



April 22, 2009

The Honorable Denise Moreno Ducheny, Chair  
Joint Legislative Budget Committee  
1020 N Street, Room 553  
Sacramento, CA 95814

Attn: Jody Martin, Principal Consultant

Dear Senator Ducheny:

Pursuant to the Supplemental Report Language Item 1760-001-0666 3(a) – (e), the Department of General Services is submitting the Supplemental Report of the 2008 Budget Act, Item 1760-001-0666 3(a) – (e), Green Buildings.

In keeping with our commitment to encourage conservation, we have posted this report to our website. The report can be viewed at <http://www.legi.dgs.ca.gov/Publications/2009LegislativeReports.htm>. The report is entitled ***Supplemental Report of the 2008 Budget Act, Item 1760-001-666 3(a) through (e), Green Buildings.***

If you wish to receive a printed copy of this report, please contact JoAnn Button, Green Team Member, Department of General Services, at (916) 375-4244.

Sincerely,

William C. Bush  
Director

cc: See attached Supplemental Report Distribution List  
JoAnn Button, Green Team Member, Department of General Services

**SUPPLEMENTAL REPORT**  
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**ORIGINAL LETTER TO EACH OF THE FOLLOWING:**

The Honorable Denise Moreno Ducheny, Chair **(Hand carry 18 copies)**  
Joint Legislative Budget Committee  
1020 N Street, Room 553  
Sacramento, CA 95814  
Attn: Jody Martin, Principal Consultant

The Honorable Denise Moreno Ducheny, Chair  
Senate Budget & Fiscal Review Committee  
State Capitol, Room 5019  
Sacramento, CA 95814  
Attn: Danny Alvarez, Staff Director

The Honorable Mark DeSaulnier, Chair  
Senate Budget Subcommittee, #4  
State Capitol, Room 2054  
Sacramento, CA 95814

The Honorable Juan Arambula, Chair  
Assembly Budget Subcommittee, #4  
State Capitol, Room 2141  
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The Honorable Christine Kehoe, Chair (Attn: Bob Franzoia, Director)  
Senate Appropriations Committee  
State Capitol, Room 2206  
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The Honorable Kevin De León, Chair  
Assembly Appropriations Committee  
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Attn: Geoff Long, Director

The Honorable Noreen Evans, Chair  
Assembly Budget Committee  
State Capitol, Room 6026  
Sacramento, CA 95814  
Attn: Christian Griffith, Chief Consultant

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Secretary of the Senate  
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**COPY OF JLBC LETTER TO EACH OF THE FOLLOWING:**

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Assembly Budget Committee  
State Capitol, Room 6027  
Sacramento, CA 95814

The Honorable Dave Cox, Vice Chair  
Senate Appropriations Committee  
State Capitol, Room 2068  
Sacramento, CA 95814  
Attn: Doug Yoakam, Minority Director

The Honorable Jim Nielsen, Vice Chair  
Assembly Appropriations Committee  
State Capitol, Room 6031  
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Originating Office

**SUPPLEMENTAL REPORT REVISED 1/30/09**



DEPARTMENT OF GENERAL SERVICES

**Supplemental Report  
of the 2008 Budget Act  
Item 1760-001-0666  
Green Buildings  
3 (a) through (e)**

**March 1, 2009**

## **Overview**

This report satisfies the requirements set forth in the 2008 Supplemental Report Language, Item 1760-001-0666, #3 - Green Buildings. This item requires the Department of General Services (DGS) to report to the Legislature certain information related to its Green Building program. This report is organized to address the information requested in each of the five subcategories numbered (a) through (e) under Item 3.

## **Item 3(a) – Leadership in Energy and Environmental Design (LEED) Certifications**

### Requirement

*(a) The DGS shall, by March 1, 2009, and annually thereafter, report to the Legislature on all new, renovated, and leased buildings and their Leadership in Energy and Environmental Design (LEED) certification status; all existing buildings that have achieved LEED certification and the level of certification, including those certified in accordance with the department's Green Building Initiative; and the status of LEED recertification for buildings that have been LEED certified. Include in the report:*

- 1. How many new State building projects under DGS' jurisdiction are not designed to LEED-NC Silver standards, and why;*
- 2. How many meet LEED-NC Silver standards; and*
- 3. How many exceed LEED-NC Silver standards and how it was determined feasible to do so.*

### Response

The DGS maintains a Green Building Inventory which depicts the LEED certification status of each building in the State's portfolio that is being tracked by the DGS. The Inventory is available on the internet. The Directory of Green Buildings Web site (<http://www.greenbuildings.dgs.ca.gov/search.asp>) contains a map of California, with flags identifying both existing State-owned facilities, as well as new State construction projects that have achieved, or are currently pursuing, LEED certification from the U.S. Green Building Council. On that page, there is also a link to the same data in an Excel spreadsheet format (<http://www.documents.dgs.ca.gov/dgs/pio/green/GB%20Spreadsheet.xls>). It should be noted that the buildings in this database fall under the Governor's Executive Branch authority, and do not include facilities owned or operated by the University of California Regents, California State University Trustees, or community college systems, courts, or K-12 public schools.

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2008 BUDGET ACT, 1760-001-0666  
#3 - GREEN BUILDINGS**

Using data from this inventory, answers to the above questions are as follows:

1. There are zero new State building projects under the DGS' jurisdiction that are not designed to LEED-New Construction (NC) Silver standards. All projects for new construction and major renovations are designed to LEED-NC Silver standards. This is in keeping with the Executive Order (EO) S-20-04. Buildings less than 10,000 square feet are designed to LEED-NC Silver standards even though a formal certification is not required.
2. Approximately 223 buildings are actively pursuing LEED-NC Silver standards as of October 2008. Certifications have been achieved on 12 buildings so far: 3-Gold, 5-Silver, 4-Certified. The remaining buildings are in various phases of design and construction. The final determination for LEED-NC Silver certification will be provided by the US Green Building Council at the completion of construction.
3. Two projects administered by the DGS exceeded LEED-NC Silver criteria—the new Department of Motor Vehicles field office in San Ysidro and the DGS East End building in Sacramento occupied by the Department of Education. Through innovative design, the DGS was able to achieve a Gold rating on these two projects without exceeding the established construction budget. The Administration's policy, pursuant to EO S-20-04, requires the design of new buildings or major renovations to LEED-NC Silver, or better. Higher certification levels are pursued if they can be achieved without exceeding the project's established scope, schedule, and budget. The 3<sup>rd</sup> project to achieve Gold certification is the new CalPERS Headquarters building located at 400 Q Street. CalSTRS is also pursuing the Gold level in its construction of a new headquarters building in West Sacramento.

**Item 3 (b) – Life Cycle Cost/Benefits of LEED Silver**

Requirement

*(b) Estimates of life cycle costs, if any, and benefits of designing and constructing State buildings to achieve LEED-NC silver certification, based upon a representative sample of State building projects that begin construction during the report period. Information should be included defining what factors were included in cost and benefit calculations.*

Response

**LEED Considerations**

LEED is a third-party certification program and a nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water

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savings, energy efficiency, materials selection and indoor environmental quality, with additional recognition for innovation and design on a project specific basis. Projects are evaluated under a 69 point rating system. For LEED-NC Silver certification, a project must achieve a minimum of 33 points and meet a series of prerequisites in each of the key areas.

In response to the inherent complexity of contemporary building projects, LEED points can be achieved through a wide variety of design and construction measures. From a cost perspective, each of these measures can be cost neutral, more expensive or less expensive than their non-LEED equivalents. From a benefit perspective, each measure can provide quantitative or qualitative benefits, only some of which can be easily monetized.

The goal of this report is to present reasonable estimates of the costs and benefits of designing and constructing State building projects to achieve LEED-NC Silver or better certification. The life cycle cost analysis focuses on building systems whose costs and benefits are quantifiable, expressed in dollars and available from current project data. These typically involve resources or services the State must purchase to operate the building, such as energy and water. The analysis does not consider LEED points whose benefits are not readily quantifiable or where data was not available.

### **Life Cycle Cost Assessment Assumptions**

The National Institute of Standards and Technology (NIST) Handbook 135, 1995 edition, defines Life Cycle Cost (LCC) as “the total discounted dollar cost of owning, operating, maintaining, and disposing of a building or a building system.” Life Cycle Cost Analysis (LCCA) is an economic evaluation technique that determines the total cost of owning and operating a facility over period of time. The LCCA for this report was done on an incremental basis to present the difference between the LEED project as designed and constructed and a project that would have met minimum code requirements. The following economic assumptions, updated as of September 2008, were used in the analysis to compute the benefits, in both total and net present value dollars, for the selected building systems:

<b>LCCA Analysis Criteria</b>	<b>DGS Input</b>
Building Life =	30 years
Discount Rate (from the State Treasurer's Office)	4.8%
General Rate of Inflation	3.4%
Electric Power Rate Escalation (added to inflation)	- 0.3%
Natural Gas Rate Escalation (added to inflation)	1.23%
Routine Annual O&M (added to inflation)	0.0%
Major Repair/Replacements (added to inflation)	0.0%
Solar PV Panel Annual Degradation	0.8%

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The costs of achieving the LEED certification were computed using the incremental cost of the higher performing systems or assemblies, and the LEED accreditation, design and documentation costs.

**Representative Sample**

The projects selected for the initial reporting period include the new construction of a small field office and a large multi-story office building:

- Department of Motor Vehicles San Ysidro Field Office, San Ysidro
- Department of Transportation District 3 Headquarters Office Building, Marysville

Brief project descriptions, LEED Project Checklists and the LCCA computations for these projects are attached. The breadth of the representative sample should increase in future reporting periods as the analytical and data collection requirements are identified and incorporated into the scope of work for projects currently under development.

**LEED Costs and Benefits**

The costs and benefits of designing and constructing the representative sample State building projects to achieve their LEED-NC certification is summarized below:

<b>Project</b>	<b>LEED Cert. Level</b>	<b>Total Project Cost</b>	<b>LEED Current Costs <sup>1</sup></b>	<b>LEED Total Benefits <sup>2</sup></b>	<b>LEED NPV Benefits</b>	<b>NPV Benefit Cost Ratio <sup>3</sup></b>
DMV Field Office San Ysidro, CA	Gold	\$8,619,429	\$177,748	\$548,942	\$206,060	1.16
Caltrans District 3 Headquarters Office Building, Marysville	Silver	\$75,655,000	\$622,000	\$5,738,443	\$2,688,740	4.32

- Notes: 1. Costs associated with all LEED measures.  
 2. Total dollar savings over the 30 year analytical period not adjusted for the time value of money.  
 3. LEED NPV Benefits ÷ LEED Current Costs.

**Item 3 (c) – High Performance Schools**

Requirement

*(c) The DGS shall provide the number of schools being built in California and how many of those are built to Collaboration for High Performance Schools or similar standards, and what DGS plans to do to increase the number of new school sites that are built to such standards.*

Response

**Number of High Performance Schools in California:**

School construction takes approximately six years from the start of planning a school campus to the completion of its construction. There are now 26 schools in California that have been certified by the Collaborative for High Performance Schools (CHPS), a standard that was published in 2001. There are 33 schools districts, of the 1,000 in California, that have a resolution to build all their schools to CHPS standards. Based on number of students in California, this constitutes approximately 25 percent of all school construction in California since many of the large school districts have signed on to build to these green standards. Currently there are an additional 125 school projects registered to attain CHPS certification.

LEED for Schools was published in April 2007, and there are 29 school projects registered in California to attain this LEED certification.

**Current activities by the DGS that encourage High Performance Schools:**

1. Incentive grants for High Performance Schools per Proposition 1D are available for incorporating green features in schools. The DGS' Division of the State Architect (DSA) has plan reviewed and approved 57 school projects to date, with seven additional plan checks underway. Funds in the amount of \$89 million are still available, and are being distributed by the Office of Public School Construction (OPSC). The average grant is calculated at \$267,000.
2. The DSA is beginning to take the necessary steps for the State of California to make schools resource and energy efficient. Grid neutral is defined as a "site that produces as much electricity as it uses in a year," and the DSA is encouraging all schools going through plan review to make provisions for a grid neutral campus starting in 2010. The DSA recently collaborated with stakeholders and subject matter experts to develop a guidebook for the design and renovation of schools in order to attain higher energy efficiency and on-site energy generation, and to introduce a compelling business case for school districts to embark on this effort.

A series of workshops was conducted in September and October 2008 to gain insight and information on the following six components of attaining grid neutrality for new and existing schools:

- comprehensive planning
- energy efficient designs
- energy generating technology
- energy measurement
- maintenance and operations
- innovative funding

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#3 - GREEN BUILDINGS**

The guidebook detailing a “set of solutions” to communicate to stakeholders and school board members of K-12 and community colleges the recommended means, methods, and economics of how to become grid neutral will be presented at the Green California Schools Summit in Anaheim in December 2008.

**Item 3 (d) - Green Building Reports**

Requirement

*(d) The DGS shall provide all reports produced pursuant to S-20-04 and the Green Building Action Plan in this report to the Legislature.*

Response

All reports produced by the DGS in connection with EO S-20-04 and the Green Building Action Plan can be found on the Green California website maintained by the DGS at: [www.green.ca.gov](http://www.green.ca.gov). California’s Green Building Directory can be found on this site, along with links to numerous other data related to the greening of the State’s buildings.

**Item 3 (e) – Avoiding Duplicate Reports**

Requirement

*(e) For those items required in subdivision (a), (b), (c), and/or (d) that are already included in other reports provided to the legislature or are generally available; DGS may fulfill this requirement by citing where that information can be found (including page numbers when applicable).*

Response

This provision is recognized and appreciated as it is consistent with the DGS’ efforts to encourage and follow sensible conservation measures and avoid duplication in reporting. Rather than duplicating data, we have incorporated appropriate citations and web links above to indicate where the pertinent data can be found.

**Summary – the Green Building Program and the DGS’ Commitment**

The goal of the Green Building Program is to site, design, deconstruct, construct, renovate, operate, and maintain State buildings that are models of energy, water, and materials efficiency; while providing healthy, productive and comfortable indoor environments, and long-term benefits to Californians. Under the Governor’s and Legislature’s leadership, California is leading by example on energy efficiency and conservation, sustainability, green building, and green purchasing practices. From the buildings our department owns and operates to the products we buy, the DGS is committed to environmentally friendly, energy- and resource-efficient practices and policies.



**Leadership in Energy and  
Environmental Design (LEED)  
Life Cycle Cost Assessment Costs / Benefits**

## **Attachments**

October 2008

# Leadership in Energy and Environmental Design - LEED Life Cycle Cost Assessment Analysis

Department of Motor Vehicles San Ysidro Field Office

## Life Cycle Benefits Summary

Area of Savings	Total \$\$\$ Savings	Net Present Value of Savings
Electric Power	341,087	160,898
Solar PV Savings	34,289	17,287
Natural Gas	39,434	17,771
Water	21,421	10,105
<b>Total Savings</b>	<b>\$436,230</b>	
<b>Net Present Value of Savings</b>		<b>\$206,060</b>

## Life Cycle Costs Summary

Incremental LEED Cost Categories	Total \$\$\$ Costs	Net Present Value of Costs
Hard Costs	107,748	0
Soft Costs	70,000	0
<b>Total LEED Incremental Costs</b>	<b>\$177,748</b>	<b>\$177,748</b>

## Life Cycle Benefit / Cost Ratio

<b>Net Present Value of Benefits</b>	<b>\$206,060</b>
<b>Incremental LEED Costs</b>	<b>\$177,748</b>
<b>Benefit / Cost Ratio</b>	<b>1.16</b>

# Leadership in Energy and Environmental Design - LEED Life Cycle Cost Assessment Analysis

Department of Motor Vehicles San Ysidro Field Office

## DGS Inputs\*

### Escalation Factor Assumptions

Current Year	2007	Year Building is placed into service
General Inflation	3.40%	General Inflation Rate
Discount Rate	4.80%	The State's estimated Cost of Capital
Reinvestment Rate	0.00%	The rate of return on reinvested project cash flow (savings)
Rounding	-2	

### Specialized Escalation Factor Assumptions

Routine Annual O & M, added to inflation	0.00%
Major Repairs or Replacements, (added to inflation)	0.00%
Utility Electric Rate Escalation (added to inflation)	-0.30%
Utility Demand Rate Escalation (added to inflation)	-0.30%
Natural Gas Rate Escalation (added to inflation)	1.23%
Photovoltaic degradation factor, per year	0.80%

\* These inputs were provided by DGS as of 1 October 2008, check the website ([www.green.ca.gov/EnergyEffProj](http://www.green.ca.gov/EnergyEffProj)) for more information

# Leadership in Energy and Environmental Design - LEED Life Cycle Cost Assessment Analysis

Department of Motor Vehicles San Ysidro Field Office

## Natural Gas

First Year Natural Gas Cost Savings \$640  
Total Natural Gas Inflation Rate 4.00%

## Net Present Value Cost Benefit Analysis

Period	Year	Energy Cost Savings	Cumulative Cost Savings	Cumulative NPV Savings
1	2008	640	640	612
2	2009	666	1,306	1,222
3	2010	692	1,998	1,829
4	2011	720	2,718	2,432
5	2012	749	3,466	3,033
6	2013	779	4,245	3,631
7	2014	810	5,055	4,226
8	2015	842	5,897	4,818
9	2016	876	6,773	5,408
10	2017	911	7,684	5,994
11	2018	947	8,631	6,578
12	2019	985	9,617	7,159
13	2020	1,025	10,641	7,737
14	2021	1,066	11,707	8,313
15	2022	1,108	12,815	8,885
16	2023	1,153	13,968	9,455
17	2024	1,199	15,166	10,022
18	2025	1,247	16,413	10,587
19	2026	1,297	17,710	11,149
20	2027	1,348	19,058	11,708
21	2028	1,402	20,460	12,264
22	2029	1,458	21,919	12,818
23	2030	1,517	23,435	13,369
24	2031	1,577	25,013	13,917
25	2032	1,641	26,653	14,463
26	2033	1,714	28,368	15,009
27	2034	1,791	30,159	15,555
28	2035	1,872	32,031	16,101
29	2036	1,956	33,988	16,647
30	2037	2,044	36,032	17,193
<b>Total Cash Flow from Savings</b>			<b>\$36,032</b>	
<b>Net Present Value of Savings</b>				<b>\$17,193</b>

# Leadership in Energy and Environmental Design - LEED

## Life Cycle Cost Assessment Analysis

Department of Motor Vehicles San Ysidro Field Office

### Electric Power Calculations

First Year Electric Power Cost Savings \$7,054  
 Total Electric Power Inflation Rate 3.10%

Period	Calendar Year	Annual Energy Cost Savings	Cumulative Cost Savings	Cumulative NPV Savings
First Year	1	2008	\$7,054	\$6,731
	2	2009	\$7,273	\$13,353
	3	2010	\$7,498	\$19,867
	4	2011	\$7,731	\$26,276
	5	2012	\$7,970	\$32,580
	6	2013	\$8,217	\$38,783
	7	2014	\$8,472	\$45,255
	8	2015	\$8,735	\$51,990
	9	2016	\$9,005	\$58,995
	10	2017	\$9,285	\$66,280
	11	2018	\$9,572	\$73,852
	12	2019	\$9,869	\$81,721
	13	2020	\$10,175	\$90,896
	14	2021	\$10,491	\$100,387
	15	2022	\$10,816	\$110,203
	16	2023	\$11,151	\$120,354
	17	2024	\$11,497	\$130,851
	18	2025	\$11,853	\$141,704
	19	2026	\$12,221	\$152,925
	20	2027	\$12,599	\$164,524
	21	2028	\$12,990	\$176,513
	22	2029	\$13,393	\$188,902
	23	2030	\$13,808	\$201,700
	24	2031	\$14,236	\$214,936
	25	2032	\$14,677	\$228,613
	26	2033	\$15,132	\$242,745
	27	2034	\$15,601	\$257,346
	28	2035	\$16,085	\$272,431
	29	2036	\$16,584	\$288,015
	30	2037	\$17,098	\$304,113
<b>Total Energy Cost Savings</b>			<b>\$341,087</b>	
<b>Net Present Value of Savings</b>				<b>\$160,898</b>

# Leadership in Energy and Environmental Design - LEED Life Cycle Cost Assessment Analysis

Department of Motor Vehicles San Ysidro Field Office

## Solar Photo-voltaic Electric Power

First Year Solar Photo-voltaic Electric Power Cost Savings \$1,599  
 Total Electric Power Inflation Rate 3.10%  
 Solar Panel Annual Degradation Factor 0.80%

	Service Life Year	Calendar Year	Annual Energy Savings		Incremental Costs		Annual Cost Savings	Cumulative Cost Savings	Cumulative NPV Savings
			Initial Estimate in Dollars	Adjusted for PV Panel Degradation	Operations **	Equipment Repairs*			
First Year	1	2006	1,599	1,599	(260)		1,339	1,339	1,278
	2	2007	1,649	1,635	(268)		1,367	2,706	2,523
	3	2008	1,700	1,672	(276)		1,396	4,102	3,736
	4	2009	1,752	1,710	(285)		1,425	5,528	4,917
	5	2010	1,807	1,749	(294)		1,455	6,983	6,068
	6	2011	1,863	1,788	(303)		1,485	8,468	7,189
	7	2012	1,920	1,828	(312)		1,516	9,984	8,281
	8	2013	1,980	1,869	(322)		1,547	11,531	9,344
	9	2014	2,041	1,911	(332)		1,579	13,110	10,380
	10	2015	2,105	1,953	(342)		1,611	14,721	11,388
Inverter Replacement	11	2016	2,170	1,996	(353)	(8,382)	(6,739)	7,982	7,364
	12	2017	2,237	2,040	(364)		1,677	9,659	8,319
	13	2018	2,306	2,085	(375)		1,710	11,369	9,249
	14	2019	2,378	2,131	(387)		1,744	13,113	10,154
	15	2020	2,452	2,177	(399)		1,778	14,891	11,034
	16	2021	2,528	2,224	(411)		1,813	16,705	11,890
	17	2022	2,606	2,272	(424)		1,849	18,553	12,724
	18	2023	2,687	2,321	(437)		1,885	20,438	13,534
	19	2024	2,770	2,371	(450)		1,921	22,359	14,322
	20	2025	2,856	2,422	(464)		1,958	24,316	15,089
Inverter Replacement	21	2026	2,945	2,473	(479)	(11,710)	(9,715)	14,601	11,459
	22	2027	3,036	2,526	(494)		2,032	16,633	12,183
	23	2028	3,130	2,579	(509)		2,070	18,703	12,888
	24	2029	3,227	2,633	(525)		2,109	20,812	13,572
	25	2030	3,327	2,688	(541)		2,147	22,959	14,237
	26	2031	3,430	2,744	(558)		2,186	25,145	14,883
	27	2032	3,537	2,801	(575)		2,226	27,371	15,511
	28	2033	3,646	2,859	(593)		2,266	29,637	16,120
	29	2034	3,759	2,917	(611)		2,306	31,943	16,713
	30	2035	3,876	2,977	(630)		2,346	34,289	17,287
<b>Total Energy Cost Savings</b>								<b>\$34,289</b>	
<b>Net Present Value of Savings</b>									<b>\$17,287</b>

\* Current Cost of Inverter Replacement \$6,000  
 \*\* Cost of Annual panel cleaning

# Leadership in Energy and Environmental Design - LEED Life Cycle Cost Assessment Analysis

Department of Motor Vehicles San Ysidro Field Office

## Water Consumption

First Year Water Use Savings \$443  
Total Water Supply Inflation Rate 3.10%

	Period	Year	Annual Water Cost Savings	Cumulative Cost Savings	Cumulative NPV Savings
First Year	1	2007	443	443	423
	2	2008	457	900	839
	3	2009	471	1,371	1,248
	4	2010	485	1,856	1,650
	5	2011	501	2,357	2,046
	6	2012	516	2,873	2,436
	7	2013	532	3,405	2,819
	8	2014	549	3,953	3,196
	9	2015	566	4,519	3,567
	10	2016	583	5,102	3,932
	11	2017	601	5,703	4,290
	12	2018	620	6,323	4,644
	13	2019	639	6,962	4,991
	14	2020	659	7,621	5,333
	15	2021	679	8,300	5,669
	16	2022	700	9,000	6,000
	17	2023	722	9,722	6,325
	18	2024	744	10,467	6,645
	19	2025	767	11,234	6,960
	20	2026	791	12,025	7,270
	21	2027	816	12,841	7,575
	22	2028	841	13,682	7,874
	23	2029	867	14,549	8,169
	24	2030	894	15,443	8,460
	25	2031	922	16,365	8,745
	26	2032	950	17,316	9,026
	27	2033	980	18,295	9,302
	28	2034	1,010	19,305	9,574
	29	2035	1,041	20,347	9,842
	30	2036	1,074	21,421	10,105
<b>Total Water Cost Savings</b>				<b>\$21,421</b>	
<b>Net Present Value of Savings</b>					<b>\$10,105</b>

Baseline Water Use from LEED Docs 291,747 gallons  
Design Case Water Use 164,607 gallons  
Annual Water Savings 127,140 gallons  
Gallons per 100 cubic feet 748

Water Rate per HCF \$2.6060  
Sewer Rate per HCF Water Usage \$0.0000  
Cost of water per HCF \$2.61  
Annual Water Savings in HCF 170 HCF  
Annual Water / Sewage Cost Savings \$442.95

# Sustainable Communities Program

## San Ysidro Department of Motor Vehicles Building



*“It really didn’t cost more to go green.”*

– Rafat Alafranji, Architect and Project Director,  
Department of General Services

The California Department of Motor Vehicles (DMV) in San Ysidro opened its state-of-the-art building in October 2006. This is the first California state building in San Diego County to achieve Leadership in Energy and Environmental Design (LEED®) Gold Certification from the U.S. Green Building Council.

The facility was designed to maximize energy conservation in accordance with a California Executive Order directing all state agencies to reduce energy consumption by 20% by the year 2015.

### Sustainable Features

**SUSTAINABLE SITES:** Storm drains have filters, preventing pollution from entering the waterways. A cool roof reflects the sun’s heat to maximize energy savings and minimize the heat island effect.

**WATER EFFICIENCY:** Waterless urinals and motion sensors, on both toilets and low-flow faucets, use 41% less potable water than standard fixtures. Native and adapted plants with medium to low water usage

The DMV building is a showcase for innovation in HVAC design. Two highly efficient HVAC technologies have been creatively combined to save energy and provide a healthy, comfortable environment for both employees and customers. Air conditioning for the DMV staff area is provided by an under-floor air distribution system which incorporates floor diffusers for individual air flow and temperature control. The waiting area for DMV customers is served by energy-efficient thermal displacement ventilation.

Visitors walking into this naturally lit building will be pleasantly surprised. Glazed windows and skylights throughout increase natural light. Strategically placed windows, outside views from 90% of the regularly occupied interior spaces and local control of space temperatures, make the San Ysidro DMV a place where employees enjoy coming to work and customers can conduct business in comfort.

combined with a high-efficiency irrigation system reduce potable water use for site irrigation by 68%.

**ENERGY & ATMOSPHERE:** The specially designed floor and wall registers will supply air to the occupied spaces at moderate temperatures and cool only the occupied zone. Energy efficient fluorescent and high pressure sodium lights were installed throughout the project. Additional energy savings come from motion and photocell sensors. Daylighting is provided by extensive northern windows, skylights and clerestories. Task and

### Project Overview

**Size:** 14,656 square feet on a 3.32 acre site

**Location:** San Ysidro

**Completion date:** October 2006

**Building type:** Government

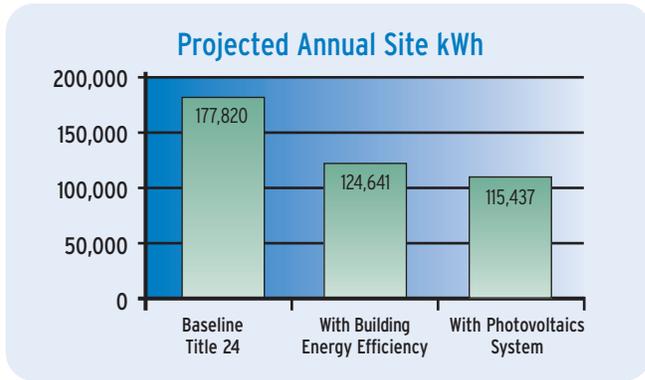
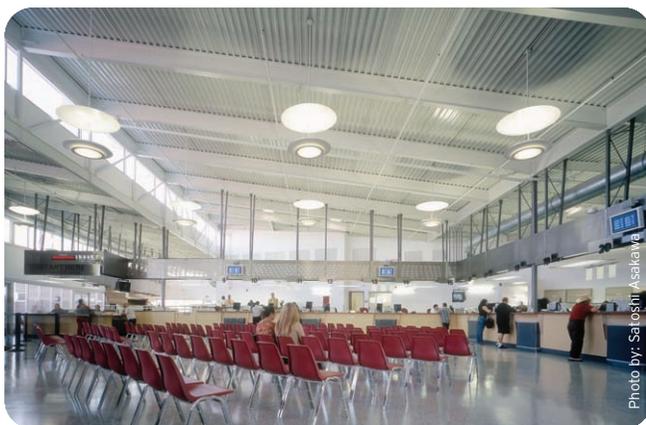
**Energy Efficiency:** 33.5% better than Title 24

**LEED Credits:**

- Sustainable Sites - 4 credits
- Water Efficiency - 3 credits
- Energy & Atmosphere - 14 credits
- Materials and Resources - 3 credits
- Indoor Environmental Quality - 13 credits
- Innovation & Design - 5 credits
- Total Received - 42 credits

zonal lighting have individual controls. A 5.4 kilowatt photovoltaics system is installed on-site to provide clean, renewable energy serving 7% of the building's electric load. Wind renewable energy credits offset 100% of the building's energy use.

**MATERIALS AND RESOURCES:** Approximately 58% of the construction waste was prevented from going to the landfill by recycling. Recycled products used in the new building's construction include steel framing, concrete, glazing, and furniture. At least 20% of the building materials were manufactured locally, minimizing energy needed for transportation. Per state mandate, provisions are made for employees to recycle paper, cardboard, aluminum and glass.



**INDOOR ENVIRONMENTAL QUALITY:** Carbon dioxide monitors ensure adequate ventilation effectiveness. Carpets, paints and adhesives containing low volatile organic compounds were used throughout to improve indoor air quality. Walk-off mats at each major entrance trap dirt particles and pollutants.

**INNOVATION & DESIGN:** To maintain a high quality of indoor air, the DMV has established a Green Housekeeping Plan and a Pest Management Plan, which exclude the use of toxic chemicals. Signage throughout the building educates customers and employees about LEED and the specific green measures implemented into the DMV site and building.

## Lessons Learned

**“IT REALLY DIDN'T COST MORE TO GO GREEN”:** According to Mr. Alafraji, a comparable non-LEED DMV was built in Sacramento for \$5.2 million while the San Ysidro building cost \$5.4 million. The \$200K increase in cost was primarily attributable to increased labor and material costs in the San Diego region.

**LEED GUIDELINES:** Use the LEED reference guide. Work diligently, follow the guide to the letter, and LEED certification or higher can easily be achieved. Require at least one person from the General Contractor's team to be a LEED Accredited Professional.

**OCCUPANCY COMFORT:** Consider and plan for the comfort needs of employees early in the design process to ensure an improved work environment.

### Team

**Building Owner:** State of California, Department of Motor Vehicles  
**Project Management:** Department of General Services  
**Architect:** Roesling Nakamura Terada Architects  
**Mechanical Engineers:** Bender Dean Engineering  
**Electrical Engineers:** BSE Engineering  
**Utility:** SDG&E®

### Financial Summary

**Construction Cost:**  
\$368 per sq. ft.  
**Owner Incentives:**  
\$13,814  
**Design Team Incentives:**  
\$4,202  
**Annual Savings:**  
\$10,462

### Resource Summary

**Annual Electricity Saved:**  
53,179 kWh  
**Annual Gas Saved:**  
1,545 therms  
**Annual Water Saved:**  
105,781 gallons

For more information about the Sustainable Communities Program, go to [www.sdge.com/sustainable](http://www.sdge.com/sustainable).

SAN DIEGO GAS & ELECTRIC®  
 P.O. BOX 129831, SAN DIEGO, CA 92112-9831  
 1-800-411-SDGE (7343)  
 www.sdge.com

# LEED-NC Version 2.1 Registered Project Checklist

**GOLD CERTIFICATION**

09.10.2008

DMV - San Ysidro Field Office  
San Diego, California

Yes ? No

4			10			Sustainable Sites			14 Points	COST
Y			Prereq 1	<b>Erosion &amp; Sedimentation Control</b>		Required		Req.		
Y			Credit 1	<b>Site Selection</b>		1	EARNED	\$		-
		N	Credit 2	<b>Development Density</b>		1				
		N	Credit 3	<b>Brownfield Redevelopment</b>		1				
		N	Credit 4.1	<b>Alternative Transportation</b> , Public Transportation Access		1				
		N	Credit 4.2	<b>Alternative Transportation</b> , Bicycle Storage & Changing Rooms		1				
Y			Credit 4.3	<b>Alternative Transportation</b> , Alternative Fuel Vehicles		1	EARNED	\$		500
		N	Credit 4.4	<b>Alternative Transportation</b> , Parking Capacity and Carpooling		1				
		N	Credit 5.1	<b>Reduced Site Disturbance</b> , Protect or Restore Open Space		1				
		N	Credit 5.2	<b>Reduced Site Disturbance</b> , Development Footprint		1				
		N	Credit 6.1	<b>Stormwater Management</b> , Rate and Quantity		1				
Y			Credit 6.2	<b>Stormwater Management</b> , Treatment		1	EARNED	\$		27,278
		N	Credit 7.1	<b>Landscape &amp; Exterior Design to Reduce Heat Islands</b> , Non-Roof		1				
Y			Credit 7.2	<b>Landscape &amp; Exterior Design to Reduce Heat Islands</b> , Roof		1	EARNED	\$		-
Y		N	Credit 8	<b>Light Pollution Reduction</b>		1	DENIED			

Yes ? No

3			2			Water Efficiency			5 Points	
Y			Credit 1.1	<b>Water Efficient Landscaping</b> , Reduce by 50%		1	EARNED	\$		2,000
		N	Credit 1.2	<b>Water Efficient Landscaping</b> , No Potable Use or No Irrigation		1				
		N	Credit 2	<b>Innovative Wastewater Technologies</b>		1				
Y			Credit 3.1	<b>Water Use Reduction</b> , 20% Reduction		1	EARNED	\$		-
Y			Credit 3.2	<b>Water Use Reduction</b> , 30% Reduction		1	EARNED	\$		4,000

Yes ? No

14			3			Energy & Atmosphere			17 Points	
Y			Prereq 1	<b>Fundamental Building Systems Commissioning</b>		Required				
Y			Prereq 2	<b>Minimum Energy Performance</b>		Required				
Y			Prereq 3	<b>CFC Reduction in HVAC&amp;R Equipment</b>		Required				
Y			Credit 1	<b>Optimize Energy Performance</b>	EARNED	9	1 to 10	EARNED	\$	10,000
Y			Credit 2.1	<b>Renewable Energy</b> , 5%		1	EARNED	\$		-
Y			Credit 2.2	<b>Renewable Energy</b> , 10%		1	EARNED	\$		36,000
		N	Credit 2.3	<b>Renewable Energy</b> , 20%		1				
Y			Credit 3	<b>Additional Commissioning</b>		1	EARNED	\$		32,000
Y			Credit 4	<b>Ozone Depletion</b>		1	EARNED	\$		-
		N	Credit 5	<b>Measurement &amp; Verification</b>		1				
Y			Credit 6	<b>Green Power</b>		1	EARNED	\$		470

continued...

Yes ? No

**3** **10** **Materials & Resources** **13 Points**

Y	?	No	Prereq 1	Storage & Collection of Recyclables	Required		Req
		N	Credit 1.1	Building Reuse, Maintain 75% of Existing Shell	1		
		N	Credit 1.2	Building Reuse, Maintain 100% of Shell	1		
		N	Credit 1.3	Building Reuse, Maintain 100% Shell & 50% Non-Shell	1		
Y			Credit 2.1	Construction Waste Management, Divert 50%	1	EARNED	\$ -
Y		N	Credit 2.2	Construction Waste Management, Divert 75%	1	DENIED	\$ -
		N	Credit 3.1	Resource Reuse, Specify 5%	1		
		N	Credit 3.2	Resource Reuse, Specify 10%	1		
Y			Credit 4.1	Recycled Content, Specify 5% (post-consumer + ½ post-industrial)	1	EARNED	\$ -
Y		N	Credit 4.2	Recycled Content, Specify 10% (post-consumer + ½ post-industrial)	1	DENIED	\$ -
Y			Credit 5.1	Local/Regional Materials, 20% Manufactured Locally	1	EARNED	\$ -
		N	Credit 5.2	Local/Regional Materials, of 20% Above, 50% Harvested Locally	1		
		N	Credit 6	Rapidly Renewable Materials	1		
		N	Credit 7	Certified Wood	1		

Yes ? No

**13** **1** **2** **Indoor Environmental Quality** **15 Points**

Y	?	No	Prereq 1	Minimum IAQ Performance	Required		Req
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required		Req
Y			Credit 1	Carbon Dioxide (CO <sub>2</sub> ) Monitoring	1	EARNED	\$ 1,000
Y			Credit 2	Ventilation Effectiveness	1	EARNED	\$ 3,000
Y			Credit 3.1	Construction IAQ Management Plan, During Construction	1	EARNED	\$ 500
Y			Credit 3.2	Construction IAQ Management Plan, Before Occupancy	1	EARNED	\$ 500
Y			Credit 4.1	Low-Emitting Materials, Adhesives & Sealants	1	EARNED	\$ 500
Y			Credit 4.2	Low-Emitting Materials, Paints	1	EARNED	\$ 500
Y			Credit 4.3	Low-Emitting Materials, Carpet	1	EARNED	\$ 500
		N	Credit 4.4	Low-Emitting Materials, Composite Wood & Agrifiber	1		
Y			Credit 5	Indoor Chemical & Pollutant Source Control	1	EARNED	\$ 6,000
		N	Credit 6.1	Controllability of Systems, Perimeter	1		
Y			Credit 6.2	Controllability of Systems, Non-Perimeter	1	EARNED	\$ 2,000
Y			Credit 7.1	Thermal Comfort, Comply with ASHRAE 55-1992	1	EARNED	\$ 2,000
Y			Credit 7.2	Thermal Comfort, Permanent Monitoring System	1	EARNED	\$ 1,000
Y			Credit 8.1	Daylight & Views, Daylight 75% of Spaces	1	EARNED	\$ -
Y			Credit 8.2	Daylight & Views, Views for 90% of Spaces	1	EARNED	\$ 2,000

Yes ? No

**5** **Innovation & Design Process** **5 Points**

Y			Credit 1.1	Innovation in Design: 100% Green Power	1	EARNED	\$ 470
Y			Credit 1.2	Innovation in Design: Green Housekeeping	1	EARNED	\$ -
Y			Credit 1.3	Innovation in Design: Educational Component	1	EARNED	\$ 1,000
Y			Credit 1.4	Innovation in Design: Indoor Pest Management	1	EARNED	\$ -
Y			Credit 2	LEED™ Accredited Professional	1	EARNED	\$ -

Yes ? No

**42** **27** **Project Totals (pre-certification estimates)** **69 Points** **42 POINTS**

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

<b>Total</b>	<b>\$ 133,218</b>
Softcost	70000
	\$ 203,218

# Leadership in Energy and Environmental Design - LEED Life Cycle Cost Assessment Analysis

Department of Transportation District 3 Headquarters Office Building

## Life Cycle Benefits Summary

Area of Savings	Total \$\$\$ Savings	Net Present Value of Savings
Electric Power	4,797,409	2,263,038
Natural Gas	863,718	389,230
Water	77,316	36,471
<b>Total Savings</b>	<b>\$5,738,443</b>	
<b>Net Present Value of Savings</b>		<b>\$2,688,740</b>

## Life Cycle Costs Summary

Incremental LEED Cost Categories	Total \$\$\$ Costs	Net Present Value of Costs
Hard Costs	300,000	
Soft Costs	322,000	
<b>Total LEED Incremental Costs</b>	<b>\$622,000</b>	<b>\$622,000</b>

## Life Cycle Benefit / Cost Ratio

<b>Net Present Value of Benefits</b>	<b>\$2,688,740</b>
<b>Incremental LEED Costs</b>	<b>\$622,000</b>
<b>Benefit / Cost Ratio</b>	<b>4.32</b>

# Leadership in Energy and Environmental Design - LEED Life Cycle Cost Assessment Analysis

## Department of Transportation District 3 Headquarters Office Building DGS Inputs\*

### Escalation Factor Assumptions

Current Year	2009	Year Building is placed into service
General Inflation	3.40%	General Inflation Rate
Discount Rate	4.80%	The State's estimated Cost of Capital
Reinvestment Rate	0.00%	The rate of return on reinvested project cash flow (savings)
Rounding	-2	

### Specialized Escalation Factor Assumptions

Routine Annual O & M, added to inflation	0.00%
Major Repairs or Replacements, (added to inflation)	0.00%
Utility Electric Rate Escalation (added to inflation)	-0.30%
Utility Demand Rate Escalation (added to inflation)	-0.30%
Natural Gas Rate Escalation (added to inflation)	1.23%
Photovoltaic degradation factor, per year	0.50%

\* These inputs were provided by DGS as of 1 October 2008.  
Check the website ([www.green.ca.gov/EnergyEffProj](http://www.green.ca.gov/EnergyEffProj)) for more information

# Leadership in Energy and Environmental Design - LEED Life Cycle Cost Assessment Analysis

Department of Transportation District 3 Headquarters Office Building

## Electric Power Calculations

First Year Electric Power Cost Savings **\$99,215**  
Total Electric Power Inflation Rate 3.10%

Period	Calendar Year	Annual Energy Cost Savings	Cumulative Cost Savings	Cumulative NPV Savings	
First Year	1	2009	\$99,215	\$99,215	\$94,671
	2	2010	\$102,291	\$201,506	\$187,806
	3	2011	\$105,462	\$306,967	\$279,430
	4	2012	\$108,731	\$415,698	\$369,568
	5	2013	\$112,102	\$527,800	\$458,244
	6	2014	\$115,577	\$643,377	\$545,482
	7	2015	\$119,160	\$762,536	\$631,304
	8	2016	\$122,854	\$885,390	\$715,734
	9	2017	\$126,662	\$1,012,052	\$798,795
	10	2018	\$130,589	\$1,142,641	\$880,508
	11	2019	\$134,637	\$1,277,278	\$960,896
	12	2020	\$138,811	\$1,416,088	\$1,039,980
	13	2021	\$143,114	\$1,559,202	\$1,117,780
	14	2022	\$147,550	\$1,706,752	\$1,194,319
	15	2023	\$152,124	\$1,858,877	\$1,269,617
	16	2024	\$156,840	\$2,015,717	\$1,343,692
	17	2025	\$161,702	\$2,177,419	\$1,416,567
	18	2026	\$166,715	\$2,344,134	\$1,488,259
	19	2027	\$171,883	\$2,516,017	\$1,558,788
	20	2028	\$177,212	\$2,693,229	\$1,628,173
	21	2029	\$182,705	\$2,875,934	\$1,696,433
	22	2030	\$188,369	\$3,064,303	\$1,763,585
	23	2031	\$194,208	\$3,258,511	\$1,829,648
	24	2032	\$200,229	\$3,458,740	\$1,894,640
	25	2033	\$206,436	\$3,665,176	\$1,958,577
	26	2034	\$212,835	\$3,878,011	\$2,021,477
	27	2035	\$219,433	\$4,097,445	\$2,083,356
	28	2036	\$226,236	\$4,323,680	\$2,144,232
	29	2037	\$233,249	\$4,556,930	\$2,204,121
	30	2038	\$240,480	\$4,797,409	\$2,263,038
<b>Total Energy Cost Savings</b>			<b>\$4,797,409</b>		
<b>Net Present Value of Savings</b>					<b>\$2,263,038</b>

# Leadership in Energy and Environmental Design - LEED Life Cycle Cost Assessment Analysis

Department of Transportation District 3 Headquarters Office Building

## Natural Gas

First Year Natural Gas Cost Savings \$14,018  
Total Natural Gas Inflation Rate 4.63%

## Net Present Value Cost Benefit Analysis

Period	Year	Energy Cost Savings	Cumulative Cost Savings	Cumulative NPV Savings
1	2009	14,018	14,018	13,376
2	2010	14,667	28,685	26,730
3	2011	15,346	44,031	40,063
4	2012	16,057	60,088	53,374
5	2013	16,800	76,888	66,663
6	2014	17,578	94,466	79,931
7	2015	18,392	112,858	93,177
8	2016	19,243	132,101	106,402
9	2017	20,134	152,235	119,605
10	2018	21,066	173,302	132,787
11	2019	22,042	195,343	145,948
12	2020	23,062	218,406	159,087
13	2021	24,130	242,536	172,205
14	2022	25,247	267,783	185,302
15	2023	26,416	294,200	198,377
16	2024	27,639	321,839	211,431
17	2025	28,919	350,758	224,464
18	2026	30,258	381,017	237,476
19	2027	31,659	412,676	250,467
20	2028	33,125	445,801	263,436
21	2029	34,659	480,459	276,385
22	2030	36,263	516,722	289,313
23	2031	37,942	554,665	302,219
24	2032	39,699	594,364	315,105
25	2033	41,537	635,901	327,970
26	2034	42,825	678,725	340,626
27	2035	44,152	722,878	353,077
28	2036	45,521	768,398	365,326
29	2037	46,932	815,331	377,376
30	2038	48,387	863,718	389,230
<b>Total Cash Flow from Savings</b>			<b>\$863,718</b>	
<b>Net Present Value of Savings</b>				<b>\$389,230</b>

# Leadership in Energy and Environmental Design - LEED Life Cycle Cost Assessment Analysis

Department of Transportation District 3 Headquarters Office Building

## Water Consumption

First Year Water Use Savings \$1,599  
Total Water Supply Inflation Rate 3.10%

	Period	Year	Annual Water Cost Savings	Cumulative Cost Savings	Cumulative NPV Savings
First Year	1	2009	1,599	1,599	1,526
	2	2010	1,649	3,247	3,027
	3	2011	1,700	4,947	4,503
	4	2012	1,752	6,699	5,956
	5	2013	1,807	8,506	7,385
	6	2014	1,863	10,369	8,791
	7	2015	1,920	12,289	10,174
	8	2016	1,980	14,269	11,535
	9	2017	2,041	16,310	12,873
	10	2018	2,105	18,415	14,190
	11	2019	2,170	20,585	15,486
	12	2020	2,237	22,822	16,760
	13	2021	2,306	25,128	18,014
	14	2022	2,378	27,506	19,248
	15	2023	2,452	29,958	20,461
	16	2024	2,528	32,486	21,655
	17	2025	2,606	35,092	22,830
	18	2026	2,687	37,778	23,985
	19	2027	2,770	40,548	25,122
	20	2028	2,856	43,404	26,240
	21	2029	2,945	46,349	27,340
	22	2030	3,036	49,385	28,422
	23	2031	3,130	52,515	29,487
	24	2032	3,227	55,742	30,534
	25	2033	3,327	59,068	31,565
	26	2034	3,430	62,499	32,578
	27	2035	3,536	66,035	33,576
	28	2036	3,646	69,681	34,557
	29	2037	3,759	73,440	35,522
	30	2038	3,876	77,316	36,471
<b>Total Water Cost Savings</b>				<b>\$77,316</b>	
<b>Net Present Value of Savings</b>					<b>\$36,471</b>

Baseline Water Use from LEED Docs 1,554,425 gallons  
Design Case Water Use 899,190 gallons  
Annual Water Savings 655,235 gallons  
Gallons per 100 cubic feet 748

Water Rate per HCF \$0.9959  
Sewer Rate per HCF Water Usage \$0.8294  
Cost of water per HCF \$1.83  
Annual Water Savings in HCF 876 HCF  
Annual Water / Sewage Cost Savings \$1,598.96



### **Department of Transportation District 3 Headquarters**

This 209,000-gross square foot office building was designed and constructed by the Sacramento office of New York-based Turner Construction Co. and Los Angeles-based AC Martin Partners, along with Clark Pacific of Sacramento as a design-build project. It replaced an existing 45,000 square foot 71-year-old facility located on the same site. Plans call for the old building to be demolished and a 3,000 gross square foot daycare center built in its place.

The new five-story structure will be occupied by 800 employees with a cafe, 200-seat auditorium, teleconferencing rooms and outdoor surface parking with 440 spaces on and off site.

To fit in with the rustic motif of Marysville the building's facade was covered with earth-toned brick and scaled down to three stories where it fronts the city street. The entire structure is pre-cast concrete beams, columns and floor planks which provides solar mass to even out temperature swings in the building. This cooling aspect, along with a series of other environmentally friendly features, helped the building receive a LEED silver rating.

Other LEED elements include mature tree shading along the main entrance; recycled carpeting; and extensive day-lighting with the help of high-performance glazing, light cells and a 4,800-sq-ft, four-story atrium canyon in the center of the building. The atrium has a south-facing window system at the top to filter in natural lighting throughout the interior. It also utilizes exhaust fans to perform night flushing of air to increase air quality and cut down on air-conditioning usage.

Total project funding was \$75,655,000, with a construction cost of \$65,596,282 to the design-build entity. The project broke ground in December of 2006 with office building occupancy slated for December 2008, followed by the Daycare facility being available by October, 2009."



**39** | **4** | **26** | **Project Totals** (pre-certification estimates) | **69 Pts** | Comments

Yes No Certified 26-32 points Silver 33-38 points Gold 39-51 points Platinum 52-69 points

8		1		5		Sustainable Sites		14 Pts	Comments	Leader
Y		SSp1		<b>Construction Activity Pollution Prevention</b>		c	Req	Submitted to LEED Online		Turner
Y		SSc1		<b>Site Selection</b>		d	1	Submitted to LEED Online		Caltrans
Y		SSc2		<b>Development Density &amp; Community Connectivity</b>		d	1	Submitted to LEED Online		AC Martin
Y		SSc3		<b>Brownfield Redevelopment</b>		d	1	Submitted to LEED Online		N/A
Y		SSc4.1		<b>Alternative Transportation, Public Transportation Access</b>		d	1	Submitted to LEED Online		N/A
Y		SSc4.2		<b>Alternative Transportation, Bicycle Storage &amp; Changing Rooms</b>		d	1	Submitted to LEED Online		AC Martin
Y		SSc4.3		<b>Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles</b>		d	1	Provide preferred parking equal to 5% of parking count for low-emitting and fuel efficient vehicles (18 "fuel efficient vehicle" spots for 355 total parking count).		AC Martin
Y		SSc4.4		<b>Alternative Transportation, Parking Capacity</b>		d	1	Must size parking not to exceed local zoning AND provide preferred carpool and van pool spots for 5% of parking capacity (18 carpool/vanpool spots for 355 total parking count).		AC Martin
		N	SSc5.1	<b>Site Development, Protect or Restore Habitat</b>		c	1	Requires "restoration" of 50% of the site area with native and adapted plants.		N/A
		N	SSc5.2	<b>Site Development, Maximize Open Space</b>		d	1	Submitted to LEED Online		N/A
		N	SSc6.1	<b>Stormwater Design, Quantity Control</b>		d	1	Requires a 25% reduction in stormwater run-off compared to existing conditions. May be achievable with significant permeable paving systems and other infiltration strategies.		N/A
		N	SSc6.2	<b>Stormwater Design, Quality Control</b>		d	1	Stormwater system must remove 80% of total suspended solids (TSS) from 0.75" rainfall events.		N/A
		N	SSc7.1	<b>Heat Island Effect, Non-Roof</b>		d	1	Can be achieved if 50% of parking is shaded with 5-years. It has been deemed that this point will not be possible		Turner SWA
Y			SSc7.2	<b>Heat Island Effect, Roof</b>		c	1	Requires light colored "cool" roof finish material with a Solar Reflectance Index (SRI) of at least 78.		AC Martin
		?	SSc8	<b>Light Pollution Reduction</b>		d	1	Requires energy efficient exterior lighting (20% below ASHRAE 90.1 Standards) AND no more than 0.20 foot-candles at the site boundary or curb AND 95% exterior lighting directed down.		N/A

3		2		Water Efficiency		5 Pts	Comments	Leader	
Y		WEc1.1		<b>Water Efficient Landscaping, Reduce by 50%</b>		d	1	Submitted to LEED Online	SWA
		N	WEc1.2	<b>Water Efficient Landscaping, No Potable Use or No Irrigation</b>		d	1	Requires no permanent landscape irrigation systems or irrigation with reclaimed or gray water only.	N/A
		N	WEc2	<b>Innovative Wastewater Technologies</b>		d	1	Credit is extremely difficult to achieve without reclaimed water for toilet flushing or composting toilets.	N/A
Y		WEc3.1		<b>Water Use Reduction, 20% or 30% Reduction</b>		d	2	Submitted to LEED Online	ACCO
Y		WEc3.2							



**39** **4** **26** **Project Totals** (pre-certification estimates) **69 Pts** Comments

Yes No

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

5			2			10			Energy & Atmosphere	17 Pts	Comments	Leader
Y			EAp1	<b>Fundamental Commissioning of the Building Energy Systems</b>	c	Req	AEC is preparing for functional testing upon completion of construction.			AEC		
Y			EAp2	<b>Minimum Energy Performance</b>	d	Req	Submitted to LEED Online			Glumac		
Y			EAp3	<b>Fundamental Refrigerant Management</b>	d	Req	Submitted to LEED Online			ACCO		
4		6	EAc1	<b>Optimize Energy Performance</b>	d	1 to 10	Submitted to LEED Online, 5th point was not obtained as daylight controls were added in some areas, and eliminated in others. The changes did not increase the number of eligible points above the 4 previously anticipated.			Glumac		
		N	EAc2	<b>On-Site Renewable Energy</b>	d	1 to 3	Up to 3 points available if on-site renewable energy systems are installed. Glumac has submitted LCCA PV Analysis to Turner for submission to DGS. If funding is provided, and PV is installed these points would be eligible, and EAc1 would be achieved.			N/A		
		N										
		N										
Y			EAc3	<b>Enhanced Commissioning</b>	c	1	AEC is providing enhanced commissioning and currently documenting this credit.			AEC		
		N	EAc4	<b>Enhanced Refrigerant Management</b>	d	1	Credit achievable if majority of HVAC equipment uses R-134a or R-123 refrigerant and R-22 is minimized.			N/A		
		N	EAc5	<b>Measurement &amp; Verification</b>	c	1	Credit requires sub-metering of major energy and water end-uses (interior lighting, exterior lighting, garage ventilation, boilers, HVAC, etc.) in the project along with a project M&V plan.			N/A		
	?		EAc6	<b>Green Power</b>	c	1	Credit can be achieved with purchase of renewable energy certificates (RECs). Possible for Caltrans to purchase RECs from operating/utility cost savings associated with project? Total cost would likely be \$20k to \$30k.			Caltrans		

6			1			6			Materials & Resources	13 Pts	Comments	Leader
Y			MRp1	<b>Storage &amp; Collection of Recyclables</b>	d	Req	Submitted to LEED Online			AC Martin		
		N	MRc1.1	<b>Building Reuse,</b> Maintain 75% of Existing Walls, Floors & Roof	c	1	Not applicable to Project.			N/A		
		N	MRc1.2	<b>Building Reuse,</b> Maintain 100% of Existing Walls, Floors & Roof	c	1	Not applicable to Project.			N/A		
		N	MRc1.3	<b>Building Reuse,</b> Maintain 50% of Interior Non-Structural Elements	c	1	Not applicable to Project.			N/A		
Y			MRc2.1	<b>Construction Waste Management,</b> Divert 50% or 75% from Disposal	c	2	Contractor to recycle construction waste including drywall, carpet, metal, etc., coordinating with Yuba Sutter disposal on waste diversion opportunities.			Turner		
Y			MRc2.2				Project to date has diverted over 95% of construction waste.					
		N	MRc3.1	<b>Materials Reuse,</b> 5% or 10%	c	2	5 or 10% (by value) of building construction materials must be from salvaged sources. Very difficult to achieve.			N/A		
		N	MRc3.2									
Y			MRc4.1	<b>Recycled Content,</b> 10% or 20% (post-consumer + ½ pre-consumer)	c	2	10% or 20% (by value) of the construction materials to be recycled content. Aluminum, steel, rebar, drywall, aggregate, concrete (flyash), ceiling tiles, batt insulation, and cement board can all contribute towards this criteria.			Turner		
Y			MRc4.2									
Y			MRc5.1	<b>Regional Materials,</b> 10% or 20% Extracted, Processed & Mfg	c	2	10% or 20% (by value) of the construction materials to be extracted, processed and manufactured within 500-miles. Concrete, asphalt, aggregate, landscape materials, drywall may contribute towards this credit.			Turner		
Y			MRc5.2	Regionally								



**39** | **4** | **26** **Project Totals** (pre-certification estimates) **69 Pts** Comments

Yes	No						Certified 26-32 points	Silver 33-38 points	Gold 39-51 points	Platinum 52-69 points		
		N	MRc6	<b>Rapidly Renewable Materials</b>	c	1					5% (by value) of the construction materials to be "rapidly renewable" materials such as bamboo flooring, wool carpet, cotton insulation, linoleum, OSB, and/or wheatboard. Generally difficult to achieve.	N/A
	?		MRc7	<b>Certified Wood</b>	c	1					50% (by value) of the new wood materials to be FSC certified. Glumac awaiting cost information of wood products to see if this will be achieved. This credit competes with recycled content credits, making it difficult to get both on this project.	Turner

**12** | **3** **Indoor Environmental Quality** **15 Pts** Comments Leader

Y			EQp1	<b>Minimum IAQ Performance</b>	d	Req					Submitted to LEED Online	ACCO
Y			EQp2	<b>Environmental Tobacco Smoke (ETS) Control</b>	d	Req					Submitted to LEED Online	Caltrans
Y			EQc1	<b>Outdoor Air Delivery Monitoring</b>	d	1					Submitted to LEED Online	ACCO
Y			EQc2	<b>Increased Ventilation</b>	d	1					Submitted to LEED Online	ACCO
Y			EQc3.1	<b>Construction IAQ Management Plan, During Construction</b>	c	1					Contractor to develop IAQ management plan and maintain best practices for IAQ management during construction.	Turner
		N	EQc3.2	<b>Construction IAQ Management Plan, Before Occupancy</b>	c	1					Approx. 14-day 100% outside air building flush-out does not appear possible due to early project delays for cleaning site contamination. However, Turner and Glumac will look into the possibility of air testing/sampling to meet the credit via option 2.	Turner
Y			EQc4.1	<b>Low-Emitting Materials, Adhesives &amp; Sealants</b>	c	1					Low-emitting adhesives and sealants to be used.	Turner
Y			EQc4.2	<b>Low-Emitting Materials, Paints &amp; Coatings</b>	c	1					Low-VOC interior paints and coatings to be used.	Turner
Y			EQc4.3	<b>Low-Emitting Materials, Carpet Systems</b>	c	1					Carpet and carpet pad to meet CRI Green Label Plus certification.	Turner
Y			EQc4.4	<b>Low-Emitting Materials, Composite Wood &amp; Agrifiber Products</b>	c	1					Composite wood and agrifiber products to include no added urea-formaldehyde binders. May be difficult to source for all cabinets and millwork.	Turner
Y			EQc5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	d	1					Submitted to LEED Online	ACCO
Y			EQc6.1	<b>Controllability of Systems, Lighting</b>	d	1					Submitted to LEED Online	AC Martin
		N	EQc6.2	<b>Controllability of Systems, Thermal Comfort</b>	d	1					Required 50% of occupants have individual control over HVAC systems (such as thermostats, operable diffusers and/or operable windows).	N/A
Y			EQc7.1	<b>Thermal Comfort, Design</b>	d	1					Submitted to LEED Online	ACCO
Y			EQc7.2	<b>Thermal Comfort, Verification</b>	d	1					Submitted to LEED Online	Caltrans
		N	EQc8.1	<b>Daylight &amp; Views, Daylight 75% of Spaces</b>	d	1					Building plan depth will not allow for this point.	N/A
Y			EQc8.2	<b>Daylight &amp; Views, Views for 90% of Spaces</b>	d	1					Project should achieve this credit with line-of-sight views from 90% of regularly occupied spaces.	AC Martin



39		4		26		Project Totals (pre-certification estimates)		69 Pts		Comments	
Yes		No						Certified 26-32 points		Silver 33-38 points	
								Gold 39-51 points		Platinum 52-69 points	
5				Innovation & Design Process		5 Pts		Comments		Leader	
Y				IDc1.1	<b>Innovation in Design:</b> Building Educational Program	c	1	Building Educational Program to include combination of web site, brochures, and tours related to public outreach of the green building aspects of the project.			Caltrans
Y				IDc1.2	<b>Innovation in Design:</b> Exemplary Reduction in Water Usage	d	1	Submitted to LEED Online			Plumbing
Y				IDc1.3	<b>Innovation in Design:</b> Green Cleaning Procedures	c	1	Submitted to LEED Online			Caltrans
Y				IDc1.4	<b>Innovation in Design:</b> Exemplary Performance in Local Materials	c	1	Project may yield an "Exemplary Performance" credit if locally-sourced building materials (concrete) is more than 30% of total project materials costs.			Turner
Y				IDc2	<b>LEED Accredited Professional</b>	d	1	Submitted to LEED Online			Glumac