ENTRY FORM

DVASE
2018 Excellence in Structural Engineering Awards Program

PROJECT CATEGORY (check one):

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

Approximate construction cost of facility submitted:	$10.8 Million
Name of Project:	Haverford College VCAM (Visual Culture, Arts, and Media) Facility
Location of Project:	Haverford, PA
Date construction was completed (M/Y):	August, 2017
Structural Design Firm:	Keast & Hood Structural Engineers
Affiliation:	**All entries must be submitted by DVASE member firms or members.**
Architect:	MSR Design
General Contractor:	Whiting-Turner

Company Logo (insert .jpg in box below)

KEAST & HOOD
STRUCTURAL ENGINEERS

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 May dinner 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.

The new VCAM (Visual Culture, Arts, and Media) Facility consists of the **adaptive reuse of the 20,000 square foot Ryan Gymnasium**, constructed in 1900, into an all-encompassing arts facility for Haverford College and new home for the Hurford Center for the Arts and Humanities. The project scope involves the construction of **a new, three-story arts and media "box" addition inside of the existing building**. The renovated building was able to successfully solve the challenge of fitting all college program requirements into the existing footprint of the historic building via the addition.

The arts and media box is a freestanding structure comprised of cast in place concrete shear walls at the lower level and steel framing with a slab on composite metal deck at the second and third story levels for use as classroom and studio spaces. **The new addition is structurally independent of the existing building at the upper levels** which allow for the potential movement of the box without applying loads on the existing structure. The lower level concrete shear walls laterally brace the existing first floor which was necessary due to the extensive diaphragm modifications at this level.

The construction of the new addition required the partial removal, reframing, and refinishing of the level one gym floor. Originally timber framed, the building's new design called for a large opening in the gymnasium floor. Reframing of the first floor and the introduction of concrete shear walls was required to **recreate the building's first floor diaphragm**. A new auditorium space at the lower level required large column free spaces and as such, the relocating of existing columns was necessary. As part of the new column layout, an existing in-ground pool that had been infilled with light gage framing was infilled with Flowable Fill and finished with a new slab to allow for support of the new column footings.

The new opening in the original gym floor created room for the box addition and **new circulation entrance at the lower level**, connecting the building back to the lower campus. The new main entrance features a 16' canopy suspended from the existing stone masonry exterior wall. The large gymnasium floor opening also includes a **new, architecturally exposed feature stair**. As part of its design, the art and media box cantilevers out 10 feet at the 2nd level. The box connects via a walkway and stair to the preserved running track for circulation at the upper levels. The connection maintains the box's structural independence through the use of an expansion joint where the landing and preserved running track meet.

Programming for the building includes spaces for a multi-media screening and performance space, film, media, and object study classrooms, seminar rooms, production facilities, white rooms, exhibit spaces, lounges, faculty offices and other ancillary spaces. The box structure houses larger multi-media/ screening and performance space of 40 to 50 seats. **The performance space design involved strict acoustic requirements for performance and recording studio**. Structural design at level 1 and level 2 slabs were 9" slabs on metal deck topped with isolated floor systems to fulfill the strict acoustic and vibration requirements.

A unique project challenge includes the college's **steam and electric utility lines that run through the building and had to remain in operation throughout the project's construction**. The lines were located within a foot of new column footings. The tight construction spacing required careful coordination between the engineers and contractor throughout the project.

The objective for the reuse of the historic building was to carefully place program elements into the structure while still maintaining large open spaces with ample natural light. Keast & Hood meet the project's goals with **a structural design that worked within the confines of the existing building** comprised of stone masonry walls with timber floor framing and exposed steel trusses at the roof while providing the necessary space to meet the needs of the Arts and Humanities Department as well as the performance requirements of the college.

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

Above: Exterior view of the completed VCAM facility with the restored cupola and building exterior. A new entrance was also created, providing a connection to the lower campus.

Left: Detail view of the new entrance. Hanger rods that suspend the canopy from the original masonry pier were necessary to support the new 16’ canopy.

Left: An interior view of the existing Ryan Gymnasium. The building's adaptive re-use preserves the exposed roof truss system, existing running track, and large amount of daylight that fills the space while creating a hub for creativity and a vibrant 21st-century learning environment.

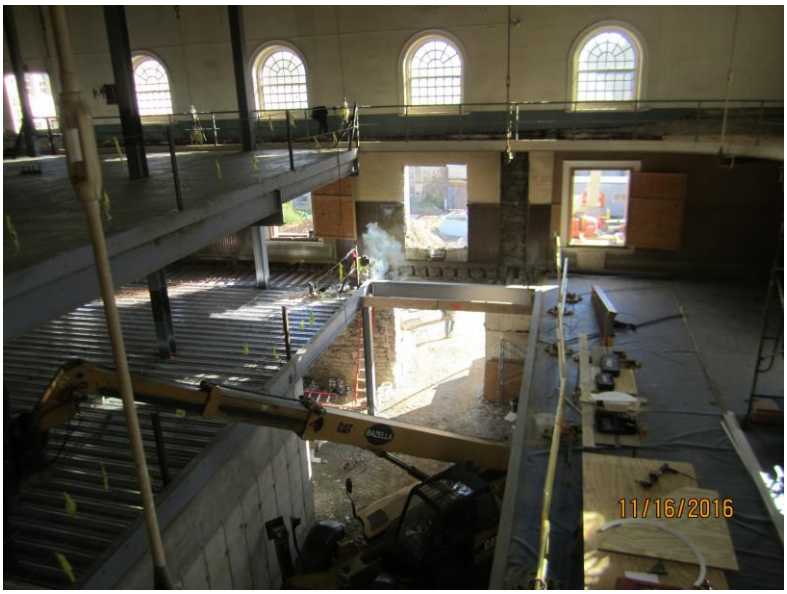
Below: New foundation work for the box structure.

Left: Large opening in the gymnasium floor at the main floor diaphragm. Concrete shear walls were used to laterally re-support the existing structure.

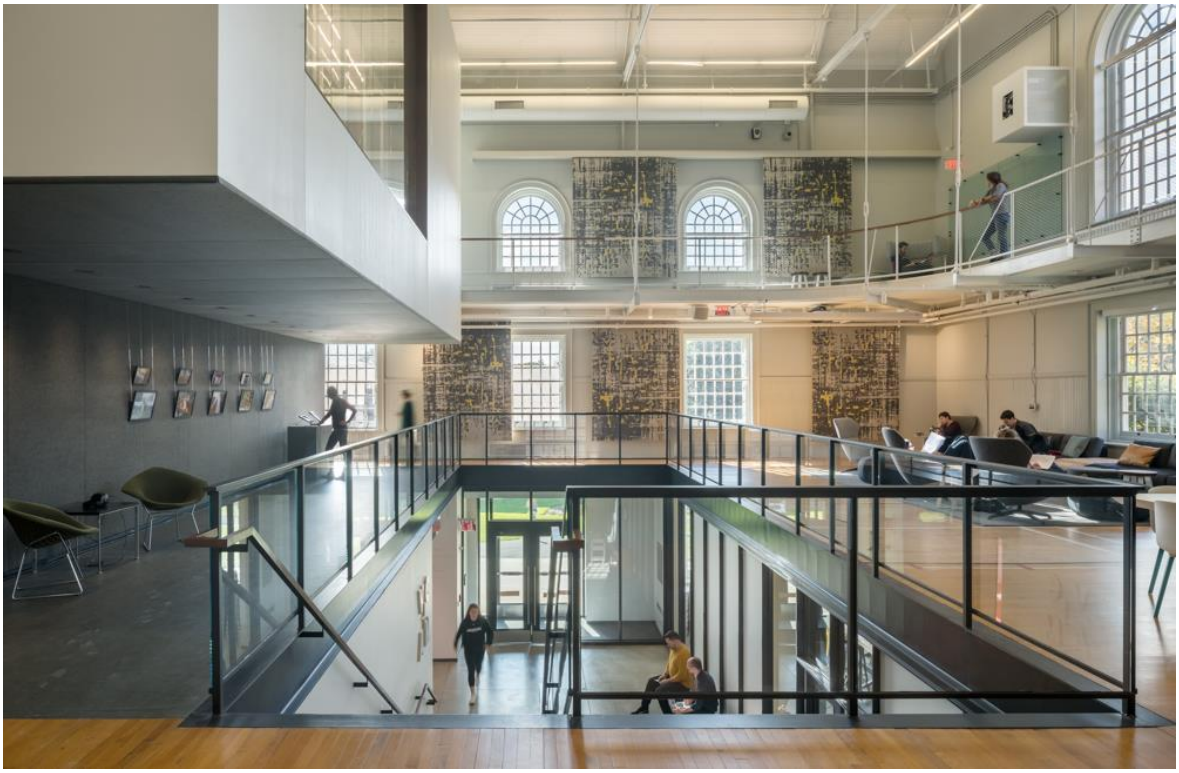
Left: Concrete shear walls laterally re-support the existing structure and provide the necessary acoustic requirements for the new performance space.

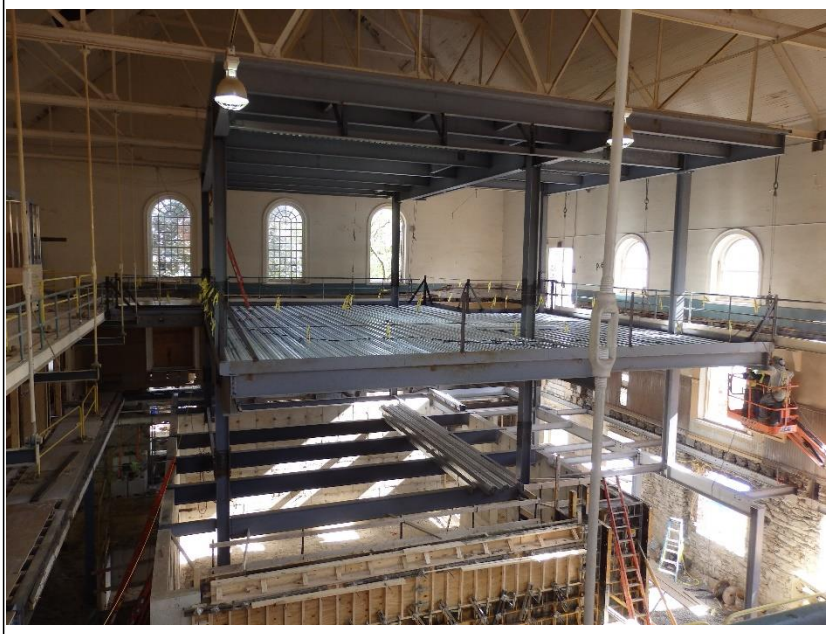
Below: Panorama showing shear walls and preserved running track as well as existing steam pipes that had to remain operational throughout construction.

Right: Opening for new first floor architectural feature stair and opening for a new building entrance as viewed from the existing running track. Box addition levels one and two steel framing in construction.



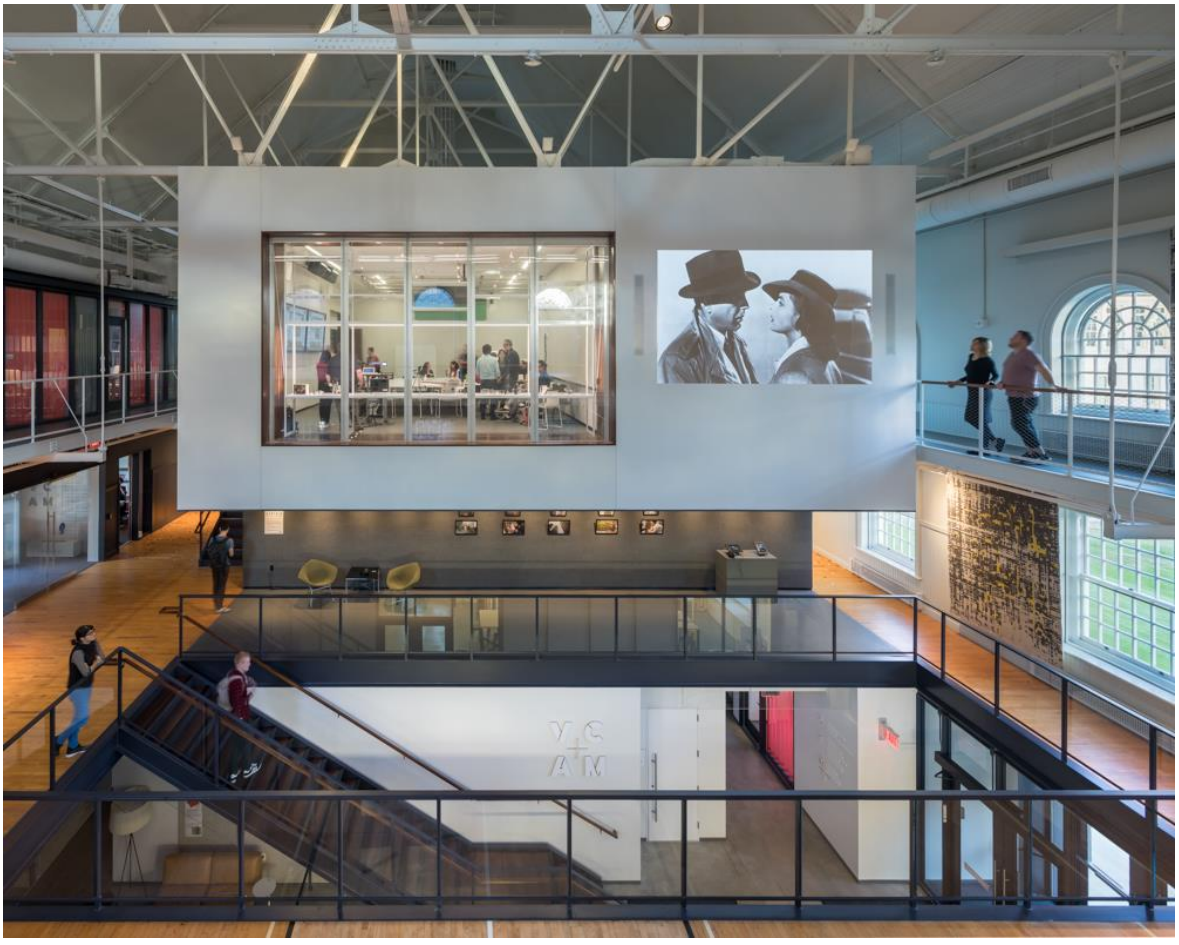
Below: Completed view of the new addition and feature stair from the gym floor which was preserved during construction.





Left: Steel framing for new box addition.

Below: Overall view of the new arts and media box addition completed.



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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