

ENTRY FORM



DVASE 2021 Excellence in Structural Engineering Awards Program

PROJECT CATEGORY (check one):

Buildings under \$5M		Buildings Over \$100M	
Buildings \$5M - \$15M		Other Structures Under \$1M	
Buildings \$15M - \$40M	X	Other Structures Over \$1M	
Buildings \$40M - \$100M		Single Family Home	

Approximate construction cost of facility submitted:	\$17 M
Name of Project:	The Shirley Quadrivium Center
Location of Project:	The Hill School (Pottstown, PA)
Date construction was completed (M/Y):	07/2020
Structural Design Firm:	CVM
Affiliation:	All entries must be submitted by DVASE member firms or members.
Architect:	SMP Architects
General Contractor:	Wohlsen Construction

Company Logo (insert .jpg in box below)



Important Notes:

- Please .pdf your completed entry form and email to bsagusti@barrhorstman.com.
- Please also email separately 2-3 of the best .jpg images of your project, for the slide presentation at the annual virtual presentation and for the DVASE website. Include a brief (approx. 4 sentences) summary of the project for the DVASE Awards Presentation with this separate email.

- Provide a concise project description in the following box (one page maximum). Include the significant aspects of the project and their relationship to the judging criteria.

Located high on a hill that overlooks Pottstown is the 200-acre campus for The Hill School, a prestigious preparatory boarding school serving over 500 total students across grades 9-12. The Hill was founded in 1851 and is a member of the Ten Schools Admissions Organization. The school was determined to build a new STEM facility to house learning spaces for Science, Technology, Engineering, and Math. Rather than build a new facility, they elected to utilize two historic classroom buildings on campus in need of renovation to create the new Shirley Quadrivium Center.

The two 1930's brick structures were constructed just a few years apart and had a similar architectural style but were separated from each other by a 60-foot gap. The architect envisioned a new addition linking the historic buildings together, along with a complete renovation of the two existing buildings creating a large facility suitable to house the STEM program. The historic buildings house classrooms for math and technology, while the new central link provides state-of-the-art engineering, chemistry, biology, and physics labs.

The renovations to the two original buildings consisted of removal and replacement of stepped slab-on-grade that once served as a stage to create a new classroom space, several new door openings in masonry walls requiring new lintels, new floor penetrations in reinforced concrete joist system for mechanical ducts, the removal and infill of an existing stair, and the addition of new exposed steel beams with penetrations within a lab space to support experiments from. At the exterior of the original buildings, the existing masonry façade was restored at several locations after repairing damage from years of moisture infiltration into the building envelope. The existing slate roof system was restored on the original buildings as well.

Connecting the existing western building into the campus's mechanical systems was an underground tunnel suffering from moisture infiltration that affected its concrete roof slab and masonry wall construction. The tunnel was exposed, and new concrete walls built on the exterior of the existing masonry walls to reinstate support for the concrete roof slab and to create a new surface for waterproofing. The existing concrete roof slab was repaired in several locations and the tunnel wrapped in new waterproofing. All work was completed while the tunnel remained active.

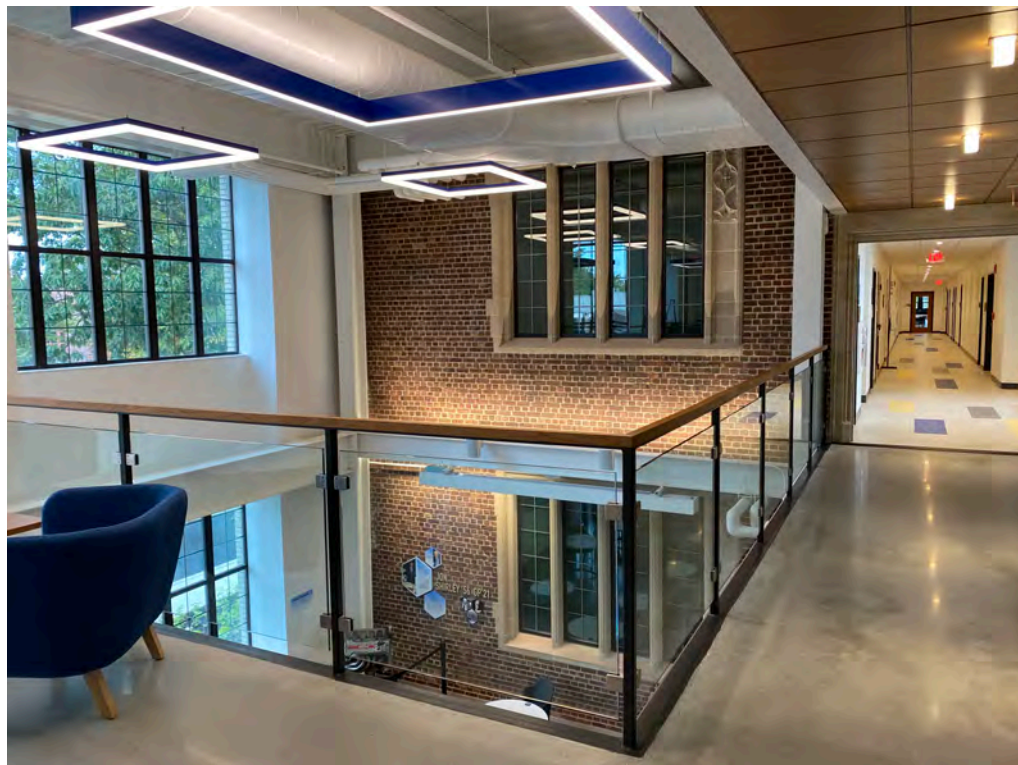
The addition, a three-story steel moment frame structure with full basement, is nestled between the two adjacent buildings, joining the spaces together while isolated by expansion joints between each. The floor elevations of the two existing buildings did not line up, so the addition creates the transition by aligning its floors with the eastern existing building and transitioning to the western existing building by means of stairs at the elevator lobby. The elevator with CMU shaft walls and a reinforced concrete elevator pit serves all three floors and the basement, with stops at each floor level to provide ADA access to the entire building. The building is built into a hill with rock close to the finish grade as the hill slopes down, so foundations and the elevator pit were challenging to locate while limiting rock excavation. The basement of the new addition was lower than the eastern existing building's basement, so a combination of underpinning and utilizing cut rock faces were employed to create this transition.

In the addition, the existing façades of the adjacent buildings were preserved and exposed at the interior creating an interesting two-story space that features the new steel framing with a backdrop of existing brick façade, decorative limestone window surrounds, and the original windows. These windows were originally twice the length, but essentially cut in half with the limestone salvaged to create new passageways into the existing building. The highlight of the new facility is certainly the engineering program, so to create a unique space at the first floor this program's classroom was located at the entry, which has a large lobby for students to gather. A curved sliding glass wall partition supported from the second-floor framing separates the classroom from the lobby, however it can be opened during public events to create a larger area highlighting all the school's STEM programs. The first floor has a polished concrete floor finish with a stained school seal to create a truly beautiful space, all supported on a framed structural floor system.

- The following 5 pages (maximum) can be used to portray your project to the awards committee through photos, renderings, sketches, plans, etc...



The Hill School's The Shirley Quadrivium Center.



Exposed Steel Framing of new Addition with Original Building Brick Facade Exposed at new Interior Spaces.



Exposed Steel Beams with Penetrations to Support Experiments from in the Integrated Science Lab.



Curved Sliding Glass Partition Wall Separating the Lobby from the Engineering Lab, but can be opened to create a large event space.



*Integration
of new
Addition with
Original
Buildings on
Sloped Site.*



*Underground
Mechanical
Tunnel
Exposed
After
Concrete
Repair of
Roof Slab
and new
Shotcrete
Walls.*



Views from New Addition Over Looking the Borough of Pottstown with Galvanized Framing for Greenhouse Outboard of Building Framing.




New Glass Entrance Projecting from Addition Between Original Buildings.

By signing, signatory agrees to the following and represents that he or she is authorized to sign for the structural design firm of record.

All entries become the property of DVASE and will not be returned. By entering, the entrant grants a royalty-free license to DVASE to use any copyrighted material submitted.

If selected as an award winner, you may be offered the opportunity to present your project at a DVASE breakfast seminar. Would you be willing to present to your colleagues? ☐ YES ☒ NO

Submitted by:

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