Environmental Stewardship at Penn State

Participants

- Environmental Health and Safety
- Engineering Services
- Central Services
- Transportation Services
- Procurement and Materials Management
- Housing and Food Services
- Campus Planning and Design
- Academic Colleges

VISION

- Commitment to Environmental Stewardship
- Sustainable Practices

Goals

- Leadership and best management practices
- Environmentally responsible purchasing policies
- Efficient use and conservation of energy, water and other resources
- Minimize solid waste production
- Minimize hazardous waste and toxic materials
- Environmentally responsible campus planning and design principles
- Enhanced transportation initiatives
- Enhanced regulatory compliance

Leadership and Best Management Practices

PENNSTATE

Blue, White and GREEN

- Support from University Relations via the Intercom, Newswire, et.al.
- Environmental news web page
- Meetings with DEP

Penn State Has a Long-Range Commitment to the Environment

By Graham B. Spanier
President,
The Pennsylvania State University

One of the most attractive aspects of living in Pennsylvania is the state's vast abundance of natural beauty and resources. Within Pennsylvania, there are more than 2.1 million acres of state forest land, a wealth of fresh water from streams and rivers, unique scenic and geologic sites, and a state park within 25 miles of nearly every Pennsylvanian. Here in the Centre Region, we are particularly blessed with this valuable natural heritage, and Penn State is committed to doing its part to conserve and care for these precious resources.

Penn State's environmental impact in Centre County and the Spring Creek Watershed is significant. At the University Park campus, more than 40,000 students attend classes on a campus that includes 758 buildings, 16,331 acres and 31 miles of roadway. These facilities and the large number of people who enjoy them present Penn State with a great environmental responsibility and require that the University have a strong and well-defined vision for the environment.

Penn State has been engaged in local environmental issues for many years and has developed unique solutions to environmental challenges. For example, the University has successfully demonstrated the feasibility of using a living filter for wastewater plant effluent. Vegetation and the earth's surface work as a filter to properly dispose of wastewater effluent and naturally recharge groundwater. Approximately 2 million to 3 million gallons of water a day are naturally recycled by the living filter. Our faculty and staff, in collaboration with the Pennsylvania Department of Environmental Protection and Centre County leaders, have supported and continue to support regional groundwater conservation and planning. Local stewardship is the most viable way to ensure the health of our water

Penn State has a very aggressive and award-winning recycling program. Recycling of solid waste increased dramatically between 1989 and 1998 — from 20 tons per year to 3,700 tons per year. Penn State's recycling program prevents 32 percent of its solid waste from going into landfills.

We also are testing some emerging sustainable technologies for construction projects, such as porous pavement that allows water to perk into the soil rather than contributing to runoff, and a heat recovery pump at the Visitor Center. Water-saving shower heads and toilets are part of all new residence hall construction.

Penn State plans to develop a 400-acre arboretum with a mission to promote the quality of human life by

Continued on page 7

Scouts assist with Penn State's recycling project.

Energy and education

Bob Barkanic, Department of Environmental Protection deputy secretary, right, congratulates President Graham B. Spanier on Penn State becoming a partner in the Environmental Protection Agency's Energy Star initiative. As part of the program, the University will track its energy performance as well as implement a plan to improve energy performance for its facilities.

University plugs into wind power

By Paul Rubin
Office of Physical Plant

Demonstrating their commitment to renewable energy resources and the environment, the University signed a contract with Community Energy Inc. (CEI), a renewable energy marketing firm, to purchase 5 percent of University Park's electrical needs from wind energy over the next five years.

On "Wind Energy Week" as proclaimed by Gov. Mark Schweiker, this landmark pledge establishes Penn State as a national leader in wind energy, joining The University of Pennsylvania and Carnegie Mellon University. By purchasing 13.2 million kilowatt hours (kWh) annually — or the energy output of more than three, 215-foot-tall windmills — the University will become the second-largest user of retail wind energy in the United States.

Three turbines were dedicated to the University at the Exelon-Community Energy Somerset Wind Farm, visible from the Pennsylvania Turnpike southeast of Pittsburgh. The two new, state-of-the-art wind farms are stretched on ridges in Somerset and Mill Run, rural towns in Pennsylvania's Allegheny Mountains.

The three Penn State University tur-

Wind power, page 2

Wind power will provide 5 percent of the energy needs on the University Park campus over the next five years, thanks to an agreement with Community Energy Inc.

Photo: Paul Rubin

Environmentally Responsible Purchasing Policies

- Purchase energy efficient products

- Purchased $22 million Energy Star rated computers and copiers

Money Isn't All You're Saving

Environmentally Responsible Purchasing Policies

- Promote products made from recycled materials
- Hired purchasing professional oversee environmental issues
- Move towards 100% use of recycled paper

Efficient Use and Conservation of Energy, Water, and Other Resources

- Commission new buildings
- Re-commission existing buildings
- Guaranteed Energy Savings program

Efficient Use and Conservation of Energy, Water, and Other Resources

Water Saving Nozzle

Effluent Spray Field

Efficient Use and Conservation of Energy, Water, and Other Resources

- 5% of electricity used on Penn State campuses comes from wind generation

Minimize Solid Waste Production

- Recycle: paper, plastic, glass and metals

- Develop recycling program for items thrown away during dorm move out

Minimize Solid Waste Production

- Recycle used computers through Unicor

- Expand: composting program

Minimize Hazardous Waste and Toxic Materials

- Storage Tank Program

- Laboratory Chemical Safety

- Exchange mercury thermometers

Environmentally Responsible Campus Planning & Design Principles

- School of Architecture and Landscape Architecture Building

- School of Forest Resources Building

LEED™
LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

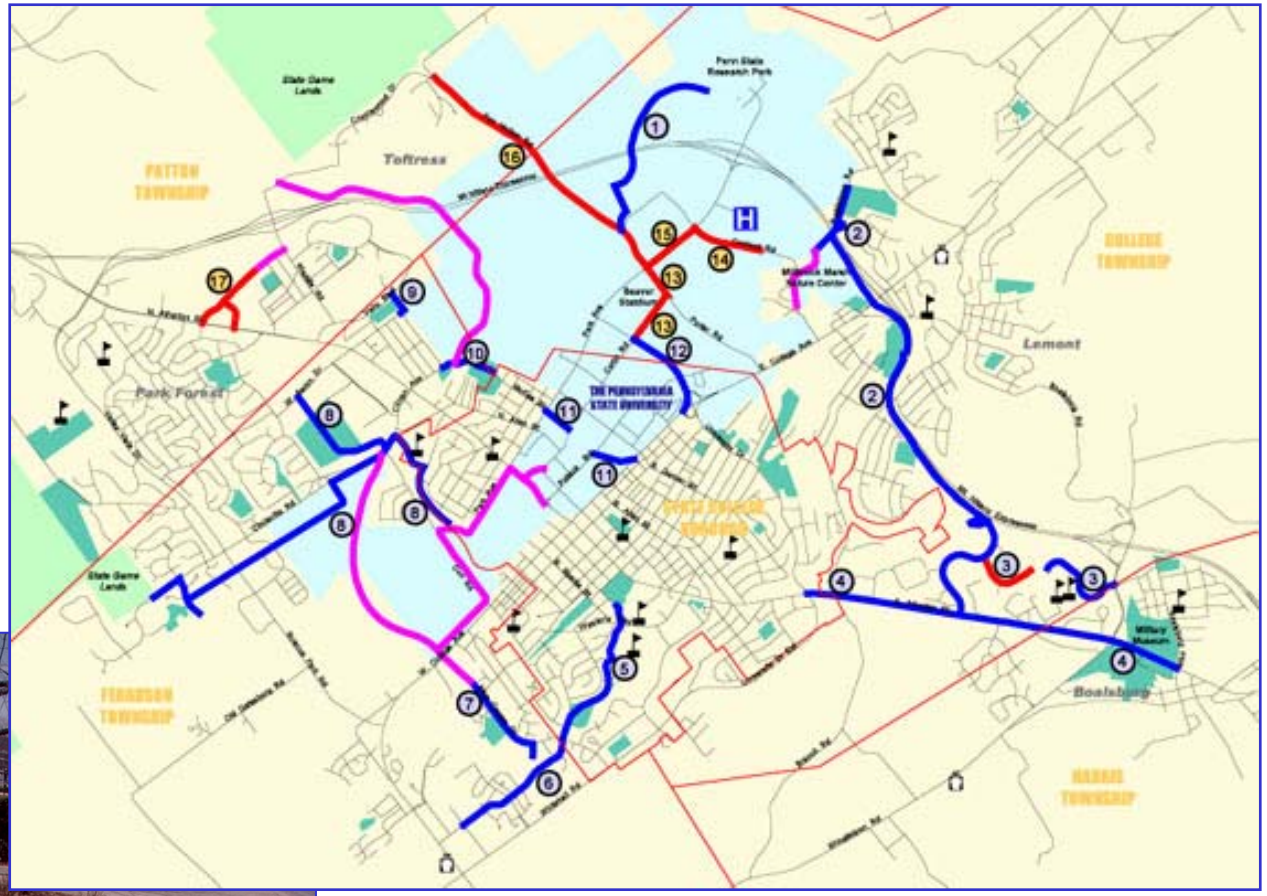
Environmentally Responsible Campus Planning & Design Principles

Environmentally Responsible Campus Planning & Design Principles

Enhanced Transportation Initiatives

- No fare on campus
- Ride for $5
- Restructure parking rates
- Increase service

Enhanced Transportation Initiatives

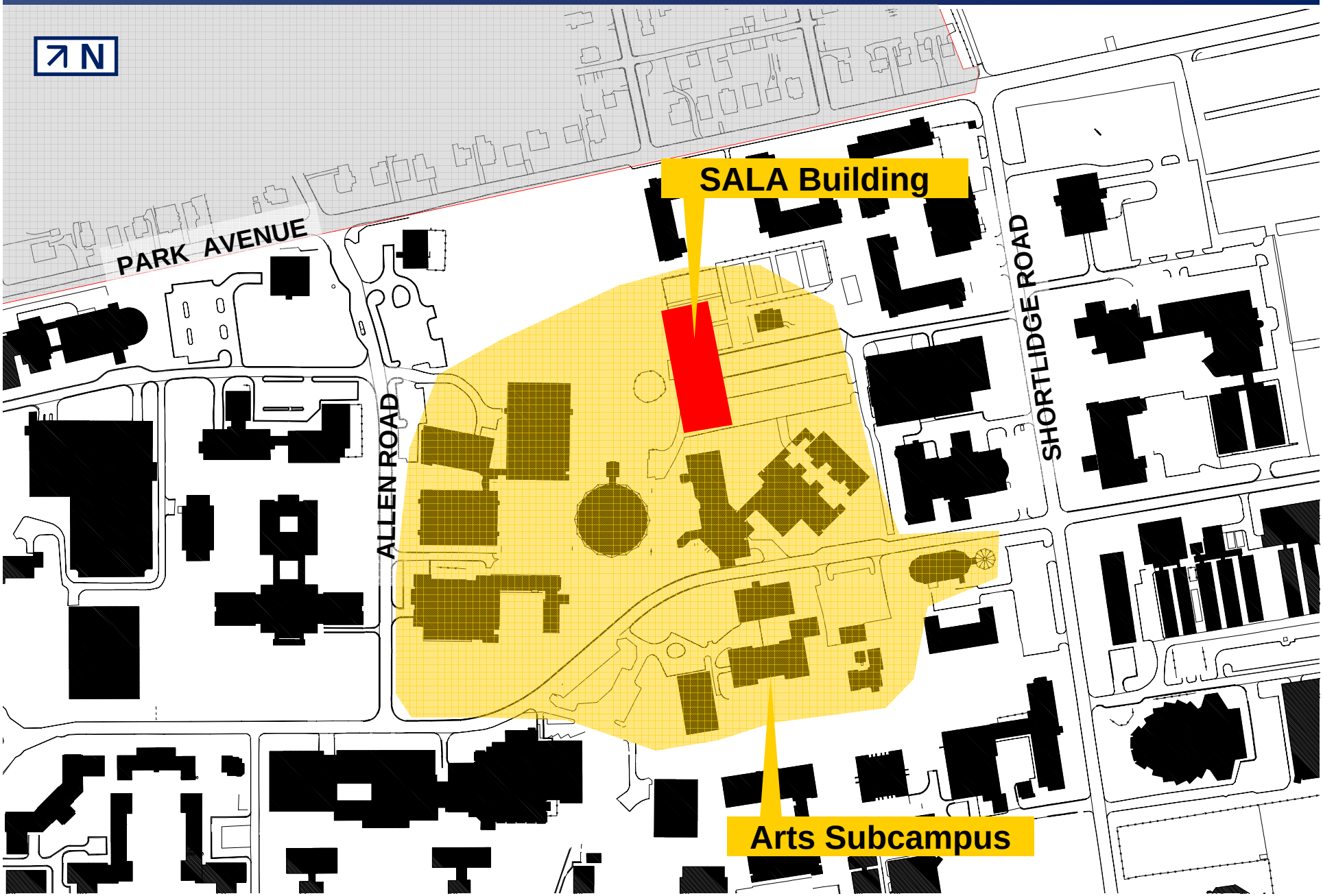


- Encourage use of bicycles

Enhanced Regulatory Compliance

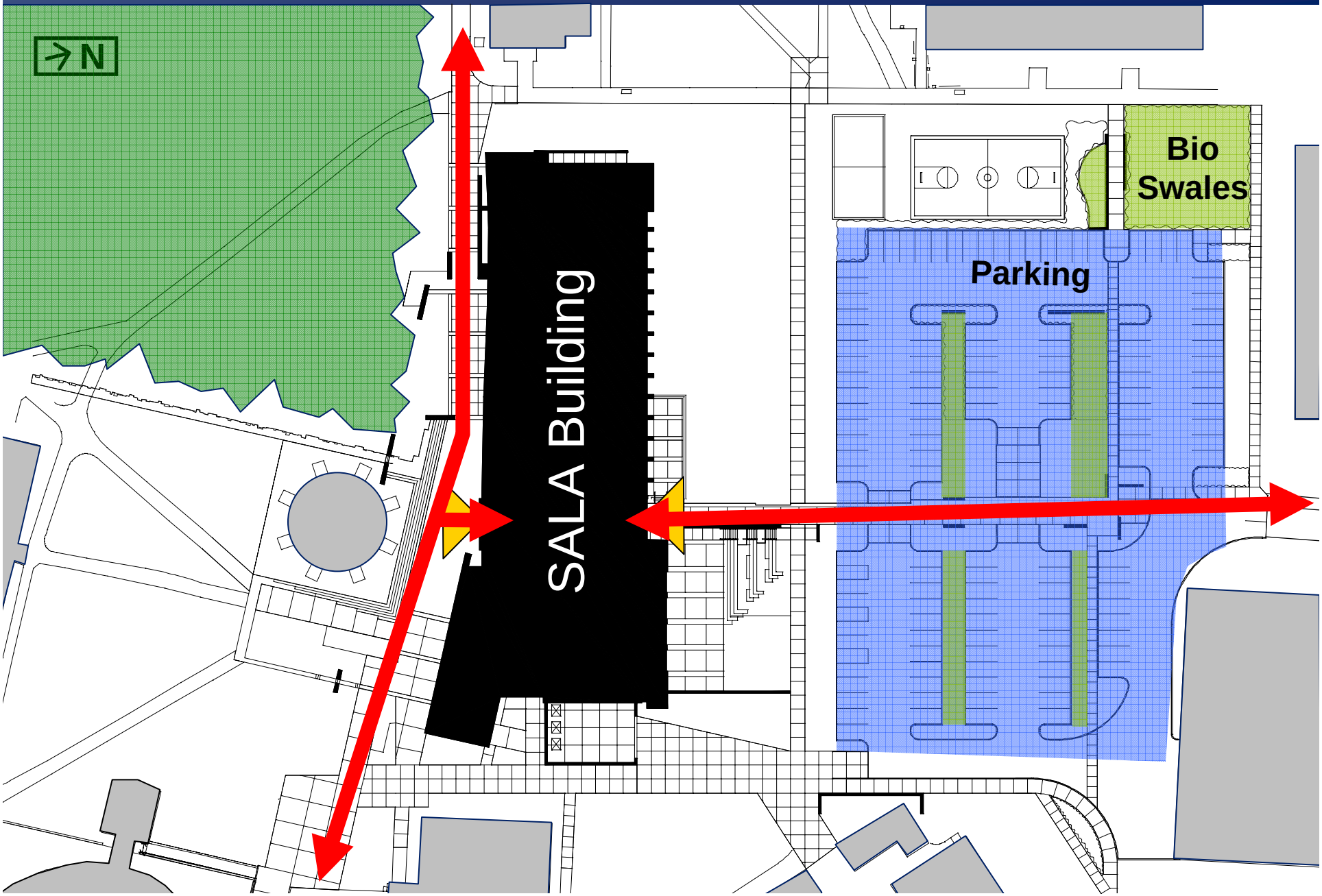
- Testing building drains to identify un-permitted discharges

School of Architecture and Landscape Architecture Building

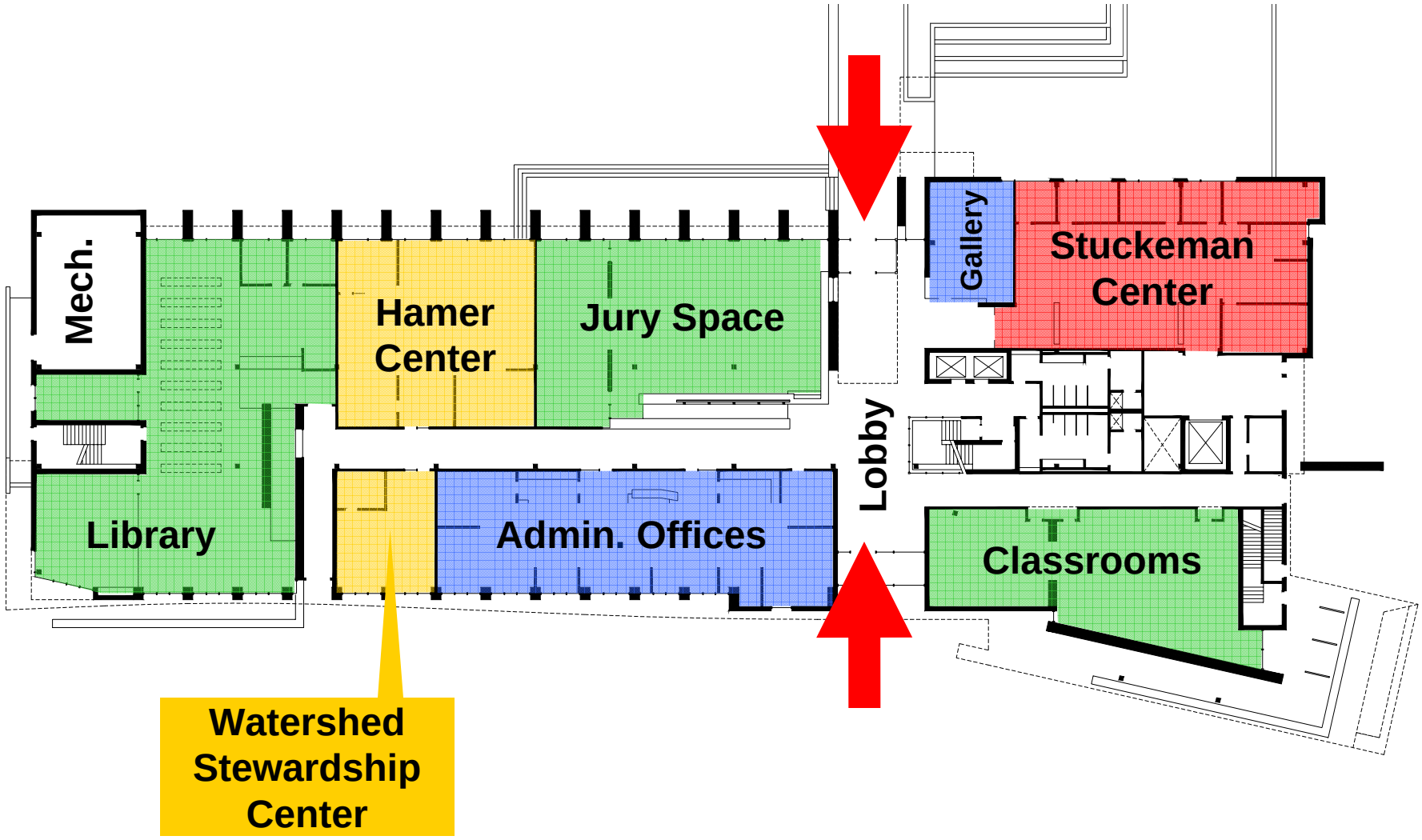


Aerial View

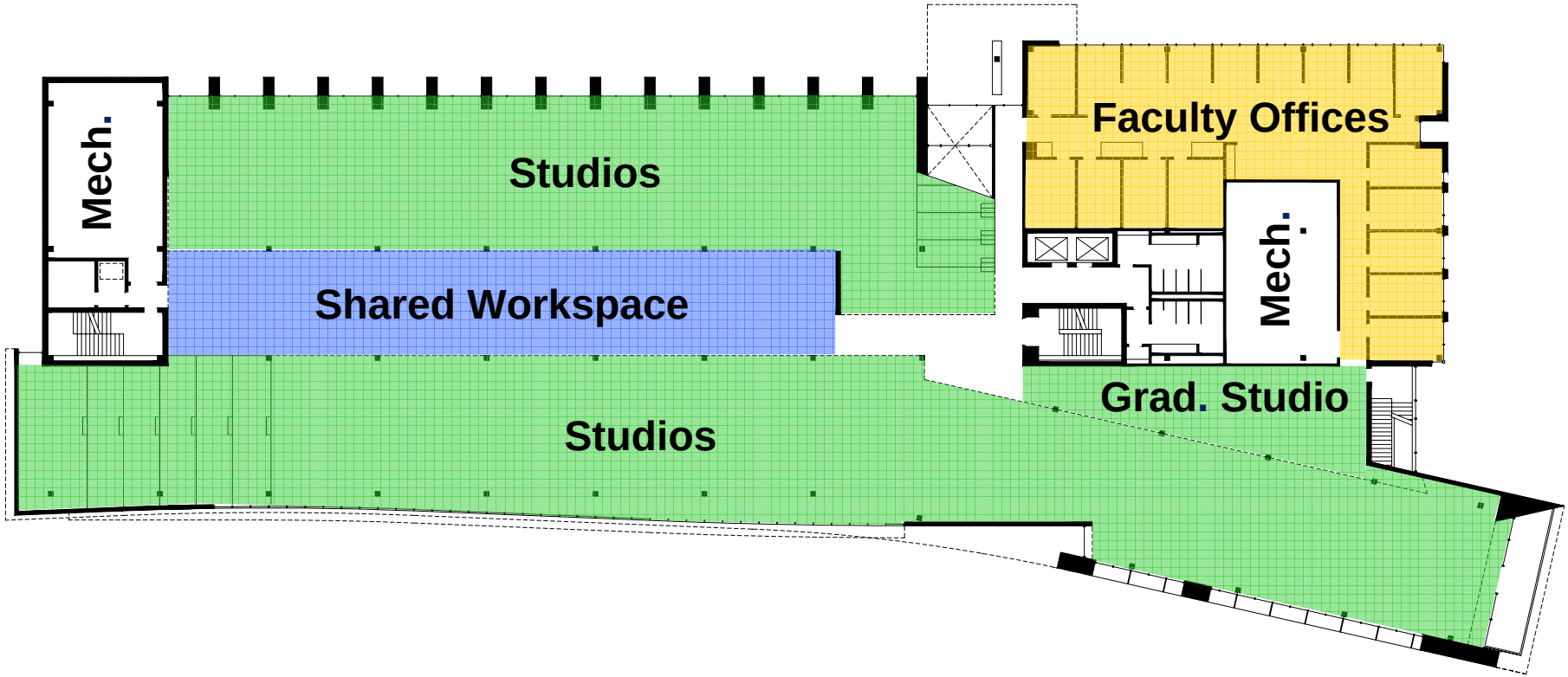
Site Plan



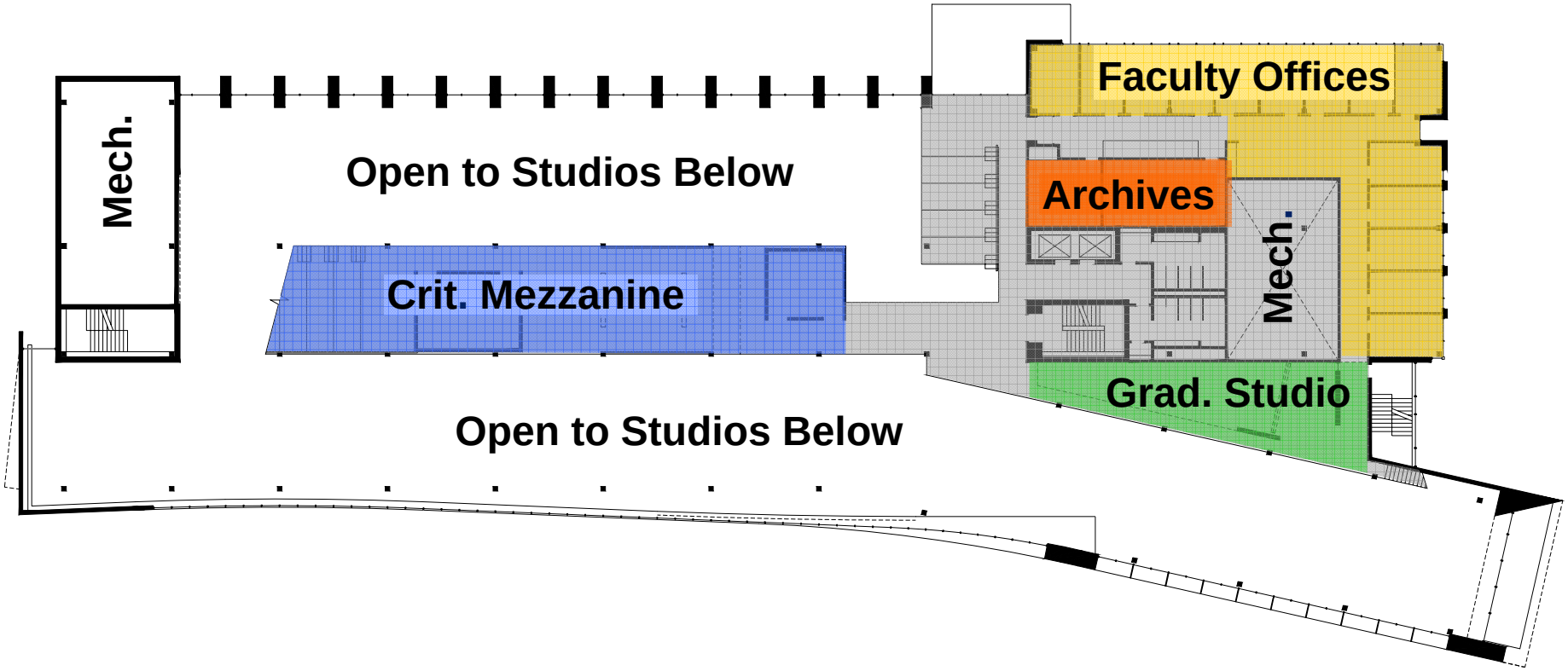
Ground Level



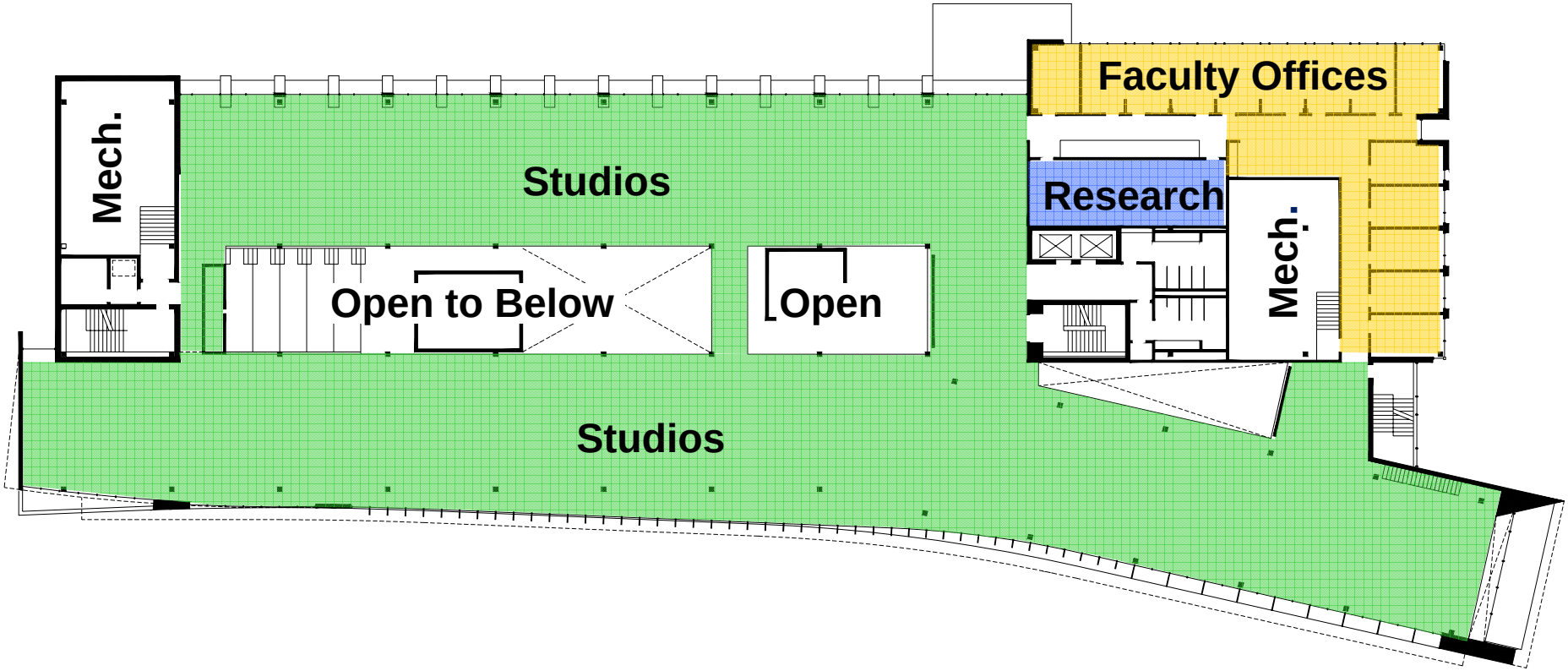
Level 2


Mech.
Studios
Shared Workspace
Studios
Faculty Offices
Mech.
Grad. Studio

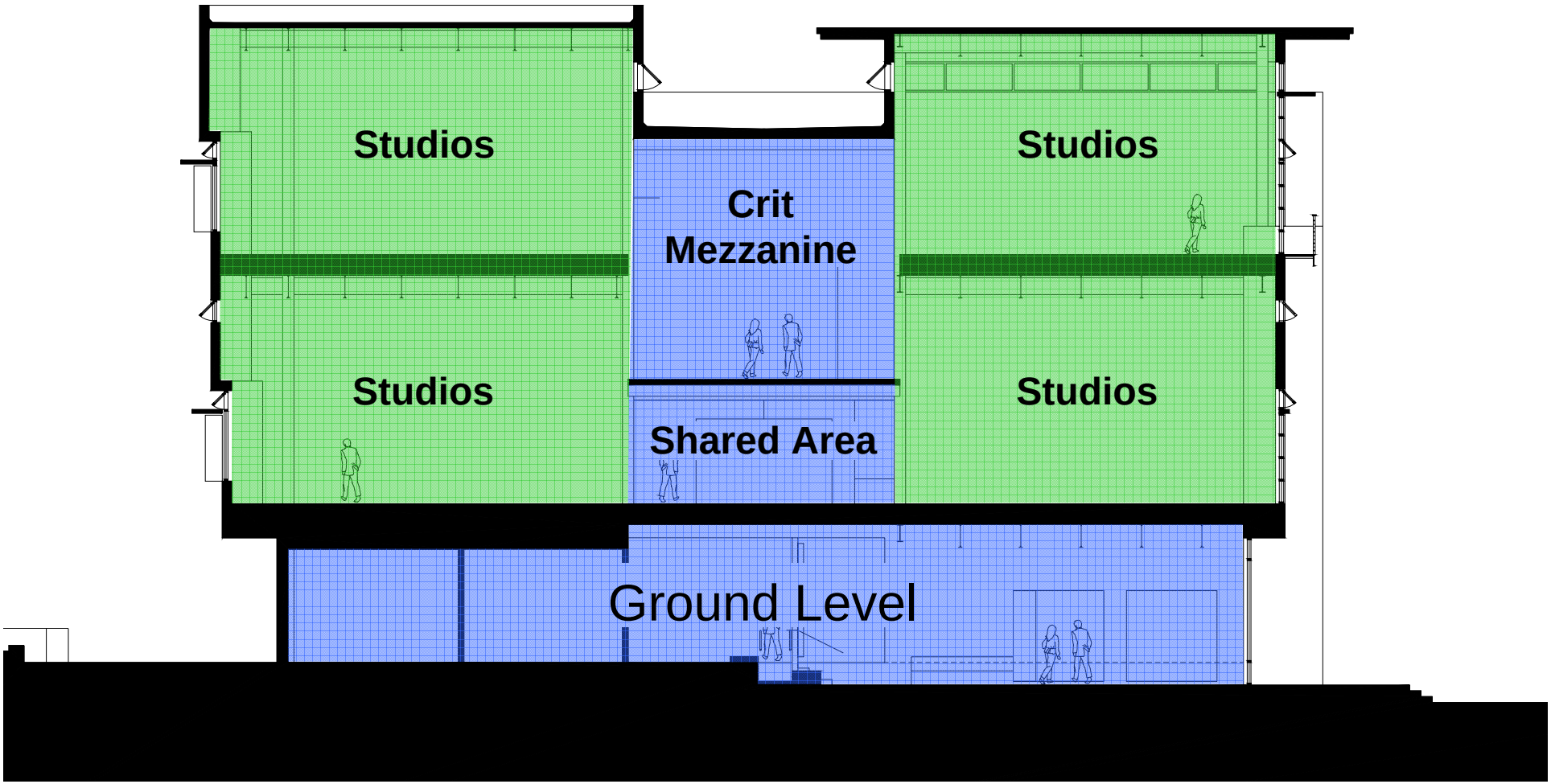
Level 3


Mech.
Open to Studios Below
Crit. Mezzanine
Faculty Offices
Archives
Mech.
Grad. Studio
Open to Studios Below

Level 4


Mech.
Studios
Open to Below
Open
Faculty Offices
Research
Mech.
Studios

Cross-section Diagram

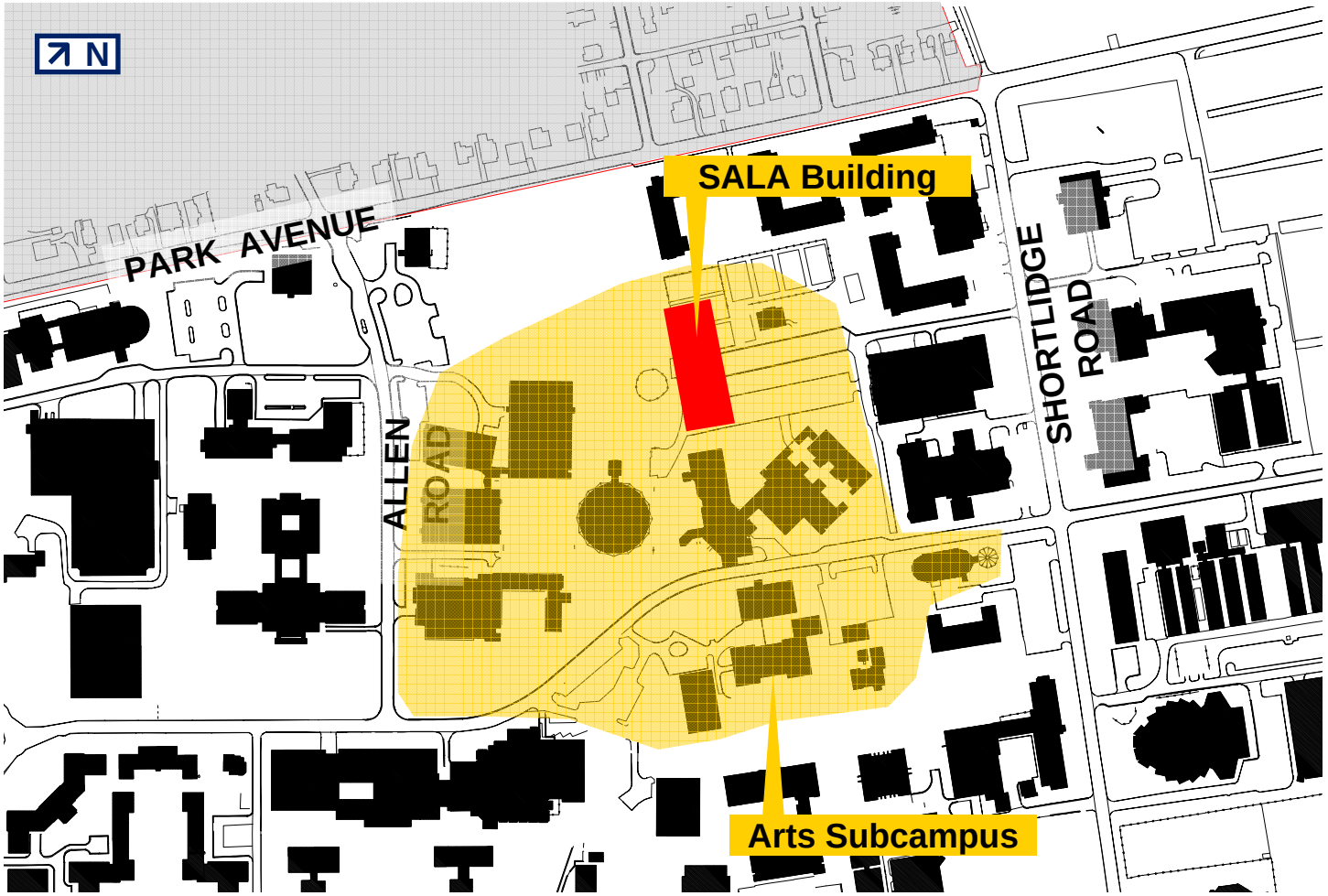


School of Architecture and Landscape Architecture

Area: 110,400 GSF
Total project cost: $27,550,000
Architects: WTW, Pittsburgh, PA/ Overland Partners, San Antonio, TX
Construction Manager: Whiting Turner
Completion Date: May, 2005
Funding: University Central Administration and gifts

Sustainable Sites 9/14 points

- Site selection



Sustainable Sites 9/14 points

- Alternative transportation

Sustainable Sites 9/14 points

- Reduced site disturbance

Sustainable Sites 9/14 points

- Stormwater management

Sustainable Sites 9/14 points

- Reduce heat islands (roof)

Sustainable Sites 9/14 points

- Light pollution reduction

Water Efficiency 3/5 points

- Water efficient landscaping
- Water use reduction (20%)

Energy and Atmosphere 7/17 points

- Optimize energy performance (30%)

Energy and Atmosphere 7/17 points

- Additional commissioning

Energy and Atmosphere 7/17 points

- Reduction in Ozone depletion

Energy and Atmosphere 7/17 points

- Green power

Materials and Resources 7/13 points

- Construction waste management

Materials and Resources 7/13 points

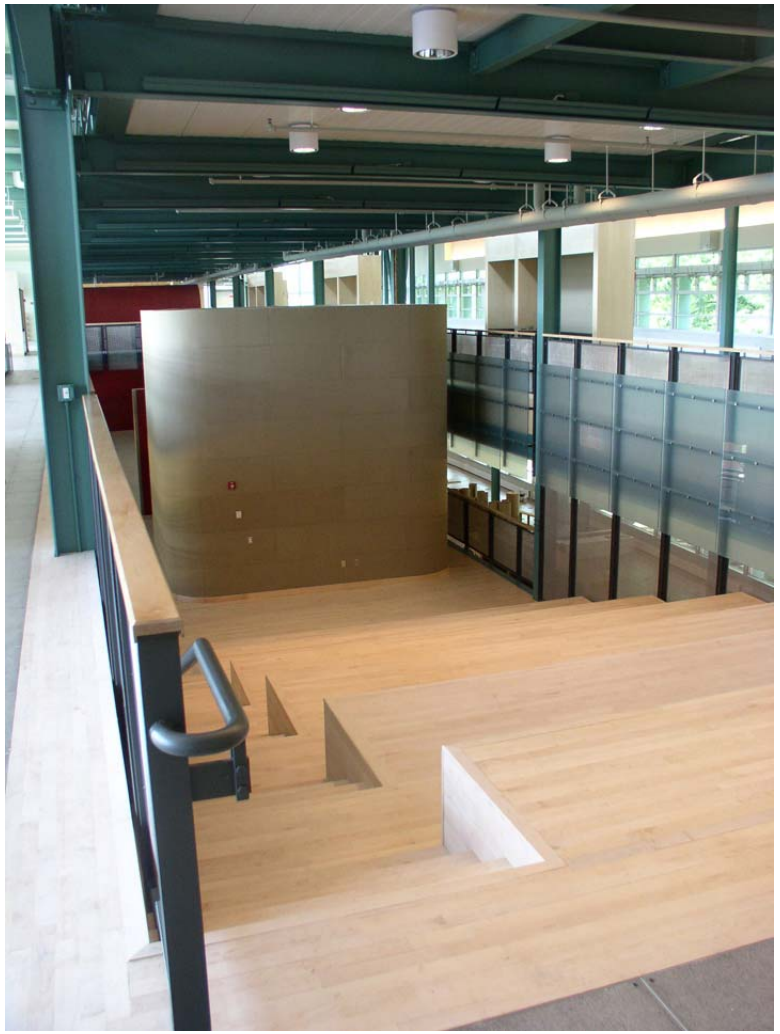
- Recycled content (10%)

Materials and Resources 7/13 points

- Local / regional materials

Materials and Resources 7/13 points

- Certified wood



Indoor Environmental Quality 12/15 points

- Carbon Dioxide monitoring

Indoor Environmental Quality 12/15 points

- Ventilation effectiveness

Indoor Environmental Quality 12/15 points

- Low-emitting materials

Indoor Environmental Quality 12/15 points

- Indoor chemical and pollutant source control

Indoor Environmental Quality 12/15 points

- Controllability of systems

Indoor Environmental Quality 12/15 points

- Daylight and views (90%)

- Construction IAQ management plan

Innovation and Design Process 3/5 points

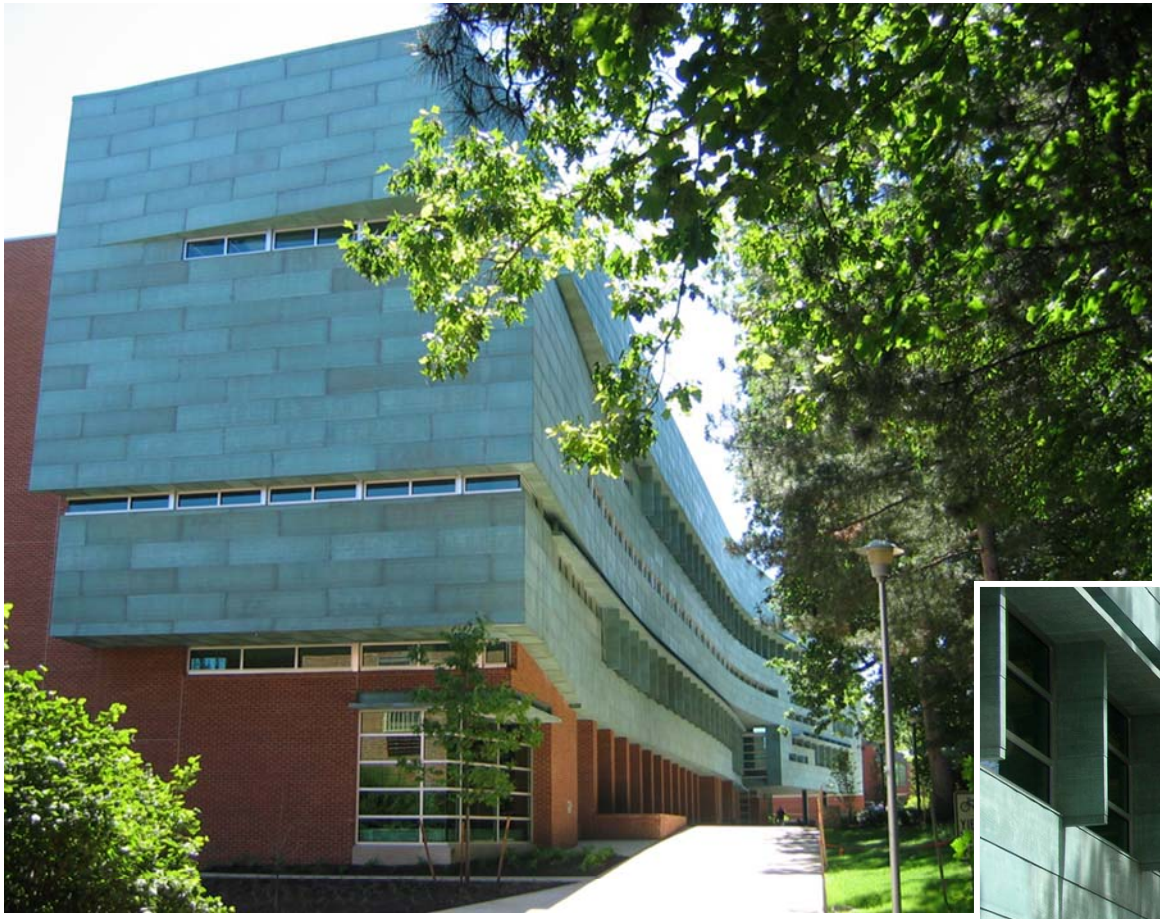
- Building as Teaching Tool

- Green Power

- LEED accredited professional

On Track for Gold Rating 41 points

On Track for Gold Rating 41 points



Why do this?

- Concern about deterioration of the environment.
- Concern about depletion of natural resources.
- Reduction of operating costs.
- Enhancement of conditions in the work place environment.
- Improvement of regulatory compliance.

Key Factors for Success

- Total buy-in and support from top administration levels.
- Establish realistic goals.
- Coordinated effort with broad participation.
- Demonstrable economic benefits.
- Coordinated communication and educational effort.


"We do not inherit the Earth from
our Ancestors,
we borrow it from our Children."


David Zehngut, AIA
University Architect
dxz3@psu.edu