TED AND CHRIS ROBB GARDEN
COMMUNITY RESOURCE CENTER
3601 PACIFIC AVENUE, STOCKTON, CA 95211

Pacific Garden Program
Robb Garden Community Resource Center

TITLE SHEET
Project number 293.2017
Date 12/7/2017
Drawn by
Checked by
Author
Checker
Scale
West

1/8" = 1'-0"
Curtain Wall

1/8" = 1'-0"
Energy and Carbon Results

Electric Cost: $0.12 / kWh
Fuel Cost: $0.80 / Therm

Utility Data Used: Project Default
Utility Rates

Location: Stockton, CA

Energy, Carbon and Cost Summary

Annual Energy Cost: $2,423
Lifecycle Cost: $32,996

Annual CO₂ Emissions
- Electric: 0.0 tons
- Onsite Fuel: 1.6 tons
- Large SUV Equivalent: 0.1 SUVs / Year

Annual Energy
- Energy Use Intensity (EUI): 123 kBtu / ft² / year
  - Electric: 18,611 kWh
  - Fuel: 284 Therms
- Annual Peak Demand: 7.4 kW

Lifecycle Energy
- Electric: 558,340 kWh
- Fuel: 8,532 Therms

Carbon Footprint

Base Run Carbon Neutral Potential
- Annual CO₂ Emissions: N/A
- Onsite Renewable Potential: N/A
- Natural Ventilation Potential: N/A
- Onsite Biofuel Use: N/A
- Net CO₂ Emissions: N/A
- Net Large SUV Equivalent: N/A

Electric Power Plant Sources in Your Region
- Fossil: N/A
- Nuclear: N/A
- Hydroelectric: N/A
- Renewable: N/A
- Other: N/A

LEED, Photovoltaic, Wind Energy, and Natural Ventilation Potential

Note: Details shown below are for the Base Run CIVILIAN_ksicam1

LEED Daylight (more details)
- Percentage of building area with glazing factor over 2%: 100.0% - Qualifies for LEED Credit

LEED Water Efficiency (more details)
- Indoor: 22,134 Gal / yr, $120 / yr
- Outdoor: 17,100 Gal / yr, $44 / yr
- Total: 39,234 Gal / yr, $165

Photovoltaic Potential (more details)
- Annual Energy Savings: 16,831 kWh
- Total Installed Panel Cost: $77,346
- Nominal Rated Power: 10 kW
- Total Panel Area: 754 ft²
- Maximum Payback Period: 29 years at $0.12 / kWh

Wind Energy Potential
- Annual Electric Generation: 1,164 kWh

Natural Ventilation Potential
- Total Hours Mechanical Cooling Required: 2,764 Hours
- Possible Natural Ventilation Hours: 1,309 Hours
- Possible Annual Electric Energy Savings: 2,231 kWh
- Possible Annual Electric Cost Savings: $263
- Net Hours Mechanical Cooling Required: 1,455 Hours

Assumptions

Note: Details shown below are for the Base Run CIVILIAN_ksicam1

Create a Design Alternative to improve your building performance.
**Energy End Use Charts**

*Note: Details shown below are for the Base Run CIVILIAN_ksicam1*

### Annual Electric End Use
- **HVAC**: 21.7%
- **Other**: 61.8%
- **Lights**: 16.5%

### Annual Fuel End Use
- **HVAC**: 64.0%
- **Other**: 36.0%

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**Building Details and Assumptions**

*Note: Details shown below are for the Base Run CIVILIAN_ksicam1*

#### Building Summary - Quick Stats
- **Number of People**: 15 people
- **Average Lighting Power Density**: 1.20 W / ft²
- **Average Equipment Power Density**: 1.50 W / ft²
- **Specific Fan Flow**: 1.3 cfm / ft²
- **Specific Fan Power**: -212,363.054 W / cfm
- **Specific Cooling**: 0 ft² / ton
- **Specific Heating**: 0 ft² / kBtu
- **Total Fan Flow**: 942 cfm
- **Total Cooling Capacity**: -16,664 tons
- **Total Heating Capacity**: 199,998 kBtu

#### Base Run Construction

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Roofs</strong></td>
<td>R20 over Roof Deck - Cool Roof&lt;br&gt;U-Value: 0.04&lt;br&gt;Interior Drop Ceiling Tile&lt;br&gt;U-Value: 0.46&lt;br&gt;</td>
</tr>
<tr>
<td><strong>Ceilings</strong></td>
<td>Interior Drop Ceiling Tile&lt;br&gt;U-Value: 0.46&lt;br&gt;</td>
</tr>
<tr>
<td><strong>Exterior Walls</strong></td>
<td>R13 Wood Frame Wall, Wood Shingle&lt;br&gt;U-Value: 0.08&lt;br&gt;R7.6 8in Concrete&lt;br&gt;U-Value: 0.12&lt;br&gt;</td>
</tr>
<tr>
<td><strong>Interior Walls</strong></td>
<td>Uninsulated Interior Wall&lt;br&gt;U-Value: 0.41&lt;br&gt;</td>
</tr>
<tr>
<td><strong>Interior Floors</strong></td>
<td>Interior Drop Ceiling Tile&lt;br&gt;U-Value: 0.46&lt;br&gt;</td>
</tr>
<tr>
<td><strong>Slabs On Grade</strong></td>
<td>Uninsulated concrete slab&lt;br&gt;U-Value: 0.03&lt;br&gt;</td>
</tr>
<tr>
<td><strong>Nonsliding Doors</strong></td>
<td>R2 Default Door (4 doors)&lt;br&gt;U-Value: 0.42&lt;br&gt;</td>
</tr>
<tr>
<td><strong>Air Openings</strong></td>
<td>Non-North Facing Windows: Single Tint Green&lt;br&gt;U-Value 6.17, U-IP 1.09, SHGC 0.61, VLT 0.75 (1 doors)&lt;br&gt;U-Value: 6.17 W / (m²-K), SHGC: 0.61 , Vlt: 0.75&lt;br&gt;</td>
</tr>
<tr>
<td><strong>Fixed Windows</strong></td>
<td>Non-North Facing Windows: Double Reff Tint U- SI 2.98, U-IP 0.53, SHGC 0.25, VLT 0.16 (10 windows)&lt;br&gt;U-Value: 2.98 W / (m²-K), SHGC: 0.25 , Vlt: 0.16&lt;br&gt;</td>
</tr>
<tr>
<td><strong>Operable Windows</strong></td>
<td>North Facing Windows: Double Clear U-SI 3.16, U-IP 0.56, SHGC 0.69, VLT 0.78 (5 windows)&lt;br&gt;U-Value: 3.16 W / (m²-K), SHGC: 0.69 , Vlt: 0.78&lt;br&gt;Non-North Facing Windows: Double Clear U-SI 3.16, U-IP 0.56, SHGC 0.69, VLT 0.78 (4 windows)&lt;br&gt;U-Value: 3.16 W / (m²-K), SHGC: 0.69 , Vlt: 0.78&lt;br&gt;</td>
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> 3D VRML View

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**Base Run Hydronic Equipment**

*Note: this information should not be used for sizing purposes.

https://gbs.autodesk.com/GBS/Scheme/EnergyAndCarbonResults?RunID=QaUjO%2bwVjZk%3d&AltRunID=cJfGmxtUVvo%3d
### Hot Water
- Boiler Capacity: 40,646 Btu/hr
- Pump Flow: 2 gpm

### Secondary Chilled Water
- Pump Flow: 7 gpm

### Primary Chilled Water
- Electric Chiller Capacity: 35,988 Btu/hr
- Pump Flow: 7 gpm

### Condenser Water
- Pump Flow: 8 gpm
- Cooling Tower Capacity (Approach: 2.8): 41,346 Btu/hr

### Domestic Hot Water
- Average Demand: 2,566 Btu/hr

### Base Run Air Equipment

<table>
<thead>
<tr>
<th>Variable Air Volume</th>
<th>Supply Fan Flow</th>
<th>Annual Supply Fan Run Time</th>
<th>Cooling Capacity</th>
<th>Heating Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Air Volume</td>
<td>507 cfm</td>
<td>4,268 Hours</td>
<td>-99,980 kBtu/hr</td>
<td>99,999 kBtu/hr</td>
</tr>
<tr>
<td>Variable Air Volume</td>
<td>434 cfm</td>
<td>5,617 Hours</td>
<td>-99,983 kBtu/hr</td>
<td>99,999 kBtu/hr</td>
</tr>
</tbody>
</table>

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