Beyond Convention

ECODISTRICTS

ZGF Architects

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12 West, Portland Oregon
The Building by Building Conundrum

achieve

Platinum LEED
achieve

Rail-Volution

Platinum Neigborhood

Building Livable Communities with Transit

12 West, Portland Oregon

District Chilled Water Plant
ABOVE GROUND STRATEGIES

Building, Sidewalk, Benches, Solar Street Lights, Stormwater Planters, Family Cycle Track, Rain Gardens, Truck, Bus, Car, Streetcar, LRT, Commuter Bike Lane, Commuter Services, Thermal Arrays, PV Arrays,

SHARED RESOURCES THROUGH DISTRICT CONNECTIONS FOUND BELOW AND ABOVE GROUND

Roof Drain Collection, Heat Exchange, Conveyance of Potable Water, Cleaned Stormwater, Sewer and Reclaimed Waste Water, Hydronic Thermal Loop, Micro Energy District, Elect/DATA.

BELOW GROUND STRATEGIES
achieve

Connect Other Districts

TOWARDS A BALANCED CITY

Neighborhoods and Districts
Connect and complement each other in cities.

Sharing Resources
Sharing Costs
place

Wenijang EcoDistrict

Serving the high-tech creative class
place

Wenijang EcoDistrict

Rail~Volution
Building Livable Communities with Transit

BICYCLING
OPEN AIR STREET CAFES
SAFE STREETS FOR CHILDREN
WALKABILITY
STRONG RETAIL BASE
STORMWATER MANAGEMENT
PUBLIC TRANSIT
**Wenijang EcoDistrict**

<table>
<thead>
<tr>
<th>Place</th>
<th>District</th>
<th>Neighborhood</th>
<th>Block/Building</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WATER</strong></td>
<td>Membrane bioreactor cleans district grey water</td>
<td>Swales to capture, treat rainwater and convey to district</td>
<td>Rooftop capture rainwater and convey to district</td>
</tr>
<tr>
<td></td>
<td>Wetland cleans canal water</td>
<td></td>
<td>Dual pipes in buildings for grey water use</td>
</tr>
<tr>
<td><strong>ENERGY</strong></td>
<td>Biogas from anaerobic digester is sent to neighborhood combined heat, cooling and power plant</td>
<td>Combined heat, cooling, and power plants powered by natural gas or digester biogas</td>
<td>Buildings optimized for comfort &amp; energy efficiency</td>
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<tr>
<td></td>
<td></td>
<td>Ground source heat pumps in neighborhood parks</td>
<td>Evacuated tube solar hot water</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Ground source heat pumps on each block</td>
</tr>
<tr>
<td><strong>WASTE</strong></td>
<td>Anaerobic digester for food &amp; human waste</td>
<td>Recycling landscape debris for anaerobic digester</td>
<td>Human waste and grey water to biodigester</td>
</tr>
<tr>
<td></td>
<td>Used cooking oil collected for biodiesel</td>
<td></td>
<td>Materials (metal, plastic, and paper) collected for recycling</td>
</tr>
</tbody>
</table>
place

Wenijang EcoDistrict

- Edge Condition
- Linear Parks
- Residential Park
- Private Courtyard
- Water
Neighborhood Strategies: Energy

- Natural Gas
- Biomethane (Future)
- Ground Source Heat Exchange
- Air Source Thermal Exchange
- Four Pipe Thermal Loop
- Combined Heating Cooling and Power

Wenijang EcoDistrict
A new place, a showcase, zero carbon.
Large tanks (under 10th Street) could hold enough stormwater to provide 71% of the total water used in the Ecodistrict.
place

Southwest EcoDistrict
place

Southwest EcoDistrict
Rail~Volution
Building Livable Communities with Transit

Beaverton EcoDistrict

Place

Railroad

Beaverton Central

Beaverton Transit Center

WES

Beaverton High School

CITY HALL

Beaverton Library
NEW STREETS & REDEVELOPMENT

Beaverton EcoDistrict

Beaverton Central

Beaverton Transit Center

WES

City Hall

Beaverton High School

Beaverton Library

Railroad
Beaverton EcoDistrict

Improved Edge

New Places, Plazas and Parks

Beaverton Central

Beaverton Transit Center

Railroad

Beaverton High School

Beaverton Library

WES

City Hall
Beaverton EcoDistrict

POINT SOURCE: REDUCE VOLUME OF OUTFALL TO CREEK AND MINIMIZE HEAT LOAD DURING SUMMER

NON POINT SOURCE: GREEN STREET FLOW THROUGH PLANTERS

NON POINT SOURCE: LOW IMPACT DEVELOPMENT PARCELS
Non Point Source

Infiltration Planter  Ecoroof  Civic Space  Bioswale  Cultural Landscape  Greenwall

Beaverton EcoDistrict
First Tier Suburb, place, a showcase, flood reduction.
1. They make improvements that support **vital and livable environments** with a new urban experience.

2. They **serve their stakeholders** in a new and efficient way which is becoming a compelling argument for a **new ethic in urban renewal**.

3. They require early community engagement and on going **community stewardship**.

For the participants, the process is exciting and frustrating.

For success, it depends on people acting together in their own self interest.
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THANK YOU

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