

## 2008-2009 Projects Portfolios

*Submitted by Thomas J. Archer, Project Manager*

The University's commitment to innovation was executed this year through several renovations and equipment acquisitions. The Ravenhill Chapel was converted for use as architectural studios, and a new textiles research laboratory was established in Hayward Hall. However, perhaps the most intense and interesting of all of the projects has been the planning for the conversion of the Hughes building to a new Graduate School of Architecture which is scheduled for occupancy in July 2010. Improvements in other buildings include HVAC control upgrades, new lighting, paint, and carpeting. Schematic planning was completed for several Grant submissions that include the construction of a new research building in the rear of Hayward Hall and along Henry Avenue, renovations to two research labs within Hayward Hall, and a new geothermal HVAC system for The SEED Center, formerly the Hughes building. A summary of these projects and others follows.

### **The SEED Center (Center for Sustainability, Energy Efficiency & Design) – Formerly the Hughes Building - and Its Conversion to Studios for the Graduate School of Architecture**

An extraordinary endeavor by the University this year is the construction for the conversion of the Hughes building from one for athletic instruction to a new Graduate Center for the School of Architecture, which will house the Interior Design, Construction Management and Sustainable Design programs. Now in the Design Development stage, the planning for this project began in April with the selection of a Design/Build firm of Stanker & Galetto in conjunction with the architectural firm Speiezle Group. The planning for the design is unique in that the design group made up of faculty and staff actually includes students enrolled in the Graduate Studies Program at the University.

This will be a LEED certified project, and a mezzanine level is planned for additional space. Planning is on-going with construction to start March 1, 2010, and ready for classes on July 16th.



*Existing Hughes Building*



*Conceptual Image*

## Hayward Hall, Room 030 - Bio-Medical Textile Structure Lab

The first major project that was completed this year was the new Bio-Medical Textile Structure Lab, which is located in Hayward Hall Room 030. In order to build this lab, it was necessary to relocate the existing Hand-weaving program, and it also dictated the relocation of several faculty members to other spaces within Hayward Hall. The majority of the work associated with this project was electrical in nature, and required a power shut-down to several buildings to allow the tie-in of new panels and circuits.

After a seamless relocation of Hand-weaving into Hayward Room 005, demolition and construction then began in Room 030. As part of this renovation, the window air conditioners were replaced with ducted cooling. The first machine to be delivered was the MAG Fadal vertical milling machine, which was graciously donated by Philadelphia University alum, Mo Meidar '70. Next, the Herzog Braiders and the MAGEBA Loom were delivered. These were acquired through a grant from the Commonwealth of Pennsylvania Department of Community and Economic Development, Ben Franklin Technology Department Authority. The Lab was operational as of October 22, 2009.



*Relocated Hand-weaving Program*



*The MAGEBA Loom*



*Jacquard Head for the Loom*



*MAGEBA Warping Machine*



*MAG Fadal Vertical Milling Machine*



*Herzog Braiders*

## **Ravenhill Chapel – Retro-Fit for Architectural Studios**

Innovation of existing space was successful through the necessary retro-fits that were performed, which permitted the Chapel to be occupied as studio space for the School of Architecture.

In order to accommodate forty-eight students, the electrical system was upgraded and re-wired for a new air conditioning system. New life-safety door hardware was installed, as well as security and fire alarm systems. New doors were added at the Chapel's Mott entrance and at the Mott breezeway entrance, with new electric door actuators that can be controlled by an ADA wireless button, card reader, or a wall mounted push-plate. New studio tables, chairs, and mobile partitions were added along with a new scanner, plotter and PCs.



*Ravenhill Chapel Architectural Studios*

### **Weber Hall – Laser Cutting Room**

A Laser Lab was constructed within Weber Hall's Fabrication Shop. The Lab was planned and constructed for two CNC Laser Cutting Machines with an external exhaust for two machines. The Lab is air-conditioned and is currently occupied by one machine with the associated PC and software. The room construction and exhaust system were out-sourced, and the re-work of the electrical system to support the project was performed by Physical Plant electricians.



*The Laser Lab*



*Laser Cutting Machine*

## **Improvements to Building Utilities and Cosmetic Upgrades**

There were several projects related to upgrades to existing buildings and equipment that were completed during the past year. These projects included an upgrade to the heating controls in Hayward Hall; interior improvements and new lighting in the common areas of Downs Hall; painting of the residence halls by student paint crews under Physical Plant supervision; and the installation of pavers outside Partridge Hall.

### **Hayward Hall – Heating Control Upgrades**

The heating control upgrade in Hayward Hall involved the installation of new temperature sensors, control valves, and a programmable controller to better moderate and control the heat in the building. The scope of the project included new temperature sensors installed at each end of the hallways to monitor the temperature on each floor. The temperatures are then fed to a programmable controller located in the boiler room. The controller operates the boiler and two steam control valves to provide heat to the building. Individual room heat control is still available through operation of manual control valves at each radiator. The new controls are expected to provide improved temperature control within the building during the heating season, as well as improving the energy efficiency of the heating system.

### **Downs Hall – Hallway Upgrades**

Downs Hall received the attention of Physical Plant personnel and some contractors over the summer as the hallways and stairways were repainted, new carpet was installed, and new light fixtures were provided. The project was a complete interior makeover of the common areas. Physical Plant painters provided much of the labor in applying the new wall finishes while flooring and lighting was installed by outside contractors. The result was a noticeable improvement.



*Downs Hall Corridors*

### **Resident Halls and Town Houses – Re-Painting Utilizing University Student Painters**

Student painters, trained by Physical Plant painters, were hired once again over the summer to assist with repainting of the residence halls and other areas. The crews completed their normal responsibilities of repainting all of the residence hall rooms. Physical plant staff also participated in the painting effort by painting the interiors of all twenty townhouses, including the ceilings.

### **Partridge Hall – Sidewalk Paver Installation**

At Partridge Hall, sidewalk pavers were installed where patches of dirt were surrounded by sidewalk. Previous efforts to grow grass had been unsuccessful due to the amount of foot traffic in the area. A paver design that leveled the area with the surrounding sidewalks now provides a much improved aesthetic look for the area. With the addition of a couple of umbrella tables, the paved area is now used as a spot for students to congregate during nicer weather.

### **Ronson Hall - Installation of Carpet Tile.**

Ronson Hall received a new brighter look with the installation of carpet tiles in the common areas, hallways, and the recreation room.



*Ronson Hall Recreation Room*

## **Grant Proposals for New Initiatives**

The university's faculty and support staff, in conjunction with architectural and engineering firms, worked tirelessly over the summer on several construction initiatives that have been submitted to various government funding agencies. A summary of each of these projects follows.

### **Philadelphia University Research Center for Advanced Fibrous Materials Analysis and Innovation (PURC)**

*Proposal submitted to the National Institute of Standards and Technology, U S Department of Commerce (\$8,004,556 grant requested towards a project cost of \$19,613,829)*

The PURC project consists of a new three-story 30,906 gross square foot (GSF), state-of-the-art science research facility with related site work. The new program focuses on providing high-quality laboratories addressing flexibility, vibration, environmental, material movement, and efficient service distribution criteria important to current and future research needs. Laboratories will be modular, using a 22'x36' module for a nominal 800 SF module size.

The overall program distribution calls for 2,080 GSF on the Ground Floor, 14,007 GSF on both Levels 1 and 2, and 812 GSF on the Roof. A combination passenger/service elevator and pair of fire stairs serve all three occupied floors, and accommodate roof service access and egress requirements. PURC will connect to the existing three-story 85,000 GSF Hayward Hall classroom and laboratory building on all three levels.

The form of the new rectangular facility (approximately 275 feet long by 55 feet wide) will be skewed 7° relative to the west facade of Hayward Hall, forming an open-air courtyard between the two buildings. A new 67-space parking lot, to meet zoning requirements, will be part of the project site work and will be located on the facility's west side. Approximately half of the at-grade parking spaces will be located under the building's first floor level. New landscaping is

planned in the open-air courtyard, around the building and along Henry Avenue. In addition to building access links that will be provided directly from Hayward Hall on each floor, primary entry into PURC will be provided at the Ground Floor directly from the parking lot.

### **Philadelphia University Scientific Reasoning / Inquiry-Based Education and Research**

#### ***Proposal submitted to The National Science Foundation (\$1,981,892.00)***

Philadelphia University and its School of Science and Health have respectfully requested a grant in support of its project, *Philadelphia University Scientific Reasoning/Inquiry-Based Education and Research*. This project would renovate a chemistry research/research training suite that was first built in 1949, last renovated in 1983, and it includes a general chemistry lab, an organic chemistry lab, a chemical storage room, a balance room, and research space for faculty and students. The facility is 3,500 square feet, divided into 6 smaller spaces, and serves students and faculty 13 science, health and engineering majors. The facility is also used for several outreach programs for high school and middle school students including no-cost science camps, engineering camps, and “Science Discovery Day” seminars. In this highly technical global society there is a critical need to maintain a robust science and engineering workforce to sustain our competitiveness in STEM fields. In such an environment the need for new science teaching facilities that support innovative teaching methods is essential: the redesigned laboratory space supported by a grant to this project will serve as a model for science and research education across the greater Philadelphia region.

### **The SEED Center (Center for Sustainability, Energy Efficiency & Design), formerly the Hughes building**

#### ***Proposal submitted to PA Conservation Works, a grant that was formed as a result of the American Recovery and Reinvestment Act of 2009 (\$250,000.00)***

A major goal in the development of The SEED Center was to provide a sustainable project that will be LEED certified, and will be consistent with the Keystone Principals. Under the LEED energy and atmosphere requirement, our goal was to optimize the building’s energy performance by improving both the building envelope and the heating and cooling systems to be 30% over the base building. Also looked at was sustainable energy.

The goal to be consistent with the Keystone Principals is met by a number of criteria. The project avoids high hazard locations; it does not impact environmentally sensitive areas. The project is a previously developed site, rehabilitating and reusing an existing building. There is existing transit, and it utilizes existing water and sewer, at a reduced rate. The project does not impact or encroach on the existing site that includes mixed use, sidewalks, walkways, bikeways and open space consistent with a campus atmosphere, with streets accessing public streets.

The design of the project meets the objective of energy savings and improved environmental benefits by following LEED guidelines, including reduced heat island effect, reduced water and

sewer flow, use of recycled materials, reduction of waste, material reuse, improved air quality, and day lighting.

Meeting the objective of 30% energy improvement will require installation of a geo-thermal heat pump system.

**Environmental and Energy Benefits:**

The environmental and energy benefits are based on an energy model performed on an eQuest Energy Simulation model. The overview of the calculations indicates a baseline annual energy bill of \$41,605.00. By providing the ground source heat pump system, the model assumes a total annual energy bill of \$27,179.00 or a 34.7% improvement.

The improvements reduce both electric and natural gas use. Reducing the electric consumption by 41,320 kilowatt hours/year results in the following pollutant reductions, according to the Energy Information Administration:

<u>Pollutant</u>	<u>Reduction in pounds/year</u>
SO2	359.31
NO2	74.34
CO2	51,501.10