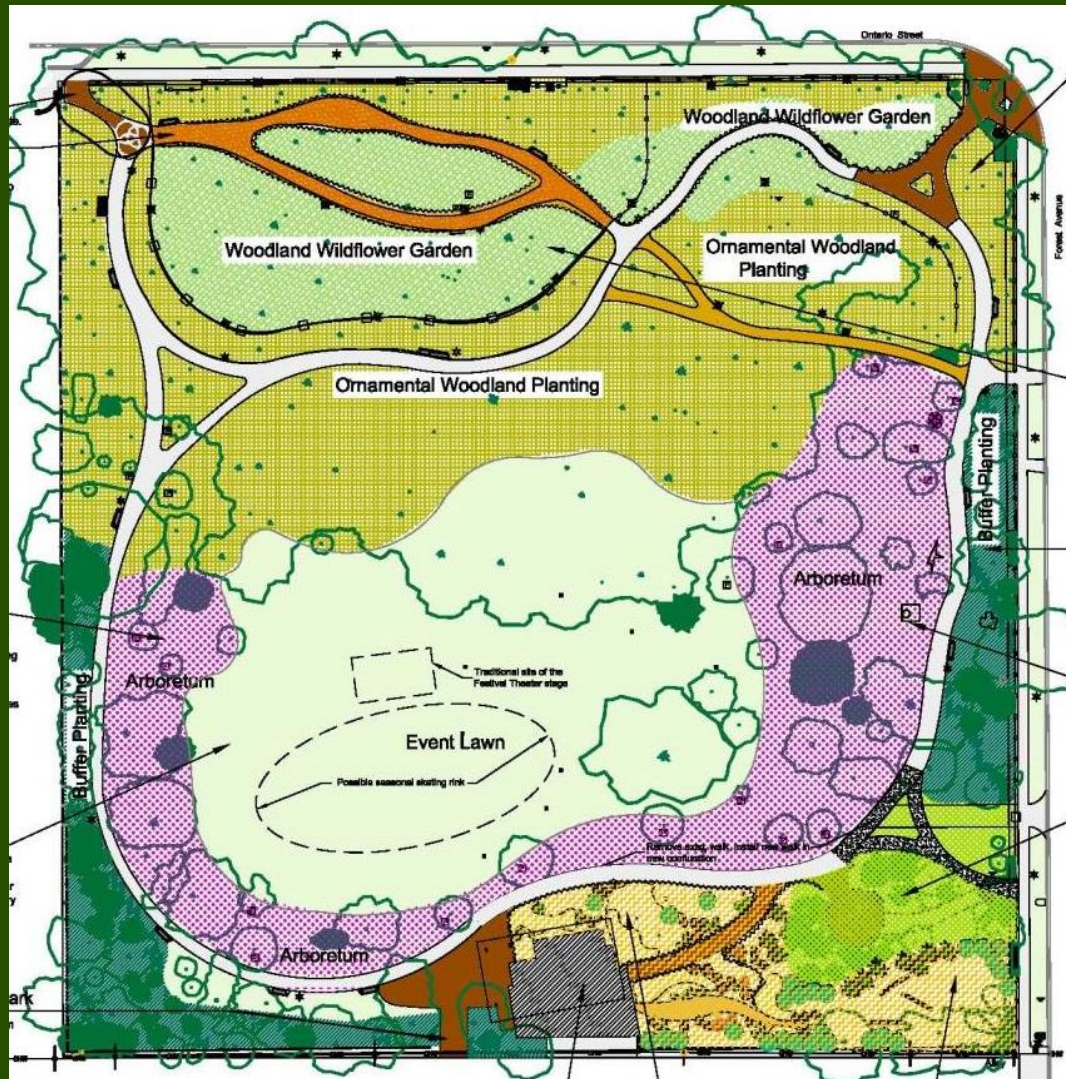




# Austin Gardens Environmental Education Center December 18, 2014



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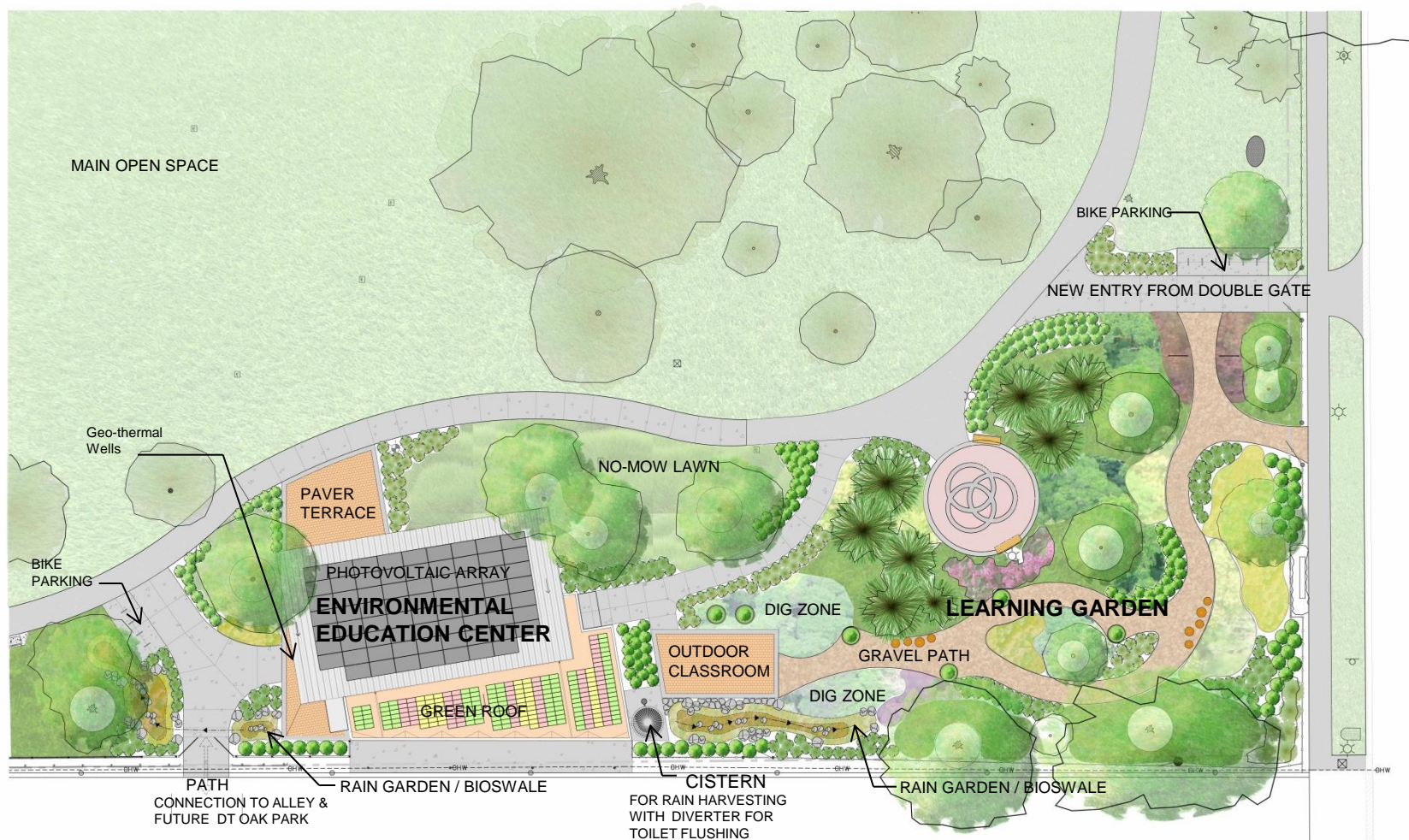


## Master Plan



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## Site Plan with Environmental Education Center & Learning Garden



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Building Elevation from Park



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Floor Plan





Interior view – Assembly Room – engaging with Park





# QUESTIONS?

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## Sustainable Design Features



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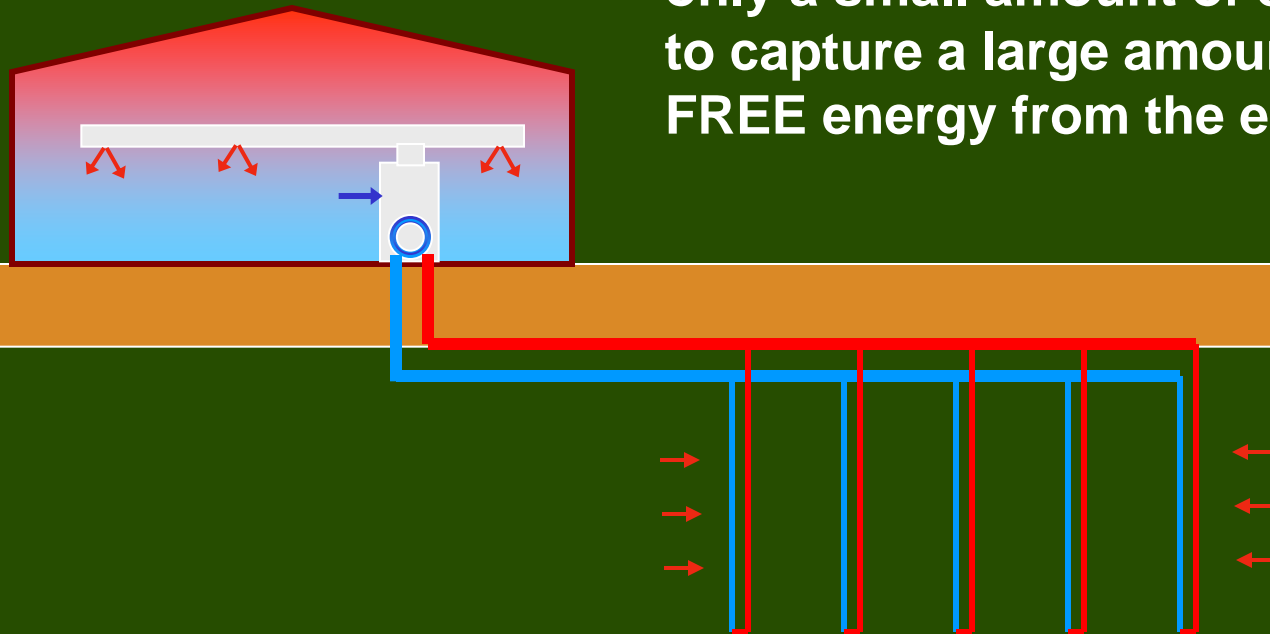


## Plantings – diversity & demonstration



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**Geothermal heat pumps circulate fluid through a sealed underground piping loop where it exchanges energy with the moderate earth temperature and is naturally warmed (or cooled) by the Earth. Geothermal uses only a small amount of energy to capture a large amount of FREE energy from the earth.**





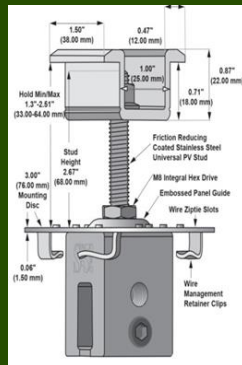
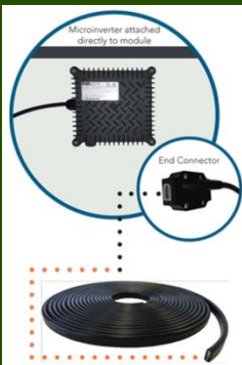
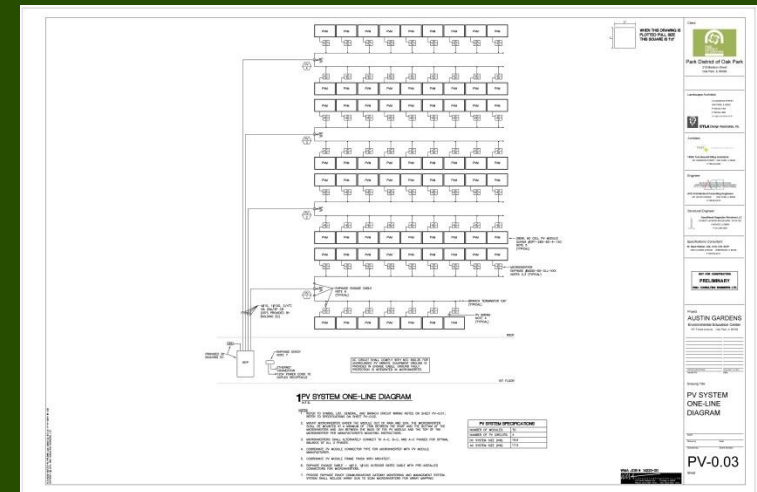
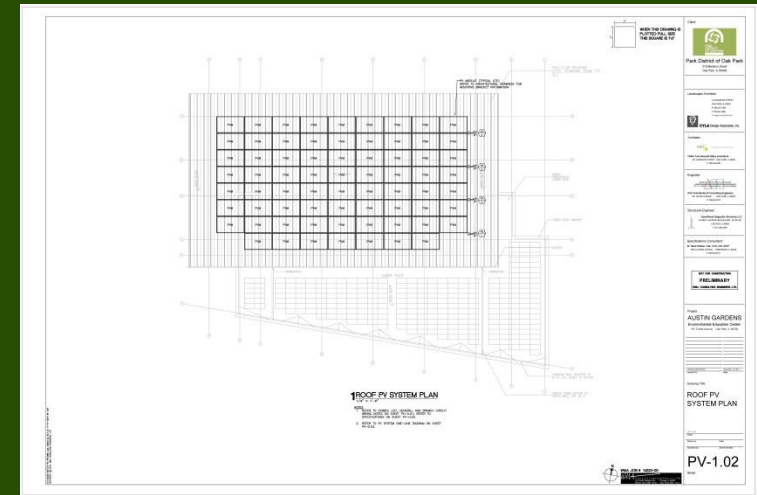
Building	Annual Electric Cost (Building Only)	Annual Gas Costs	Total Utility Cost (Building Only)
Anderson Center (Slightly larger than EEC)	\$ 3,679 (33,712 kWh) -Actual utility costs	\$ 3,082 (2,664 Therms) -Actual utility costs	\$ 6,761
Conventional Building Code Compliant Building	\$ 3,536 (Est.) (31,982 kWh)	\$0.00  -No gas-fired equip.	\$ 3,536 (Est.)
Environmental Education Center (No Photo-Voltaic)	\$ 1,939 (17,628 kWh)	\$ 0.00  -No gas-fired equip.	\$ 1,939 (Est.)
Photovoltaic System (Annual Generation)	\$ <2,084> (Est.) (18,857 kWh, Est.)	\$ 0.00	\$ <2,084> (Est.) -Credit up to actual amount used

## Building Operating Costs Comparison with Existing PDOP Center of Similar Size



## Photovoltaic Array

- 18.55 kW System
  - 70 - 265W Panels
  - Single Panel Micro Inverters
- System Costs
  - Projected Budget: \$ 95K
  - Contractor Pricing - \$70K to \$98K
  - Turnkey Installation
- Grant Funding – 80% of System Cost
  - ICECF
  - IL Department of Commerce (DCEO)



## Photovoltaic Array



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## LEED Certification

USGBC Program: LEED 2009 NC

Registration: Currently Registered

Target Level: LEED Platinum  
(83 points)

Sustainable Design Focus:

- Sites
- Water
- Energy
- Indoor Environmental Quality

Funding Grant

ICECF – Design/Cx. \$67,178

Geothermal \$8,050

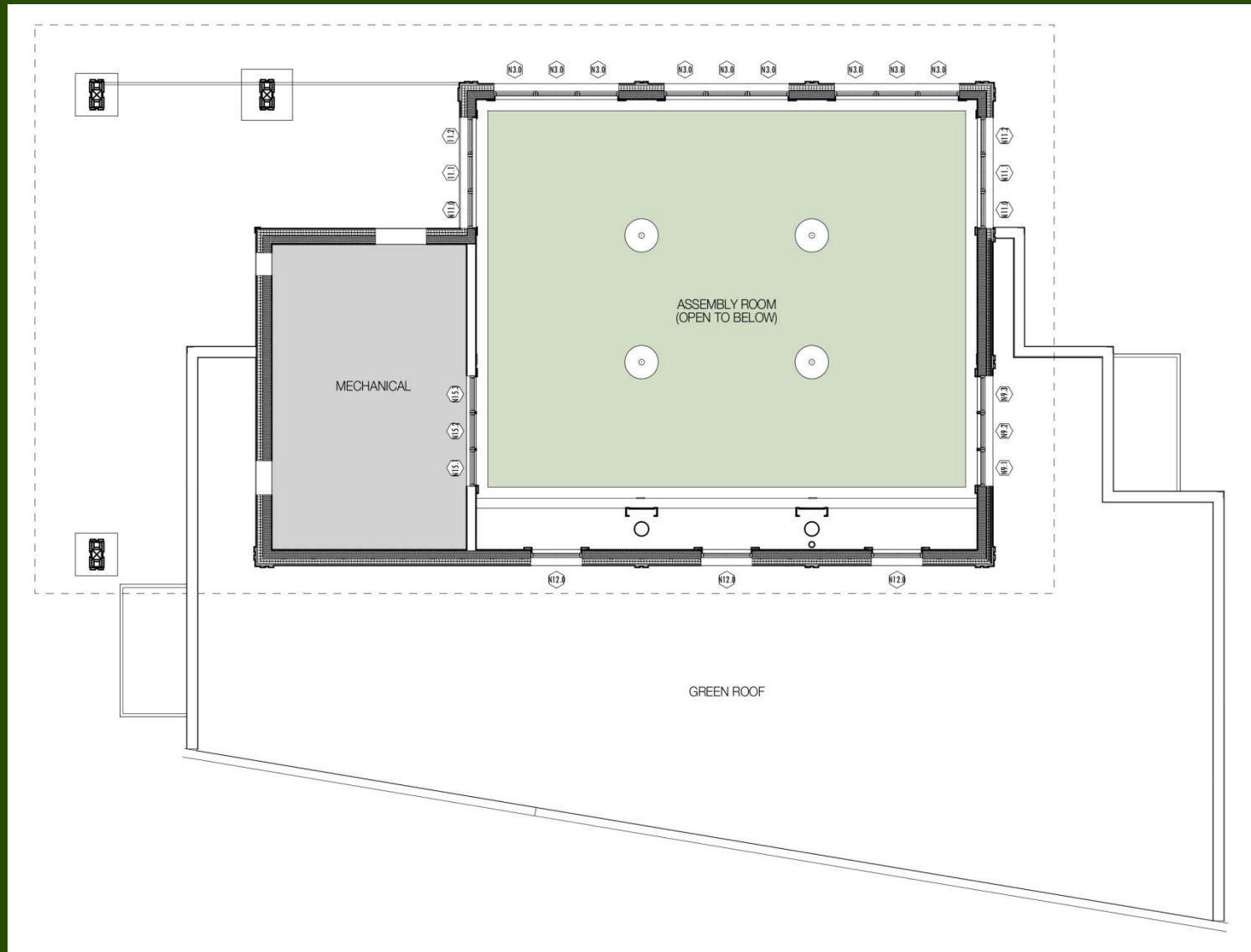
## LEED Program

LEED 2009 for New Construction and Major Renovations				Austin Garden Environmental Center			
Project Checklist				Issued for Construction			
20	6	Sustainable Sites	Possible Points: 26	9	6	Indoor Environmental Quality	Possible Points: 15
Y	1	Prereq 1 Construction Activity Pollution Prevention		Y	1	Prereq 1 Minimum Indoor Air Quality Performance	
1	1	Credit 1 Site Selection	1	1	1	Prereq 2 Environmental Tobacco Smoke (ETS) Control	
5	1	Credit 2 Development Density and Community Connectivity	5	1	1	Credit 1 Outdoor Air Delivery Monitoring	1
1	1	Credit 3 Brownfield Redevelopment	1	1	1	Credit 2 Increased Ventilation	1
6	1	Credit 4.1 Alternative Transportation—Public Transportation Access	6	1	1	Credit 3.1 Construction IAQ Management Plan—During Construction	1
1	1	Credit 4.2 Alternative Transportation—Bicycle Storage and Changing Rooms	1	1	1	Credit 3.2 Construction IAQ Management Plan—Before Occupancy	1
3	1	Credit 4.3 Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3	1	1	Credit 4.1 Low-Emitting Materials—Adhesives and Sealants	1
2	1	Credit 4.4 Alternative Transportation—Parking Capacity	2	1	1	Credit 4.2 Low-Emitting Materials—Paints and Coatings	1
1	1	Credit 5.1 Site Development—Protect or Restore Habitat	1	1	1	Credit 4.3 Low-Emitting Materials—Flooring Systems	1
1	1	Credit 5.2 Site Development—Maximize Open Space	1	1	1	Credit 4.4 Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1	1	Credit 6.1 Stormwater Design—Quantity Control	1	1	1	Credit 5 Indoor Chemical and Pollutant Source Control	1
1	1	Credit 6.2 Stormwater Design—Quality Control	1	1	1	Credit 6.1 Controllability of Systems—Lighting	1
1	1	Credit 7.1 Heat Island Effect—Non-roof	1	1	1	Credit 6.2 Controllability of Systems—Thermal Comfort	1
1	1	Credit 7.2 Heat Island Effect—Roof	1	1	1	Credit 7.1 Thermal Comfort—Design	1
1	1	Credit 8 Light Pollution Reduction	1	1	1	Credit 7.2 Thermal Comfort—Verification	1
10	4	Water Efficiency	Possible Points: 10	1	1	Credit 8.1 Daylight and Views—Daylight	1
Y	1	Prereq 1 Water Use Reduction—20% Reduction		1	1	Credit 8.2 Daylight and Views—Views	1
4	1	Credit 1 Water Efficient Landscaping	2 to 4	6	6	Innovation and Design Process	Possible Points: 6
2	1	Credit 2 Innovative Wastewater Technologies	2	1	1	Credit 1.1 Innovation in Design: Exemplary Performance SS Credit 2.0	1
4	1	Credit 3 Water Use Reduction	2 to 4	1	1	Credit 1.2 Innovation in Design: Exemplary Performance SS Credit 4.1	1
31	4	Energy and Atmosphere	Possible Points: 35	1	1	Credit 1.3 Innovation in Design: Exemplary Performance EA Credit 1	1
Y	1	Prereq 1 Fundamental Commissioning of Building Energy Systems		1	1	Credit 1.4 Innovation in Design: Low Mercury Lamp Program	1
Y	1	Prereq 2 Minimum Energy Performance		1	1	Credit 1.5 Innovation in Design: Sustainable Education Program	1
Y	1	Prereq 3 Fundamental Refrigerant Management		1	1	Credit 2 LEED Accredited Professional	1
19	1	Credit 1 Optimize Energy Performance	1 to 19	4	4	Regional Priority Credits	Possible Points: 4
7	1	Credit 2 On-Site Renewable Energy	1 to 7	1	1	Credit 1.1 Regional Priority: SSC-4.1	1
2	1	Credit 3 Enhanced Commissioning	2	1	1	Credit 1.2 Regional Priority: SSC-4.3	1
2	1	Credit 4 Enhanced Refrigerant Management	2	1	1	Credit 1.3 Regional Priority: SSC-6.1	1
1	2	Credit 5 Measurement and Verification	3	1	1	Credit 1.4 Regional Priority: EQ 2, SS 3, SS 4.1, SS 4.3, SS 6.1 SS 7.2	1
2	2	Credit 6 Green Power	2	83	27	Total	Possible Points: 110
3	11	Materials and Resources	Possible Points: 14	Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110			
Y	1	Prereq 1 Storage and Collection of Recyclables					
3	1	Credit 1.1 Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3				
1	1	Credit 1.2 Building Reuse—Maintain 50% of Interior Non-Structural Elements	1				
2	1	Credit 2 Construction Waste Management	1 to 2				
2	1	Credit 3 Materials Reuse	1 to 2				

LEED Certification



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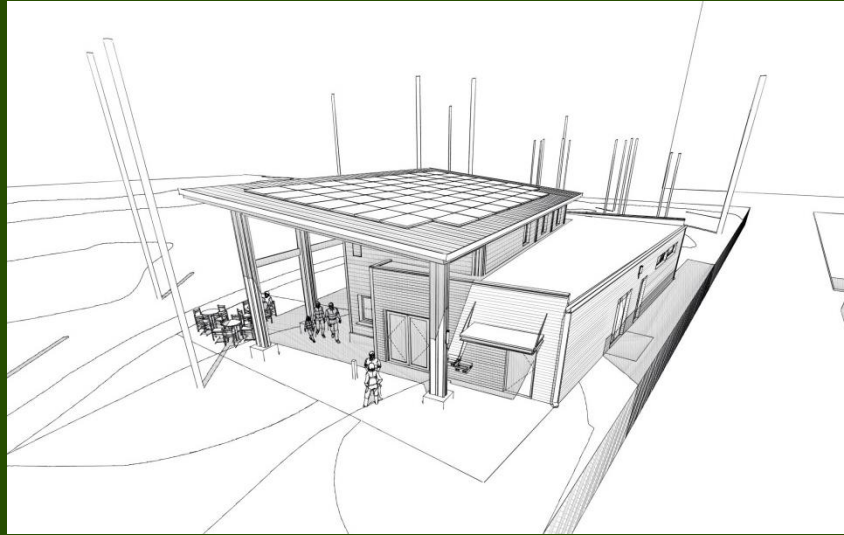


## Clerestory Plan



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West & East perspective views

