

Photo courtesy of Portland Community College

# PORTLAND COMMUNITY COLLEGE NEWBERG CENTER

When voters passed Portland Community College's (PCC) bond measure in 2008, the college's sustainability commitment for new buildings was to meet or exceed LEED Silver standards. As the third PCC building completed with those bond funds, Newberg Center far exceeds that goal. The center is not only LEED Platinum certified, it's one of the first higher education building in Oregon, and one of only a few nationwide, to be on the path to achieving net zero. The building will use so little energy that a 100-kilowatt roof-mounted solar electric system meets all the building's energy needs over the course of a year.

The center, which has five classrooms, a conference room and office space, prioritized passive design principles. The east-west building orientation maximizes opportunities for capturing solar energy. Exposed concrete slab and shear walls serve as thermal mass to keep indoor temperatures even year-round. Ventilation turbines on the roof and louvers on the exterior walls take advantage of the region's natural air flows. Even the roof is painted white to reflect hot summer sunlight.

Natural lighting eliminates the need for electric lighting during most daylight hours. Glass walls in the common area allow daylight deep into the building. Skylights in the classrooms and office space have louvers that open and close automatically according to light levels—maintaining even, diffused light.

The success of the Newberg Center, which has won multiple national design awards, can be attributed to PCC's efforts to get the entire design team integrated into sustainable design from the earliest stages. Even representatives of PCC's Facilities Department served on the building committee, contributing hands-on ideas about green building strategies that would help make the design more maintenance friendly.

PCC was also one of the first participants in Energy Trust of Oregon's Path to Net Zero initiative. The college received early design assistance and technical resources to design energy efficiency throughout the building's features and systems. PCC applied whole-building efficiency strategies, tackling all end uses like lighting and HVAC, and installed solar electric systems to further offset energy use.

#### **PROJECT-AT-A-GLANCE**

#### Overview

- 13,500-square-foot campus center
- Completed in 2011
- Certified LEED® Platinum
- Path to Net Zero construction

#### Estimated Savings and Generation

- 347,000 annual kilowatt hours of electricity savings and generation
- \$27,000 annual energy cost savings
- \$236,000 Energy Trust cash incentives

#### Awards

- 2011
- American Institute of Architects Portland, Sustainable Design Award

#### 2012

- American Institute of Architects Committee on the Environment, Top 10 Green Projects
- American Institute of Architects Committee on Architecture for Education, Citation Award

#### **Project Contributors**

- Hennebery Eddy Architects, Inc.
- Interface Engineering

#### **Utility Provider**

• Portland General Electric





Photos courtesy of Portland Community College

### Sustainable Design Highlights

- Energy-efficient features reduce energy use by 50 percent above Oregon code requirements
  - Passive thermal mass
  - Natural ventilation
  - Radiant slab heating, with warm water circulating through plastic tubing embedded in the concrete floor
  - Heat recovery ventilators in classrooms and office space
  - Heat pump water heater
  - Skylights and daylighting
  - High-efficiency lighting
  - ENERGY STAR<sup>®</sup>-certified appliances
  - Low plug-load vending machines
- Solar electric systems meet all the building's energy needs
  - 25-kilowatt bi-facial solar electric system collects solar energy from above and from sunlight bouncing off the courtyard below
  - 75-kilowatt solar electric system mounted on the roof
- Water-efficient features reduce water use by 49 percent compared to Oregon code
  - Dual-flush low-flow toilets and low-flow fixtures
  - Native shrubs and trees
  - Surface water runoff directed to landscaping
  - Weather-based drip irrigation system
- Purple-pipe ready, with grey water plumbed for reuse but not yet operational
- Bicycle parking and onsite showers
- Dark-sky friendly exterior LED lighting

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Get more from your energy. Find more information about Energy Trust's Path to Net Zero at **www.energytrust.org/zero**.

#### **Energy Trust of Oregon**

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#### energytrust.org

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