

ENTRY FORM



DVASE 2016 Excellence in Structural Engineering Awards Program

PROJECT CATEGORY (check one):

Buildings under \$2M		Buildings Over \$100M	
Buildings \$2M-\$10M		Other Structures Under \$5M	
Buildings \$10M - \$30M	X	Other Structures Over \$5M	
Buildings \$30M - \$100M		Single Family Home	

Approximate construction cost of facility submitted:	\$20 million
Entry Fee:	FREE
Name of Project:	Arts Research and Culture House (ARCH) Building Renovation, University of Pennsylvania
Location of Project:	Philadelphia, PA
Date construction was completed (M/Y):	January 2014
Structural Design Firm:	Keast & Hood Philadelphia, PA
Affiliation:	All entries must be submitted by DVASE member firms or members.
Architect:	Saylor Gregg Architects
General Contractor:	Torcon, Inc.

Company Logo (insert .jpg in box below)



Important Notes:

- Please .pdf your completed entry form and email to bkoroncai@barrpino.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.

Arts Research and Culture House (ARCH) Building Renovation
University of Pennsylvania
Philadelphia, PA

Arts Research and Culture House (ARCH) underwent extensive renovations. A comprehensive BIM model was used to coordinate the efforts of many disciplines within the complex building structure.

The late Gothic Revival ARCH building, constructed in 1928, contains cultural centers, administrative offices, classrooms, performance areas, and meeting spaces. The design team assessed the feasibility of restoring both the interior and exterior of the building to meet spatial and programmatic needs.

Keast & Hood provided structural engineering for the 29,000-sf renovation including a façade restoration, a new café, a new stair tower, a new second floor auditorium stage, roof reinforcements for a new air handling unit, a bridge to connect corridors for emergency egress, and interior mechanical upgrades with a catwalk for accessibility.

Key structural design challenges included:

- The original 1927 drawings of the complex building were used to create a comprehensive REVIT model, which resulted in unforeseeable clashes between mechanical and structural systems.
- Mechanical systems inserted into and atop the building required more space than the building had to offer. Creative techniques to weave the systems throughout ensued.
- Historic finishes were maintained without destroying building fabric. Two unstable chimneys were tied back to the building with star anchors. To preserve the façade, loose cast stone and masonry elements were repaired and repointed.
- A post-tensioned beam was inserted to replace a wall section for the new stair tower, a three-story addition on the northern side of the ARCH.
- Spatial reconfiguration called for the design of a new mechanical attic space above the third floor, foundation underpinning for a new elevator, and a new below-grade entryway involving complex excavation and wall support.
- The second floor auditorium features movable seating, and can function as a classroom, conference area, or reception hall. The seats are designed to slide on a track system hidden beneath removable floor boards.

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



The ARCH Building (photo © Tom Crane)



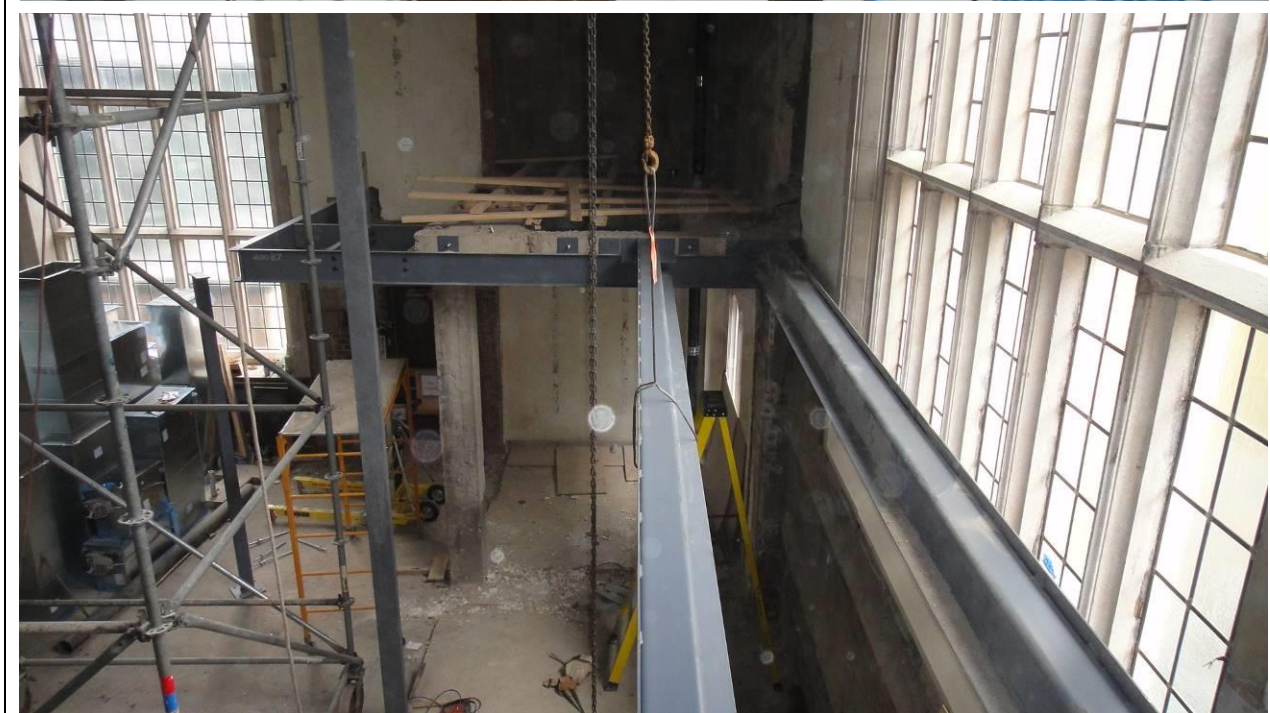
Convertible auditorium with sliding seating (photo © Tom Crane and Jeffrey Totaro)



The below grade level of the ARCH building features study spaces (photo © Tom Crane and Jeffrey Totaro)



A new stair tower was added to the northern side of the ARCH (photo © Keast & Hood)



The photo above shows the removal and replacement of a column. The lower photo shows new structural steel framing. (photos © Keast & Hood)



Construction of the ARCH circa 1928 (photo courtesy of the Christian Association)

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.

Submitted by:

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