



LEED 2009 for Core and Shell Development

EA PREREQUISITE 2: MINIMUM ENERGY PERFORMANCE

All fields and uploads are required unless otherwise noted.

ALL OPTIONS

This static sample form has been modified for offline access. All sections of the form are visible. Sample forms are for reference only.

TARGET FINDER

The following fields are required, but the values have no bearing on EA Prerequisite 2 compliance. Use the Target Energy Performance Results calculator on the [ENERGY STAR website](#) to generate the values. If using prescriptive compliance paths (Options 2 or 3), leave the Design energy consumption and cost values blank in the Target Finder website, and set the Design values equal to the Target values in this form.

	Design	Target
Energy performance rating:	<input type="text"/>	<input type="text"/>
CO ₂ -eq emissions:	<input type="text"/> metric tons/year	<input type="text"/> metric tons/year
CO ₂ -eq emissions reduction:	<input type="text"/> %	<input type="text"/> %

Upload EAp2-1. Provide the Target Finder Energy Performance Results for the project building (a screen capture or other documentation containing the same information).(Optional)

- ☐ The building is not able to get a Target Finder score because the tool does not support the primary building type of the project building.(Optional)

PREREQUISITE COMPLIANCE

Total gross square footage:	<input type="text"/>	sf
Principal project building activity:	<input type="text"/>	

Select a compliance path:

- ☐ **Option 1. Whole Building Energy Simulation.** The project team will document improvement in the proposed building performance rating as compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2007 or California Title 24-2005 Part 6.
- ☐ **Option 2. Prescriptive Compliance Path: ASHRAE Advanced Energy Design Guide.** The project team will document compliance with the ASHRAE Advanced Energy Design Guide.
- ☐ **Option 3. Prescriptive Compliance Path: Advanced Buildings Core Performance Guide.** The project team will document compliance with the Advanced Buildings™ Core Performance™ Guide.

OPTION 1. WHOLE BUILDING ENERGY SIMULATION

Compliance with the prerequisite/credit requirements must be documented for the entire project building and associated grounds, including both the Core & Shell AND tenant-occupied spaces

Select one of the following

- ☐ **In Scope:** The Core & Shell project scope includes the performance improvements for the entire project building, including tenant-occupied spaces.
- ☐ **Tenant Work:** It is anticipated that there will be additional tenant work beyond the Core & Shell project scope.

IN SCOPE

Refer to Core & Shell Appendix 2 in the Credit Resources section

TENANT WORK

Select one of the following

- ☐ **Tenant Neutral:** Performance calculations will indicate performance data as neutral for all the anticipated energy-related design and construction elements of the tenant-occupied spaces
- ☐ **Tenant Sales and/or Lease Agreement:** Performance calculations will indicate performance data as specified in the tenant sales and/or lease agreement for all the anticipated energy-related design and construction elements of the tenant-occupied spaces

TENANT NEUTRAL

Complete the following performance calculations. For the Core & Shell project scope use the actual energy-related design and construction elements (HVAC systems, envelope, lighting, etc.) to document the design case. For tenant-occupied spaces, document the same design and construction elements for the design case that are established for the baseline case. Refer to Core & Shell Appendix 2 in the Credit Resources section

TENANT SALES AND/OR LEASE AGREEMENT

For all spaces where, in submittal documentation for EAc1/p2, energy savings beyond the LEED 2009 baseline are projected based on anticipated tenant work:

- ☐ The tenant sales and/or lease agreement contains binding language specifying the minimum performance criteria of all design and construction elements contributing to energy savings beyond the LEED 2009 baseline claimed in the whole building energy simulation per ANSI/ASHRAE/IESNA 90.1-2007

Upload L-6. Provide the legally binding document (lease, sales agreement, tenant construction requirements, etc.) associated with the project, signed by both the developer and the tenant, explicitly stating the performance requirements for the tenant work.

Page/Reference number(s) of language relating to declaration(s) above

Complete the following documentation assuming all tenant work has been completed and conforms to the requirements of the tenant sales and/or lease agreement. For required uploads, provide all available documentation pertaining to the Core & Shell project scope and anticipated tenant work.

For the Core & Shell project scope use the actual energy-related design and construction elements (HVAC systems, envelope, lighting, etc.) to document the design case. For tenant-occupied spaces, document the design case using the anticipated design and construction elements. Refer to Core & Shell Appendix 2 in the Credit Resources section

Complete the following sections:

- Section 1.1A - General Information
- Section 1.1B - Mandatory Requirements
- 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 1.9A - Total Building Performance Summary
- Section 1.9B - Reports & Metrics

SECTION 1.1A - GENERAL INFORMATION

- ☐ **Compliant energy simulation software:** The energy simulation software used for this project has all capabilities described in EITHER section "G2 Simulation General Requirements" in Appendix G of ASHRAE 90.1-2007 OR the analogous section of the alternative qualifying energy code used.
- ☐ **Compliant energy modeling methodology:** Energy simulation runs for both the baseline and proposed building use the assumptions and modeling methodology described in EITHER ASHRAE 90.1-2007 Appendix G OR the analogous section of the alternative qualifying energy code used.

Simulation program:

Principal heating source:

Energy code used:

List the ASHRAE addenda used in the modeling assumptions, if any. (Optional)

Zip/Postal Code:

Weather file:

Climate zone:

List the climatic data from ASHRAE Standard 90.1-2007 Table D-1. Specify if another source is referenced for HDD & CDD data.

Heating Degree Days:

Cooling Degree Days:

HDD and CDD data source, if other than ASHRAE: (Optional)

New construction gross square footage:

Existing, renovated gross square footage:

Existing, unrenovated gross square footage:

Total gross square footage:

New construction percent:

%

Existing renovation percent:

%

Existing unrenovated percent:

%

Gross square footage used in the energy model, if different than gross square footage above: (Optional)

SECTION 1.1B - MANDATORY REQUIREMENTS

For all elements included in the architect's scope of work for the project building, the project building design complies with all ASHRAE Standard 90.1-2007 mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4), and the information provided regarding the Proposed Case energy model in Section 1.4 is consistent with the Building Design.

Signatory

Initial here:

For all elements included in the mechanical engineer's scope of work for the project building, the project building design complies with all ASHRAE Standard 90.1-2007 mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4), and the information provided regarding the Proposed Case energy model in Section 1.4 is consistent with the Building Design.

Signatory

Initial here:

For all elements included in the electrical engineer's scope of work for the project building, the project building design complies with all ASHRAE Standard 90.1-2007 mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4), and the information provided regarding the Proposed Case energy model in Section 1.4 is consistent with the Building Design.

Signatory

Initial here:

Upload the following [Interactive Compliance Forms](#): (Optional)

- ☐ Upload **EA2-2**. Building Envelope Compliance Documentation
- ☐ Upload **EA2-3**. HVAC Compliance Documentation
- ☐ Upload **EA2-4**. Lighting Compliance Documentation
- ☐ Upload **EA2-5**. Service Water Heating Compliance Documentation

SECTION 1.2 - SPACE SUMMARY

Table EA2-1. Space Usage Type

Space Name / Description	Space Usage Type	Space Size	Regularly Occupied GSF	Unconditioned GSF	Typical Hours in Operation (per week)
	Total				
	Percentage of total (%)				

SECTION 1.3 - ADVISORY MESSAGES

Complete Table EAp2-2 based on information from the energy simulation output files.

Table EAp2-2. Advisory Messages

	Baseline Design (0° Rotation)	Proposed Design
Number of hours heating loads not met ¹		
Number of hours cooling loads not met ¹		
Total		
Difference ² (Proposed design minus baseline design)		
Number of warning messages		
Number of error messages		
Number of defaults overridden		
Unmet load hours compliance		

¹Baseline design and proposed design unmet load hours each may not exceed 300

²Unmet load hours for the proposed design may not exceed the baseline design by more than 50 hours.

Describe the reasoning for unmet load hours noncompliance, or any special circumstances or modeling difficulties:

Upload EAp2-6. Provide documentation to support the narrative above.
(Optional)

SECTION 1.4 - COMPARISON OF PROPOSED DESIGN VERSUS BASELINE DESIGN ENERGY MODEL INPUTS

Download, complete, and upload "EAp2 Section 1.4 table.xls" (found under "Credit Resources") to document the Baseline and Proposed design energy model inputs for the project.

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

Upload EAp2-7. Provide the completed EAp2 Section 1.4 Tables available under "Credit Resources."

SECTION 1.5 - ENERGY TYPE SUMMARY

List the energy types used by the project (i.e. electricity, natural gas, purchased chilled water or steam, etc.) for the Baseline and Proposed designs.

If revising the values in Table EAp2-3, reselect energy type in all affected rows in Table EAp2-4 and Table EAp2-5 to ensure that the revised values from Table EAp2-3 are propagated and that Table EAp2-4 and Table EAp2-5 calculations are refreshed.

Table EAp2-3. Energy Type Summary

Energy Type	Utility Company Name	Utility Rate and Description of rate structure ¹	Baseline Virtual Rate ² (\$ per unit energy)	Proposed Virtual Rate ² (\$ per unit energy)	Units of Energy	Units of Demand
Electricity						
Natural Gas						

¹ Describe the rate structure and list the local utility rate/s for the energy type. Per ASHRAE 90.1-2007 G2.4, project teams are allowed to use the state average energy prices published by DOE's EIA for commercial building customers, available on EIA's website (www.eia.gov). If project uses backup energy for on-site renewable energy, please specify the rate of backup source energy.

² List the virtual energy rate from the baseline and proposed design energy model results or from manual calculations. This rate is defined as defined as the total annual charge divided by the metered energy from the plant for each resource. Provide a narrative explaining demand reduction if the Proposed and Baseline rates vary significantly.

If the Proposed and Baseline rates vary significantly, describe the building input parameters (e.g. demand reduction measures) leading to the variation in energy rates, and provide detailed information regarding the utility rate structure including all demand and energy charges, and the seasonal and time-of-use structure of the utility tariff. (Required when Proposed & Baseline Rates vary by more than 10%)

Upload EAp2-8. Provide any documentation to support the proposed/baseline rate variance narrative. (Optional)

SECTION 1.6 - PERFORMANCE RATING METHOD COMPLIANCE REPORT

In Table EAp2-4, list each energy end use for the 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.

Fill out the Proposed Design energy consumption and peak demand for each end use in Table. Performance Rating - Performance Rating Method Compliance.

Table EAp2-4. Baseline Performance - Performance Rating Method Compliance

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 Building Results
			Energy Use						
			Demand						
			Energy Use						
			Demand						
			Energy Use						
			Demand						
			Energy Use						
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			Energy Use						
			Demand						

Baseline Energy Totals	Total Energy Use (mBtu/yr)					
		Annual Process Energy (mBtu/yr)				
		Process Energy Modeling Compliance ¹				

¹ Annual process energy costs must be at least 25% of the total energy costs for the proposed design. This form determines compliance using cost calculations from Section 1.9. Process Energy Costs should be modeled to accurately reflect the proposed building. Process Energy must be the same in the baseline and proposed cases, unless an exceptional calculation is used. Process energy costs must be at least 25% of the total baseline energy costs. Any exceptions must be supported by a narrative and/or other supporting documentation.

Explain any exceptions, special circumstances or modeling difficulties that occurred relating to the process energy noncompliance.

Upload EAp2-9. Provide any documentation to support the process energy noncompliance narrative. (Optional)

Table EAp2-5. Performance Rating - Performance Rating Method Compliance

End Use	Process	Baseline Building Units		Baseline Building Results	Proposed Design Energy Type	Units of Annual Energy & Peak Demand		Proposed Building Results	Percent Savings
		Energy Use				Energy Use			
		Demand				Demand			
		Energy Use				Energy Use			
		Demand				Demand			
		Energy Use				Energy Use			
		Demand				Demand			
		Energy Use				Energy Use			
		Demand				Demand			
		Energy Use				Energy Use			
		Demand				Demand			
		Energy Use				Energy Use			
		Demand				Demand			

		Energy Use				Energy Use			
		Demand				Demand			
		Energy Use				Energy Use			
		Demand				Demand			
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		Energy Use				Energy Use			
		Demand				Demand			
		Energy Use				Energy Use			
		Demand				Demand			
		Energy Use				Energy Use			
		Demand				Demand			
		Energy Use				Energy Use			
		Demand				Demand			
Baseline Total Energy Use					Proposed Total Energy Use			MBtu/yr	
Baseline Process Energy					Proposed Process Energy			MBtu/yr	

Table EAp2-6. Section 1.6 Energy Use Summary & Energy Savings

Energy Type	Units	Baseline Design	Proposed Design
Electricity			
Natural Gas			
Totals			

SECTION 1.7 - EXCEPTIONAL CALCULATION MEASURE SUMMARY

Select one of the following

- ☐ The energy analysis includes exceptional calculation method(s) (ASHRAE 90.1-2007, G2.5).
- ☐ The energy analysis does not include exceptional calculation methods.

There are different methods for including exceptional calculation measure cost data in calculations for EA Prerequisite 2/ Credit 1. Please note that the same method has to be used for all the measures in this section.

Select one of the following:

- ☐ **Automatic Cost Calculation:** The project team will base the exceptional calculation measure cost savings on the "virtual" energy rate from the proposed design energy model results. (The calculated cost savings are automatically subtracted from the proposed design energy model results when determining the Proposed Building Performance Rating.)
- ☐ **Manual Cost Input:** The project team will analyze exceptional calculation measure cost for each exceptional calculation measure separately from the energy model based on local utility rate structures. Cost savings are reported separately for each exceptional calculation. (The calculated cost savings are automatically subtracted from the proposed design energy model results when determining the Proposed Building Performance Rating.) Use **Section 1.9A** Total Building Performance Summary - Manual Cost Input to input the cost values.

For each exceptional calculation method employed, document the predicted energy savings by energy type, the energy cost savings (if Manual Cost Input 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. If an end-use has an energy loss rather than an energy savings, enter it as a negative number.

Additionally, input the energy cost savings for each exceptional calculation method.

Table EAp2-7. Exceptional Calculations

End Use	Exceptional Calculation Title	Energy Type(s)	Unit	Annual Energy Savings

Upload EAp2-10. Provide documentation supporting the Exceptional Calculation Methodologies.

Table EAp2-8. Section 1.7 Energy Use Summary & Energy Savings

Energy Type	Units	Baseline Case	Proposed Case
Electricity			

Natural Gas			
Totals			

SECTION 1.8 - ON-SITE RENEWABLE ENERGY

Select one of the following

- ☐ The project uses on-site renewable energy produced on-site.
- ☐ The project does not use on-site renewable energy.

There are different methods for including renewable energy use data in calculations for EA Prerequisite 2/Credit 1. Please note that the same method has to be used for all the measures in this section.

Select one of the following:

- ☐ **Automatic cost calculation:** The project team will base the Renewable Energy Cost on the "virtual" energy rate from the proposed design energy model results. (The calculated cost savings will automatically subtract from the proposed design energy model results when determining the Proposed Building Performance Rating.)
- ☐ **Manual Cost Input:** the project team will analyze the Renewable Energy Cost for each on-site renewable source separately from the energy model based on local utility rate structures. Renewable Energy Costs are reported separately for each renewable source. (The calculated cost savings are automatically subtracted from the proposed design energy model results when determining the Proposed Building Performance Rating.) Use **Section 1.9A** Total Building Performance Summary - Manual Cost Input to input the cost values.
- ☐ **Energy Model Includes Renewables:** 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 90.1-2007, Section G2.4), the rated capacity for the source, and the annual energy generated from each source.

Additionally, input the energy cost savings for each renewable energy source.

Table L-1. Renewable Energy Source Summary

Renewable Source	Renewable Energy Source Allocation	Renewable System Owner	Energy Type	Rated Capacity	Annual Energy Generated	Units	Annual Energy Cost (\$)

¹ Per ASHRAE 90.1 G2.1 Exception, baseline performance shall be based on the energy source used as backup energy or on the use of electricity if no backup energy source has been specified.

² On-site renewable energy systems are only required for the Core & Shell project scope. If performance improvements are included in the above table that are based on anticipated tenant work, please indicate the tenant sales and/or lease agreement compliance path in EA Credit 2: On-site Renewable Energy.

Table EAp2-9. Section 1.8 Energy Use Summary & Energy Savings

Energy Type	Units	Baseline Case	Proposed Case
Electricity			
Natural Gas			
Totals			

SECTION 1.9A - TOTAL BUILDING PERFORMANCE SUMMARY**Table EAp2-10.** Energy Use Summary: Total Building Energy Use Performance

Energy Type	Units	Baseline Case		Proposed Case			
Section 1.6 Energy Use		Process	Section 1.6 Energy Use	Section 1.6 Energy Use	Section 1.7 Energy Savings	Section 1.8 Ren Energy Savings	Total Energy Use
Electricity							
Natural Gas							
Totals							
Energy use savings							%

Table EAp2-10A. Proposed Tenant Electricity Used

Complete the following table indicating the tenant electricity use in the building. (If an end use does not use electricity, leave the row blank.)

	Units	Total Building	Tenant Use	Tenant Use %
Lighting	kWh			
HVAC	kWh			
Service Water Heating	kWh			
Receptacles	kWh			
Miscellaneous	kWh			
Total	kWh			

Core and Shell Electricity Use	kWh	

Table EAp2-11. Energy Cost Summary: Total Building Energy Cost Performance (Baseline Case)

Energy Type	Baseline Cost (\$) (0° rotation)	Baseline Cost (\$) (90° rotation)	Baseline Cost (\$) (180° rotation)	Baseline Cost (\$) (270° rotation)	Baseline Building Performance
Electricity					
Natural gas					
Totals					

Table EAp2-12. Energy Cost Summary: Total Building Energy Cost Performance (Manual Cost Input)

Energy Type	Units	Baseline Case		Proposed Case			
Section 1.6 Energy Use		Process	Section 1.6 Energy Use	Section 1.6 Energy Use	Section 1.7 Energy Savings	Section 1.8 Ren Energy Savings	Total Energy Cost
Electricity							
Natural Gas							
Totals							
Baseline process energy costs as percent of total energy costs (%)				Energy cost savings			
EA Credit 1 points documented							

Use the Automatic Cost Calculation path if the project uses automatic cost calculation under Section 1.7 or Section 1.8.

☐ **Automatic Cost Calculation:** The project will generate the energy cost values using the virtual energy rate from Section 1.5: Energy Use Summary.

Table EAp2-13. Energy Cost Summary: Total Building Energy Cost Performance

Energy Type	Units	Baseline Case		Proposed Case			
Section 1.6 Energy Cost		Process	Section 1.6 Energy Cost	Section 1.6 Energy Cost	Section 1.7 Energy Savings	Section 1.8 Ren Energy Savings	Total Energy Cost
Electricity							

Natural Gas							
Totals							
Baseline process energy costs as percent of total energy costs (%)				Energy cost savings			%
EA Credit 1 points documented							

Section 1.9B - REPORTS AND METRICS

Table EAp2-14. Energy Use Intensity

	Baseline EUI	Proposed EUI
Electricity (kWh/sf)		
Interior Lighting		
Space Heating		
Space Cooling		
Fans - Interior		
Service Water Heating		
Receptacle Equipment		
Miscellaneous		
Total		
Natural Gas (kBtu/sf)		
Space Heating		
Service Water Heating		
Total Energy Use Intensity (kBtu/sf)		
Total		

Table EAp2-15. End Use Energy Percentage

	Baseline Case	Proposed Case	End Use Energy Savings (%)
Interior Lighting			
Space Heating			
Space Cooling			
Fans - Interior			
Service Water Heating			
Receptacle Equipment			

Input & Output Summaries from the Energy Model

Upload the summary report from the simulation program.

- ☐ **Upload EAp2-11.** If the project used DOE2, eQuest & Visual DOE, provide the Input summary and the BEPS, BEPU, & ES-D reports.
- ☐ **Upload EAp2-12.** If the project used EnergyPlus, provide the Input summary and the Annual Building Utility Performance Summary (ABUPS), System Summary, and the file that shows the annual energy cost by fuel source.
- ☐ **Upload EAp2-13.** If the project team used EnergyPro, provide the Input summary and the Title 24 reports: PERF-1, ECON-1, & UTIL-1.
- ☐ **Upload EAp2-14.** If the project team used HAP, provide the Input summary and the Annual Cost Summary, Unmet Load reports for all plants and systems (Building Zone Temperature Report), and Systems Energy Budget by Energy Source.
- ☐ **Upload EAp2-15.** If the project team used Trace, provide the Input summary as well as the the Energy Consumption Summary, Energy Cost Budget/PRM Summary report, and Performance Rating Method Details.
- ☐ **Upload EAp2-16.** For all other modeling software, upload supporting documents of similar scope and detail (input and output summaries.)

OPTION 2. PRESCRIPTIVE PATH: ASHRAE Advanced Energy Design Guides

Compliance with the prerequisite/credit requirements must be documented for the entire Core & Shell project building and associated grounds, including tenant occupied spaces, from which anticipated tenant work may also be documented."

Select one of the following

- ☐ **In Scope:** The project team does not anticipate any future tenant work that would impact the ability for the Core & Shell project to meet the requirements of of this prerequisite and/or credit
- ☐ **Tenant Sales and/or Lease Agreement:** The Core & Shell project scope is limited such that submittal documentation needs be based (either in whole or in part) on anticipated tenant work beyond the Core & Shell project scope

IN SCOPE

Complete the following documentation sections using data for the entire project building, including tenant occupied spaces. Data shall be based entirely on design and construction elements that are included in the Core & Shell project scope. No data entered below shall be based on anticipated tenant work

TENANT SALES AND/OR LEASE AGREEMENT

- ☐ The tenant sales and/or lease agreement contains binding language specifying minimum performance criteria of all design and construction elements contributing to energy savings, such that spaces within the scope of anticipated tenant work shall comply with the requirements of EA Prerequisite 2/ EA Credit 1 when completed.

Upload L-6. Provide the legally binding document (lease, sales agreement, tenant construction requirements, etc.) associated with the project, signed by both the developer and the tenant, explicitly stating the performance requirements for the tenant work.

Page/Reference number(s) of language relating to declaration(s) above

Complete the following documentation section assuming all tenant work has been completed and conforms to the requirements of the sales and/or lease agreement. For required uploads, provide all available documentation pertaining to the Core & Shell project scope and anticipated tenant work."

Select a prescriptive compliance method:

- ☐ **Path 1. AEDG Small Office Buildings:** The project team will document compliance with prescriptive measures of the ASHRAE Advanced Energy Design Guide for Small Office Buildings 2004.
- ☐ **Path 2. AEDG Small Retail Buildings:** The project team will document compliance with the ASHRAE Advanced Energy Design Guide for Small Retail Buildings 2006.
- ☐ **Path 3. AEDG Small Warehouses and Self Storage Buildings:** The project team will document compliance with the ASHRAE Advanced Energy Design Guide for Small Warehouses and Self Storage Buildings 2008.

ASHRAE ADVANCED ENERGY DESIGN GUIDE FOR SMALL OFFICE BUILDINGS

Project Location

City:	<input type="text"/>	State/US Territory/ Canadian Province:	<input type="text"/>
Zip/Postal Code:	<input type="text"/>	Country:	<input type="text"/>

County:

AEDG Climate Zone:

Complete Table EAp2-16. Enter the AEDG requirements in the left columns, as appropriate for the project's climate zone. Enter the proposed building's corresponding design in the right column.

Table EAp2-16. ASHRAE AEDG for Small Office Buildings

Envelope		
	AEDG Recommendation ¹	Proposed Design
Roof		
Walls		
Floors		
Slabs		
Doors		
Vertical Fenestration		
Lighting		
	AEDG Recommendation ¹	Proposed Design
Interior Lighting		

HVAC		
	AEDG Recommendation ¹	Proposed Design
HVAC		
Ventilation		
Ducts		

Service Water Heating		
	AEDG Recommendation ¹	Proposed Design
Service Water Heating		

¹If the Advanced Energy Design Guide contains "No recommendation" for a component, the project must meet the requirements of either Standard 90.1 or the local code requirements. In these instances, insert "ASHRAE 90.1 Requirement:" or "[local code] Requirement" under the "AEDG Recommendation" column, followed by that code's requirements. The "Proposed Design" column inputs remain the same.

Summarize the implementation strategies used to meet the ASHRAE Advanced Energy Design Guide requirements. Consider Chapter 4 of the standard, "How to Implement Recommendations," and reference any recommendations used.

ASHRAE ADVANCED ENERGY DESIGN GUIDE FOR SMALL RETAIL BUILDINGS

Project Location

City:

State/US Territory/
Canadian Province:

Zip/Postal Code:

Country:

County:

AEDG Climate Zone:

Complete Table EAp2-17. Enter the AEDG requirements in the left columns, as appropriate for the project's climate zone. Enter the proposed building's corresponding design in the right column.

Table EAp2-17. ASHRAE Advanced Energy Design Guide for Small Retail Buildings

Envelope		
	AEDG Recommendation ¹	Proposed Design
Roof		
Walls		
Floors		
Slabs		
Doors - opaque		
Vertical glazing (inc. doors)		
Skylights		

Lighting		
	AEDG Recommendation ¹	Proposed Design
Interior lighting		
Add'l interior lighting for sales		
Exterior lighting		

HVAC		
	AEDG Recommendation ¹	Proposed Design
HVAC		
Economizer		
Ventilation		
Ducts		

Service Water Heating		
	AEDG Recommendation ¹	Proposed Design
Service Water Heating		

¹ If the Advanced Energy Design Guide contains "No recommendation" for a component, the project must meet the requirements of either Standard 90.1 or the local code requirements. In these instances, insert "ASHRAE 90.1 Requirement:" or "[local code] Requirement" under the "AEDG Recommendation" column, followed by that code's requirements. The "Proposed Design" column inputs remain the same.

Summarize the implementation strategies used to meet the ASHRAE Advanced Energy Design Guide requirements. Consider Chapter 5 of the standard, "How to Implement Recommendations," and reference any recommendations used.

ASHRAE ADVANCED ENERGY DESIGN GUIDE FOR SMALL WAREHOUSES AND SELF STORAGE BUILDINGS

Project Location

City:

State/US Territory/
Canadian Province:

Zip/Postal Code:

Country:

County

AEDG Climate Zone:

Complete Table EAp2-18. Enter the AEDG requirements in the left columns, as appropriate for the project's climate zone. Enter the proposed building's corresponding design in the right column.

Table EAp2-18. ASHRAE Advanced Energy Design Guide for Small Warehouses and Self Storage Buildings

Envelope		
AEDG Recommendation ¹		Proposed Design
Roof		
Walls - Exterior		
Walls - Interior		
Slabs		
Doors - Opaque		
Vertical Glazing including Doors		
Skylights		

Lighting		
AEDG Recommendation ¹		Proposed Design
Interior Lighting		
Exterior Lighting		

HVAC		
AEDG Recommendation ¹		Proposed Design
HVAC		
Economizer		
Ventilation		
Ducts		

Service Water Heating		
AEDG Recommendation ¹		Proposed Design
Service Water Heating		

¹ If the Advanced Energy Design Guide contains "No recommendation" for a component, the project must meet the requirements of either Standard 90.1 or the local code requirements. In these instances, insert "ASHRAE 90.1 Requirement:" or "[local code] Requirement" under the "AEDG Recommendation" column, followed by that code's requirements. The "Proposed Design" column inputs remain the same.

Summarize the implementation strategies used to meet the ASHRAE Advanced Energy Design Guide requirements. Consider Chapter 5 of the standard, "How to Implement Recommendations," and reference any recommendations used.

OPTION 3. PRESCRIPTIVE COMPLIANCE PATH: Core Performance Guide

Note: The Tenant Sales and Lease Agreement compliance path is not an available for this credit

A Licensed Professional Exemption (LPE) is available in lieu of the full documentation requirements of the Prescriptive Compliance Path: Advanced Buildings Core Performance Guide. LPE forms from both a Professional Engineer AND a Registered Architect are required for this exemption.

Select one of the following:

- ☐ Streamlined Path: LPE (PE & RA)
- ☐ Full documentation

LICENSED PROFESSIONAL EXEMPTION

NOTE: For each Licensed Professional Exemption claimed, the relevant licensed professional must complete the corresponding Exemption Signature on the Licensed Professional Exemptions tab in order to be considered a valid submittal. Elements highlighted in gray below are exempt.

Licensed Professional Exemption claimed by (PE):

Licensed Professional Exemption claimed by (RA):

Climate zone number (from CPG Appendix B):

Climate zone type (from CPG Appendix B):

CRITERIA 1.1: IDENTIFY DESIGN INTENT

Prior to schematic design, Core Performance strategies were discussed at one or more meetings attended by the following team members: (Select all that apply)

- ☐ Owner
- ☐ Lighting Designer
- ☐ Architect
- ☐ General Contractor
- ☐ Utility Program Representative
- ☐ Mechanical Engineer
- ☐ Electrical Engineer
- ☐ Leasing Agent

Upload EAp2-17. Provide the ENERGY STAR Statement of Energy Design Intent (SEDI). (Optional)

CRITERIA 1.2: COMMUNICATING DESIGN INTENT

Upload EAp2-18. Provide a document that contains a meeting summary and goals statement.

- ☐ The OPR, Construction Documents, Commissioning Requirements and Bid Submittals include all the required elements as specified in Criteria 1.2 of Core Performance and effectively document the design intent and design performance.

CRITERIA 1.3: BUILDING CONFIGURATIONS

In accordance with CPG Criteria 1.3, the implications of alternate building configurations were considered via analysis using:

Upload EAp2-19. Provide an output or summary of the outcomes of the building configuration tool.

CRITERIA 1.4: MECHANICAL SYSTEM DESIGN

Total building load (heating):

Total building load (cooling):

Total building capacity (heating):

Total building capacity (cooling):

CRITERIA 1.6: OPERATOR TRAINING AND DOCUMENTATION

The Operator Training program will (has) be (been) performed by the building design & construction team, and consists of a formal walk-through and training session. Full documentation of building characteristics, equipment, operation, control, maintenance and monitoring protocols will (have) be (been) provided to the building operations team. Additionally, each of the following steps will (have) be (been) completed prior to occupancy:

Systems manuals and a full set of design and installation documents were delivered and accepted by the building operations team

- Appropriate maintenance schedules and calibration requirements were included in the operations manual
- Information is developed and provided describing building user interface with lighting, ventilation, and temperature controls.
- Control and data collection protocols were set up and understood by the building operations team

SIGNATORY

Initial here:

CRITERIA 1.7: PERFORMANCE DATA REVIEW

Building data collection methods are planned or in place for the following elements:

- Hourly metered electric data
- Hourly metered gas use data
- Monthly water use data
- Typical occupant use patterns
- Building hours of use

The data will be collected and captured on a quarterly basis, and a summary report will be included in the building operations manual.

SIGNATORY

Initial here:

CRITERIA 2.1: ENERGY CODE COMPLIANCE

- ☐ The state and local energy codes are more stringent than ASHRAE 90.1-2004. (Optional)

For all elements not described in the Core Performance Guide and included in the architect's scope of work for the project building, the project building meets or exceeds the ASHRAE Standard 90.1-2004 or International Energy Conservation Code (IECC) 2006 requirements.

Signatory	
Initial here:	

For all elements not described in the Core Performance Guide and included in the mechanical engineer's scope of work for the project building, the project building meets or exceeds the ASHRAE Standard 90.1-2004 or International Energy Conservation Code (IECC) 2006 requirements.

Signatory	
Initial here:	

For all elements not described in the Core Performance Guide and included in the electrical engineer's scope of work for the project building, the project building meets or exceeds the ASHRAE Standard 90.1-2004 or International Energy Conservation Code (IECC) 2006 requirements.

Signatory	
Initial here:	

Specify the energy code used:

Upload EAp2-20. Provide documentation demonstrating the state or local energy code is equivalent to or more stringent than ASHRAE Standard 90.1-2004 (not required for California Title 24-2005 Part 6).

For all elements not described in the Core Performance Guide and included in the architect's scope of work for the project building, the project building meets or exceeds the local energy code.

Signatory	
Initial here:	

For all elements not described in the Core Performance Guide and included in the mechanical engineer's scope of work for the project building, the project building meets or exceeds the local energy code.

Signatory	
Initial here:	

For all elements not described in the Core Performance Guide and included in the electrical engineer's scope of work for the project building, the project building meets or exceeds the local energy code.

Signatory	
Initial here:	

Upload the following : (Optional)

- ☐ **Upload EAp2-21.** Building Envelope Compliance Documentation
- ☐ **Upload EAp2-22.** Lighting Compliance Documentation

☐ Upload EAp2-23. HVAC Compliance Documentation

☐ Upload EAp2-24. Service Water Heating Compliance Documentation

CRITERIA 2.2: AIR BARRIER PERFORMANCE

☐ The materials specified for the air barrier system meet the permeability requirements in the Core Performance Guide.

Construction documents for the project building include details for installation of a continuous air barrier.

Signatory

Initial here:

CRITERIA 2.4: BELOW GRADE EXTERIOR INSULATION

The following attributes apply to the project building: (Select all that apply) (Optional)

- ☐ The building is located in climate zone type "A"
- ☐ The building is designed specifically for youth and elderly populations
- ☐ The building has a planned period of greater than seven days when mechanical systems are shut down
- ☐ The building does not have a mechanical system maintaining the dewpoint temperature of the indoor slab on grade or below-grade floor or below-grade wall

Describe installation detail at slab edge. Indicate insulation level, location and quality.

CRITERIA 2.5: OPAQUE ENVELOPE PERFORMANCE

Entire above-grade wall area of the building:

Entire above-grade vertical glazing area:

Percentage vertical glazing of the building:

 %

Table EAp2-19. Opaque Envelope Performance Table

Enter the Core Performance requirements per the building climate zone, and enter the corresponding proposed design qualities for each element.

Envelope		Core Performance Requirement		Proposed Design	
Element		R-value	U-factor/ C-factor/ F-factor	R-value	U-factor/ C-factor/ F-factor
Roof					
Walls above grade					
Walls below grade					
Floors					
Slab-on-grade floors					
Opaque Doors					

CRITERIA 2.6: FENESTRATION PERFORMANCE

Entire roof area of the building:

Entire skylight area of the building:

Percentage skylight of the building:

 %
Table EAp2-20. Fenestration Performance

Enter the Core Performance requirements per the building's climate zone, and enter the corresponding proposed design attributes.

Fenestration			Core Performance Requirement, NFRC rating			Proposed Design		
Element	Projection factor (PF)		U-Factor	SHGC	VLT/SHGC Ratio	U-Factor	SHGC	VLT/SHGC Ratio
Windows								
Skylights		n/a						

CRITERIA 2.7: LIGHTING CONTROLS

Through occupancy sensors and/or automatic daylight controls, all areas of the project building incorporate the following switching and control strategies as described in the CPG: (Select all that apply)

- ☐ Bi-level Switching
- ☐ Separate switching at daylit areas
- ☐ Automatic Controls

Describe the switching and control strategies for the project building. For occupancy sensors, include type, location, and timer settings. For automatic controls, include type, location, and power reduction settings.

CRITERIA 2.8: LIGHTING POWER DENSITY (LPD)

The lighting power density is calculated using: (Select one)

- ☐ The whole-building approach.
- ☐ The space-by-space approach.

The calculated lighting power densities for each use category do not exceed the allowed lighting equipment power densities listed in Table 2.8.1 of the CPG.

Signatory	
Initial here:	

CRITERIA 2.9: MECHANICAL EQUIPMENT EFFICIENCY

The mechanical equipment in the building (package unitary equipment, gas unit heaters, package terminal air conditioners & heat pumps, boilers, electric & absorption chillers, and other equipment) meet the efficiency requirements of the CPG.

Signatory	
Initial here:	

CRITERIA 2.10: DEDICATED MECHANICAL SYSTEMS

Select all that apply: (Optional)

- ☐ The project building includes zones with **special process temperature** requirements
- ☐ The project building includes zones with **special process humidity** requirements
- ☐ The project building includes areas with **significantly different load profiles** than the main building

Describe the special zones or major process loads in the building and explain the air distribution system installed for these zones which is separate from the system serving the zones requiring only comfort conditioning. Or explain any separate supplementary control provisions installed to ensure the primary systems are specifically controlled for comfort purposes only.

CRITERIA 2.11: DEMAND CONTROL VENTILATION

A floor plan showing CO₂ sensors installed as a part of the demand control ventilation system is required to document compliance with Criteria 2.11. The floor plan shown below is a linked submittal.

Upload L-1. Provide representative floor plans for the project building.

Select one of the following:

- ☐ The floor plan above shows CO₂ sensors installed as a part of the demand control ventilation system.
- ☐ A different document is better suited to satisfy this requirement.

Upload EAp2-25. Provide a typical floor plan indicating the location of the CO₂ sensors.

CRITERIA 2.12: DOMESTIC HOT WATER SYSTEM EFFICIENCY CONTROL VENTILATION

Select one of the following

- ☐ There is a domestic hot water (DHW) system in the building.
- ☐ There is no DHW system in the building.

System serving the DHW:

- ☐ The high efficiency tank water heater has R-14 insulation, and has heat traps to prevent thermosiphoning.
- ☐ Water conserving aerators and shower heads are installed in lavatories and staff areas.

CRITERIA 2.13: FUNDAMENTAL ECONOMIZER PERFORMANCE

- ☐ Outside Air Economizers incorporate the following features, and performance was (will be) verified at project completion:
 - Factory-installed
 - Fully-modulating damper motor
 - Damper drive mechanism
 - Proportional damper control
 - Coordinated control
 - Economizer control
 - Relief air and modulating return air damper
 - Minimum outside ventilation air measurement by temperature

ADDITIONAL DETAILS

- ☐ Special circumstances preclude documentation of prerequisite compliance with the submittal requirements outlined in this form.

SPECIAL CIRCUMSTANCES

Describe the circumstances limiting the project team's ability to provide the submittals required in this form. Be sure to reference what additional documentation has been provided, if any. Non-standard documentation will be considered upon its merits.

Upload EAp2-SC. Provide any additional documentation that supports the claim to special circumstances. (Optional)

- ☐ The project team is using an alternative compliance approach in lieu of standard submittal paths. (Projects pursuing the Core and Shell Revised Points Thresholds Alternative Compliance Path must provide the "CS 2009 EAp2-c1 ACP" spreadsheet, found under Credit Resources, for Upload EAp2-ACP.)

ALTERNATIVE COMPLIANCE PATH

Describe the alternative compliance path used by the project team. Include justification that this path meets the prerequisite intent and requirements. Be sure to reference what additional documentation has been provided, if any. Non-standard documentation will be considered upon its merits.

Upload EAp2-ACP. Provide any additional documents that support the alternative compliance path approach. (Optional)

SUMMARY

EA Prerequisite 2: Minimum Energy Performance Compliance Documented	
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Note: Click "Check Compliance" to validate that the form meets the requirements. "Check Compliance" must be run after any changes are made to the form to ensure that "Compliance Documented" is accurate. Always press "Check Compliance" before saving the form. Fields are highlighted in red after "Check Compliance" is pressed are incomplete required fields. After entering information in those fields and pressing "Check Compliance" once more, the fields should return to their normal color

REFERENCE ONLY