



U.S. Department of the Interior

Greening the Department of the Interior

Animas La Plata Permanent Operating Facility

U.S. Bureau of Reclamation, Colorado

Point of Contact

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Summary

The Permanent Operating Facility (POF) is The POF was one of the first newly constructed buildings within Reclamation to incorporate comprehensive sustainable building design principles into project requirements. The Project was funded with \$3.191 million of ARRA funding, which included a mandate for green building techniques. The 6,379 gross square foot (GSF) building encompasses 2,500 gsf of office

space, a conference room large enough to facilitate frequent community meetings, and a 3,500 gsf maintenance shop and storage facility.

Description

Key features of the project include:

Exceeds Energy Design Target: Through an iterative design process, the combination of a passive solar wall, high-efficiency HVAC, and lighting provided 51% energy efficiency over ASHRAE.

Achieves Water Efficiency Through Minimal Design: All plumbing fixtures and fittings installed for the water closets, urinals, lavatory faucets, kitchen sink faucet, and showers, meet commercial WaterSmart or equivalent requirements and auto shutoff.

GHG Emission Savings: The energy efficient design is estimated to save 257 MMBTU of energy per year. Using the EPA online Greenhouse Gas Equivalency Calculator, this greenhouse gas emissions savings equates to 52 metric tons of carbon emissions per year.

Renewable Hydropower: The project not only incorporates passive solar energy into the design; the remaining electricity demand is met with renewable hydroelectric power through the Western Area Power Administration (WAPA). Power from WAPA, which is verified to be 98% renewable, is transmitted to the POF through a dedicated WAPA power transmission line. As such, a relatively small amount of natural gas is the only carbon emitting source of energy used at the POF.

Local and Green Materials: One of the key project requirements was to demonstrate sustainability to the public by showcasing green materials to those attending frequent community meetings. Green materials include:

- Locally harvested "beetle kill" wood
- Local rock from the southwest was used on the exterior
- Recycled wood and steel posts and beams
- Carpet, ceiling tiles, wallboard, and insulation made of recycled materials
- Fly ash that comprises approximately 5% of the total placed concrete

- Avoidance of ozone depleting refrigerants
- Forest Stewardship Council accredited wood
- Low VOC materials used during construction

Green Infrastructure: Xeriscaping with a drip-irrigation system only for the first 18 months while plants are established.

Solar Wall: Incorporates use of a passive solar wall on the south facing side of the maintenance shop which collects heat from the sun on clear sunny days. This heat automatically integrates with the shop ventilation fans, drawing heat from the solar wall and down to the shop floor. The absorptive heat collectors in the solar wall reduce energy consumption by a designed estimate of 27%.

Integrated Lighting: An integrated approach to lighting includes automated lighting system controls, occupancy sensors, daylight sensors, timers, and dimmers, together with energy efficient T5 fluorescent, low ambient/task lighting and LED solid state lighting. Additionally, an abundant use of daylighting minimizing the need for artificial lighting is achieved through UV solar glass panels mounted in aluminum framework at eastern, southern and western exposures.

Results and Achievements

The POF is the first LEED certified building in Upper Colorado Region and one of the first in Reclamation to achieve LEED Gold and comply with the Guiding Principles.

The POF design incorporated water efficient fixtures that are calculated to consume 8.54 kgal per year, which is a savings of 5.04 kgal or a 37% reduction in water use over the baseline. Over the lifecycle of the fixtures, estimated at 25 years, the total savings is 126 kgals. Over the lifecycle of the building, the solar wall, and equipment, averaged to be 30 years, the total energy savings amounts to 7724.7 MMBTU.

Replicability

The POF is second building in Reclamation to achieve 100% of the Guiding Principles and among only a handful to receive LEED certification. As such, the regional sustainable building coordinator and project manager are called upon to give advice

and counsel to others in incorporating sustainable design requirements into projects. The sustainable building coordinator shares the Statement of Work for the POF with other project managers at the onset of a new building planning process. The POF staff has held tours for local college students majoring in environmental subjects, and for staff from other bureaus within the Department, and Reclamation environmental staffs to learn about sustainability, and green designs.



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