

	(Responsible Individual)		(Company Name)		
I,	Erik Dyrr	, from	KEMA		
verify that the information provided below is accurate, to the best of my knowledge.					

CREDIT COMPLIANCE

(Please complete the color coded criteria(s) based on the option path selected)

Please select the appropriate compliance path option

•	Option 1 (Pg 2): Performance Rating Method, ASHRAE 90.1-2004 Appendix G or equivalent (up to 10 points possible)
0	Option 2 (Pg 14): ASHRAE Advanced Energy Design Guide for Small Office Buildings 2004 (4 points)

Option 3 (Pg 14): Advanced Buildings Benchmark™ Version 1.1, Basic Criteria & Prescriptive Measures (1 point)





OPTION 1: PERFORMANCE RATING METHOD



I confirm that the energy simulation software used for this project has all capabilities described in EITHER section `G2 Simulation General Requirements' in Appendix G of ASHRAE 90.1-2004 OR the analogous section of the alternative qualifying energy code used.



I confirm that the baseline building and proposed building in this project's energy simulation runs use the assumptions and modeling methodology described in EITHER Appendix G of ASHRAE 90.1-2004 OR the analogous section of the alternative qualifying energy code used.

Complete the following sections to document compliance using Option 1:

Section 1.1 - General Information

Section 1.2 - Space Summary

Section 1.3 - Advisory Messages

Section 1.4 - Comparison of Proposed Design Versus Baseline Design Energy Model Inputs

Section 1.5 - Energy Type Summary

Section 1.6 - On-Site Renewable Energy (if applicable)

Section 1.7 - Exceptional Calculation Measure Summary (if applicable)

Section 1.8 - Performance Rating Method Compliance Report

Section 1.1 - General Information

Provide the following data for your project

Simulation Program:	EnergyPro 4.4	Quantity of Stories:	1
Principal Heating Source:	Fossil Fuel	Weather File:	CZ04RV2 WYEC2
Energy Code Used:	Title 24	Climate Zone:	California CZ04
New Construction Percent:	100 %	Existing Renovation	Percent: 0 %

Enter the Target Finder score for your building from the Energy Star website (http://www.energystar.gov/index.cfm? fuseaction=target finder.&CFID=154897). The score has no bearing on the number of EAc1 points earned. Use the following process to evaluate the Target Finder score:

- 1. Enter the facility information
- 2. Enter the facility characteristics. Select each primary and secondary space type that applies to the project. Then complete the required information for each space type.
- 4. Enter the total energy use per energy source for your project based on the totals reflected in the Proposed Design energy simulation output report.

Target Finder Score:

75





Section 1.2 - Space Summary

Provide the space summary for your project (click "CLEAR" to clear the contents of any row All numeric entries must be entered as whole numbers without commas):

Table 1.2 - Space Summary				
Building Use (Occupancy Type)	Conditioned Area (sf)	Unconditioned Area (sf)	Total Area (sf)	
Medical and Clinical Care	18,851	0	18,851	CLEAR
Office	29,527	0	29,527	CLEAR
				CLEAR
Total:	48,378	0	48,378	

Section 1.3 - Advisory Messages

Complete the following information from the simulation output files (all entries should be entered as whole numbers, without commas)

TABLE 1.3 - Advisory Messages	Proposed Building	Baseline Building (0 deg. rotation)	Difference
Number of hours heating loads not met:	0	0	0
Number of hours cooling loads not met:	0	0	0
Number of warning messages:	12	18	6
Number of error messages:	0	0	0
Number of defaults overridden:	0	0	0





Section 1.4 - Comparison of Proposed Design Versus Baseline Design Energy Model Inputs

Use **Table 1.4** to document the Baseline and Proposed design energy model inputs for your project. Include descriptions for:

- 1. Exterior wall, underground wall, roof, floor, and slab assemblies including framing type, assembly R-values, assembly U-factors, and roof reflectivity when modeling cool roofs. (Refer to ASHRAE 90.1 Appendix A)
- 2. Fenestration types, assembly U-factors (including the impact of the frame on the assembly), SHGCs, and visual light transmittances, overall window-to-gross wall ratio, fixed shading devices, and automated movable shading devices.
- 3. Interior lighting power densities, exterior lighting power, process lighting power, and lighting controls modeled for credit.
- 4. Receptacle equipment, elevators or escalators, refrigeration equipment, and other process loads.
- 5. HVAC system information including types and efficiencies, fan control, fan supply air volume, fan power, economizer control, demand control ventilation, exhaust heat recovery, pump power and controls, and any other pertinent system information. (Include the ASHRAE 90.1-2004 Table G.3.1.1B Baseline System Number).
- 6. Domestic hot water system type, efficiency and storage tank volume.
- 7. General schedule information

Documentation should be sufficient to justify the energy and cost savings numbers reported in the Performance Rating Table.

(Click "CLEAR" to clear the contents of any row.)

Model Input Parameter	Proposed Design Input	Baseline Design Input	
Exterior Wall Construction	Wood Framed R-19, Ufactor = 0.074	Ufactor = 0.110	CLEAR
Roof Construction	Built up Roof R-30, Ufactor = 0.033	Ufactor = 0.051	CLEAR
Floor/Slab Construction	Slab, Ufactor = 0.139	Slab, Ufactor = 0.139	CLEAR
Window-to-gross wall ratio	22.5%	22.5%	CLEAR
Fenestration type	PPG Solexia Tinted Low-E	Standard Double Paned	CLEAR
Fenestration U-factor	0.58 (NFRC)	0.77	CLEAR
Fenestration SHGC - North	0.46 (NFRC)	0.61	CLEAR
Fenestration SHGC - Non-North	0.46 (NFRC)	0.41	CLEAR
Shading Devices	3' RGT Fin/0.1' Away 8' rgt Fin/0.1' Away	None	CLEAR
Interior Lighting Power Density (W/sf)	1.016 W/sf	1.2 W/sf	CLEAR
			CLEAR
			CLEAR





Model Input Parameter	Proposed Design Input	Baseline Design Input	
Daylighting Controls	Dimming Sensors near Skylights	Dimming Sensors near Skylights	CLEAR
Other Lighting Control Credits Occupancy Sensors		Occ sensors in select areas required by code	CLEAR
Exterior Lighting Power (kW)	15.4	17.0	CLEAR
Process Lighting (kW)	N/A	N/A	CLEAR
Receptacle Equipment Power Density (W/sf)	1.301	1.301	CLEAR
			CLEAR
Primary HVAC System Type	AAON Packaged single zone DX w/ gas furnace and exhaust heat recovery on 100% OA units	Packaged Single Zone AC w/ Furnace	CLEAR
Other HVAC System Type	N/A	N/A	CLEAR
Fan Supply Volume	63890	53980	CLEAR
Fan Power	46.7	39.2	CLEAR
Economizer Control	Fixed Temperature (Integrated) on non-100% OA units	None	CLEAR
Demand Control Ventilation	N/A	N/A	CLEAR
Unitary Equipment Cooling Efficiency	10.4 EER to 16.7 EER (Depending on Size)	9.5 EER to 10.1 EER (Depending on Size)	CLEAR
Unitary Equipment Heating Efficiency	81% AFUE	78% AFUE	CLEAR
Chiller parameters	N/A	N/A	CLEAR
Chilled water loop & pump parameters	N/A	N/A	CLEAR
Boiler parameters	N/A	N/A	CLEAR
Hot water loop & pump parameters	N/A	N/A	CLEAR
Cooling tower parameters	N/A	N/A	CLEAR
Condenser water loop & pump parameters	N/A	N/A	CLEAR
DHW	200,000 Btu/H, 80% Thermal Efficiency, 100 Gallon tank Natural Gas Boiler w/Solar assist of	200,000 Btu/H, 80% Thermal Efficiency, 100 Gallon tank Natural Gas Boiler	CLEAR





Section 1.5 - Energy Type Summary

List the energy types used by your project (i.e. electricity, natural gas, purchased chilled water or steam, etc.) for either the Baseline or Proposed design. Also describe the utility rate used for each energy type (i.e. Feswick County Electric LG-S), as well as the units of energy used, and the units of demand used. (Click "CLEAR" to clear the contents of any row):

TABLE 1.5 - Energy Type Summary					
Energy Type	Utility Rate Description	Units of Energy	Units of demand		
Electricity	PG&E A-10S (TOU)	kWh	kW	CLEAR	
Natural Gas	PG&E G-NR1	therms	МВН	CLEAR	
				CLEAR	
				CLEAR	

Energy Units:

1 therm = 100 kBtu 1 ton hr = 12 kBtu

Demand Units

 $1 \text{ MBH} = 1,000 \text{ Btu/h} \qquad 1 \text{ MMBtuh } = 1,000 \text{ MBH}$

1 kW = 3.412 MBH 1 ton = 12 MBH





Section 1.6 - On-Site Renewable Energy If the project does not include on-site renewable energy, skip to Section 1.7

How is the on-site renewable energy cost calculated?

- This form will automatically calculate the *Renewable Energy Cost* based on the "virtual" energy rate from the proposed design energy model results. This form will subtract the *Renewable Energy Cost* from the proposed design energy model results to calculate the *Proposed Building Performance Rating*. (You do NOT need to fill out the "Renewable Energy Cost" field in Table 1.6 below)
- Renewable Energy Cost for each on-site renewable source is analyzed separately from the energy model based on local utility rate structures. The Renewable Energy Cost for each renewable source is reported in Table 1.6 below, This form will subtract the reported Renewable Energy Cost from the proposed design energy model results to calculate the Proposed Building Performance Rating.
- On-site renewable energy is modeled directly in the energy model. *Renewable Energy Cost* is already credited in the proposed design energy model results (i.e. the energy model already reflects zero cost for on-site renewable energy, and this form will NOT subtract the *Renewable Energy Cost* a second time).

Indicate the on-site renewable energy source(s) used, the backup energy type for each source (i.e. the fuel that is used when the renewable energy source is unavailable - ASHRAE 90.1-2004, Section G2.4), the rated capacity for the source, and the annual energy generated from each source.

TABLE 1.6 - Renewable Energy Source Summary						
Renewable Source	5,					
Solar Array	Electricity	369,525	(kWh)	273.675		CLEAR
						CLEAR





Section 1.7 - Exceptional Calculation Measure Summary (If the energy analysis does not include exceptional calculation methods, skip to Section 1.8)

The energy analysis includes exceptional calculation method(s) (ASHRAE 90.1-2004, G2.5)

How is the exceptional calculation measure cost savings determined?

- This form will automatically calculate the exceptional calculation measure cost savings based on the "virtual" energy rate from the proposed design energy model results. This form will subtract this cost savings from the proposed design energy model results to calculate the *Proposed Building Performance Rating*.
- Exceptional calculation measure cost for each exceptional calculation measure is analyzed based on local utility rate structures. The *cost savings* for each exceptional calculation is reported below, This form will subtract the reported exceptional calculation cost savings from the proposed design energy model results to calculate the *Proposed Building Performance Rating*.

For each exceptional calculation method employed, document the predicted energy savings by energy type, the energy cost savings (if option 2 above is selected), and a narrative explaining the exceptional calculation method performed, and theoretical or empirical information supporting the accuracy of the method. Reference any applicable Credit Interpretation Rulings. [Note: if an end-use has an energy loss rather than an energy savings, enter it as a negative number]

Exceptional Calculati	on Measure Short Descrip	tion:	Exterior Lighting CLEAR
Energy Type(s)	Annual Energy Savings by Energy Type	Annual Cost Savings	Exceptional Calculation Measure Narrative:
Electricity	6,948 (kWh)		Exterior lighting is not included in outputs of EnergyPro 4 software. Therefore the exterior lighting savings was calculated in a spreadsheet. Savings are achieved for tradeable surfaces only. See uploaded spreadsheet "Ext lighting calc.xls"
			Exterior lighting energy use and costs are included in Table 1.8.1, 1.8.2, 1.8.1(b), and 1.8.2(b) so that the total energy use is computed correctly in Table 1.8.2(b). The proposed design energy and costs are entered here equal to the standard design. The savings is then accounted for in exceptional calculation section of Table 1.8.2(b). Otherwise the energy use and costs are not reflected in the total at the bottom of 1.8.2(b). This is required for the renewable energy calculation for EAc2 to be correct.

Exceptional Calculati	ion Measure Short Descript	tion:	CLEAR
Energy Type(s)	Annual Energy Savings by Energy Type	Annual Cost Savings	Exceptional Calculation Measure Narrative:





Section 1.8 - Performance Rating Method Compliance Report (Option 1 Compliance Only)

In **Table 1.8.1**, list each energy end use for your project (including all end uses reflected in the baseline and proposed designs). Then check whether the end-use is a process load, select the energy type, and list the energy consumption and peak demand for each end-use for all four Baseline Design orientations. In **Table 1.8.1(b)** indicate the total baseline energy cost for each energy type for all four Baseline Design orientations. If either the baseline or proposed design uses more than one energy type for a single end use (i.e. electric resistance reheat, and central natural gas heating), enter each energy type as a separate end use (i.e. *Heating - Electric*, and *Heating, NG*).

Fill out the Proposed Design energy consumption and peak demand for each end use in **Table 1.8.2**. In **Table 1.8.2** (b) indicate the total proposed energy cost for each energy type. [Note: Process loads for the proposed design must equal those listed in the Baseline design. Any process load energy savings for the project must be reported in Section 1.7.]

(Click "CLEAR" to clear the contents of any end use)

End Use	Process?	Baseline Design Energy Type	Units of Annual Energy & Peak Demand	Baseline (0° rotation)	Baseline (90° rotation)	Baseline (180° rotation)	Baseline (270° rotation)	Baseline Design	
Space Heating		Natural Gas	Energy Use (therms)	8,541				8,541	CLE
pace reading		ratural Gus	Demand (MBH)	2.5				2.5	CLL
Space Cooling		Electricity	Energy Use (kWh)	215,271				215,271	CLE
space cooling		Electricity	Demand (kW)	254.7				254.7	CLEAR
la de ou Foure		Electricity	Energy Use (kWh)	307,473				307,473	CI E
ndoor Fans		Electricity	Demand (kW)	71.6				71.6	CLEAR
lland Dairandian		Electricity	Energy Use (kWh)						
Heat Rejection			Demand (kW)						CLEAR
D a		Electricity	Energy Use (kWh)						CLE
Pumps			Demand (kW)						CLEAF
Domestic Hot Water		10.16	Energy Use (therms)	2,130				2,130	
Domestic Hot Water		Natural Gas	Demand (MBH)	.1				.1	CLE
liahain n			Energy Use (kWh)	178,278				178,278	GI -
Lighting		Electricity	Demand (kW)	49.3				49.3	CLEAR
Do anista ala			Energy Use (kWh)	213,044				213,044	
Receptacle		Electricity	Demand (kW)	50.8				50.8	CLE
D			Energy Use (kWh)	206,611				206,611	CLEAR
Process		Electricity	Demand (kW)	49.3				49.3	
			Energy Use (kWh)	74,580				74,580	
Exterior lighting		Electricity	Demand (kW)	17				17	CLEAR





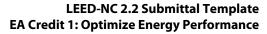
Table 1.8.1 - Baseline Perf	orm	ance - Performano	e Rating Method	Compliand	ce					
End Use	Process?	Baseline Design Energy Type	Units of Annual Energy & Peak Demand	Baseline (0° rotation)	Baseline (90° rotation)	Baseline (180° rotation)	Baseline (270° rotation)	Baseline Design		
			Energy Use						CLEAR	
			Demand						CLLAIN	
				Energy Use						CLEAR
			Demand						CLEAR	
			Energy Use						CLEAR	
		Ш		Demand						CLEAN
			Energy Use						CLEAR	
			Demand						CLEAR	
			Energy Use						CLEAR	
			Demand						CLLAIN	
			Energy Use						CLEAR	
			Demand						CLEAR	
Raseline Energy Totals		Total Annual Energy	Use (MBtu/year)	5,145	0	0	0	5,145		
Baseline Energy Totals:		Annual Process Ener					1,432			

Note: Process Cost equals at least 25% of Baseline Performance, as required for showing credit compliance.

Table 1.8.1(b) - Baseline E	nergy Costs				
Energy Type	Baseline Cost (0° rotation)	Baseline Cost (90° rotation)	Baseline Cost (180° rotation)	Baseline Cost (270° rotation)	Baseline Building Performance
Electricity	\$259,550				\$259,550
Natural Gas	\$19,016				\$19,016
Total Baseline Costs:	\$278,566				\$278,566

Table 1.8.2 - Performan	ce Ra	ating Table - Perfo	ormance Rating M	ethod Comp	liance			
End Use	Process?	Proposed Design Energy Type	Proposed Design Units	Proposed Building Results	Baseline Building Units	Baseline Building Results	Perc Savir	
Space Heating		Natural Gas	Energy Use (therms)	7,336	Energy Use (therms)	8,541	14.1	%
Space Heating	Natural Gas	Demand (MBH)	2.1	Demand (MBH)	2.5	0	%	







Space Cooling		Electricity	Energy Use (kWh)	127,648	Energy Use (kWh)	215,271	40.7	%
Space Cooling		Electricity	Demand (kW)	182	Demand (kW)	254.7	28.7	%
I		Electricity	Energy Use (kWh)	297,073	Energy Use (kWh)	307,473	3.4	%
Indoor Fans		Electricity	Demand (kW)	68.9	Demand (kW)	71.6	3.7	%
Hand Dair etian		Electricity	Energy Use (kWh)	0	Energy Use (kWh)		0	%
Heat Rejection		Electricity	Demand (kW)	0	Demand (kW)		0	%
Durana		Electricity.	Energy Use (kWh)	0	Energy Use (kWh)		0	%
Pumps		Electricity	Demand (kW)	0	Demand (kW)		0	%
Damastia Hat Water		Natural Cas	Energy Use (therms)	1,985	Energy Use (therms)	2,130	6.8	%
Domestic Hot Water		Natural Gas	Demand (MBH)	.1	Demand (MBH)	.1	0	%
l i alasia a		Electricity.	Energy Use (kWh)	150,920	Energy Use (kWh)	178,278	15.3	%
Lighting		Electricity	Demand (kW)	41.8	Demand (kW)	49.3	15.5	%
Do conto do		Electricity.	Energy Use (kWh)	213,044	Energy Use (kWh)	213,044	0	%
Receptacle	×	Electricity	Demand (kW)	50.8	Demand (kW)	50.8	0	%
Process		Floctricity	Energy Use (kWh)	206,611	Energy Use (kWh)	206,611	0	%
	×	Electricity	Demand (kW)	49.3	Demand (kW)	49.3	0	%
F		Electricity.	Energy Use (kWh)	74,580	Energy Use (kWh)	74,580	0	%
Exterior lighting		Electricity	Demand (kW)	17	Demand (kW)	17	0	%
		Electricity	Energy Use (kWh)		Energy Use		0	%
		Electricity	Demand (kW)		Demand		0	%
		Electricity	Energy Use (kWh)		Energy Use		0	%
		Electricity	Demand (kW)		Demand		0	%
		Electricity	Energy Use (kWh)		Energy Use		0	%
		Electricity	Demand (kW)		Demand		0	%
			Energy Use		Energy Use		0	%
			Demand		Demand		0	%
		Electricity	Energy Use (kWh)		Energy Use		0	%
		Liectricity	Demand (kW)		Demand		0	%
			Energy Use		Energy Use		0	%
			Demand		Demand		0	%
Energy Totals:		Total Annual Energy	Use (MBtu/year)	4,583		5,145	10.9	%
Lifergy rotals:		Annual Process Ene	rgy (MBtu/year)	1432		1,432	0	%





	Proposed Design				Baseline D	Design	Perd	Percent Savings			
Energy Type	Energy U	se	Cost	Energ	gy Use	Cost		Energy Use Cos			
Electricity	1,069,876	kWh	\$225,510	1,195,257	kWh	\$259,550	10.5	%	13.1	%	
Natural Gas	9,321	therms	\$16,605	10,671	therms	\$19,016	12.7	%	12.7	%	
	0			0			0	%	0	%	
	0			0			0	%	0	%	
Subtotal (Model Outputs):	4,583 (MB	Btu/year)	\$242,115	5,145	(MBtu/year)	\$278,566	10.9	%	13.1	%	
On-Site Renewable Energy	Energy Gene	rated	Renewable Energy Cost								
Solar Array	369,525	(kWh)	\$77,889	(subtracted	from model re	esults to reflect Pro	pposed Build	ling F	erforma	ince	
			0	(subtracted	from model re	esults to reflect Pro	pposed Build	ling F	'erforma	ince	
Exceptional Calculations	Energy Savi	ings	Cost Savings								
Exterior Lighting	23 (MB	Btu/year)	\$1,464	(subtracted	from model re	esults to reflect Pro	posed Build	ling F	erforma'	ince	
	Proposed I		Design		Baseline Design		Pero	Percent		Savings	
	Energy U	se	Cost	Energ	gy Use	Cost	Ener	gy	Со	st	
Total:	3,299 (MB	Stu/year)	\$162,762	5,145	(MBtu/year)	\$278,566	35.9	%	41.6	%	





DOCUMENTATION DESCRIPTION LOG

Please upload the compliance summaries for ASHRAE 90.1-2004 (or qualifying local energy code) and/or LEED if available from the energy simulation software used. Please also upload the energy rate tariff from the project's energy providers if the project is not using the default rates in the LEED-NC v2.2 Reference Guide.

If the software is incapable of producing the energy code or LEED compliance summaries please provide output summaries and example input summaries for both the baseline and proposed buildings that support the data entered in the template tables above.

- * Output summaries must include simulated energy consumption by end use as well as total building energy consumption and cost by energy type used in the building.
- * Example input summaries must be a sampling of model input assumptions, focusing on the most common systems present in the building. The example input summaries should be taken from the simulation software's standard input reports if available; if the software will not produce input summary reports then screen captures of representative inputs are acceptable. The example input summaries must include samples of the following input information:
- 1. Occupancy and usage patterns
- 2. Assumed envelope component sizes and traits (area, R-value, U-value, etc.)
- 3. Assumed mechanical equipment types and traits (capacity, efficiency, etc.)

Please note that uploaded documents should be SUMMARIES, and not large quantities of detailed data

Documentation Description Log

In the text box below, please reference the file name of each uploaded file (e.g. simulationsummary.pdf)

T24 reports Ext lighting calc.xls			



I have provided the appropriate supporting documentation in the document upload section of LEED Online. Please refer to the above sheets.





OPTION 2: ASHRAE ADVANCED ENERGY DESIGN GUIDE FOR SMALL OFFICE BUILDINGS, 2004

Climate zone

Buildings 2004. The following restrictions are applicable:

The project is less than 20,000 square feet.

The project is office occupancy.

The project has fully complied with all applicable criteria as established in the Advanced Energy Design Guide for the climate zone in which the building is located

Climate zone

OPTION 3: ADVANCED BUILDINGS BENCHMARK ™ VERSION 1.1

The project fully complies with the Basic Criteria and Prescriptive Measures of the Advanced Buildings Benchmark™ Version 1.1 with the exception of the following sections: 1.7 Monitoring and Trend-logging, 1.11 Indoor Air Quality, and 1.14 Networked Computer Monitor Control.

The building complies with all the prescriptive measures of the ASHRAE Advanced Energy Design Guide for Small Office





NARRATIVE	(Optional)
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Please provide any additional comments or notes regarding special circumstances or considerations regain the project's credit approach.	dina						
	 -						
The project is seeking point(s) for this credit using an alternate compliance approach. The compliance approach, including references to any applicable Credit Interpretation Rulings is fully documented in the narrative above. (Indicate the numpoints documented in the "Alternative Compliance Points Documented" field below).							
Alternative Compliance Points Documented							
Project Name:							
Credit: EA Credit 1: Optimize Energy Performance Points Documented:	9						
READY TO SAVE THIS TEMPLATE TO LEED-ONLINE? Please enter your first name, last name and today's date below, followed by your LEED-Online Username and Password associated with the Project listed above to confirm submission of this template.							
Erik Dyrr							
First Name Last Name Date Username (Email Address) Password							

Letter Template Version A1.

PRINT TEMPLATE

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