



LEED 2009 for New Construction and Major Renovations EA PREREQUISITE 2: MINIMUM ENERGY PERFORMANCE

Project # 1000038123 Jacobs Hall

All fields and uploads are required unless otherwise noted.

THRESHOLD ATTEMPTED

Points Attempted: 0

ALL PROJECTS

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 (1-100): | <input type="text" value="0"/> | | <input type="text" value="0"/> | |
| CO ₂ -eq emissions: | <input type="text" value="0"/> | metric tons/year | <input type="text" value="0"/> | metric tons/year |
| CO ₂ -eq emissions reduction: | <input type="text" value="0"/> | % | <input type="text" value="0"/> | % |

Upload EA_p2-1. Provide the Target Finder Energy Performance Results (a screen capture or other documentation containing the same information) for the project building. (Optional)

Files: 0

- 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 and/or the project is not located in the United States. (Optional)

PREREQUISITE COMPLIANCE

Total gross square footage: sf

The content highlighted in yellow above is linked to P1f2, P1f3, SSc2, EA_p1, EA_c1, EA_c2, EA_c6, MR_c1.1 & MR_c1.2.

Principal project building activity:

The content highlighted in yellow above is linked to P1f3 & EA_c1.

Select a compliance path:

- Option 1. Whole Building Energy Simulation.** The project team will document improvement in the proposed building performance rating for ANSI/ASHRAE/IESNA Standard 90.1-2007 or California Title 24-2005 Part 6. Non-US projects may use a USGBC approved equivalent standard.
Note: Refer to "Credit Resources" for a list of USGBC approved equivalent standards.
- 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.

The content highlighted in yellow above is linked to EAc1, EAc2 & EAc6.

OPTION 1. WHOLE BUILDING ENERGY SIMULATION

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 - Performance Rating Method Compliance Report
- Section 1.7 - Exceptional Calculation Measure Summary (if applicable)
- Section 1.8- On-Site Renewable Energy (if applicable)
- 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:

EnergyPro

Principal heating source:

Fossil Fuel

Energy code used:

ASHRAE 90.1-2007

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

Zip/Postal Code:

94709

The content highlighted in yellow above is linked to SSc1 & SSc2.

Weather file:

Berkeley, California

Climate zone:

California Zone 3C

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:

2,749

Cooling Degree Days:

1,237

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

New construction gross square footage:

24,035

Existing, renovated gross square footage:

0

Existing, unrenovated gross square footage:

0

Total gross square footage:

24,035

New construction percent:

100 %

Existing renovation percent:

0 %

Existing unrenovated percent:

0 %

The content highlighted in yellow above is linked to Pf2, Pf3, SSc2, EAp1, EAc1, EAc2, EAc6, MRc1.1 & MRc1.2.

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

0

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) or USGBC approved equivalent standard mandatory provisions, and the information provided regarding the proposed case energy model in Section 1.4 is consistent with the building design.
- 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) or USGBC approved equivalent standard mandatory provisions, and the information provided regarding the proposed case energy model in Section 1.4 is consistent with the building design.
- 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) or USGBC approved equivalent standard mandatory provisions, and the information provided regarding the proposed case energy model in Section 1.4 is consistent with the building design.

Provide the following [Interactive Compliance Forms](#):

- Upload EA_p2-2.** Building Envelope Compliance Documentation (Optional) Files: 0
- Upload EA_p2-3.** HVAC Compliance Documentation (Optional) Files: 0
- Upload EA_p2-4.** Lighting Compliance Documentation (Optional) Files: 0
- Upload EA_p2-5.** Service Water Heating Compliance (Optional) Files: 0

SECTION 1.2 - SPACE SUMMARY

Table EA_p2-1. Space Usage Type

| Space Name / Description | Space Usage Type | Space Area (sf) | Regularly Occupied Area (sf) | Unconditioned Area (sf) | Typical Hours/Week in Operation | | |
|--------------------------------|---------------------------------|-----------------|------------------------------|-------------------------|---------------------------------|---|---|
| VAV-3-1 & VAV-3-2 | Classrooms & Meeting Rooms | 3,903 | 3,903 | 0 | 85 | + | - |
| Radiant Heaters | Lounge 309 | 171 | 171 | 0 | 85 | + | - |
| VAV-2-1 & VAV-2-2 | Classrooms, Offices & Hall | 3,947 | 3,947 | 0 | 85 | + | - |
| Radiant Heaters | Lounge 209 | 171 | 171 | 0 | 85 | + | - |
| VAV-1-1 & VAV-1-2 | Classrooms & Offices | 3,478 | 3,478 | 0 | 85 | + | - |
| VAV-B-1 | Classroom | 2,058 | 2,058 | 0 | 85 | + | - |
| All Unconditioned Area | Stairs, Toilets, Mech Room & FC | 7,290 | 0 | 7,290 | 85 | + | - |
| FC-1 | Telecom Room | 95 | 95 | 0 | 85 | + | - |
| Totals | | 21,113 | 13,823 | 7,290 | | | |
| Percentage of total (%) | | | 65.47 | 34.53 | | | |

SECTION 1.3 - ADVISORY MESSAGES

Table EAp2-2. Advisory Messages

Complete the table below based on information from the energy simulation output files.

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

Notes:

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

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

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 tables.

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

Upload

Files: 1

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.), and provide the the virtual energy rate from the baseline and proposed design energy model results or from manual calculations. *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 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 | PG&E | E-20T | 0.18 | 0.2 | kWh | kW |
| Natural Gas | PG&E | G1 R | 0.98 | 0.98 | therms | MBH |
| | | | | | | |

+

-

Notes:

- 1 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 Rate is defined as the total annual charge divided by the metered energy from the plant for each resource.

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 and baseline rates vary by more than 10%)

Upload EA_p2-8. Provide any documentation to support the proposed/baseline rate variance narrative. (Optional)

Files: 0

SECTION 1.6 - PERFORMANCE RATING METHOD COMPLIANCE REPORT

Table EA_p2-4. Baseline Performance - Performance Rating Method Compliance

In the table below, 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.

| 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 | | | | | |
| Interior Lighting | <input type="checkbox"/> | Electricity | Energy Use | kWh | 78,015 | 78,015 | 78,015 | 78,015 | 78,015 |
| | | | Demand | kW | 21.5 | 21.5 | 21.5 | 21.5 | 21.5 |
| Exterior Lighting | <input type="checkbox"/> | Electricity | Energy Use | kWh | 10,508 | 10,508 | 10,508 | 10,508 | 10,508 |
| | | | Demand | kW | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| Space Heating | <input type="checkbox"/> | Natural Gas | Energy Use | therms | 51 | 82 | 61 | 38 | 58 |
| | | | Demand | MBH | 56.8 | 59.8 | 78.8 | 75.7 | 67.77 |
| Space Cooling | <input type="checkbox"/> | Electricity | Energy Use | kWh | 17,089 | 17,195 | 16,124 | 17,037 | 16,861.25 |
| | | | Demand | kW | 43.8 | 44.4 | 41.4 | 43.3 | 43.22 |
| Pumps | <input type="checkbox"/> | | Energy Use | | | | | | |
| | | | Demand | | | | | | |
| Heat Rejection | <input type="checkbox"/> | | Energy Use | | | | | | |
| | | | Demand | | | | | | |

| | | | | | | | | | |
|---|---|-------------|------------|-----|----------|----------|----------|----------|----------|
| Fans-Interior | ■ | Electricity | Energy Use | kWh | 89,904 | 91,403 | 83,452 | 88,875 | 88,408.5 |
| | | | Demand | kW | 19.2 | 19.4 | 17.9 | 18.9 | 18.85 |
| Fans - Parking Garage | ⊗ | | Energy Use | | | | | | |
| | | | Demand | | | | | | |
| Service Water Heating | ■ | Electricity | Energy Use | kWh | 35,295 | 35,295 | 35,295 | 35,295 | 35,295 |
| | | | Demand | kW | 13.8 | 13.8 | 13.8 | 13.8 | 13.8 |
| Receptacle Equipment | ⊗ | Electricity | Energy Use | kWh | 77,880 | 77,880 | 77,880 | 77,880 | 77,880 |
| | | | Demand | kW | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 |
| Interior Lighting - Process | ⊗ | | Energy Use | | | | | | |
| | | | Demand | | | | | | |
| Refrigeration Equipment | ■ | | Energy Use | | | | | | |
| | | | Demand | | | | | | |
| Cooking | ⊗ | | Energy Use | | | | | | |
| | | | Demand | | | | | | |
| Industrial Process | ⊗ | | Energy Use | | | | | | |
| | | | Demand | | | | | | |
| Elevators and Escalators | ⊗ | Electricity | Energy Use | kWh | 9,060 | 9,060 | 9,060 | 9,060 | 9,060 |
| | | | Demand | kW | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| | ■ | | Energy Use | | | | | | |
| | | | Demand | | | | | | |
| Total Energy Use (MMBtu/yr) | | | | | 1,089.27 | 1,097.84 | 1,064.96 | 1,084.28 | 1,084.09 |
| Annual Process Energy (MMBtu/yr) | | | | | 296.64 | | | | |
| Process Energy Modeling Compliance ¹ | | | | | Y | | | | |



Notes:
 1 Determined using Section 1.9 cost calculations after Section 1.9A is complete. Annual process energy costs must be at least 25% of the total energy costs for the proposed design. Process energy costs should be modeled to accurately reflect the proposed building. To claim process cost savings, use an exceptional calculation in Section 1.7.

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

Complete the table below. List the proposed design energy consumption and peak demand for each end use.

| End Use | Process | Baseline | | Building Results | Design Energy Type | Proposed | | Building Results | % Savings |
|-------------------|---------|--------------------------------------|-----|------------------|--------------------|--------------------------------------|-----|------------------|-----------|
| | | Units of Annual Energy & Peak Demand | | | | Units of Annual Energy & Peak Demand | | | |
| Interior Lighting | | Energy Use | kWh | 78015 | Electricity | Energy Use | kWh | 52,010 | 33.33 |
| | | Demand | kW | 21.5 | | Demand | kW | 14.4 | |
| Exterior Lighting | | Energy Use | kWh | 10508 | Electricity | Energy Use | kWh | 4,305 | 59.03 |
| | | Demand | kW | 2.7 | | Demand | kW | 1.1 | |

| | | | | | | | | | |
|-----------------------------|---|------------|--------|----------|-------------|------------|--------|--------|-------|
| Space Heating | | Energy Use | therms | 58 | Natural Gas | Energy Use | therms | 13 | 77.59 |
| | | Demand | MBH | 67.77 | | Demand | MBH | 79.2 | |
| Space Cooling | | Energy Use | kWh | 16861.25 | Electricity | Energy Use | kWh | 8,140 | 51.72 |
| | | Demand | kW | 43.22 | | Demand | kW | 14.7 | |
| Pumps | | Energy Use | | | | Energy Use | | | |
| | | Demand | | | | Demand | | | |
| Heat Rejection | | Energy Use | | | | Energy Use | | | |
| | | Demand | | | | Demand | | | |
| Fans-Interior | | Energy Use | kWh | 88408.5 | Electricity | Energy Use | kWh | 22,363 | 74.7 |
| | | Demand | kW | 18.85 | | Demand | kW | 6.3 | |
| Fans - Parking Garage | X | Energy Use | | | | Energy Use | | | |
| | | Demand | | | | Demand | | | |
| Service Water Heating | | Energy Use | kWh | 35295 | Electricity | Energy Use | kWh | 34,603 | 1.96 |
| | | Demand | kW | 13.8 | | Demand | kW | 13.5 | |
| Receptacle Equipment | X | Energy Use | kWh | 77880 | Electricity | Energy Use | kWh | 77,880 | 0 |
| | | Demand | kW | 18.5 | | Demand | kW | 18.5 | |
| Interior Lighting - Process | X | Energy Use | | | | Energy Use | | | |
| | | Demand | | | | Demand | | | |
| Refrigeration Equipment | | Energy Use | | | | Energy Use | | | |
| | | Demand | | | | Demand | | | |
| Cooking | X | Energy Use | | | | Energy Use | | | |
| | | Demand | | | | Demand | | | |
| Industrial Process | X | Energy Use | | | | Energy Use | | | |
| | | Demand | | | | Demand | | | |
| Elevators and Escalators | X | Energy Use | kWh | 9060 | Electricity | Energy Use | kWh | 9,060 | 0 |
| | | Demand | kW | 2.2 | | Demand | kW | 2.2 | |
| | | Energy Use | | | | Energy Use | | | |
| | | Demand | | | | Demand | | | |
| Total Energy Use (MMBtu/yr) | | | | 1,084.09 | | 712.23 | | | |
| Process Energy (MMBtu/yr) | | | | 296.64 | | 296.64 | | | |

Table EAp2-6. Section 1.6 Energy Use Summary

| Energy Type | Units | Baseline | | Proposed Energy Use |
|-------------|--------|------------------|------------------|---------------------|
| | | Process Subtotal | Total Energy Use | |
| Electricity | kWh | 86,940 | 316,027.75 | 208,361 |
| Natural Gas | therms | 0 | 58 | 13 |

| Energy Type | Units | Baseline | | Proposed Energy Use |
|-------------|-------|------------------|------------------|---------------------|
| | | Process Subtotal | Total Energy Use | |
| | | 0 | 0 | 0 |
| Totals | MMBtu | 296.64 | 1,084.09 | 712.23 |

Table EA2-7. Section 1.6 Energy Cost Summary (Automatic)

| Energy Type | Units | Baseline | | Proposed Energy Cost |
|-------------|-------|------------------|-------------------|----------------------|
| | | Process Subtotal | Total Energy Cost | |
| Electricity | \$ | 15,649.2 | 56,885 | 41,672.2 |
| Natural Gas | \$ | 0 | 56.84 | 12.74 |
| | \$ | 0 | 0 | 0 |
| Total | \$ | 15,649.2 | 56,941.84 | 41,684.94 |

Select one of the following:

- Section 1.6 Automatic Cost Calculation.** Total building energy costs will be based on the "virtual" energy rate defined in Section 1.5.
- Section 1.6 Manual Cost Input.** The project team will analyze the total building energy costs based on local utility rate structures. Costs will be input separately from the energy model.

Note: Energy cost savings are summarized in Section 1.9A Total Building Performance Summary.

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.

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.

Table L-1. Renewable Energy Source Summary

| Renewable Source | Renewable Energy Source Allocation | Renewable System Owner | Backup Energy Type ¹ | Rated Capacity | Annual Energy Generated | Units | Annual Energy Cost (\$) (Optional ²) |
|------------------|------------------------------------|------------------------|---------------------------------|----------------|-------------------------|-------|--|
|------------------|------------------------------------|------------------------|---------------------------------|----------------|-------------------------|-------|--|

| Renewable Source | Renewable Energy Source Allocation | Renewable System Owner | Backup Energy Type ¹ | Rated Capacity | Annual Energy Generated | Units | Annual Energy Cost (\$) (Optional ²) |
|------------------------------|------------------------------------|------------------------|---------------------------------|----------------|-------------------------|-------|--|
| PV System | On-Site only | Building Owner | Electricity | 74 | 120,873 | kWh | 12,894 |
| Energy savings - Electricity | | | | | 120,873 | kWh | 12,894 |
| Energy savings - Natural gas | | | | | 0 | | 0 |
| Energy savings - | | | | | 0 | | 0 |
| Total energy savings | | | | | 412.42 | MMBtu | 12,894 |



Notes:

- 1 Per ASHRAE 90.1 G2.4 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 is specified.
- 2 Annual energy cost is required to document credit compliance with EA Credit 2, if attempted.

The content highlighted in yellow above is linked to EAc2.

Table EAp2-13 Section 1.8 Energy Cost Savings Summary (Automatic)

| Energy Type | Units | Proposed Renewable Energy Savings |
|-------------|-------|-----------------------------------|
| Electricity | \$ | 24,174.6 |
| Natural Gas | \$ | 0 |
| | \$ | 0 |
| Total | \$ | 24,174.6 |

Select one of the following:

- Automatic Cost Calculation.** Renewable energy cost savings will be based on the "virtual" energy rate defined in Section 1.5.
- Manual Cost Input.** The project team will analyze the renewable energy cost for on-site renewable sources based on local utility rate structures. Costs will be input separately from the energy model.
- 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.

Note: The same method must be used for all the measures in this section. Energy cost savings are summarized in Section 1.9A Total Building Performance Summary. Calculated cost savings will be automatically subtracted from the proposed design energy model results when determining the Proposed Building Performance Rating UNLESS "Energy Model Includes Renewables" is selected.

SECTION 1.9A - TOTAL BUILDING PERFORMANCE SUMMARY

Table EAp2-15. Total Building Energy Use Performance

| Baseline | Proposed |
|----------|----------|
|----------|----------|

| Energy Type | Units | Process Subtotal | Section 1.6 Total Energy Use | Section 1.6 Energy Use | Section 1.7 Energy Savings | Section 1.8 Renewable Energy Savings | Total Energy Use |
|------------------------|--------|------------------|------------------------------|------------------------|----------------------------|--------------------------------------|------------------|
| Electricity | kWh | 86,940 | 316,027.75 | 208,361 | 0 | 120,873 | 87,488 |
| Natural Gas | therms | 0 | 58 | 13 | 0 | 0 | 13 |
| | | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | MMBtu | 296.64 | 1,084.09 | 712.23 | 0 | 412.42 | 299.81 |
| Energy use savings (%) | | | | | | | 72.34 |

Table EAp2-16. Total Building Energy Cost Performance

The values below are automatically calculated using the virtual energy rate from Section 1.5 unless the project team has opted to manually input costs in Section 1.6, 1.7, and/or 1.8. To modify these values and/or to see automatically calculated results for reference see Sections 1.6, 1.7 or 1.8.

| Energy Type | Units | Baseline | | Proposed | | | Total Energy Cost |
|--|-------|------------------|-------------------------------|-------------------------|----------------------------|--------------------------------------|-------------------|
| | | Process Subtotal | Section 1.6 Total Energy Cost | Section 1.6 Energy Cost | Section 1.7 Energy Savings | Section 1.8 Renewable Energy Savings | |
| Electricity | \$ | 15,649.2 | 56,885 | 41,672.2 | 0 | 24,174.6 | 17,497.6 |
| Natural Gas | \$ | 0 | 56.84 | 12.74 | 0 | 0 | 12.74 |
| | \$ | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | \$ | 15,649.2 | 56,941.83 | 41,684.94 | 0 | 24,174.6 | 17,510.34 |
| Baseline process energy costs as percent of total energy costs (%) | | | | | | | 27.48 |
| Energy cost savings (%) | | | | | | | 69.25 |
| EA Credit 1 points documented | | | | | | | 19 |

The content highlighted in yellow above is linked to EAc1.

Section 1.9B - REPORTS AND METRICS

Table EAp2-17. Energy Use Intensity

| | Baseline EUI | Proposed EUI |
|-----------------------|--------------|--------------|
| Electricity (kWh/sf) | | |
| Interior Lighting | 3.246 | 2.164 |
| Space Heating | 0 | 0 |
| Space Cooling | 0.702 | 0.339 |
| Fans - Interior | 3.678 | 0.93 |
| Service Water Heating | 1.468 | 1.44 |
| Receptacle Equipment | 3.24 | 3.24 |

| | | |
|--------------------------------------|--------|--------|
| Miscellaneous | 0.815 | 0.556 |
| Subtotal | 13.149 | 8.669 |
| Natural Gas (kBtu/sf) | | |
| Space Heating | 0.241 | 0.054 |
| Service Water Heating | 0 | 0 |
| Miscellaneous | 0 | 0 |
| Subtotal | 0.241 | 0.054 |
| Other (kBtu/sf) | | |
| Miscellaneous | 0 | 0 |
| Subtotal | 0 | 0 |
| Total Energy Use Intensity (kBtu/sf) | | |
| Total | 45.105 | 29.633 |

Table EAp2-18. End Use Energy Percentage

| | Baseline Case (%) | Proposed Case (%) | End Use Energy Savings (%) |
|-----------------------|-------------------|-------------------|----------------------------|
| Interior Lighting | 24.55 | 24.92 | 23.86 |
| Space Heating | 0.53 | 0.18 | 1.21 |
| Space Cooling | 5.31 | 3.9 | 8.01 |
| Fans - Interior | 27.82 | 10.71 | 60.6 |
| Service Water Heating | 11.1 | 16.58 | 0.62 |
| Receptacle Equipment | 24.51 | 37.31 | 0 |
| Miscellaneous | 6.17 | 6.4 | 5.71 |

Select one of the following:

- The project used DOE2, eQuest or Visual DOE.
- The project used EnergyPlus.
- The project team used EnergyPro.
- The project team used HAP.
- The project team used Trace.
- The project team used other modeling software.

Upload EAp2-11. Provide the input summary and the BEPS, BEPU, and ES-D reports.

Upload

Files: 13

Save Form

ADDITIONAL DETAILS

- Special circumstances preclude documentation of prerequisite compliance with the submittal requirements outlined in this form.
- The project team is using an alternative compliance approach in lieu of standard submittal paths.

SUMMARY

EA Prerequisite 2: Minimum Energy Performance Compliance Documented:

Y

Check Compliance



All fields and uploads are required unless otherwise noted.

THRESHOLD ATTEMPTED

Points Attempted: 8 13% Renewable Energy

ALL OPTIONS

Note: Compliance path selection is linked to EA Prerequisite 2 and must be consistent across credits.

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.

The content highlighted in yellow above is linked to EAp2, EAc1 & EAc6.

Describe the on-site renewable energy production system(s).

The on-site renewable energy system at Jacobs Hall is a Bifacial PV Array (285 Modules) mounted on the building's roof. The system is made up of a combination of TrinaSolar (<http://www.trinasolar.com/us/product/PC05.html>) and Sunpreme (<http://www.sunpreme.com/gxb-series/>) modules.

OPTION 1. WHOLE BUILDING ENERGY SIMULATION

Note: Annual energy cost information below (highlighted in yellow) is linked to EA Prerequisite 2 and read-only. To edit this information, see EA Prerequisite 2.

Table L-1. Renewable Energy Source Summary

| Renewable Energy Source | Renewable Energy Source Allocation | Renewable Systems Owner | Energy Type | Rated Capacity | Annual Energy Generated | Units | Annual Energy Cost (\$) |
|---|------------------------------------|-------------------------|-------------|----------------|-------------------------|-------|-------------------------|
| PV System | On-Site only | Building Owner | Electricity | 74 | 120,873 | kWh | 12,894 |
| Total annual renewable energy generated (kWh) | | | | | | | 120,873 |
| Total annual renewable energy cost (\$) | | | | | | | 12,894 |

The content highlighted in yellow above is linked to EAp2.

Signatory EAc2-1.

The environmental attributes associated with the project building's on-site renewable energy have not been sold, and will be retained or retired for as long as the building remains LEED certified. If renewable energy certificates (RECs) are sold, then RECs equal to 100% of the system's annual rated energy output each year will be purchased from another Green-e eligible source.

Select one of the following:

- Signature.** Provide a digital signature affirming the signatory statement in gray directly above.
- OR **Upload EAc2-S1.** Provide a document with the signatory statement, copied directly from the form, signed and dated on letterhead.
- Files: 1

Total building energy cost:

\$ 41,684.94

The content highlighted in yellow above is linked to EAp2.

Percent renewable energy: (by cost)

30.93 %

Under EAc2, this must be 1% or greater to achieve 1 point, 3% or greater to achieve 2 points, 5% or greater to achieve 3 points, 7% or greater to achieve 4 points, 9% or greater to achieve 5 points, 11% or greater to achieve 6 points, 13% or greater to achieve 7 points, and 15% or greater to achieve exemplary performance.

Signatory EAc2-3.

The renewable energy system(s) declared in the Renewable Energy Source Summary table will be installed by substantial completion of construction.

Select one of the following:

- Signature.** Provide a digital signature affirming the signatory statement in gray directly above.
- OR **Upload EAc2-S3.** Provide a document with the signatory statement, copied directly from the form, signed and dated on letterhead.
- Files: 1

ADDITIONAL DETAILS

- Special circumstances preclude documentation of credit compliance with the submittal requirements outlined in this form.
- The project team is using an alternative compliance approach in lieu of standard submittal paths.

SUMMARY

EA Credit 2: On-Site Renewable Energy Points Documented:

7

Check Compliance

EA Credit 2: On-Site Renewable Energy Exemplary Performance Documented:

Y

- The project team reserves one point in the Innovation in Design credit category for exemplary performance in EA Credit 2.