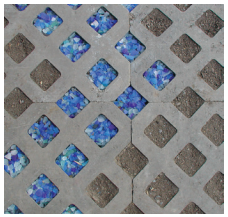
Opened in 2003, the Carkeek Park Environmental Learning Center is designed to reduce waste, to create and conserve energy, to reduce water use, and to enhance wildlife habitat. The new building utilized the footprint of an existing single story structure to minimize site impacts. It was the first City of Seattle building to achieve LEED Gold Certification. Many of the sustainable strategies demonstrated at the Carkeek Park ELC can be implemented at home.

STORMWATER IMPACTS



The Environmental Learning Center demonstrates measures which could dramatically alter the impacts of run-off if implemented widely in residential areas. The development of pervious site surfaces reduces runoff by allowing stormwater to permeate into the earth. **Homeowners can have an impact by replacing non-previous surfaces, such as concrete or asphalt driveways and walkways, with open-grid or other pervious pavers.**

WATER USE

Water use reduction methods at the ELC include a 3,850 gallon rain collection cistern and a smaller "rain barrel" system used for hand irrigation. **The rain barrel is an easy step for homeowners to duplicate.** In combination with planting native and drought tolerant plants to minimize the need for watering, rain barrels provide harvested rainwater for landscape irrigation.

CREATING & CONSERVING ENERGY

Another important demonstration aspect of the ELC is the photovoltaic 'net metering' system designed with the assistance of Seattle City Light's Green Power program. Because the building site is shaded by the woods, solar collectors were located in the adjacent meadow. **Solar panels can be mounted on the roof of homes that receive sufficient sunlight.** The system collector panels at Carkeek produce an estimated 3100 kwh per year, 22% of the anticipated total need.

INDOOR ENVIRONMENTAL QUALITY

The goal of the ELC is to create an environment that fosters and supports environmental education and gives the volunteers that steward the park a base for their programs. The materials in this space were selected to minimize the introduction of harmful chemical compounds.

WASTE REDUCTION & USE OF RESOURCES

The ELC made an effort to locate resource friendly and recycled materials where people using the building can touch and see them. These include products which have great material qualities and are friendly to use for demonstration purposes, such as:

Natural Linoleum Flooring - 100% natural material
Fabric Wall Covering - 100% recycled polyester
Homasote Acoustical Panels - 100% recycled paper
Concrete Countertops - 60% recycled concrete
Strawboard Countertops - 100% recycled wheat straw
Re-used Carpet - from another installation
Cellulose Wall Insulation - 75% recycled paper
Re-used Doug Fir Logs - originally used as piers in Lake Union

During construction, the project was able to divert more than 75% of construction and demolition waste from landfill. Items salvaged and reused included finish items from the existing building, timber poles previously used for dock pilings, 'rescue' of existing plant materials, reused concrete, and reused carpet tile.

Nancy Malmgren Environmental Center

DEMONSTRATING SUSTAINABLE STRATEGIES FOR YOUR HOME

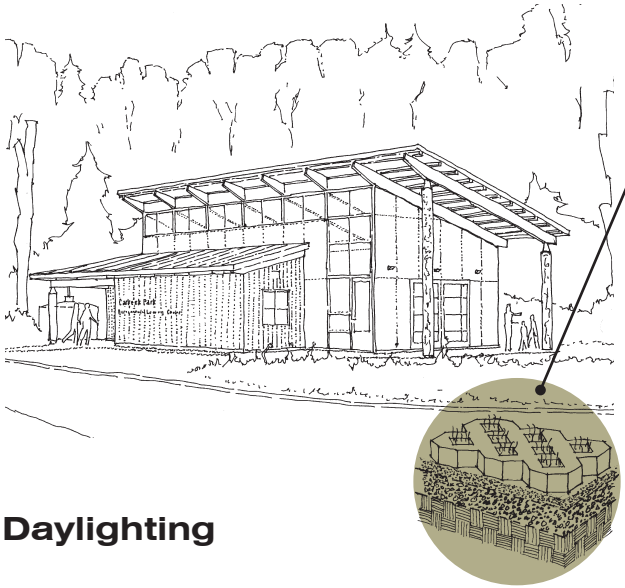
Carkeek Watershed Community Action Project
calkindale@comcast.net

Carkeek Park Advisory Council
www.seattle.gov/parks/parkspaces/carkeekpark/advisory.htm

Seattle Parks and Recreation
www.seattle.gov/parks

Miller Hayashi Architects LLC
www.millerhayashi.com

Sustainable Sites



Wildlife Preferences
Plant selection for wildlife preferences encourages bio-diversity

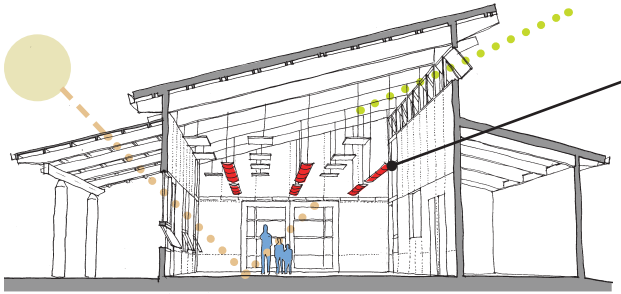
Pervious Surfaces
50% of hard surface is pervious, which allows water to percolate to the ground water, thus recharging the aquifer

Tree Snags
Opportunity for diverse bird habitat

Native Upland Species
Native plants are adapted to climate and soil type and don't need irrigation after they are established

Integrate Existing Plants
Plant rescue salvage operation

Daylighting



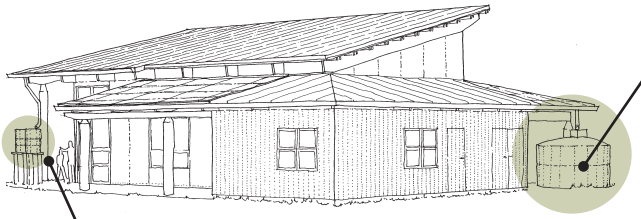
Diffuse North Light
Indirect light most of the year

Lighting Controls
Photocell activated switching

Reflected Daylight
Lightly colored surfaces

Overhangs
To shade south windows

Rainwater Harvesting



Collection Surface
Metal roof

Conveyance System
Gutters and downspouts

Pressure System
Used for toilet flushing and hoses

Polyethylene cistern roof washer & screening basket

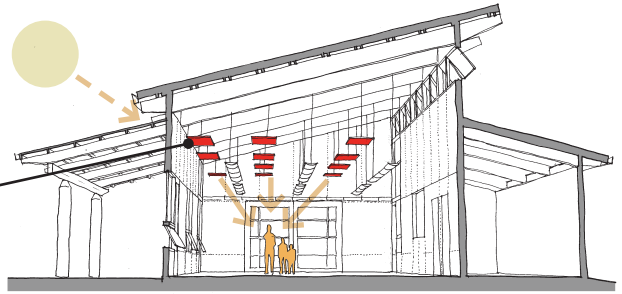
Pumps, Tanks and UV/Bacterial filters

Gravity System
Rain barrels used for garden watering

Radiant Heating Panels

Radiant Heating
Heats objects and people, not air

Radiant Heat Panels
33% more efficient than heat pumps, quick response time for periods of short term use



Net Metering

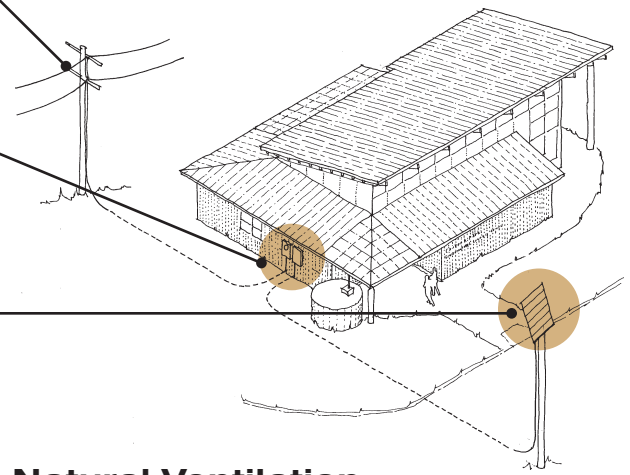
Grid Power
Connected to Seattle City Light Green Power Program

Power Meter
Displays power contribution from photovoltaics

Net Metering
Spin back Utility's meter when panels are providing more power than is being used

Inverter
Converts DC from panels to AC Power

Photovoltaic Array
Pole or roof mounted facing south, tilted 30 degrees +/-



Natural Ventilation

Cross Ventilation
Operable windows on both sides

Stack Effect
Warmer air rises toward operable vents high on wall

Prevailing Wind
Orient windows to direction of summer breezes