ENTRY FORM



DVASE

2017 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	Other Structures Over \$5M	
Buildings \$30M - \$100M	Single Family Home	x

Approximate	\$1 million
construction cost of	
facility submitted:	
Name of Project:	1413-23 Bainbridge Street
Location of Project:	Philadelphia, PA
Date construction was completed (M/Y):	In Progress
Structural Design Firm:	Mulhern + Kulp Structural Engineering
Affiliation:	All entries must be submitted by DVASE member firms or members.
Architect:	LandMark Architectural Design
General Contractor:	Michael Carosella

Company Logo (insert .jpg in box below)



Important Notes:

- Please .pdf your completed entry form and email to <u>bkoroncai@barrhorstman.com</u>.
- 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.

Mulhern and Kulp provided complete structural engineering services for this new 46,000 sq. ft. 4-story "Twin" pair of Single Family Homes. The project consists of two mirrored units, each with 10,800 sq. ft. of living space over a 5,200 sq. ft. 15'-0" deep basement. Each unit also boasts multiple tiered roof decks, including a 1,700 sq. ft. second floor pool deck above the 10 car garage at the rear ground level.

The structural design offered significant challenges, and blended multiple construction materials including reinforced concrete deep basements, reinforced CMU exterior walls, interior steel moment frames supporting wood I-joist floor systems, light gauge metal stud bearing and shear walls, and stepped exterior reinforced concrete terrace slabs. All of these systems had to be designed and detailed to work together structurally, with an eye toward constructability and sequencing. Due to the complexity and size of the construction on a relatively tight site in the city, the build had to be staged and sequenced in a way that allowed the contractors room to work. Because of this, the front half of the structure was designed to be built first and to be structurally independent from the rear half.

The timeline of the design was also extreme, in order for the owner to submit an early foundation permit for construction to begin. From the date of the original design concept, foundation permit plans were completed within 7 weeks, with the rest of the structure completed 4 weeks later.

The aspect of the design that presented the most challenge was the rear pool deck, which the architects designed as a multi-stepped structural concrete terrace slab, with an integrated 4'-0" deep wading pool all supported by a steel frame above the garage. In order to achieve the multiple steps in the terrace and pool, all of the steel frame structure below had to be intricately thought-out and detailed in order to coordinate with the architects' plans. Another challenge that was later abandoned due to cost was the bowling alley in the basement under the garage (which is under the pool). Much of the design work for a sloping elevated garage slab support had been completed prior to the change in scope. However, the final basement design does include a basketball half-court, which had to be sunken below the rest of the surrounding basement, to accommodate the 15'-0" tall ceilings required.

Near the end of the design, the owner requested that the wood floors be designed to accommodate heated marble flooring in every room of the first and second levels, which required some last-minute redesign to support the extra loading and deflection requirements. • The following 5 pages (maximum) can be used to portray your project to the awards committee through photos, renderings, sketches, plans, etc...









**Image by Google Earth

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? **TYS XNO**

Submitted by:		0	/		
Print name:		Signature:	< ///	Date:	
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