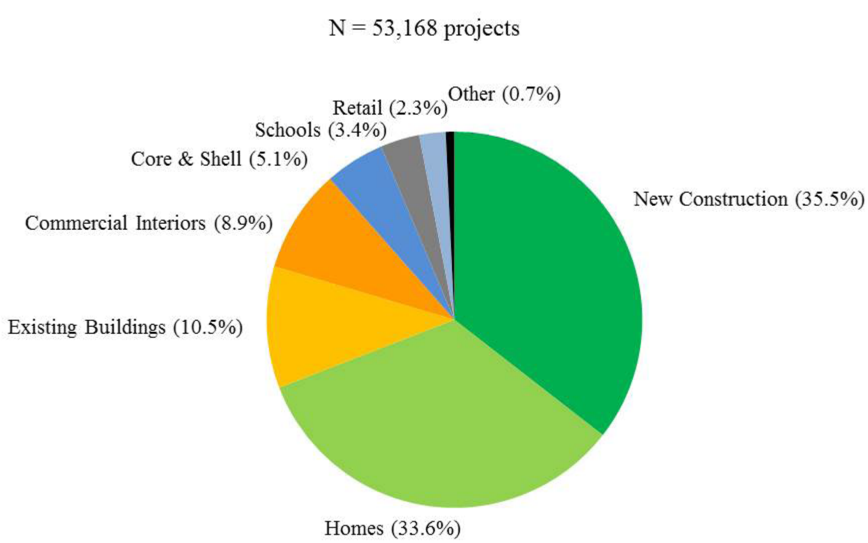
SECTION 1: LEED Registration and Certification

Developed by the USGBC in 1998, LEED certification is an international standard for measuring the level of environmental sustainability of new construction and renovation projects. By the end of 2013, more than 63,000 projects seeking LEED certification were registered worldwide in the LEED Building Projects Directory (Chart 1). Of those projects, 84% or more than 53,000, were based in the U.S. Nearly 36% of the LEED-registered projects in the U.S. were new construction projects, followed by homes (34%; Chart2). Other projects typically were smaller in scope (e.g. existing building renovations and commercial interiors).

1. LEED-Registered Projects, 2013



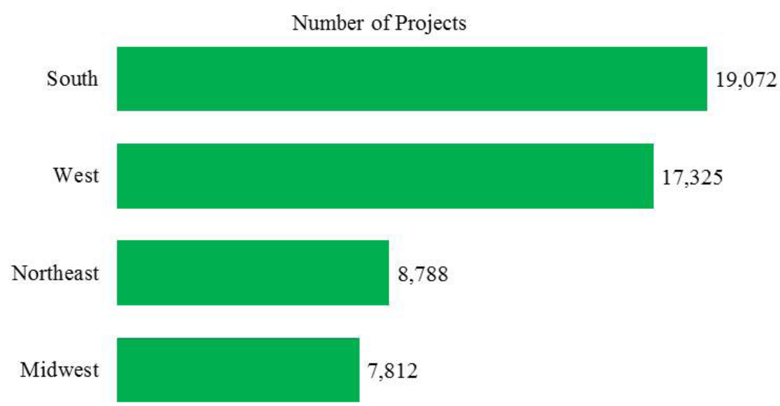
2. Types of LEED-Registered Projects in the U.S., 2013



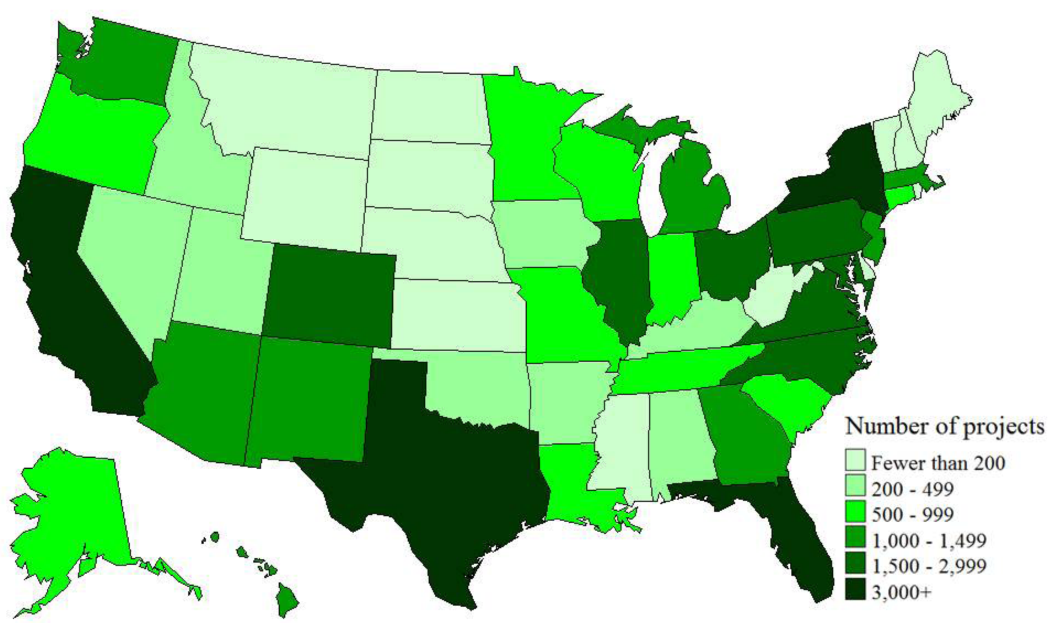
Source: Charts 1, 2 - U.S. Green Building Council. LEED Building Project Directory (as of 12/31/2013). Calculations by CPWR Data Center.

The majority of LEED-registered projects were located in the South and West of the country, with fewer projects in the Northeast and Midwest (Chart 3). At the state level, California had the most LEED-registered projects (7,551), followed by Texas (4,228), New York (3,260) and Florida (3,019; Chart 4). West Virginia had the fewest, with 67 registered projects.

3. LEED-Registered Projects by Region in the U.S., 2013



4. Number of LEED-Registered Projects by State, 2013



Source: Charts 3, 4 - U.S. Green Building Council. LEED Building Project Directory (as of 12/31/2013). Calculations by CPWR Data Center.

The registered projects must meet LEED criteria in order to receive LEED certification. There are four levels of certification – Certified, Silver, Gold, and Platinum (Chart 5). Each level requires earning a certain number of credits in the core categories. Based on the levels of LEED certification, 21% of U.S. projects received the stamp of Certified, earning between 40 and 49 points (Chart 6). More than 35% of projects in the U.S. earned Silver status, followed closely by 33% receiving Gold, and 11% with Platinum status — the highest available rating, receiving at least 80 points.

5. LEED Certification Levels

6. LEED-Certifications by Level in the U.S., 2000-2013

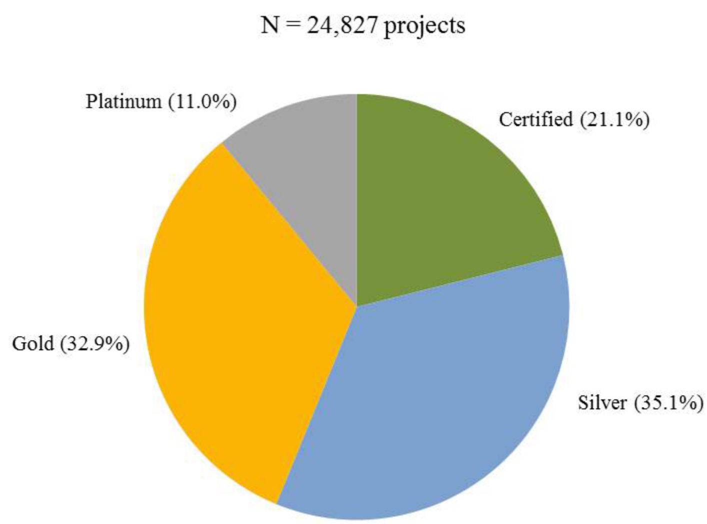


Image Source: Chart 5 - Green Building Alliance. LEED Certification. http://www.go-gba.org/resources/leed/

Source: Chart 6 - U.S. Green Building Council. LEED Building Project Directory (as of 12/31/2013). Calculations by CPWR Data Center.

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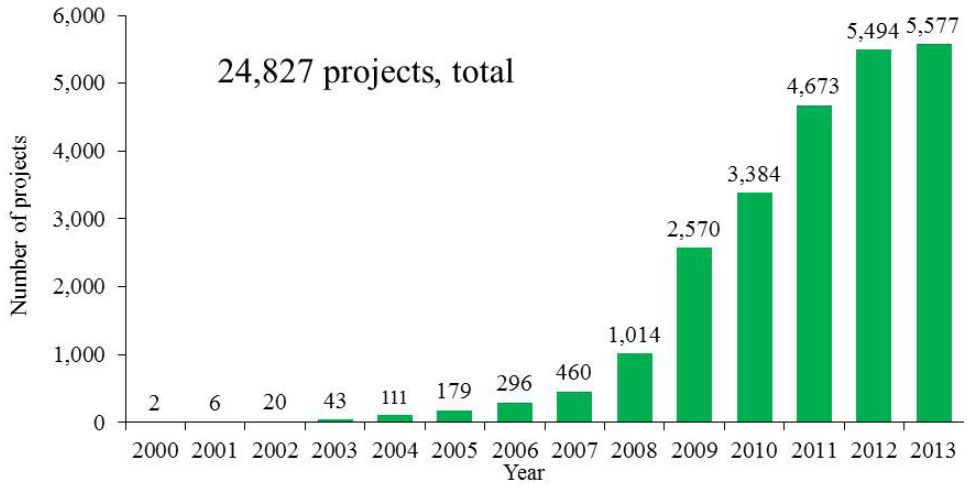
The LEED certification program has expanded exponentially in a short period of time. In 2000, just two (2) projects earned LEED certification; in 2013 alone, 5,577 projects received LEED certification (Chart 7). The annual number of certifications grew even during the years of the economic downturn — from 460 certifications in 2007 to 2,570 just two years later. By the close of 2013, about half of the projects registered in the U.S. LEED program had received certification, totaling close to 25,000 projects.

7. LEED-Certified Projects in the U.S., 2000-2013



Note: Year not provided for 998 certified projects.

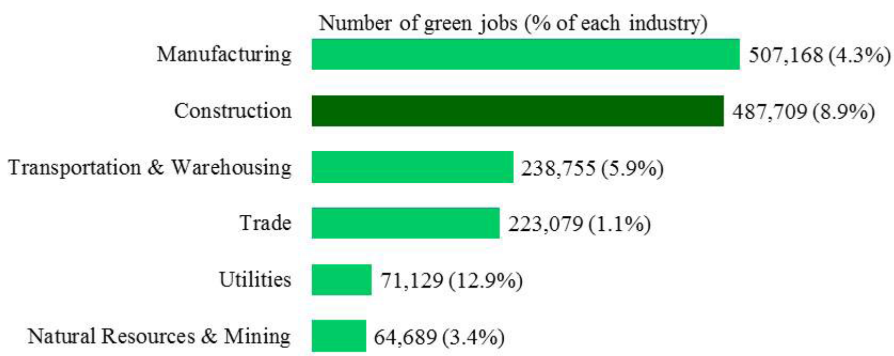
Source: U.S. Green Building Council. LEED Building Project Directory (as of 12/31/2013). Calculations by CPWR Data Center.

SECTION 2: Green Jobs in Construction and Other Industries

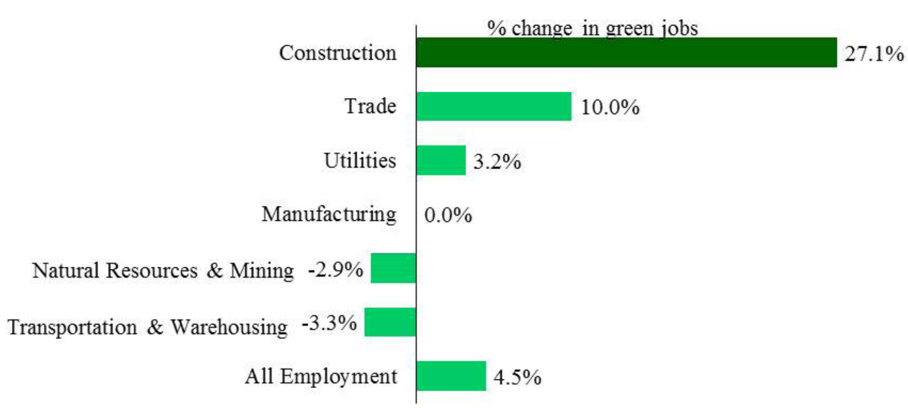
Along with the increasing number of green construction projects, more and more construction workers perform "green-related activities," or more specifically, *green jobs*. According to the BLS, *green jobs* are in "businesses that produce goods and provide services that benefit the environment and conserve natural resources." Based on this definition, many industry sectors are involved in green jobs, including most subsectors in the Construction industry.

In 2011, there were 2.5 million green jobs in the U.S., accounting for 2.3% of the total wage-and-salary workers in the nation (BLS, 2013). Nearly 488,000, or 19.4% of all green jobs, were in the Construction industry; those green jobs represented 8.9% of all jobs in Construction (Chart 8). The number and proportion of green jobs varied greatly among industries. For example, although the Utilities industry had just 71,000 jobs, that industry had the highest proportion of green jobs (12.9%). However, the annual change in the proportion of green jobs was highest in Construction, growing 27.1% between 2010 and 2011, compared to the all-industry average of 4.5% during the same period (Chart 9).

8. Number of green jobs, selected industries, 2011



9. Annual change in the rate of green jobs, selected industries, 2011



Note: Chart 8 - The proportion of green jobs in all industries was 2.3%.

Source: Charts 8, 9 - U.S. Bureau of Labor Statistics. Green Goods and Services Survey.

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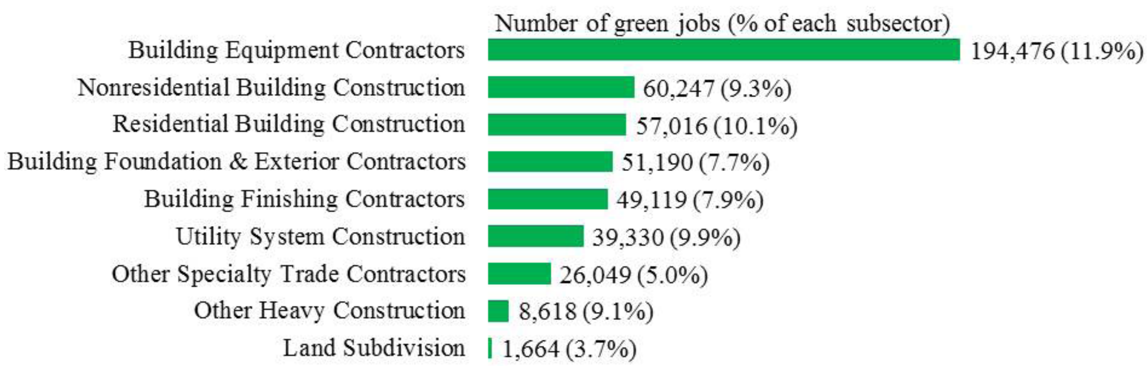
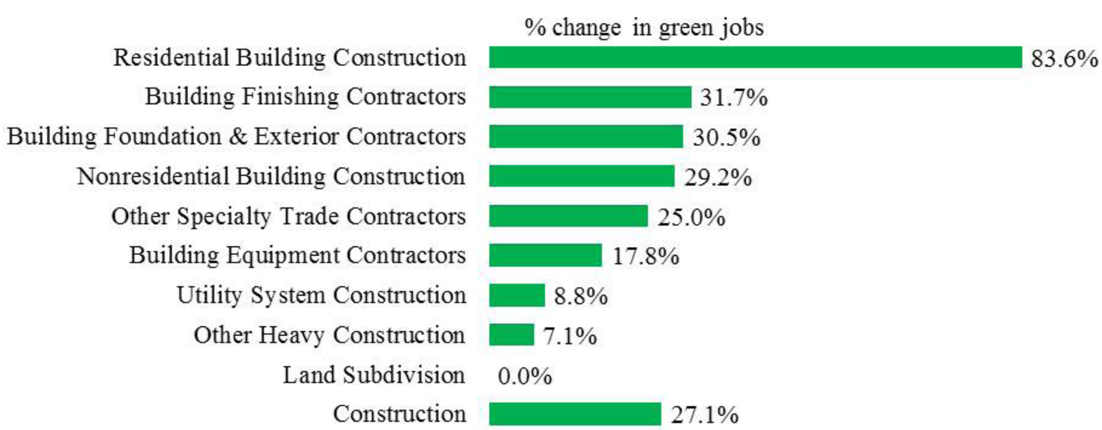
Among Construction subsectors, Building Equipment Contractors (e.g. electrical, plumbing, heating, air-conditioning) had the highest number of green jobs — nearly 200,000 in 2011 (Chart 10). The proportion of green jobs in this subsector was also the highest at 11.9%. Yet, the annual change in the proportion of green jobs increased just 17.8% in this subsector between 2010 and 2011, lower than the average for the Construction industry overall (Chart 11). In contrast, the proportion of green jobs in Residential Building Construction increased 83.6% between 2010 and 2011, higher than any other Construction subsector. This indicates a rapidly growing trend of green construction in Residential Buildings.

10. Number of green jobs in construction, by subsector, 2011



11. Annual change in the rate of green jobs in construction, by subsector, 2011



Source: Charts 10, 11 - U.S. Bureau of Labor Statistics. Green Goods and Services Survey.

SECTION 3: Safety Training on Green Technologies

Although green technologies (e.g. solar panels, LED lighting) may be good for the environment and the economy, they may alter tasks, materials, and practices used in the construction industry, which may bring new hazards or exacerbate existing hazards for construction workers. Despite the importance of safety and health in green jobs, according to The Construction Safety Management Survey conducted by McGraw-Hill Construction in 2012, only 18% of the construction firms who participated in the survey required safety training specific to green technologies, products or practices (Chart 12). In that survey, just 14% of General Contractors, including those in both residential and nonresidential buildings, and operative builders, required safety training on green technologies (e.g. fall protection training for solar panel installers), compared to 24% of Specialty Trade companies.

Safety training requirements for green technologies varied by project type. In the last three years, about 28% of firms with Transportation Building projects, such as airports, train stations, and bus depots, required safety training on green technologies compared to only 17% of the firms with Non-Building projects (e.g., roads, dams, water mains; Chart 13).

12. Safety training required by employers on green technologies, by construction subsector, 2012

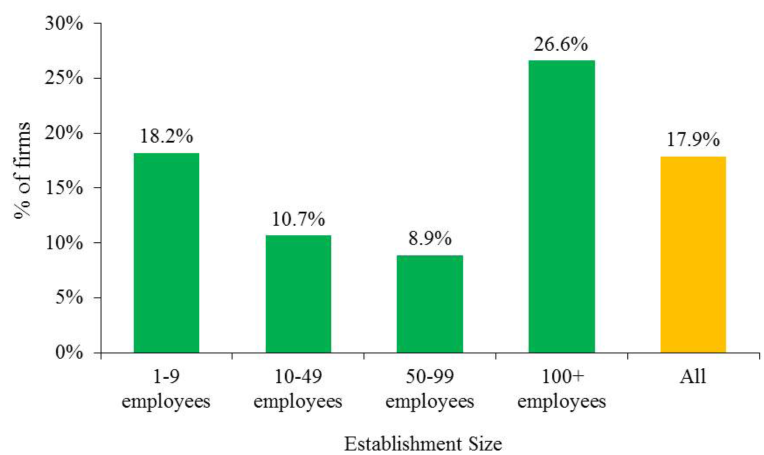
13. Safety training required by employers on green technologies, by project type, 2010-2012

Source: Charts 12, 13 - McGraw-Hill Construction, 2012. The Construction Safety Management Survey. Calculations by CPWR Data Center.

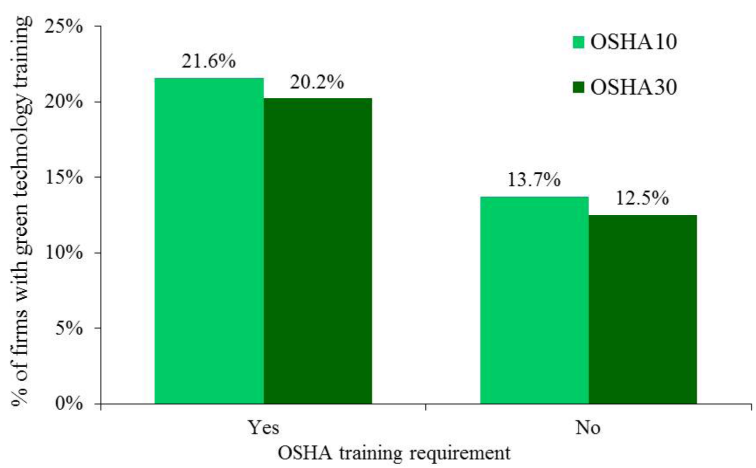
The requirements also differed significantly by establishment size. In general, large establishments (at least 100 employees) were more likely to require safety training on green technologies than smaller ones (Chart 14). However, it is noteworthy that small establishments (fewer than 10 employees) were more likely to have training requirements than medium-sized establishments.

The firms requiring OSHA 10-hour or 30-hour training were much more likely to require safety training on green technologies. Of the firms requiring OSHA 10-hour or 30-hour training, more than 20% reported that they also required all workers to have safety training on green technologies (Chart 15). The proportion of safety training on green technologies dropped to less than 14% for those firms not requiring OSHA training.

14. Safety training required by employers on green technologies, by establishment size, 2012



15. Safety training required by employers on green technologies, by whether OSHA10 or OSHA30 was required, 2012



Note: Chart 14 - The results may not be representative and reliable due to the relatively small sample size of the survey.

Source: Charts 14, 15 - McGraw-Hill Construction, 2012. The Construction Safety Management Survey. Calculations by CPWR Data Center.

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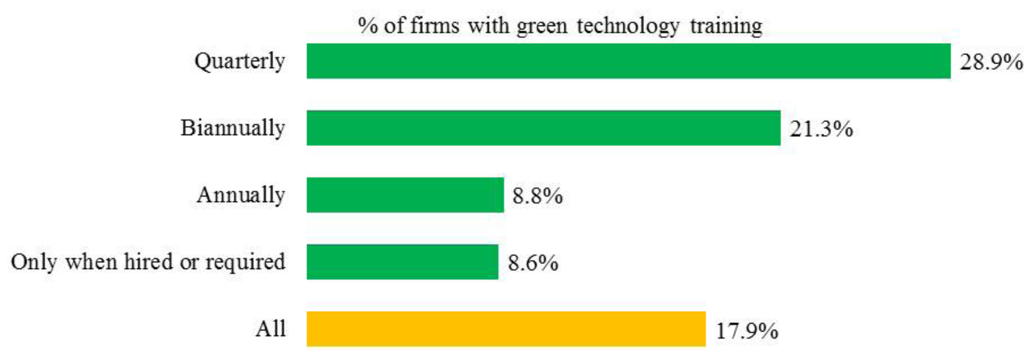
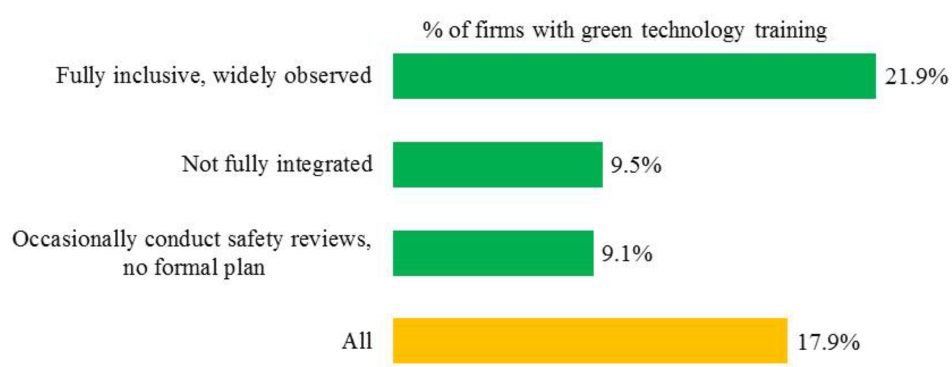
Firms offering general safety training are also more likely to require green-related safety training. Among the firms who offered general training to their workers at least once a quarter, nearly 30% required safety training on green technologies (Chart 16). The proportion was less than 9% among firms only offering general training when workers are hired or when required by specific demands on the jobsite.

The strength of a firm's safety program is associated with green safety training requirements. Among firms who had a fully inclusive and widely observed safety program, 22% required safety training on green technologies compared to 10% among those who did not have a fully integrated safety program and 9% among those who occasionally conducted safety reviews but had no formal plan (Chart 17).

16. Safety training required by employers on green technologies, by frequency of general safety training, 2012



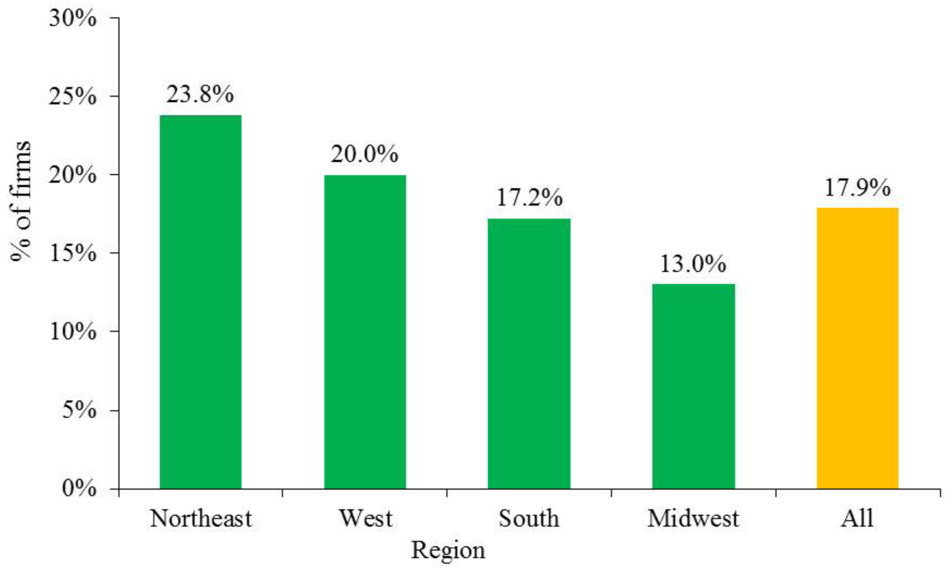
17. Safety training required by employers on green technologies, by strength of employer safety program, 2012



Source: Charts 16, 17 - McGraw-Hill Construction, 2012. The Construction Safety Management Survey. Calculations by CPWR Data Center.

In terms of region, the Northeast had the highest proportion of companies requiring safety training for green technologies (24%; Chart 18). In contrast, just 13% of companies in the Midwest required such training.

18. Safety training required by employers on green technologies, by region, 2012



Source: McGraw-Hill Construction, 2012. The Construction Safety Management Survey. Calculations by CPWR Data Center.

Conclusion

These findings show that green construction is growing at a rapid rate, both in projects and jobs. Although this is good news for the green economy, new technologies, materials, and work procedures used in green construction may increase existing risks or bring new hazards to construction workers who perform green jobs. In addition, safety and health training on green technologies is far behind the growth of green construction. Employers moving into green construction should consider the potential risks to construction workers, and address them through safety and health training and workplace interventions.

Reference

Bureau of Labor Statistics. 2013. Green Goods and Services (GGS). Retrieved from http://www.bls.gov/ggs/ggsoverview.htm#definition.

More Resources

To better understand the risks to construction worker safety and health and the need for worker training when using green technologies, please see several CPWR research publications:

- *Green and Healthy Jobs*, a report covering specific hazards to workers, by type of green construction equipment, and case studies of fatalities from these hazards.
- Green Jobs: A Safety and Health Outlook for Workers, a PowerPoint based on the above report, examines the definition of green jobs and focuses on hazards to worker safety and health.
- Improving Worker Safety on 'Green' Construction Projects, a *CPWR Key Findings from Research* document based on peer-reviewed journal articles, with links to abstracts.
- "Green" Construction Workers May Face Additional Safety Risks, an article appearing in *EHS Today*.
- Green Construction: what it is and its impact on the construction labor force, a meeting of the Construction Economics Research Network (CERN) in October 2010. Link includes PowerPoints from presenters.

Additional information on green construction from the CPWR Data Center:

- Measuring the Effects of Green Jobs on Construction Worker Safety & Health, a webpage describing the Data Center's work on analyzing statistics on green jobs and construction worker safety and health.
- Green Construction in the United States, and related charts in PowerPoint, from *The Construction Chart Book*, fifth edition; see also Green Jobs in Construction and Other Industries, and related charts in PowerPoint.

About the CPWR Data Center

The CPWR Data Center is part of CPWR – The Center for Construction Research and Training. CPWR is a 501(c)(3) nonprofit research and training institution created by the Building and Construction Trades Department, AFL-CIO, and serves as the research arm of the BCTD. CPWR has focused on construction safety and health research since 1990. This study on green construction is part of our ongoing surveillance activities on current and changing workplace practices on jobsites that can affect the safety and health of construction workers. This data analysis updates and expands on information found in CPWR's *The Construction Chart Book*.

This Data Brief is the fourth in a series of publications analyzing construction-related data. The three previous data briefs focused on Hispanic construction workers in the U.S. workforce. The first, Hispanic Employment in Construction, second, Health Insurance Coverage and Health Care Utilization among Hispanic Construction Workers, and third data brief, Fatal and Nonfatal Injuries among Hispanic Construction Workers, 1992-2008, are all available on the CPWR website by following the links. Each link will provide you with a downloadable PDF version of the data brief and PowerPoint files of all the charts. Click on a chart in PowerPoint to access the data behind the graphic.

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CPWR is a research arm of the Building and Construction Trades Dept., AFL-CIO, and is uniquely qualified to serve workers, contractors, and the scientific community through its program of applied research. This data brief was produced using funds provided by Cooperative Agreement U60-OH009762 from the National Institute for Occupational Safety and Health (NIOSH). The contents are solely the responsibility of the authors and do not necessarily represent the official views of NIOSH.

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Appendix 10

Natural Ventilation: The Nine Biggest Obstacles and How Project Teams Are Beating Them

Natural Ventilation: The Nine Biggest Obstacles and How Project Teams Are Beating Them

Designers are reinventing the art and science of passive comfort control even where climate and culture favor mechanical systems.

By Paula Melton

The Eastgate building in Harare, Zimbabwe, is world-famous for its biomimetic passive cooling system, inspired by termite mounds. The fan-assisted network of thermal labyrinths and chimneys cools the space economically and "uses about 10% of the energy" consumed by a mechanically conditioned building next door, architect Mick Pearce told *EBN*.

Similar technologies for different climates, cultures, and economies: Eastgate Center and Council House 2 share an architect and a strategy involving concrete thermal labyrinths, but that is where the similarity ends.

Photos: Courtesy Mick Pearce

Necessity was the mother of Pearce's invention. The expense of importing the equipment needed for a mechanical HVAC system drove the strategy. Ten years later and seven thousand miles away in Melbourne, Australia, Pearce employed natural ventilation again for Council House 2, with profoundly different results. That's because the natural ventilation system pulls in air "for breathing, not for cooling." Instead, radiant cooling makes the ceiling "like the roof of a cave."

In Melbourne, the economic driver wasn't the cost of equipment; it was worker productivity. "The building actually cost about 20% more than the cheapest office block at that time," he said. The team expected a ten-year payback, but revised that down to seven years after a couple years of data had come in. Energy savings were actually weaker than anticipated—about a 60% reduction compared with the building it replaced, not the 85% modeled—but Pearce attributes savings to a decrease in sick days due to the amount of fresh air. "Air-conditioned offices recirculate the air at least six times; otherwise you waste so much energy. In my system, there is no recirculation at all; it's all fresh air."

As the contrast between these two buildings demonstrates, the reasons for natural ventilation differ by project, and the system may cost more or less upfront than a conventional mechanical system. It may save more or less energy than the project team anticipated. Most importantly, a successful natural ventilation system must be attuned to the local microclimate and the occupants' microculture in a way that most other design strategies simply don't require.

All this makes some project teams balk at the idea from day one, and most never even consider it—yet even in the U.S., where climates and cultural expectations typically make mechanical HVAC a given, there are project teams pursuing natural ventilation for its energy and air-quality benefits.

Why Natural Ventilation?

There are three primary reasons to design a building for natural ventilation.

- **Energy savings** can be dramatic in climates and building types where natural ventilation is feasible for most or all of the year. Estimates vary wildly and depend on climate, but Shaun Fitzgerald, Ph.D., cofounder of natural ventilation products and consulting firm Breathing Buildings, cites savings on fan energy alone of 10% to 30% in the mild U.K. climate where he works.

- **Occupant satisfaction** often drives the decision in the developed world, according to many designers *EBN* spoke with. “The notion that you can just open a window and hear a bird chirp or feel a little breeze is psychologically very refreshing,” notes Steve Tatge, a lead architect at the University of Washington, which is pioneering natural ventilation strategies in a number of new and existing buildings.

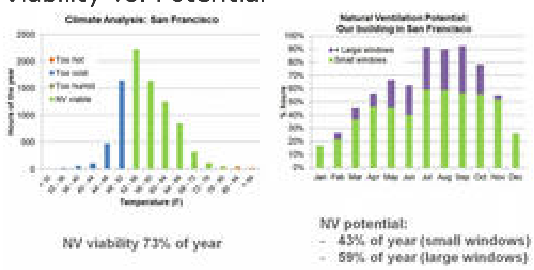
- **Indoor air quality** is closely related to occupant satisfaction. “If you can introduce copious amounts of fresh air without using fans, you’ve created an amazing environment for the people inside,” says Fitzgerald. In some climates, he remarks, “About 70% of the year, the idea of being cocooned in a glass box that’s air-conditioned is just anathema.”

The list of reasons *not* to attempt natural ventilation is considerably longer, but experts *EBN* spoke with have discovered that many of these obstacles have a lot more to do with perception and habit than with physics. We’ll explore nine of these barriers, and how project teams are overcoming them.

1. Conventional Design Process

“The architect wants to sell a project with good-looking pictures,” argues Jean Marais, B.Eng., of the Berlin-based engineering firm b.i.g. bechtold. “There is a lot of glass, and the fenestration is not always effectively used.”

Viability vs. Potential



The climate may be friendly to natural ventilation, but the microclimate and other factors can reduce the potential significantly.

Source: Payette

Marais relates the story of a 7,000 ft^2 naturally ventilated daycare center, Kita Schloss-Geister, that has been mostly successful but also problematic; his firm helped the architects fine-tune the daylighting scheme for the design, which initially was over-glazed, in Marais’s judgment. “LEED was the number one priority,” so daylighting was “very heavily weighted. At that stage, I don’t think anyone was giving natural ventilation a thought.”

By the time the firm had turned its attention to ventilation, they discovered certain windows were too large: “Even if you just opened them a little bit, there was a lot of air”—a problem in cold weather. But it was too late to change the windows; as a workaround, some rooms in the finished building have to be ventilated while the children and teachers are elsewhere in the building.

How early?

“What we do is assist the teams in the very, very early design stages, guiding them toward more efficient choices in terms of design,” explains Alejandra Menchaca, Ph.D., one of two in-house building scientists at Payette. Their guidance compares options for orientation, massing, and shading to inform decisions about daylighting, natural ventilation, and other strategies.

When considering natural ventilation, the “first step is to evaluate the climate,” but it doesn’t end there.

Menchaca draws a distinction between natural ventilation *viability*—based simply on the local climate—and natural ventilation *potential*—based on the site, microclimate, and other finer details (see chart). After the topic is introduced and vetted based on viability, the second set of calculations guides whether the project should be naturally ventilated, *mixed mode* (a combination of mechanical and passive strategies), or mechanically conditioned year-round. If the system will involve sensors or automation sequences for windows, fans, or other components, it's best to discuss that early in design as well, Menchaca cautions, because these will need to be budgeted for.

Engineering good relationships

Even if the client is convinced, the mechanical engineer may not be. "They want to avoid liability and risk," says Blake Jackson, AIA, of Tsoi/Kobus. "You really have to get them on board." (See #2 below for more on the perceived risks of natural ventilation.)

It helps when architects educate themselves, Jackson suggests. "You have to have a few factors working together and a team that's in agreement," including architects who understand how building geometry, ceiling height, glazing, and other features affect the feasibility of the scheme. "There's nothing keeping architects from picking up the CIBSE guidebook," he says (CIBSE is the U.K. equivalent of ASHRAE; AM10 is its natural ventilation standard, and AM13 covers mixed-mode ventilation). "It's relatively visual, considering it's an engineering tool."

No supermodels

Ideally, the project team would be able to provide a rough sense of energy savings early on, but "the decision to use natural ventilation or not comes way before we have a full building energy model," says Menchaca. "Many times, we don't have the answer other than knowing the climate outside is nice."

Menchaca calculates roughly what percentage of the time the building will be using natural ventilation and creates a spreadsheet showing "how that translates into energy, depending on the HVAC system." As the design advances, these calculations of savings get better, but not as much as one might hope. "I wish energy modeling tools would do a better job of modeling natural ventilation," Menchaca laments. "I've spent a lot of time trying to get the right flow rate that I knew my math was giving me, and it took me three days to get the right settings."

That situation may be improving soon, reports Philip Haves, Ph.D., leader of the simulation research group at Lawrence Berkeley National Laboratory (LBNL). A team of researchers led by Paul Linden, Ph.D., chair of the Department of Mechanical and Aerospace Engineering at the University of California–San Diego has developed new models of various modes of natural ventilation, and LBNL has been integrating these new models into EnergyPlus. One of the models, he explains, deals with eddies that form against buildings and can cause "pumping action" that either draws wind in through the window or forces interior air out in hard-to-predict ways. When released, these new models will help teams "design for single-sided ventilation with more confidence," which Haves says is key to encouraging adoption of natural ventilation.

2. Perceived Unpredictability

"So-called experts will tell you natural ventilation won't work. What they really mean is that they don't understand it," maintains Leon Glicksman, Ph.D., professor of building technology and mechanical engineering at the Massachusetts Institute of Technology (MIT).

Fear of being stuck with a system that doesn't work can be a huge barrier to natural ventilation. "The gold standard for mechanical engineers is 80% of the people comfortable 80% of the time," adds Tatge. "This presumption of 'air-conditioning equals universal comfort' is a false one, but it's powerful." Those fears aren't entirely unfounded, though.

Facility personnel "like to be able to do something, turn a dial" when they get a complaint, says Tatge. "There's less ability to do that in a naturally ventilated building. You can't turn it down. It is what it is."

Adds Menchaca, "We're convinced that mechanical systems work the way we design them—and they rarely do. Somehow, we're okay with that." That said, she admits, "I have seen so many buildings where the natural ventilation doesn't work," whether because of the design itself or because "everything was properly designed, and then the control systems failed." Control systems can be re-sequenced (more on this below), but if the system doesn't provide enough airflow, or if occupants are not comfortable enough or not flexible enough, "you can't just 'fix' your occupants. All you can do is reduce the amount of natural ventilation that you're using."

Most buildings in the U.S. make this possible by installing a backup mechanical system that's already being used for a certain percentage of the year, with natural ventilation reserved for "shoulder seasons." Before resorting to the mechanical system more often, consider creative strategies for correcting the natural ventilation scheme.

For safety reasons, the Nikken Sekkei-designed Hulic headquarters in Tokyo features louvered air intakes, seen here, instead of operable windows. A faulty computer sequence had occupants shivering when the building first opened, but a simple debugging process solved the problem.

Photo: Hulic Co. Ltd.

Your biggest fan

Menchaca spent four years of her graduate work helping design the ten-story HULIC Co. Ltd. headquarters in Tokyo. It has vents rather than operable windows, and a complex automation sequence. When the building opened, "people hated it," Menchaca confessed. Everyone was cold all the time. The project team discovered a flaw in the sequence, "one loophole that would never turn the fan off. It was just fixing that one bug, and now people love it." Stick around after the building is occupied, she cautions. Otherwise, "if it fails once, people will close the windows and never use it again."

Your latest fan

Glicksman pointed to the opposite problem in the Boston Artists for Humanity building, which relies on night flushing and exposed thermal mass for cooling in summer. "There's a crucial problem that we've confirmed" after monitoring, he said. "Occupants can turn on fans at night and set them for a certain number of hours, but there were no real operating rules. In most cases, they didn't turn them on long enough," waiting till midnight rather than starting the fans at 8 p.m. His team at MIT is now researching "some fairly simple design and operating rules to help manage" natural ventilation.

A chilling tale

The design team for the University of Washington (UW) Molecular Engineering Building got an earful in post-occupancy evaluations about the naturally ventilated office wing of the building being chilly in summer. "The challenge is keeping people from being too cold while effectively cooling the mass" at night, explains Chris

Chatto, Assoc. AIA, principal at ZGF. "Usually this is most extreme in the mornings." Further analysis also revealed that graduate students were staying late in the evenings, well after window actuators had been programmed to begin night flushing. "This was addressed by pushing back the start of this sequence." (See Post-Occupancy Evaluations: Ignorance Isn't Bliss.)

Modus operandi

Marais relates that interactions with radiant cooling or heating systems can also be flawed. "One of the things that they could have done better is to change the way the radiant floor is controlled," he told *EBN*, referring to Kita Schloss-Geister. Because the daycare center is currently regulated by an *air* thermostat, when teachers open the window to ventilate, "right away, the radiant floor tries to heat up the room as fast as it can," an undesirable feedback loop. The building owner will likely be retrofitting with a *radiant* thermostat.

3. Comfort Issues

The best fix of all is the one you don't have to do. Experts emphasize that stakeholder groups need to understand what a natural ventilation system really means before they adopt it. "A lot of times, the people who make the decisions on the client side aren't the people who sit around and use it" argues Paul Switenki, P.E., associate at Arup in San Francisco. He urges project teams to recognize the importance of communication with all stakeholders during design and occupancy.

"Passive is a misnomer"

One thing that probably doesn't get communicated enough is that natural ventilation depends on occupants taking responsibility for their own comfort, as attested to by Michael Henry, P.E., AIA, of Watson & Henry Associates, a firm specializing in historic preservation. "I approach it by trying to understand the building as an *active* envelope," he explains. "I tend to stay away from the word 'passive' because historic buildings require occupant interaction."

Adaptive thermal comfort means people can tolerate a wider temperature range if they control their clothing and environment—for example, by listening to President Jimmy Carter and donning a sweater. But culture matters: some Americans balked at the idea of layering instead of turning up the thermostat.

The cultural barriers to this way of thinking are formidable. Points out Jackson, "We relied on [natural ventilation] solely, no matter where you were, for eons and eons up until the 20th century. Suddenly we have the ability to shut up our buildings and completely control the environment, and codes and rules and expectations evolved around that. It's hard to take a step back in the opposite direction." Success, he says relies on occupants who "take control of their own level of comfort."

Indeed, the psychology of comfort has much to do with control; the more control each occupant has, the more comfortable each will be (see Adaptive Thermal Comfort). But the same things that can make a natural ventilation scheme successful—namely, open offices and automation—can compromise that control. Occupants with a flexible dress code, flexible attitudes, and the ability to adjust shades, ceiling fans, desk fans, and other comfort-control features will be happier in a naturally ventilated space.

Meanwhile, though you can't please all of the people all of the time, you *can* design to mitigate temperature swings and minimize cold drafts.

Putting walls to work

Peter Alspach, P.E., associate principal at Arup in Seattle, tells *EBN* that some naturally ventilated buildings appear to "out-perform the thermal models we have of them."

Although he hasn't been able to confirm with empirical data, he suspects this might have something to do with high thermal mass, most notably in historic buildings. At Clark Hall at the University of Washington, built in 1896 and renovated in 2009, comfort models suggested the space might get as warm as 82°F (28°C) on the hottest summer days, but actual measurements on a sunny, windless 85°F day showed readings of 78°F (26°C) in the building. "The way mass lulls perform dynamically is not well captured in the simulation tools," he says. "There's a fear I have that we could do a lot more natural ventilation and have acceptable performance than we do" but that we let our simulation tools talk us out of it.

Chatto says ZGF has used phase-change materials to perform the same function as thermal mass on projects where exposed masonry or concrete isn't possible or desirable.

Evading the draft

In warm weather, a breeze is refreshing and aids evaporative cooling. In buildings that rely on natural ventilation in winter, that "breeze" becomes a draft. Shaun Fitzgerald of Breathing Buildings claims his proprietary ventilation system has "cured a cold draft using heat loads within a building" rather than relying on perimeter radiators, which "uses bucketloads of heating energy. You can halve your heating and fan bills if you're smart."

With this technology—which many would argue is more like heat-recovery ventilation than natural ventilation—a ceiling fan draws outdoor air into stack vents, where a second ceiling fan mixes it with rising air that's been heated by internal loads from occupants, computers, and solar gain; the company claims no extra heating is needed until outdoor temperatures are below 41°F (5°C). In summer, windows are opened, and the fans draw warm air out through the same stack vents. It's unclear how well such a system would work in humid climates.

A simpler method of mitigating cold drafts can be seen in the historic Joseph Vance Building (see below).

4. Cost

The first cost of natural ventilation will vary depending on how it's designed, and return on the investment will vary depending on how it's designed as well as how it's used. Clients may lose heart when they realize they need a fully functional mechanical system alongside the natural ventilation scheme, notes Alspach. "Why not just pay for the mechanical system and call it a day?" For some clients, the desire for occupant comfort and satisfaction will win out, and for others, the energy savings may make the difference.

Because of the narrow footprint needed for adequate ventilation using operable windows, deciding whether to attempt natural ventilation needs to begin before many other decisions can be made, notes Jackson. "You can't just shut down if it gets too hot indoors." Because of this dilemma, he says most owners choose to design for mechanical ventilation—which often results in a large floorplate for efficiency—and add operable windows that are

Though it pushes the boundaries of what might be considered "natural" ventilation, the Breathing Buildings system provides fresh air year-round in a way the company claims solves the problem of the cold draft. With the Monkseaton school, the ventilation shafts were made into a colorful exterior design feature.

seldom used and may be ineffectual for ventilation.

Where costs get added

A system that includes the following may add to the cost of the building or its operation:

- **CFD modeling** reduces risk and is a wise investment for projects that rely on natural air flows, but it requires paying a specialist.
- **Controls** like window and vent actuators, "stop-light" systems, occupancy sensors, and other equipment might eat into the savings of not having a mechanical system.
- **Operable windows** usually cost more—and some insurers might not like them, leading to increased premiums.
- A **narrow floorplate** means higher costs due to greater surface area that must be designed and built. Any project that's providing daylighting and views may already be paying these same costs, however.
- **Mixed-mode systems** are the greatest potential expense; the mechanical system, even if it's just a backup, will still have to be designed for peak heating and cooling loads—the very times when natural ventilation isn't feasible.

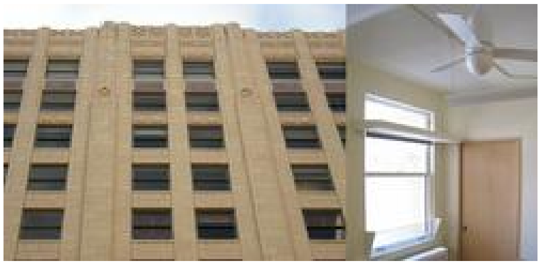
Cost savings

The following may yield savings on first costs or during operation:

- **Less equipment** will be needed if the building can be naturally ventilated year-round.
- **Doubling up with other systems** will decrease the effective cost of designing and constructing for natural ventilation. "One of the best things you can do for the building is daylight well," says Duncan Phillips, Ph.D., P.Eng., principal at RWDI (see Doing Daylighting Right.) "If you daylight well, you have a much, much better chance of naturally ventilating." The thermal mass needed to maximize the effectiveness of passive solar (see Passive Solar Heating) also complements natural ventilation by increasing the effectiveness of night flushing. And although there are safety issues with some natural ventilation strategies (air pathways are also smoke pathways), others synergize with fire codes, notes Menchaca. "If you are using it in an atrium that already has to have a smoke evacuation system, you are using what you already built; there is no question about cost because you are already spending on it."
- **Economizer mode**, sometimes called "free cooling," is one way to "sneak" natural ventilation into a mechanically conditioned building. "It brings air in through the ducts but doesn't condition it," Menchaca explains. Designing the mechanical system to utilize economizer mode as much as possible can save significantly on energy.
- **Other energy savings** come through more obvious means: turning off the mechanical system and relying on wind, stack effect, or fans to bring in fresh air. Even if this is only possible for a third or a quarter of the year, that's a third or a quarter less energy the mechanical system is using annually.

5. Built-In Limitations

Depending on the climate, wind-driven or buoyancy-induced ventilation may require a certain orientation, geometry, interior layout, or site master plan. What if one or more of these factors is out of your control? Some existing buildings may simply be inappropriate for natural ventilation, but experts *EBN* spoke with say not to give up immediately.



The historic Vance building in Seattle includes original ventilation deflectors (bottom of window) designed to prevent drafts and disruptive breezes. Restoration efforts also included installation of ceiling fans and light shelves with built-in fabric shades.

Photos: Joe Mabel (L), license CC-BY-SA 3.0. © Arup (R), used with permission.

Many commercial buildings, particularly built from the 1950s to the 1990s, do not lend themselves to daylighting or natural ventilation due to deep floor plates. Some of these may be retrofitted by the introduction of an atrium. Others may be able to use the free cooling provided by the HVAC system's economizer mode, with operable windows (single-sided ventilation) provided to some occupants, or controls that can automatically turn off the HVAC system in offices with open windows.

Earlier structures, even those built after the introduction of mechanical air conditioning, were likely designed with daylighting in mind—sometimes natural ventilation as well. Restoring the natural ventilation system in such buildings may be possible, depending on fire codes and security concerns.

"The historic building envelope was really a thing of marvelous complexity," argues Michael Henry. "Much of that took place through the windows." The trick, he says, is to do some "archeology" to discover how the building was meant to work so that the many functions of windows, light shafts, and other features can be fully restored. "What we find today is just a portion of the original technology," such as ventilation shafts that have since been filled with elevators or ducts, or operable skylights that have been sealed. "Cupolas are not there for decoration; they are for environmental management."

Restoring full functionality takes more than re-opening operable windows, though, Henry warns. He has used old ASHRAE journals and handbooks, blueprints, photographs showing closed shutters in summer, and "ghosts of operable hardware" to help him puzzle out just how building systems have been designed and operated. "Expect an unexpected level of sophistication and complexity," he advises. "These folks really knew what they were doing."

The restored 14-story Joseph Vance building in Seattle, completed in 1929, provides a celebrated example. As the project team toured the building discussing renovation options that included full façade upgrades and window replacements, Arup's Alspach noticed that "some spaces had little window deflectors,"—hardware the owners viewed as "obnoxious." But he noticed that the deflectors actually have a purpose. In winter, they keep cold air from slightly cracked windows from entering the room as a cold draft; in summer, they direct air upward to prevent breezes from blowing papers off desks.

The project ended up not having the budget for window replacement, but natural ventilation—including the deflectors—lives on in the building, supplemented by light shelves with built-in fabric shades for light control. As tenants leave, air-conditioning units are removed from the vacated space, and a tenant guide developed by ZGF and Arup helps the new tenants plan their fit-outs to maximize natural ventilation and daylighting.

6. Heat & Humidity

Given the ability to adapt their clothing, airflow, lighting, and other aspects of their environment, humans can tolerate a wider range of temperatures than they can if they have no control—but there are limits. "If the outdoor temperature is 90°F, you're bringing in air that's 90°F," Jackson states. "Once you get beyond a certain threshold, all you're doing is introducing heat."

Stay out of the kitchen?

The classic way of mitigating these effects—exposed thermal mass (or phase-change materials) and night flushing—have already been mentioned, but there are some less obvious strategies for preventing overheating as well. "Shade like crazy," offers Duncan Phillips, Ph.D., P.Eng., principal at RWDI—but never at the expense of wind-flow, he cautions, because feeling airflow over your skin is psychologically just as important as the evaporative cooling the airflow provides.

Additionally, preventing urban heat islands doesn't just make you a good neighbor; it also makes it easier to keep your own building cool through natural ventilation. All the familiar strategies for cooling the building's microclimate—shading of paved areas, landscaping in place of pavement, vegetated or cool roofs, and a high-reflectance façade—will keep temperatures cooler and allow windows to remain open longer.

The Gary C. Comer Geochemistry Building at Columbia University features natural ventilation in its office wing; Payette designers took advantage of natural shading from existing trees to keep the building cooler.

Photo © Peter Vanderwarker

Dry heat, wet heat

Part of the problem in many U.S. climates, Menchaca adds, is the humidity. "If it were dryer, you could use evaporative cooling," she explains. "If you're in Boston, you can't humidify because it's already at 90%" on some days.

"We can't take humidity out of the space, but we can increase air movement," notes Phillips, who has worked in regions where natural ventilation is a given regardless of the outdoor conditions. It helps that the impact of air movement actually increases with humidity: "If we blow air over you and you perceive air movement, your body will feel cooler." He's seen this strategy used effectively in Singapore, Shanghai, and Malaysia, he says.

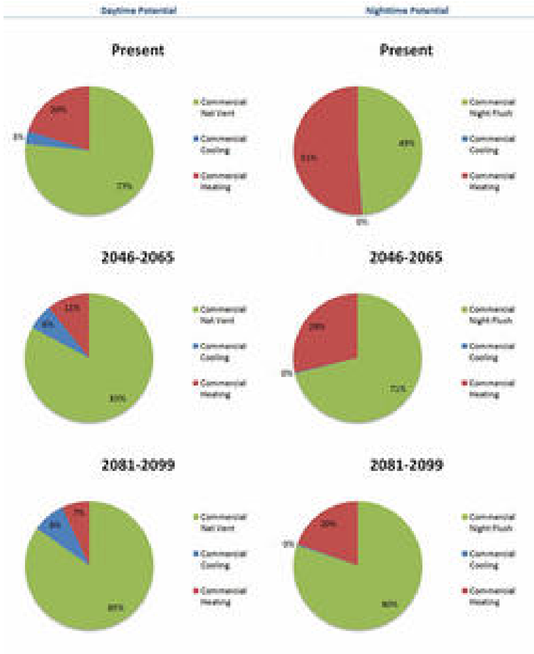
Americans are less likely to accept such conditions, so barring large-scale cultural changes, there are other options, such as desiccant-based dehumidification or even, suggests Mick Pearce, water curtains chilled using solar thermal cooling; at around 12°C (54°F), the waterfall draws humidity from the air by causing condensation.

Phillips cautions that the system must be designed carefully to avoid adding water droplets back to the indoor environment in an unwanted feedback loop.

Natural ventilation and climate change

As the global climate changes, the number of days of the year when natural ventilation is practical will likely decrease in many places (see Designing for the Next Century's Weather). The effect is amplified by humidity, notes Cole Roberts, P.E., associate principal at Arup in San Francisco, pointing out that heat-index calculations are non-linear, so small shifts in temperature cause much greater shifts in discomfort: at 80°F and 80% relative humidity, for example, the heat index is a tolerable 84°F, but 82°F at the same humidity comes out to a heat index of 89°F. "The industry could be communicating better" with clients about such effects, Roberts argues. He and others at Arup have developed a software tool called WeatherShift to help them do just that (see Tuning Today's Building Designs to Tomorrow's Climate [link to news story]).

Natural Ventilation and Climate Change



In a twist, this San Francisco area building's natural ventilation potential could increase with warming temperatures, according to Arup's WeatherShift tool.

Source: Arup and Argos Analytics

The data so far have led Roberts to sound the alarm about natural ventilation: “There’s a commonly held belief that naturally ventilated building stock is a responsible course moving forward because of all the mitigation benefits and savings on greenhouse gases,” but that “may not be as sound an approach as perhaps the industry has thought” due to increases in average temperatures, heat waves, and overnight temperatures.

On the other hand, he adds, “If you look at resilience from the standpoint of power outages and passive survivability, natural ventilation is brilliant.” Operable windows may not save enough energy to prevent climate change, but in a hotter world, they can make buildings more tolerable to be in when the power goes out; many firms now view them as a key resilience feature regardless of the mechanical system.

7. Outdoor Air Quality

Natural ventilation is touted for providing high indoor air quality—but is unfiltered outdoor air really an improvement?

Not always, but there are usually ways to handle it, starting with orientation that points naturally ventilated areas away from major highways or other sources of outdoor pollutants. “It’s all really a question of geometry, even in urban environments” says Jackson. “There are ways to make the wind work to your will. You just have to bend the building.”

On bad-air days in some areas, windows and vents may simply need to be closed to protect those with asthma or other health issues. Fortunately, these days will typically coincide with the hottest and most humid ones, when mechanical backup would be likely anyway—but this restriction does limit the ability to implement pure natural ventilation in some climates that would normally allow it. “California’s been challenged for a long time with poor air quality,” laments Phillip Haves at LBNL. “It’s not Beijing,” he jokes, referring to China’s notoriously polluted air, but sensitive people should be closing the windows when smog and particulate levels are high.

8. Acoustics

Outdoor air quality often goes hand in hand with acoustical issues. ZGF addressed both problems with the UW Molecular Science Building by re-orienting the original design to have the naturally ventilated offices face a courtyard rather than the street. “The eastern façade was going to be [mechanically conditioned] labs facing the quieter courtyard, and the office view would be of downtown Seattle and the water,” explained Chatto. That got turned around when natural ventilation came into the discussion because of the noise and pollution from trucks and buses—and because of the potential for overheating of the naturally ventilated offices from afternoon sun.

Acoustics inside the building may be more problematic (see Building Green … Quietly: Noise Pollution and What to Do About It). Open layouts are desirable to maximize air circulation but can disrupt acoustical privacy, and exposed thermal mass can cause unwanted reverberation. Chatto says at UW, the team compromised by adding carpet and using phase-change materials behind drywall.

Open-office layouts are well known to come with acoustical issues, so follow best practices to ensure that occupants have a refuge for meetings and private phone calls (see Open Offices Engender Collaborative, Transparent Workplaces).

9. Fear of Human Error

Busted pipes, rained-on equipment, first-floor break-ins, and heat escaping over the winter holidays as fast as the radiator can produce it: all are nightmare scenarios that may come up when discussing natural ventilation with clients. They are far less likely to come true when the integrative process includes the right stakeholders and continues during occupancy. The more pressing threat, as Menchaca sees it, is from occupants not understanding when it's okay to open their windows—resulting in less energy savings than projected, or in natural ventilation never being used at all.

"Occupant behavior is at least half of the chance that your system will work or will fail," cautions Menchaca. "We spend a lot of time thinking about how we can make the occupants comfortable and help them understand how the system works."

All the ways of getting around this—whether by engaging occupants or by trying to leave the potential for human error out of the design—have their pitfalls.

This little light of mine

Window sensors with indicator lights are a popular way to show occupants that conditions are right for opening windows, based on exterior temperature or interior CO_2 levels. But they're not foolproof; occupants may simply ignore the lights.

In particular, Menchaca says, they can be a poor choice in schools. "You have multiple occupants, but the one occupant you're relying on is teaching the entire time." In this case, the windows could be automated, or the school could choose to teach the students to open and close the windows at the right time.

Operator, could you help me place this sash?

Automated window, vent, and shade operators are also a mixed bag. As mentioned above, automation reduces adaptive comfort options. "When people control their environment and have access to the outdoors, they are more likely to be comfortable," says Jackson. "If you take the operation out of their hands, it's basically doing the same thing a mechanical system does. You would have to design on a more stringent temperature requirement inside."

A matter of trust

Like window actuators, occupants aren't 100% reliable—and unlike actuators, they can't be commissioned. "One of the big social things is that, even if you give occupants red and green lights, they might not be too interested or eager to act, and they don't see it as a reasonable responsibility," says Paul Switenki. "Our success stories are tied to informing the occupants and teaching them how the system works."

That can certainly feel risky, and some owners won't be willing to take that risk. Jackson tells the story of a 300-year-old building where occupants had to open windows for ventilation in winter—which one day resulted in "a million-dollar pipe-break fiasco." Though such incidents are rare, the specter of them can be a deal-breaker. "We haven't been able to do [natural ventilation] simply because of people's past experiences with really intelligent people who can't remember to close their windows," says Jackson.

Yet some occupant groups are an ideal match for operable windows and the responsibility they entail, as Peter Alspach describes with Clark Hall at UW. The university expressed concerns about security, but they had reckoned without the building's occupants: the ROTC program. "The user group solved it," beamed Alspach. "They just said, 'This is the policy, and everyone needs to learn how to use the building.'"

"Come Back and Make Sure"

If there's one theme we heard over and over again, it's that the success of a natural ventilation scheme is tied to continued engagement after people have moved in.

"You need to have someone come back and make sure the system is working," argues Menchaca. This is particularly true with more complex systems, such as those with automated components or sensors. "It's giving a poor name to natural ventilation when actually it's the mechanical system that's not working," she says, but too often, the passive design takes the fall, and all the team's hard work goes to waste. "With natural ventilation, the easy fix is to just close the windows"—and they might never be opened again, resulting in a loss not only in building performance but also for the industry as a whole.

Boston College provides operable windows to professors to increase their comfort and satisfaction, but if those absent-minded professors leave windows open it's a potentially expensive mistake, says Blake Jackson at Tsoi/Kobus. Natural ventilation requires diligence and trust as well as good design and engineering.

Photo: Tsoi/Kobus

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Learning Objectives

Upon completing this course, participants will be able to:

1. Explain the primary reasons to design a building for natural ventilation.
2. Understand how cost, comfort issues, and conventional design processes inform the design for natural ventilation.
3. Understand how to mitigate overheating and chilling, and address outdoor air quality and noise pollution when designing for natural ventilation.
4. Recognize the complexity of historic designs for natural ventilation; why its present reputation for unpredictability is a call for creative, corrective strategies; and how both dictate a need for straightforward operating rules.

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Discussion Questions

Use the following questions to inform class discussions or homework assignments.

1. The biomimetic passive cooling system in Zimbabwe's Eastgate building was inspired by termite mounds. What other systems in the natural world inspire natural ventilation schemes?
2. How would you write the operating rules to help manage ventilation in an open office space of your choice—real or imagined?
3. If the psychology of comfort has so much to do with control, why do you think mechanically conditioned buildings became the standard? Considering that the high thermal mass of historic buildings may be why some naturally ventilated buildings are out-performing their energy models, how would you convince dubious stakeholders that natural ventilation isn't "a step back in the opposite direction"?
4. Regarding automation, where do you draw the line between its contribution to successful natural ventilation schemes and its reduction of adaptive comfort options? Besides ROTC, what "occupant groups are an ideal match for operable windows and the responsibility they entail"?
5. How would you describe the relationship between natural ventilation and climate change?
6. Are you convinced that many of the obstacles to designing for natural ventilation "have a lot more to do with perception and habit than physics?"

August 3, 2014

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