



URSINUS COLLEGE

Permeable System Helps Meet Goals for Sustainable, Multi-Use Collegiate Outdoor Space

LOCATION:

Collegeville, Pennsylvania

PRODUCTS:

Aqua Roc™ II 80mm

INSTALLED AREA:

20,000 sq. ft.

INSTALLER:

The Edgewood Company

ARCHITECT:

Bernardon Architects

ENGINEER:

Woodrow & Associates



Background

In 2020, Ursinus College, in Collegeville, Pennsylvania completed construction of a new Student Commons, located on Collegeville's East Main Street. Architectural firm Bernardon was hired to design the Commons and was given two primary goals: the building had to serve many functions and had to be designed around a historic house already at the main intersection between the college and town. It was going to be the new home for Admissions, with a bookstore and café accessible to the public via the front entrances on Main Street. There would be

study lounges for students near the café, and a multi-purpose room would be available to both the college and the community.

The Challenge

Ursinus College collects stormwater through an existing stormwater collection system that ultimately discharges into the Perkiomen Creek. Over the last decade, the regional drainage area and creek has been prone to severe flooding due to increased impervious land coverage in the growing suburban area. It was important the project limit any increased runoff and minimize local flooding.

The Solution

The existing road to the building was a two-way asphalt drive. Bernardon's designers envisioned turning this space into a new type of roadway that could easily be used as an outdoor plaza and event space. In addition to regular traffic, they envisioned the college hosting food trucks there as part of community-wide festivities. They determined permeable pavement was an ideal solution because it was both a structural paving surface capable of supporting vehicular traffic and a green infrastructure solution for managing stormwater runoff. Working

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in conjunction with the installer, they chose Belgard® Aqua Roc™ II. The blend of colors, Sable with Charcoal and Linen accents, complemented the colors of some of the existing brick buildings on campus and the official Ursinus red.

"Belgard is our number one go-to in concrete paver products, and the installer was also very familiar and happy with it," says Michael S. McCloskey, Vice President and Principal with Bernardon. "It's attractive and durable and has really good ratings for product quality from a vehicle capacity standpoint."

In November 2019, Belgard's Stormwater Engineer Paul Cureton, P.E., provided design input to civil engineers Woodrow & Associates, Inc. to design the permeable pavement. Cureton provided information as to how much aggregate was needed beneath the pavement, how to address the drive lane slope, and how to tie-in the underdrain to the existing storm sewer.

A cross-section that includes a 4" base layer and 12" subbase layer of open-graded aggregate was designed for the approximately 20,000 sf permeable pavement system. An underdrain within the subbase was incorporated with an outlet control structure to control the release of stormwater from the permeable pavement system when needed. Two flow dams were installed along the 300 ft. long drive lane to maximize vertical infiltration into the 2°

sloping subgrade. Because Aqua Roc™ II is palletized for fast and efficient machine installation, the Edgewood Company was able to install the roadway mechanically, saving time and cost.

To meet the design plan for a multi-use space, the road was redesignated a one-way. Parking spaces were defined with lighter colored pavers rather than paint that would require maintenance. Pedestrian areas were designated with removable bollards that can be removed for snow plowing.

Other sustainable features used in the Student Commons include the use of all-LED lighting, outdoor furniture constructed of recycled material, and EV charging stations. The landscaping is also very intentionally natural and free flowing.

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*Michael S. McCloskey
Vice President and Principal with Bernardon*

The Result

Kevin Earley, Director of Commercial Hardscapes for Belgard Commercial, has been performing surface infiltration rate testing since 2020. He will analyze the change in infiltration rates over time and the information will be used to forecast future maintenance. To date, the infiltration rates remain high, and no surface runoff is occurring.

With the installation of Belgard permeable pavers, Ursinus achieved its goal of having a sustainable green infrastructure with minimal impact on the watershed, and the Student Commons successfully serves both the campus and local community.

About Belgard Commercial®

Belgard Commercial, part of Oldcastle® APG, offers a complete collection of paver and wall products for plazas, terraces, parking areas, roadways, rooftops and retaining walls. Available in a range of styles, premium Belgard Commercial products have been found in the nation's finest developments and award-winning commercial and retail properties since 1995.

Oldcastle APG is part of CRH's Building Products division. As the largest building materials company in North America, CRH provides a single-source solution for commercial construction projects with a full portfolio that also includes structural masonry, masonry veneers, dry mix products, hardscape jointing sands and sealants, stormwater management systems, concrete infrastructure, architectural glass, lawn & garden products, and composite decking.

