

# PRINCIPLE 10



## SUSTAINABLE DEVELOPMENT



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### Principle

The development, repair, maintenance, and operations of the University of Oregon today have an impact on the local environment and the ability of future generations to thrive.

All development, redevelopment, and remodeling on the University of Oregon campus shall incorporate sustainable design principles including existing and future land use, landscaping, building, and transportation plans as described in the principle refinement below.

### Pattern Summary

(Refer to “Principle 11: Patterns” on page 61 for the complete pattern text.)

- Bike Paths, Racks, and Lockers
- Campus Trees
- Flexibility and Longevity
- Local Transport Area
- Materials and Operations
- Operable Windows
- Pedestrian Pathways
- Peripheral Parking
- Quality of Light
- Road Crossings
- Site Repair
- Sustainable Development
- Use Wisely What We Have
- Tree Places
- Water Quality
- Wings of Light

Additional Campus Tree Plan Patterns:

- Environmental Mitigation
- Healthy and Vital Tree Canopy
- Long-lived Tree Sites
- Site-specific Conditions
- Tree Replacement Strategies

### Principle Refinements

All construction projects shall adhere to the university’s Oregon Model for Sustainable Development described on the following pages.

Also refer to the following related principles:

- Principle 2: Open-space Framework (in particular principle refinements addressing plant materials and the Campus Tree Plan), and
- Principle 9: Transportation and related patterns.



Many Nations Longhouse bioswale and green roof



HEDCO Courtyard, 2009.

## University of Oregon Model for Sustainable Development

The University of Oregon Model for Sustainable Development addresses the unique aspects of campus buildings and landscapes by focusing on what matters most: ENERGY, WATER, AND PEOPLE.

All development projects as well as the surrounding landscape improvements within the project boundary shall adhere to the University of Oregon Model for Sustainable Development.

All development projects include:

1. New buildings, additions, or renovations of 10,000 square feet (sf) or more of heated or cooled floor area; and
2. Building additions that increase the size of an existing building to 10,000 sf or more of heated or cooled floor area and renovations to buildings of 10,000 sf or more of heated or cooled floor area, which significantly affect:
  - i) The existing mechanical or control systems; or
  - ii) At least two of the following energy systems: interior lighting, building envelope, domestic hot water, or special equipment

Note: Only those systems identified in (i) and (ii) that are significantly affected are subject to the OMSD requirements.

This Model focuses on development projects. It is one of many strategies the university has implemented to achieve its overall sustainability goals. The principle is designed to have a planning cycle of ten years and should be reevaluated no later than ten years after adoption.

### Requirements for All Development Projects<sup>11</sup>

**ENERGY GOAL:** Net Zero Increase in Campus Energy Use from All Development Projects

The university has capped total campus energy use from all development projects. This is achieved by taking a systematic campus-wide approach (as opposed to building by building). All development

projects are required to achieve a state-of-the-art energy performance level—an Advanced Energy Threshold. Also, energy-savings measures are required in existing facilities to offset the resulting energy needs generated by all projects. This will result in a net zero increase in campus energy use from all development.

### ADVANCED ENERGY THRESHOLD (AET)

All development projects must fund and meet the Advanced Energy Threshold, which is defined as 35% more efficient than the Oregon Energy Code requirements.

A standard energy modeling method (e.g., equivalent to one used to meet the State Energy Efficiency Design Program) should be used to compare the designed building to a base Code building and demonstrate that the AET is met.

The AET will ramp up to a higher standard over time as recommended by a small council of knowledgeable individuals led by Campus Planning and Facilities Management.

To achieve and go beyond the required AET and to study ways of achieving net zero energy use for the building, projects are encouraged to use an integrative design process. Projects that are an additional 5% better than the AET do not have to pay their share (10%) of the cost to implement energy savings measures in existing buildings. If a project goes beyond this higher level (AET plus 5%), it may apply for funds from the Central Energy Fund (refer to the section below for more information about the Central Energy Fund). Allocation of funds are determined on a case-by-case basis. These options are designed to provide an added incentive to pursue excellence in energy efficiency design.

### ENERGY-SAVING MITIGATION MEASURES IN EXISTING BUILDINGS

Energy-saving measures will be implemented in existing facilities to offset the resulting purchased energy needs generated by the development project. This will achieve a net zero increase in campus energy use from all development.

<sup>11</sup> The definition of "All Development Projects" is provided in the Model's introductory paragraph.

Funding is shared by all development projects (10%) and the Central Energy Fund (90%).

**Central Energy Fund:** Individual projects are not responsible for coordinating and implementing required energy conservation measures in existing buildings. The project will deposit its share of the funding (10%) into the Central Energy Fund, which is funded and administered centrally. The amount owed by the project is determined by establishing an average cost to implement energy conservation measures campus-wide (\$ per mmbtu or one million British Thermal Units). Facilities Services manages the fund and appropriately implements measures needed to mitigate new energy use from all development projects. Over time, the Central Energy Fund will be funded through energy savings. During the ten-year cycle of this principle (in particular in its early years) it is expected that the fund will create an energy savings “bank,” from which auxiliaries can borrow (see below).

**Auxiliary Projects:** The strength of this principle resides in the campus-wide (versus siloed) approach. Auxiliaries will benefit from, and be a part of, the shared goal of a net zero increase in campus energy use from all development. However, funding and management structures must be accommodated. Auxiliaries are self-funded and pay their utility bills directly; therefore, all auxiliary development projects will achieve a net zero increase in campus energy use by fully funding and implementing conservation projects within their own facilities (i.e., Student Affairs, Athletics, etc.) unless it is not possible due to an unreasonable cost.\* If the cost is unreasonable, the Central Energy Fund (central funds) will use some of its “banked” energy savings or pay to implement measures in non-auxiliary facilities to achieve net zero energy use. The auxiliary will incur an energy “debt” equal to the amount of energy saved through the Central Energy Fund measures. If future building projects (e.g., a building demolition or remodel) within the auxiliary result in energy savings, the energy savings will go towards “paying” back its energy “debt.”

\*The cost to implement energy conservation measures in auxiliary facilities is deemed unreasonable if it has a simple payback period that exceeds ten years.

**WATER GOAL: Improved Quality of Stormwater**

The university will improve the quality of campus stormwater emitted into the region’s waterways by focusing on campus areas that contribute the most to the degradation of water quality—campus streets and parking lots. All development projects are required to treat the equivalent amount of stormwater runoff as required by city code; however, some of the areas treated will be shifted outside the project site to address relatively low water quality campus areas—streets and parking lots.

All development projects will treat stormwater run-off from a portion of an existing UO-owned street or parking area instead of treating the equivalent amount of relatively clean, on-site, impervious surfaces, primarily defined as pedestrian surfaces such as sidewalks (especially those that do not drain directly into a stormwater pipe). The same amount of impervious surface will be treated, but the dirtier surfaces will receive greater attention.

For example, if a project site has 1,000 square feet of sidewalks that must be treated, the project would not be required to treat this area; instead, it would be required to fund 1,000 square feet of stormwater treatment for an existing campus street or parking lot.

The cost to treat existing streets and parking areas is determined by establishing an average cost/square foot. The project is not responsible for identifying and implementing the off-site stormwater measures. Funds are deposited into a central fund earmarked for stormwater treatment measures. Facilities Services manages the fund and appropriately implements measures needed to equal the required stormwater treatment from all development projects.

Projects should be designed to accommodate the potential to treat all of their stormwater in the future.

This goal requires coordination with the city (and in some cases may preclude implementation of this principle).

## PEOPLE GOAL: Sustained Campus Habits

The university ensures sustained energy conservation habits. All development projects are required to develop a plan and implement educational/training opportunities about the building and/or landscape in order to create and sustain a shift in occupant behavior.

All development projects will fund educational/training opportunities about the building and/or landscape with a goal of shifting occupant behavior to support energy use and other goals. Opportunities will consist of the following:

- Training sessions and distribution of informational materials designed for faculty and staff occupying the new building (and possibly the building receiving energy conservation upgrades) as well as for building operations staff during the first two years of occupancy. Training may be in the form of a class or research project.
- An electronic dashboard program that provides real time energy use and other permanent, integrated, educational elements, such as an informational kiosk or a series of plaques, highlighting key sustainable building and landscape strategies with a focus on behavior.

It is expected that implementation of the educational/training components will cost a minimum of \$35,000 (about \$10,000 for the training and distribution of materials and \$25,000 for the permanent features). Smaller buildings or low-occupancy buildings, however, may require a smaller investment.

Projects are not responsible for implementing the training sessions and distributing informational materials. Funds (estimated to be about \$10,000) are deposited into a central fund as directed by administration. Central administration will manage the fund and coordinate implementation. A project has the option to manage its funds and coordinate its own training sessions and distribution of informational materials as long as the activities meet the desired outcomes stated above.

## LEED GOAL: Gold Certification

All development projects must achieve Leadership in Energy and Environmental Design (LEED) Gold certification. The certification process verifies that the project achieved a nationally recognized sustainability standard (LEED Gold) and demonstrates that the university is committed to sustainable design.

### ADJUSTMENTS:

If a highly unique circumstance arises, a project may request an adjustment to a requirement to resolve an unreasonable hardship. For example, specialized building types may be uniquely challenged with meeting the AET. Or, projects that are not suited for LEED New Construction (LEED/NC) may have a more difficult time achieving the level of LEED Gold because fewer LEED points are available. In addition, a project with a small environmental impact (e.g., low energy use) may find it challenging to justify the cost of the LEED certification process.

Adjustments will be reviewed by the Campus Planning Committee as part of the standard project review process. The requestor must clearly demonstrate the following:

1. **Requested Adjustment:** The requested adjustment (e.g., a lower AET or LEED level, or no LEED Certification process) must:
  - be clearly defined,
  - be justified as described in #2 below, and
  - demonstrate that the overall intent of the Model is still met.
2. **Reason for the Adjustment:** The circumstance must be highly unique and create an unreasonable hardship. Evidence of undue hardship must be thoroughly justified, which, at a minimum, includes a full assessment of building components, energy use, and associated costs that would have been necessary to fully meet the affected requirement.