

| (Re    | ponsible Individual)                                     | (Company Name)  |
|--------|--|---|
| I,     | , fr   | om  |
| verify | that the information provided below is a                 | ccurate, to the best of my knowledge.   |
|        | IT COMPLIANCE e complete the color coded criteria(s) bas |   |
|        | Please select the appropriate complianc                  | e path option   |
|        | Option 1 (Pg 2): Performance Ratin                       | ng Method, ASHRAE 90.1-2004 Appendix G or equivalent (up to 10 points possible) |
|        |  |   |
|        | Option 2 (Pg 14): ASHRAE Advance                         | ed Energy Design Guide for Small Office Buildings 2004 (4 points)               |
| ,      |  |   |
|        | Option 3 (Pg 14): Advanced Buildir                       | ngs 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:       | eQuest v3.64                | Quantity of Stories: | 2                   |
|---------------------------|-----------------------------|----------------------|---------------------|
| Principal Heating Source: | Electricity                 | Weather File:        | TMY2 Pittsburgh, PA |
| Energy Code Used:         | ASHRAE 90.1-2004 Appendix G | Climate Zone:        | 5A                  |
| New Construction Percent: | 100 %                       | Existing Renovation  | Percent: 0 %        |

Enter the Target Finder score for your building from the Energy Star website (<a href="http://www.energystar.gov/index.cfm?">http://www.energystar.gov/index.cfm?</a> 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:

100



### **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<br>(Occupancy Type) | Conditioned<br>Area (sf) | Unconditioned<br>Area (sf) | Total<br>Area (sf) |       |
| Office                           | 9,341                    |                            | 9,341              | CLEAR |
| Classroom                        | 1,599                    |                            | 1,599              | CLEAR |
| Lobby                            | 4,006                    |                            | 4,006              | CLEAR |
| Vestibule                        |                          | 224                        | 224                | CLEAR |
| Conference                       | 1,573                    |                            | 1,573              | CLEAR |
| Breakroom                        | 1,134                    |                            | 1,134              | CLEAR |
| Corridors                        | 536                      |                            | 536                | CLEAR |
| Storage                          | 559                      |                            | 559                | CLEAR |
| Restrooms                        | 1,131                    |                            | 1,131              | CLEAR |
| Mech/Elec                        | 541                      |                            | 541                | CLEAR |
| Atrium                           |                          | 1,202                      | 1,202              | CLEAR |
| Total                            | : 20,420                 | 1,426                      | 21,846             |       |

### **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<br>Building | Baseline Building<br>(0 deg. rotation) | Difference |
|--|----------------------|--|------------|
| Number of hours heating loads not met: | 49                   | 0                                      | 49         |
| Number of hours cooling loads not met: | 20                   | 84                                     | 64         |
| Number of warning messages:            | 1                    | 2                                      | 1          |
| 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.)

| TABLE 1.4 - Comparison o                   | f Proposed Design Versus Baseline Desigr   | 1  |       |
|--|--|--|-------|
| Model Input Parameter                      | Proposed Design Input                      | Baseline Design Input                      |       |
| Exterior Wall Construction                 | see Section 1.4 tables uploaded separately | see Section 1.4 tables uploaded separately | CLEAR |
| Roof Construction                          |  |  | CLEAR |
| Floor/Slab Construction                    |  |  | CLEAR |
| Window-to-gross wall ratio                 |  |  | CLEAR |
| Fenestration type                          |  |  | CLEAR |
| Fenestration U-factor                      |  |  | CLEAR |
| Fenestration SHGC - North                  |  |  | CLEAR |
| Fenestration SHGC - Non-North              |  |  | CLEAR |
| Fenestration Visual Light<br>Transmittance |  |  | CLEAR |
| Shading Devices                            |  |  | CLEAR |
|  |  |  | CLEAR |
| Interior Lighting Power Density<br>(W/sf)  |  |  | CLEAR |





| Model Input Parameter                        | Proposed Design Input | Baseline Design Input                       |       |
|--|-----------------------|---|-------|
| Daylighting Controls                         |                       |   | CLEAR |
| Other Lighting Control Credits               |                       |   | CLEAR |
| Exterior Lighting Power (kW)                 |                       |   | CLEAR |
| Process Lighting (kW)                        |                       |   | CLEAR |
| Receptacle Equipment Power<br>Density (W/sf) |                       |   | CLEAR |
|  |                       |   | CLEAR |
| Primary HVAC System Type                     |                       | Table G3.1.1B System # X - LIST DESCRIPTION | CLEAR |
| Other HVAC System Type                       |                       |   | CLEAR |
| Fan Supply Volume                            |                       |   | CLEAR |
| Fan Power                                    |                       |   | CLEAR |
| Economizer Control                           |                       |   | CLEAR |
| Demand Control Ventilation                   |                       |   | CLEAR |
| Unitary Equipment Cooling<br>Efficiency      |                       |   | CLEAR |
| Unitary Equipment Heating<br>Efficiency      |                       |   | CLEAR |
| Chiller parameters                           |                       |   | CLEAR |
| Chilled water loop & pump<br>parameters      |                       |   | CLEAR |
| Boiler parameters                            |                       |   | CLEAR |
| Hot water loop & pump<br>parameters          |                       |   | CLEAR |
| Cooling tower parameters                     |                       |   | CLEAR |
| Condenser water loop & pump<br>parameters    |                       |   | CLEAR |
|  |                       |   | 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 Sum | nmary                    |                 |                 |       |
|-----------------------------|--------------------------|-----------------|-----------------|-------|
| Energy Type                 | Utility Rate Description | Units of Energy | Units of demand |       |
| Electricity                 | Duquesne Light           | kWh             | kW              | CLEAR |
| Natural Gas                 |                          | therms          | МВН             | CLEAR |
|                             |                          |                 |                 | CLEAR |
|                             |                          |                 |                 | CLEAR |

**Energy Units:** 

 $1 \text{ kBtu} = 1,000 \text{ Btu} \\ 1 \text{ kWh} = 3.412 \text{ kBtu} \\ 1 \text{ MWh} = 3,412 \text{ kBtu}$ 

1 therm = 100 kBtu 1 ton hr = 12 kBtu

**Demand Units** 

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 End | ergy Source Summary   |                        |       |                   |                          |       |
|---------------------------|-----------------------|------------------------|-------|-------------------|--------------------------|-------|
| Renewable<br>Source       | Backup<br>Energy Type | Annual Ene<br>Generate |       | Rated<br>Capacity | Renewable<br>Energy Cost |       |
| PV array                  | Electricity           | 135,854                | (kWh) | 125 kW            |                          | 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 <i>Proposed Building Performance Rating</i> .   |
| 0      | Exceptional calculation measure cost for each exceptional calculation measure is analyzed based on local utility rate structures. The <i>cost savings</i> 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 <i>Proposed Building Performance Rating</i> . |

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 | ion Measure Short Descrip               | tion:                  |  | CLEAR |
|-----------------------|---|------------------------|--|-------|
| Energy Type(s)        | Annual Energy Savings by<br>Energy Type | Annual Cost<br>Savings | Exceptional Calculation Measure Narrative: |       |
|                       |   |                        |  |       |
|                       |   |                        |  |       |
|                       |   |                        |  |       |
|                       |   |                        |  |       |

| Exceptional Calculat | ion Measure Short Descrip               | tion:                  | CLEAR                                      |
|----------------------|---|------------------------|--|
| Energy Type(s)       | Annual Energy Savings by<br>Energy Type | Annual Cost<br>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<br>Energy Type | Units of A<br>Energy &<br>Demai | Peak  | Baseline<br>(0°<br>rotation) | Baseline<br>(90°<br>rotation) | Baseline<br>(180°<br>rotation) | Baseline<br>(270°<br>rotation) | Baseline<br>Design |       |
|-----------------------|-------------|--------------------------------|---------------------------------|-------|------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------|-------|
| Interior Lighting     |             | Electricity                    | Energy Use                      | (kWh) | 50,814                       | 50,814                        | 50,814                         | 50,814                         | 50,814             | CL    |
|                       |             |                                | Demand                          | (kW)  | 20.7                         | 20.7                          | 20.7                           | 20.7                           | 20.7               |       |
| Exterior Lighting     |             | Electricity                    | Energy Use                      | (kWh) | 17,484                       | 17,484                        | 17,484                         | 17,484                         | 17,484             | CL    |
| exterior eighting     | nting       |                                | Demand                          | (kW)  | 8                            | 8                             | 8                              | 8                              | 8                  | CL    |
| Space Heating         |             | Ele atriaite                   | Energy Use                      | (kWh) | 18,124                       | 19,207                        | 21,018                         | 20,781                         | 19,782.5           | -     |
|                       | Electricity | Electricity                    | Demand                          | (kW)  | 27.7                         | 30.4                          | 28.6                           | 29.6                           | 29.1               | CL    |
|                       |             | Electricity                    | Energy Use                      | (kWh) | 25,766                       | 26,064                        | 22,467                         | 25,026                         | 24,830.8           |       |
| Space Cooling         |             |                                | Demand                          | (kW)  | 35                           | 35.9                          | 31.7                           | 34.2                           | 34.2               | CLEAR |
|                       |             | Electricity                    | Energy Use                      | (kWh) |                              |                               |                                |                                |                    |       |
| Pumps                 |             |                                | Demand                          | (kW)  |                              |                               |                                |                                |                    | CLEAR |
|                       |             |                                | Energy Use                      | (kWh) |                              |                               |                                |                                |                    |       |
| Heat Rejection        |             | Electricity                    | Demand                          | (kW)  |                              |                               |                                |                                |                    | CL    |
|                       |             | Electricity                    | Energy Use                      | (kWh) | 56,067                       | 53,146                        | 52,089                         | 55,926                         | 54,307             |       |
| Fans - Interior       |             |                                | Demand                          | (kW)  | 15.4                         | 14.2                          | 14                             | 15.1                           | 14.7               | CLEAR |
| 5 D.I. 6              |             |                                | Energy Use                      | (kWh) |                              |                               |                                |                                |                    |       |
| Fans - Parking Garage |             | Electricity                    | Demand                          | (kW)  |                              |                               |                                |                                |                    | CLEAR |
|                       |             |                                | Energy Use                      | (kWh) | 64,798                       | 64,798                        | 64,798                         | 64,798                         | 64,798             |       |
| Service Water Heating |             | Electricity                    | Demand                          | (kW)  | 25.6                         | 25.6                          | 25.6                           | 25.6                           | 25.6               | CL    |
|                       |             |                                | Energy Use                      | (kWh) | 22,623                       | 22,623                        | 22,623                         | 22,623                         | 22,623             |       |
| Receptacle Equipment  |             | Electricity                    | Demand                          | (kW)  | 14.6                         | 14.6                          | 14.6                           | 14.6                           | 14.6               | CLI   |





| Table 1.8.1 - Baseline Per        | form     | ance - Performano              | ce Rating Method                           | Compliand                    | ce                            |                                |                                |                    |       |
|-----------------------------------|----------|--------------------------------|--|------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------|-------|
| End Use                           | Process? | Baseline Design<br>Energy Type | Units of Annual<br>Energy & Peak<br>Demand | Baseline<br>(0°<br>rotation) | Baseline<br>(90°<br>rotation) | Baseline<br>(180°<br>rotation) | Baseline<br>(270°<br>rotation) | Baseline<br>Design |       |
| Interior Lighting (Task)          |          | Electricity                    | Energy Use (kWh)                           | 242                          | 242                           | 242                            | 242                            | 242                | CLEAR |
| Therefore Engineering (Tubic)     |          | Licetricity                    | Demand (kW)                                | .1                           | .1                            | .1                             | .1                             | .1                 | CLEAN |
| Site Pumps                        |          | Electricity                    | Energy Use (kWh)                           | 1,373                        | 1,373                         | 1,373                          | 1,373                          | 1,373              | CLEAR |
| one rumps                         |          |                                | Demand (kW)                                | 1.8                          | 1.8                           | 1.8                            | 1.8                            | 1.8                |       |
| 5 . 6 . 5                         |          | Electricity                    | Energy Use (kWh)                           |                              |                               |                                |                                |                    | CLEAR |
| Data Center Equipment             |          |                                | Demand (kW)                                |                              |                               |                                |                                |                    |       |
| Cooking                           |          |                                | Energy Use                                 |                              |                               |                                |                                |                    | CLEAR |
| COOKING                           |          |                                | Demand                                     |                              |                               |                                |                                |                    |       |
| Clavatore <sup>Q</sup> Escalatore |          | Electricity                    | Energy Use (kWh)                           | 3,103                        | 3,103                         | 3,103                          | 3,103                          | 3,103              | CLEAR |
| Elevators & Escalators            |          | Electricity                    | Demand (kW)                                | 3.8                          | 3.8                           | 3.8                            | 3.8                            | 3.8                | CLEAR |
| Heat Pump Supplemental            |          | Electricity                    | Energy Use (kWh)                           | 6,589                        | 6,763                         | 7,188                          | 7,033                          | 6,893.3            | CLEAD |
| пеастиппр эпрріентентаї           |          | Electricity                    | Demand (kW)                                | 17.8                         | 18.1                          | 18                             | 18                             | 18                 | CLEAR |
| Pacalina Enargy Tatal             | · ·      | Total Annual Energy            | Use (kBtu/year)                            | 910,940                      | 906,284                       | 898,034                        | 918,522                        | 908,447            |       |
| Baseline Energy Total             | 5.       | Annual Process Ener            | rgy (kBtu/year)                            |                              |                               |                                |                                | 93,288             |       |

Note: Process Cost accounts for 10% of Baseline Performance. Process cost must equal at least 25% of Baseline Performance, or the narrative at the end of this form must document why this building's process costs are less than 25%

| Table 1.8.1(b) - Baseline Energy Costs |                                |                                 |                                  |                                  |                                     |  |  |  |
|--|--------------------------------|---------------------------------|----------------------------------|----------------------------------|-------------------------------------|--|--|--|
| Energy Type                            | Baseline Cost<br>(0° rotation) | Baseline Cost<br>(90° rotation) | Baseline Cost<br>(180° rotation) | Baseline Cost<br>(270° rotation) | Baseline<br>Building<br>Performance |  |  |  |
| Electricity                            | \$28,603                       | \$28,519                        | \$28,244                         | \$28,847                         | \$28,553                            |  |  |  |
| Natural Gas                            |                                |                                 |                                  |                                  |                                     |  |  |  |
|  |                                |                                 |                                  |                                  |                                     |  |  |  |
| Total Baseline Costs:                  | \$28,603                       | \$28,519                        | \$28,244                         | \$28,847                         | \$28,553                            |  |  |  |

| Table 1.8.2 - Performance Rating Table - Performance Rating Method Compliance |              |                                |                          |                                 |                            |                                 |                |   |
|---|--------------|--------------------------------|--------------------------|---------------------------------|----------------------------|---------------------------------|----------------|---|
| End Use   | Process?     | Proposed Design<br>Energy Type | Proposed Design<br>Units | Proposed<br>Building<br>Results | Baseline Building<br>Units | Baseline<br>Building<br>Results | Perce<br>Savir |   |
| Interior Lighting   | Floratuiait. | Electricity                    | Energy Use (kWh)         | 11,855                          | Energy Use (kWh)           | 50,814                          | 76.7           | % |
|   |              | Electricity                    | Demand (kW)              | 8.5                             | Demand (kW)                | 20.7                            | 58.6           | % |





| Table 1.8.2 - Performar  | nce Ra   | ating Table - Perfo            | ormance Rating M         | ethod Comp                      | liance                     |                                 |                |            |
|--------------------------|----------|--------------------------------|--------------------------|---------------------------------|----------------------------|---------------------------------|----------------|------------|
| End Use                  | Process? | Proposed Design<br>Energy Type | Proposed Design<br>Units | Proposed<br>Building<br>Results | Baseline Building<br>Units | Baseline<br>Building<br>Results | Perce<br>Savir |            |
| Exterior Lighting        |          | Electricity                    | Energy Use (kWh)         | 4,898                           | Energy Use (kWh)           | 17,484                          | 72             | %          |
| Exterior Lighting        |          | Liectricity                    | Demand (kW)              | 2.2                             | Demand (kW)                | 8                               | 74.1           | %          |
| Space Heating            |          | Electricity                    | Energy Use (kWh)         | 5,695                           | Energy Use (kWh)           | 19,782.5                        | 71.2           | %          |
| Space Heating            |          | Liectricity                    | Demand (kW)              | 9.2                             | Demand (kW)                | 29.1                            | 68.7           | %          |
| Space Cooling            |          | Electricity                    | Energy Use (kWh)         | 14,368                          | Energy Use (kWh)           | 24,830.8                        | 42.1           | %          |
| space cooling            |          | Electricity                    | Demand (kW)              | 25.1                            | Demand (kW)                | 34.2                            | 26.7           | %          |
| Dumne                    |          | Elactricity                    | Energy Use (kWh)         | 11,273                          | Energy Use (kWh)           |                                 | 0              | %          |
| Pumps                    |          | Electricity                    | Demand (kW)              | 3.4                             | Demand (kW)                |                                 | 0              | %          |
| Heat Rejection           |          | Electricity                    | Energy Use (kWh)         |                                 | Energy Use (kWh)           |                                 | 0              | %          |
| Heat Rejection           |          | Electricity                    | Demand (kW)              |                                 | Demand (kW)                |                                 | 0              | %          |
| Fana Interior            |          | Electricity                    | Energy Use (kWh)         | 31,560                          | Energy Use (kWh)           | 54,307                          | 41.9           | %          |
| Fans - Interior          |          |                                | Demand (kW)              | 18.2                            | Demand (kW)                | 14.7                            | -24            | %          |
| 5 0 1: 6                 |          | Electricity                    | Energy Use (kWh)         |                                 | Energy Use (kWh)           |                                 | 0              | %          |
| Fans - Parking Garage    |          | Electricity                    | Demand (kW)              |                                 | Demand (kW)                |                                 | 0              | %          |
|                          |          | Element da .                   | Energy Use (kWh)         | 17,773                          | Energy Use (kWh)           | 64,798                          | 72.6           | %          |
| Service Water Heating    |          | Electricity                    | Demand (kW)              | 6.7                             | Demand (kW)                | 25.6                            | 74.7           | %          |
|                          |          | Electricity                    | Energy Use (kWh)         | 22,623                          | Energy Use (kWh)           | 22,623                          | 0              | %          |
| Receptacle Equipment     | X        |                                | Demand (kW)              | 14.6                            | Demand (kW)                | 14.6                            | 0              | %          |
|                          |          |                                | Energy Use (kWh)         | 243                             | Energy Use (kWh)           | 242                             | 5              | %          |
| Interior Lighting (Task) | ×        | Electricity                    | Demand (kW)              | .1                              | Demand (kW)                | .1                              | 0              | %          |
| Si. D                    |          | -1                             | Energy Use (kWh)         | 1,373                           | Energy Use (kWh)           | 1,373                           | 0              | %          |
| Site Pumps               | X        | Electricity                    | Demand (kW)              | 1.8                             | Demand (kW)                | 1.8                             | 0              | %          |
| 5 . 5 . 5                |          |                                | Energy Use (kWh)         |                                 | Energy Use (kWh)           |                                 | 0              | %          |
| Data Center Equipment    | ×        | Electricity                    | Demand (kW)              |                                 | Demand (kW)                |                                 | 0              | %          |
| - ··                     |          |                                | Energy Use               |                                 | Energy Use                 |                                 | 0              | %          |
| Cooking                  | ×        |                                | Demand                   |                                 | Demand                     |                                 | 0              | %          |
|                          |          |                                | Energy Use (kWh)         | 3,103                           | Energy Use (kWh)           | 3,103                           | 0              | %          |
| Elevators & Escalators   | X        | Electricity                    | Demand (kW)              | 3.8                             | Demand (kW)                | 3.8                             | 0              | %          |
|                          |          |                                | Energy Use (kWh)         |                                 | Energy Use (kWh)           | 6,893.3                         | 0              | %          |
| Heat Pump Supplemental   |          | Electricity                    | Demand (kW)              |                                 | Demand (kW)                | 18                              | 0              | %          |
|                          |          | Total Annual Energy            | Use (kBtu/year)          | 425,689                         |                            | 908,447                         | 53.1           | %          |
| Energy Totals:           |          | Annual Process Ene             | rgy (kBtu/year)          | 93,289                          |                            | 93,288                          | -0.0010        | <b>3</b> % |





|                           | Propose           |                          | Baseline [  | Design         | Per                   | Percent Savings |               |          |      |
|---------------------------|-------------------|--------------------------|-------------|----------------|-----------------------|-----------------|---------------|----------|------|
| Energy Type               | Energy Use        | Cost                     | Ener        | gy Use         | Cost                  |                 | Energy<br>Use |          | st   |
| Electricity               | 124,764 kWh       | \$13,754                 | 266,249     | kWh            | \$28,553              | 53.1            | %             | 51.8     | %    |
| Natural Gas               | 0 therm           | ns                       | 0           | therms         |                       | 0               | %             | 0        | %    |
|                           | 0                 |                          | 0           |                |                       | 0               | %             | 0        | %    |
|                           | 0                 |                          | 0           |                |                       | 0               | %             | 0        | %    |
| Subtotal (Model Outputs): | 425,689 (kBtu/yea | ar) \$13,754             | 908,447     | (kBtu/year)    | \$28,553              | 53.1            | %             | 51.8     | %    |
| On-Site Renewable Energy  | Energy Generated  | Renewable<br>Energy Cost |             |                |                       |                 |               |          |      |
| PV array                  | 135,854 (kWh      | \$14,976                 | (subtracted | l from model r | esults to reflect Pro | oposed Build    | ding F        | erforma  | ince |
|                           |                   | 0                        | (subtracted | l from model r | esults to reflect Pro | oposed Build    | ding F        | 'erforma | ince |
| Exceptional Calculations  | Energy Savings    | Cost Savings             |             |                |                       |                 |               |          |      |
|                           | Propose           | d Design                 |             | Baseline [     | Design                | Per             | cent          | : Savin  |      |
|                           | Energy Use        | Cost                     | Ener        | gy Use         | Cost                  | Ener            |               | Co       |      |
| Total:                    |                   | ar) \$-1,222             | 908,447     | (kBtu/year)    | \$28,553              | 0               |               | 0        | %    |





#### 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)

Phipps Section 1\_4 Tables 3-14-2013.xlsx
Energy Modeling Narrative 3-18-2013.doc
Phipps CSL Proposed eQuest reports.pdf
Phipps CSL ASHRAE Baseline eQuest reports.pdf
edr\_designguidelines\_hvac\_simulation\_2ed.pdf
Phipps CSL greenhouse controls.pdf



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)

Please provide any additional comments or notes regarding special circumstances or considerations regarding the project's credit approach.

| see | e uploaded Energy | Modeling Narrativ | ve |  |  |
|-----|-------------------|-------------------|----|--|--|
|     |                   |                   |    |  |  |
|     |                   |                   |    |  |  |
|     |                   |                   |    |  |  |

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 number of points documented in the "Alternative Compliance Points Documented" field below).

10 Alternative Compliance Points Documented

Project Name: Phipps Center for Sustainable Landscapes

Credit: EA Credit 1: Optimize Energy Performance

Points Documented:

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**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.

| First Name | Last Name | 2013-03-20<br>Date | Username (Email Address) | Password |                |
|------------|-----------|--------------------|--------------------------|----------|----------------|
|            |           |                    | SAVE TEMPLATE TO LEED    | D-ONLINE | PRINT TEMPLATE |

Letter Template Version A1.





# LEED-NC 2.2 Submittal Template EA Prerequisite 2: Minimum Energy Performance



| (Responsible Individual) (Company Name)  |   |
|--|---|
| I, Craig Duda     , from       CJL Engineering   |   |
| verify that the information provided below is accurate, to the best of my knowledge.   |   |
| CREDIT COMPLIANCE  |   |
| The project meets the minimum energy efficiency requirements.  |   |
| The project meets all the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4) of ASHRAE/IESNA Standard 90.1-2004 (without amendments). |   |
| AND  |   |
| Select the appropriate compliance path:  |   |
| The prescriptive requirements (Sections 5.5, 6.5, 7.5, and 9.5) of ASHRAE 90.1-2004 (without amendments)   |   |
| OR   |   |
| The performance requirements (Section 11) of ASHRAE/IESNA Standard 90.1-2004 (without amendments)  |   |
| OR   |   |
| The project has used a computer simulation model to document improved building energy performance under EA Credit 1                                  |   |
| NARRATIVE (Optional)   |   |
| Please provide any additional comments or notes regarding special circumstances or considerations regarding the project's credit approach.           |   |
| The Energy Cost Budget from EA Credit 1 has been uploaded. While not a LEEDv2.2 requirement, the reduction in energ cost exceeds 10%.                | У |
| — 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.





# LEED-NC 2.2 Submittal Template EA Prerequisite 2: Minimum Energy Performance



Project Name: Phipps Center for Sustainable Landscapes

Credit: EA Prerequisite 2: Minimum Energy Performance

Points Documented:

Υ

**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.

| Marc       | Mondor    | 2011-12-13 | marc@evolveea.com        |          |
|------------|-----------|------------|--------------------------|----------|
| First Name | Last Name | Date       | Username (Email Address) | Password |

SAVE TEMPLATE TO LEED-ONLINE

PRINT TEMPLATE

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