

**PSPE PHILADELPHIA CHAPTER
OUTSTANDING ENGINEERING ACHIEVEMENT AWARD NOMINATION FORM – 2018/2019**

Project Information:

Name of Project:

Swarthmore College New Palmer, Pittenger, Robert's Residence Hall

Location of Project:

Swarthmore, PA

Description of Project, Include specific details (use two additional pages if necessary):

See attached.

**Project Team Member List also attached*

Construction Cost: \$ 17 Million Completion Date: 07/06/18 Project or component must be complete in 2018

Primary Engineering Disciplines Represented by the Project (check those that apply):

Mechanical _____; Electrical _____; Civil x; Structural _____; Chemical _____

Organizations/Firms That Contributed to the Project and are Responsible for the Achievement (provide additional sheets as required):

Names: DIGSAU

Phone: 215.627.0808 x102

Address: 340 North 12th Street, Suite 421, Philadelphia, PA 19107

Email: jgoldstein@digsau.com

Contact Person: Jeff Goldstein, AIA

Title: Principal

Client/Owner:

Names: Swarthmore College

Phone: 610.690.2063

Address: Facilities Management Dept., 500 College Ave, Swarthmore, PA 19081

Email: ssmythel@swarthmore.edu

Contact Person: Susan Smythe

Title: ADA Program Manager/Project Manager

Submitted by:

Firm/Organization: Langan Engineering & Environmental Services, Inc.

Phone: 215.845.8967

Signature: 

Email: ekucowski@langan.com

To be Presented on December 6th by: Kyle MacGeorge, PE, LEED AP, Project Manager

Email: kmacgeorge@langan.com

Cell Phone: 302.465.5705

A \$50 Entry Fee is required and is to be submitted with the Nomination Form.

The entry fee is to be made payable to PSPE, Philadelphia Chapter.

Nomination is due: November 19, 2018 Presentations: Thursday, December 6, 2018

Send by Email or Fax Nomination to: oca@pspe-philly.org or 215-885-3732

Payment of the Application Fee may be check or by credit card.

To pay by credit card, click to [PAYPAL BUYNOW](http://www.pspe-philly.org/oca/entryfee.htm) button on our website <http://www.pspe-philly.org/oca/entryfee.htm>

To pay by check please mail to:

Fredric L. Plotnick, Ph.D., Esq., P.E. Chairman, Outstanding Engineering Achievement Awards

261 Old York Road #732, Jenkintown, PA 19046 Phone: 215-885-3733, Fax: 215-885-3732,

email: oca@pspe-philly.org or oca@fplotnick.com or fplotnick@fplotnick.com

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Attachment #1 – Project Description

Swarthmore College Palmer, New Pittenger, Roberts Residence Hall Swarthmore, PA

Swarthmore College is a well-respected private liberal arts institution, located in Swarthmore, Pennsylvania. The college, which was founded in 1864 by a committee of Quakers, dropped its religious affiliation in 1906, but retained its Quaker values of environmental stewardship and sense of community. These values can be seen in the college's culture and commitment to sustainability. Swarthmore's NPPR project is a new suite-style residence hall, housing 128 students on the southern-most tip of the Swarthmore campus—an area that has been traditionally used primarily for athletics. The new facility creates a quadrangle with three existing dormitories—Palmer, Pittenger, and Roberts. This expansion is anticipated to double the student residence population in this part of the campus, heighten the sense of school community at this location, and improve the interconnection between the college campus and the Swarthmore Borough community.

Retained by the project architect, Langan provided site/civil engineering, survey and geotechnical services to facilitate designing, permitting, and constructing the new residence hall. The project was designed to minimize environmental impact by following the recommendations established in the college's sustainability framework. This framework establishes sustainability metrics, based on industry third-party standards such as LEED version 4. Meeting most of the goals established in this framework is similar to a LEED platinum project. The NPPR project is the first of its kind to be implemented on campus since the Environmental Framework was established in the fall of 2015. Under the leadership of the project team's architect (DIGSAU), and sustainability consultant (Revision Architecture), the team developed a tracking system for this sustainability framework to demonstrate that the project is meeting the framework's goals. The college's intent is to use the tracking system for future campus projects.

The project met the aggressive goals of the environmental framework through various sustainable-design components. Most notably, the project includes geothermal wells for heating and cooling, vegetated roofs, solar panels on the roofs, and a stormwater management system that out performs the state and borough requirements. In addition to the vegetated roofs, this robust stormwater management system includes stormwater-reuse cisterns for laundry and toilet flushing, bioretention areas, porous pavement, an underground infiltration trench, preservation of existing mature trees, and water-quality-treatment devices. The stormwater management practices are installed in series to maximize the treatment benefit and increase the longevity of each of the system components. Perhaps the most novel feature of the project is integration of the building into the baseball stadium's home-run wall. Undoubtedly, this integration will create a world-class college stadium. This feature, although not included in the college's original vision for the building, will provide a valuable asset to the college's athletic program and resident life.

Langan played a vital role in meeting the sustainability goals of the project. Langan's understanding of the college's commitment to sustainable stormwater management and the borough's sensitivity to stormwater runoff issues in this region was critical to developing the stormwater management approach and obtaining regulatory approvals for the project. We lead discussions in several planning and zoning-board workshops and meetings to educate the community on the college's commitment to stormwater management and sustainability. We presented the stormwater management approach for this project as an example of that commitment.

We also worked with the design team to develop a strategy to maximize the sustainability potential of the building roof areas. This strategy included balancing the stormwater benefits of the vegetated roof with the energy benefits of the solar panels. Our design also included collecting rainwater from the solar-panel roof areas for reuse within the building. The runoff from solar-panel roof areas, rather than the vegetated roof areas, was chosen for reuse in order to avoid potential coloration issues from vegetated roof runoff. Working in close collaboration with all key members of the design team to balance

the sustainability goals of the project, while satisfying local and state regulations proved to be an iterative process and a valuable lesson for future projects.

Finally, locating the new building in this previously developed part of the campus was a key component of the college's sustainability goals; however, it presented unique challenges. First, this is a constrained site on which to locate a building of its scale while minimizing impacts on the surrounding dormitories, abutting baseball field, and existing utility and stormwater infrastructure. Langan's expertise with working in restrictive urban sites proved vital in helping the college navigate these challenges. We worked with the design team's landscape architect (Studio Bryan Haynes) to creatively incorporate paving materials that are conducive to pedestrian use, satisfy the need to support fire truck loads for safe access by the local fire department, and meet stormwater management goals. The final design proposed pervious pavements, pervious pavers, and structured-lawn areas to support fire truck loads and maximize the amount of pervious surface on site to minimize the site's stormwater runoff.

Langan's experience with designing and permitting innovative stormwater management on tight urban sites was a key contribution to the success in the design and approval process for this project.