

Clean Water Services' Administration Building Complex

A Model of Sustainable Development



Project Overview

Everything Clean Water Services does is intimately tied to clean water, environmental protection and value for our customers. The design and construction of Clean Water Services' new Administration Building Complex was an opportunity to improve efficiencies by consolidating staff and build a facility that reflects the District's commitment to clean water, the natural environment and the public it serves.

Over the last five years, Clean Water Services' aggressive competitiveness initiative has helped save the District and its ratepayers more than \$72 million by re-engineering business processes, centralizing facilities, and reducing the workforce by nearly 80 positions. As a result, the importance of consolidating and centralizing administrative, planning, engineering, laboratory, and information systems staff became increasingly important.

Clean Water Services' new facility, located adjacent to the Tualatin River and the non-profit Wetlands Education Center, consolidates staff from four facilities into a single, central complex and creates a water resources campus at the entrance to the 710-acre Jackson Bottom Wetlands Preserve.

The 41,600 square-foot of new office space, remodel of existing office space and restoration of the former truck refuse yard has used energy, water, building materials and land much more efficiently than a building simply built to code. Through the use of low-flow fixtures and the harvesting of rainwater to flush toilets, water usage is projected to be 66 percent less than a comparable code building. The use of occupancy sensors, high-efficiency lighting, and an underfloor heating and cooling systems are projected to save 45 percent on energy costs. More than 60 percent of building materials were manufactured within 500 miles, supporting the local economy and reducing transportation costs. Natural ventilation, interior light shelves and the building's orientation on the site deliver fresh air and high-quality natural light throughout the building.

With the addition, the facility will increase in size to 69,000 square feet. The complex includes Clean Water Services' water quality lab, administration, source control, information systems, inspection, engineering, public affairs, human resources, and planning groups.

Clean Water Services new building allowed the District to restore a degraded site, construct a building that publicly demonstrates our environmental stewardship, and locates us adjacent to the river we serve.

Features

Key design features and technologies used at Clean Water Services' Administrative Building Complex include:

- **Innovative rainwater treatment facilities:** A unique variety of demonstration methods are used to filter all stormwater runoff onsite before releasing it to the adjacent wetland. A cistern collects a portion of the roof runoff and holds it for flushing toilets in the building. Remainder of the roof runoff is routed to an ornamental stormwater planter that is incorporated into the building's north entrance landscaping. Runoff from parking lots and walkways are filtered through bioswales and filter strips.
- **Natural ventilation & operable windows:** Operable windows allow for local control and can be opened when the mechanical ventilation system is not in a heating or cooling mode. The building incorporates three interconnected floors allowing the air to rise up through the space. The upper clerestory windows have remote actuators that will automatically open when required.
- **Daylighting / Automated lighting controls:** The lighting system incorporates a central dimming system that adjusts the lighting automatically in relation to the amount of natural light available. South facing windows have exterior sun shades to reduce the amount of direct sunlight penetrating the space and interior light shelves bounce daylight further into the interior spaces.



Let the sun shine in! Daylighting will reduce energy costs and provide natural light for all employees.

Combined, all of these systems improve the interior environment, lower the direct heat gain and reduce the heat gain from the light fixtures.

- **Occupancy sensors:** Private offices and enclosed spaces have wall mounted motion sensors that will turn off lights when spaces are not occupied. Open office work stations will also be equipped with a motion sensor that will turn off task lights and other non-critical electrical devices.
- **Construction waste management:** More than 90 percent of construction waste has been recycled.
- **Site restoration and cleanup:** An 11-acre truck yard adjacent to the building was purchased, cleaned up, and restored as part of the expansion. Eight acres were donated to the Jackson Bottom Wetlands Preserve; the balance is used for parking and to create a successional forest.
- **High efficiency lighting fixtures:** High efficiency fluorescent fixtures are used throughout the new building. The efficiency is also improved by the incorporation of the dimming system.
- **Low-flow fixtures, gray water systems:** Dual flush toilets are used in the new facility. These fixtures have a half or full flush option. Other fixtures are low flow design to reduce water use. Overall use of potable water is further reduced by the gray water system. Water is "Harvested" from the south roof surfaces and stored in two below grade cisterns. This water is filtered and pumped into a holding tank, pressurized and distributed to the toilets and urinals. It is estimated that the overall water consumption will be reduced by over 66 percent.
- **Materials and resources:** More than 60 percent of the materials used in the building were manufactured, assembled or harvested locally or regionally.
- **Utilizing existing chiller with buried chilled water storage tank:** A 60,000 gallon buried water tank will store chilled water for cooling the new office building. The system will utilize the existing laboratory chiller during the night when it is not being used to cool the laboratory. This eliminated the need for an additional chiller and will benefit the chiller by having less down time.

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Benefits

Clean Water Services considered capital, operations and maintenance, and life-cycle costs in developing the location and design for the new Administrative Building Complex. Benefits of the new facility include:

- **Energy usage:** The building was designed to be at least 45 percent more energy efficient than a comparable building built to code, trimming annual energy costs by an estimated \$32,500 a year.
- **Water usage:** Low-flow fixtures and harvesting rainwater for toilets will reduce use of potable water by 66 percent.
- **Centralizing employees & resources** will improve employee communication and productivity and reduce office lease costs.
- **Healthier workplace:** Abundant natural light, ventilation and fresh air create a healthier working environment that will improve employee productivity, health and comfort.
- **Connection to natural environment:** Daylighting, unobstructed views, and the location adjacent to the Jackson Bottom Wetlands Preserve and the Tualatin River connect the building and its employees to the river the natural environment they serve.



Water resources campus: Clean Water Services' new Administration Building Complex is located adjacent to the Tualatin River, the non-profit Wetlands Education Center, and at the entrance to the 710-acre Jackson Bottom Wetlands Preserve

Costs

Building, parking, site restoration and remodel \$9.8 million

- Construction of 41,600 square-feet of new office space and remodel of existing office space
- Restoration of former commercial trucking property
- Utility work and construction coordination and parking for new Jackson Bottom Wetlands Education Center
- Landscaping

Funding: The Administrative Building Complex is funded by

- Clean Water Services capital budget;
- savings from consolidation of resources and reduction of workforce over the last seven years; and
- the sale of the District's office space in the Public Services Building.

Incremental costs of sustainable features: \$336,000, 3 percent of building cost.