

ENTRY FORM



DVASE 2022 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		Other Structures Over \$1M	
Buildings \$40M - \$100M		Single Family Home	<input checked="" type="checkbox"/>

Approximate construction cost of facility submitted:	Undisclosed
Name of Project:	Private Residence
Location of Project:	Ocean City, NJ
Date construction was completed (M/Y):	December, 2021
Structural Design Firm:	Mulhern + Kulp Structural Engineering
Affiliation:	All entries must be submitted by DVASE member firms or members.
Architect:	Asher Slaunwhite Architects
General Contractor:	D.L. Miner 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.

Mulhern + Kulp was excited to be a part of the design team for this unique custom home with beach front views of the Jersey Shore. M+K worked along side Asher Slaunwhite Architects and D.L. Miner Construction to make this modern home design into a reality. As you will see, cantilevers play a big role in the design of this home.

While it is not unusual for custom shore homes to have large openings for ocean views, this particular home was designed with large lift-and-slide doors at the third floor living level, the larger door measuring approximately 28' wide. A key component of the lift-and-slide door is the ability to slide the door open with the push of a finger. To achieve this, deflection of the structural headers is critical, and required large steel frames to span the openings while holding deflection of the headers to 1/8" max. Additional mitered steel ridge beams were required to support the hipped-roof and allowing for a vaulted ceiling inside. While there are many steel-framed elements in this home, we were able to maintain a light-framed wood construction system for the majority of the home. This is the preferred building method for most residential contractors and allows for unique, modern homes without breaking the bank. With all the cantilevered elements in this home, maintaining a mostly wood-framed system required some thoughtful design approaches.

A curve-ball was thrown at us during construction when subsurface conditions revealed an existing boulder sea-wall from the 1960's, buried and long-forgotten, was located along the rear of the site and under the intended rear wall and porch. The existing boulder wall was discovered as piles were being driven and required a fast redesign to keep the project moving. It was determined that the DEP would not permit piles to be located on the opposite side of the boulder wall, and as such, the portions of the home above and beyond the wall would have to be supported via another method. The home is located on an angled site and to move the home back away from the boulder wall was not going to be an option. After some thought and discussion with the design team, we determined that the best method to achieve the design intent would be to cantilever the grade beams over the boulder wall. Supplemental piles were added as close to the wall as possible to support the increased cantilever reactions, and the grade beams were redesigned to cantilever.

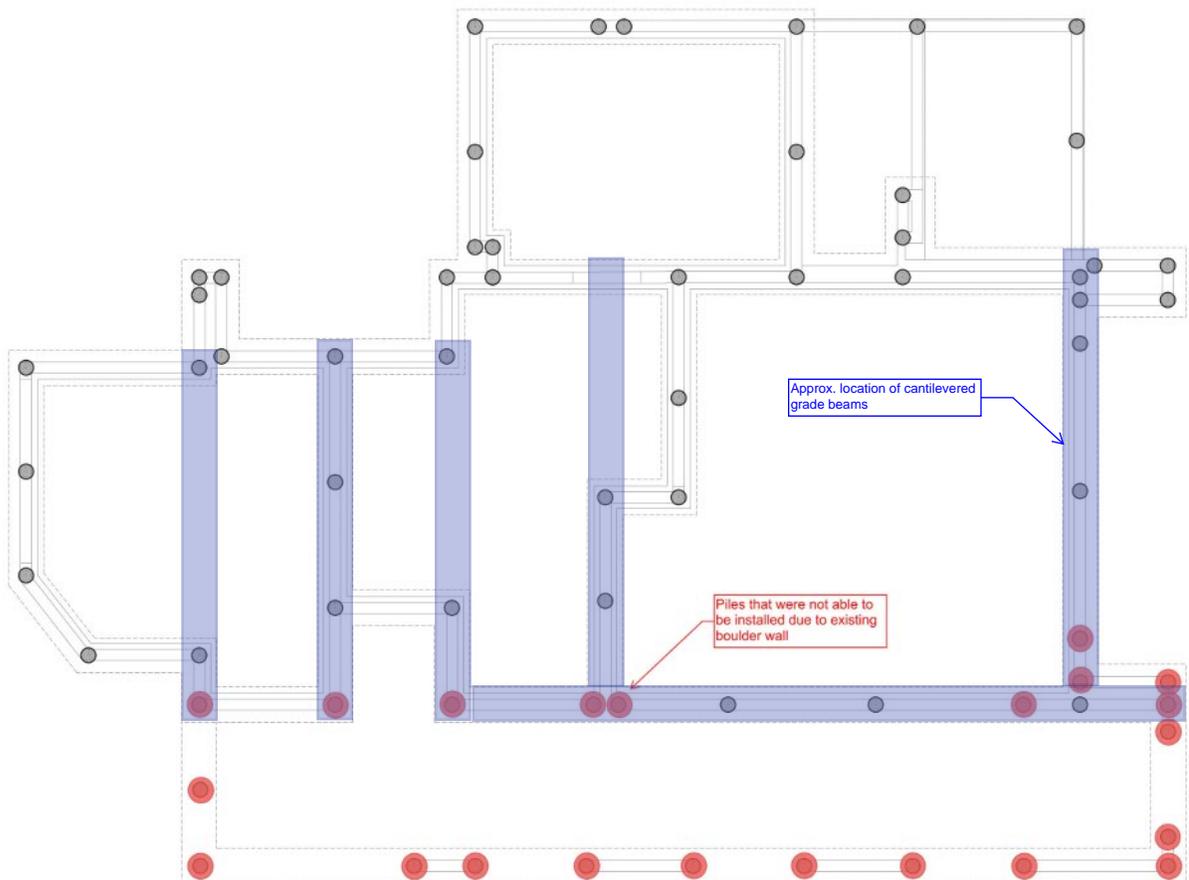
Additionally, the rear 3-story porch was required to extend past the rear house wall and thus required an additional cantilevered structure to support it. After the grade beam design was sent to the field, we commenced on a redesigned second floor framing system with large cantilevered steel beams to support the porch. Through our redesigned framing system we were able to maintain the intended programming of the project with no loss of space for the client.

A few other noteworthy aspects of the project included the thin & flat cantilevered structural eaves (see photos). We achieved this look with shallow LVL members partially lapped with the rafters or ceiling joists. Another stunning architectural feature was the interior floating stair which was designed with mitered steel stringers and cantilevered steel tread supports.

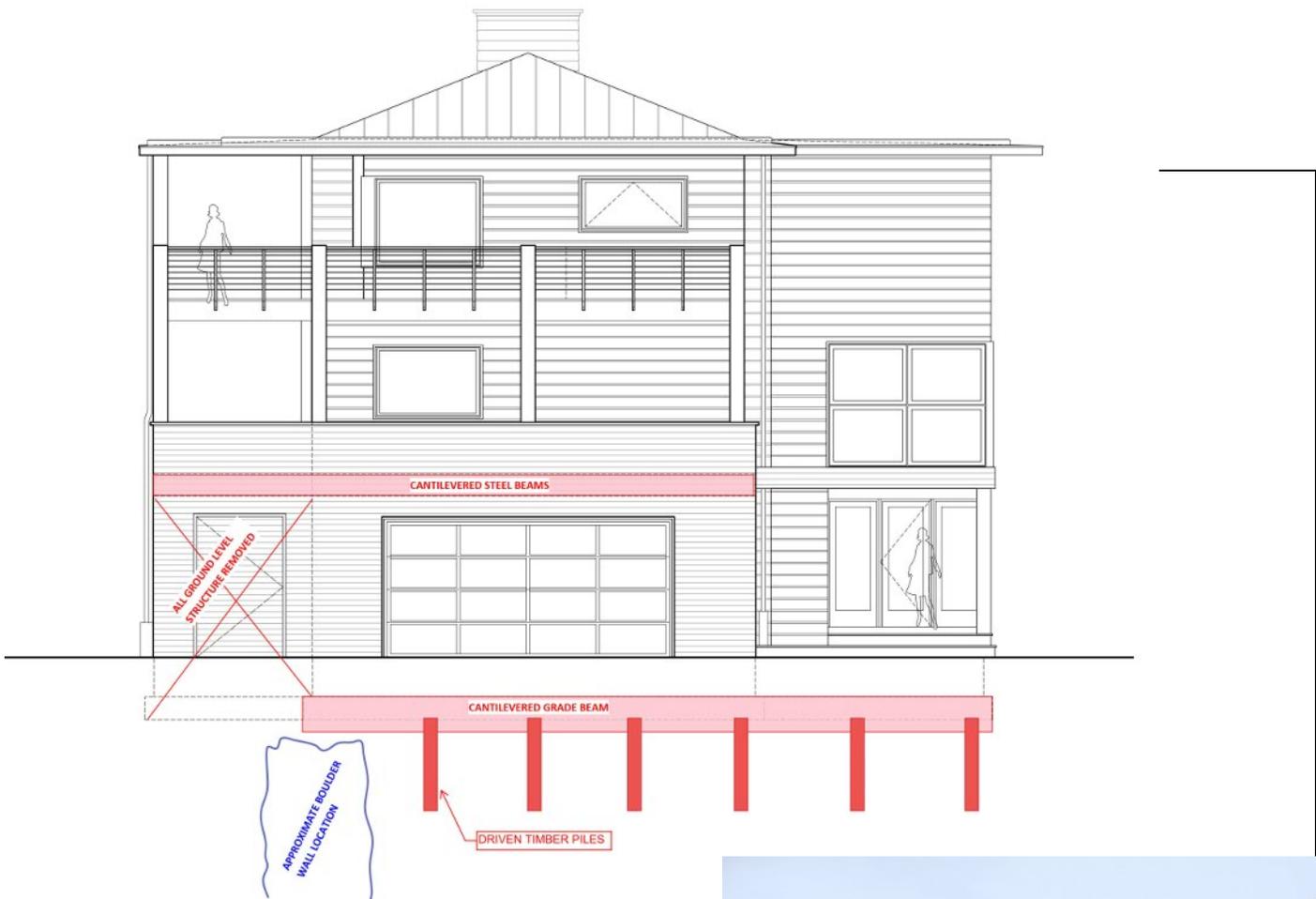
- The following 5 pages (maximum) can be used to portray your project to the awards committee through photos, renderings, sketches, plans, etc...



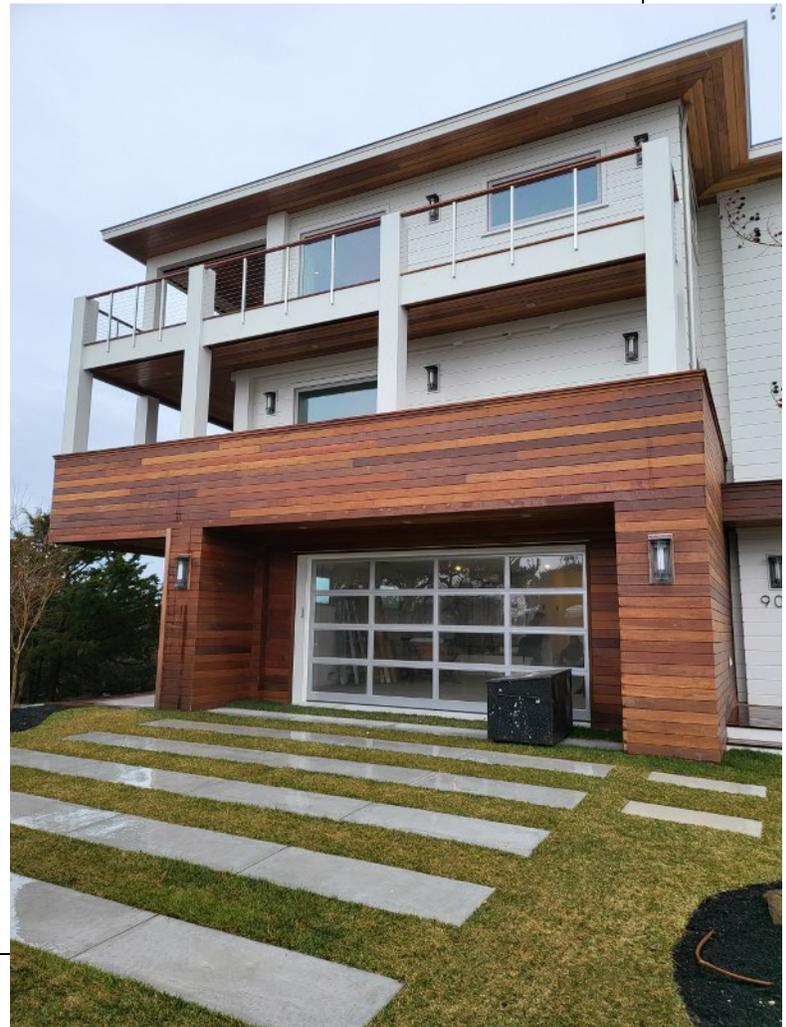
Rear Elevation



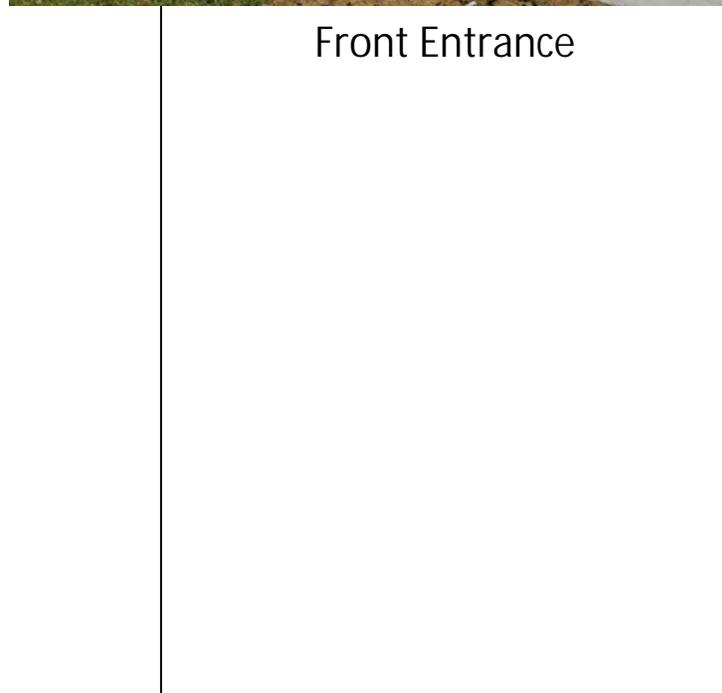
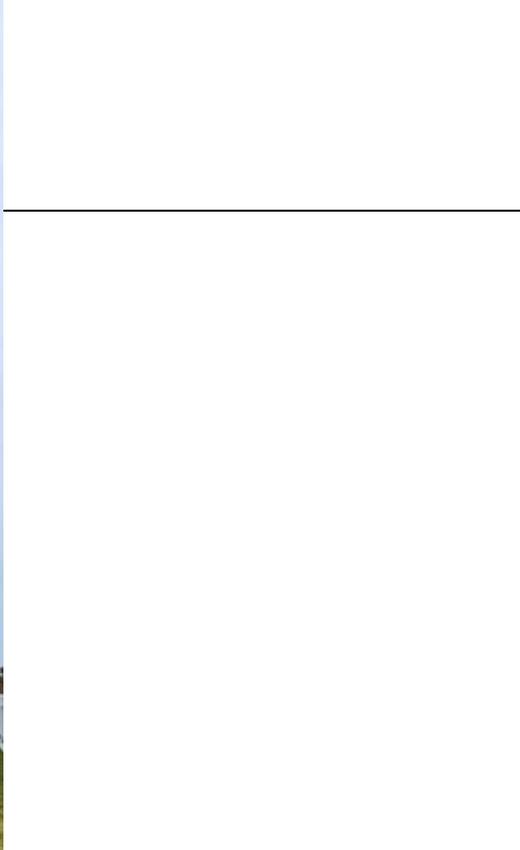
Piling Foundation Plan



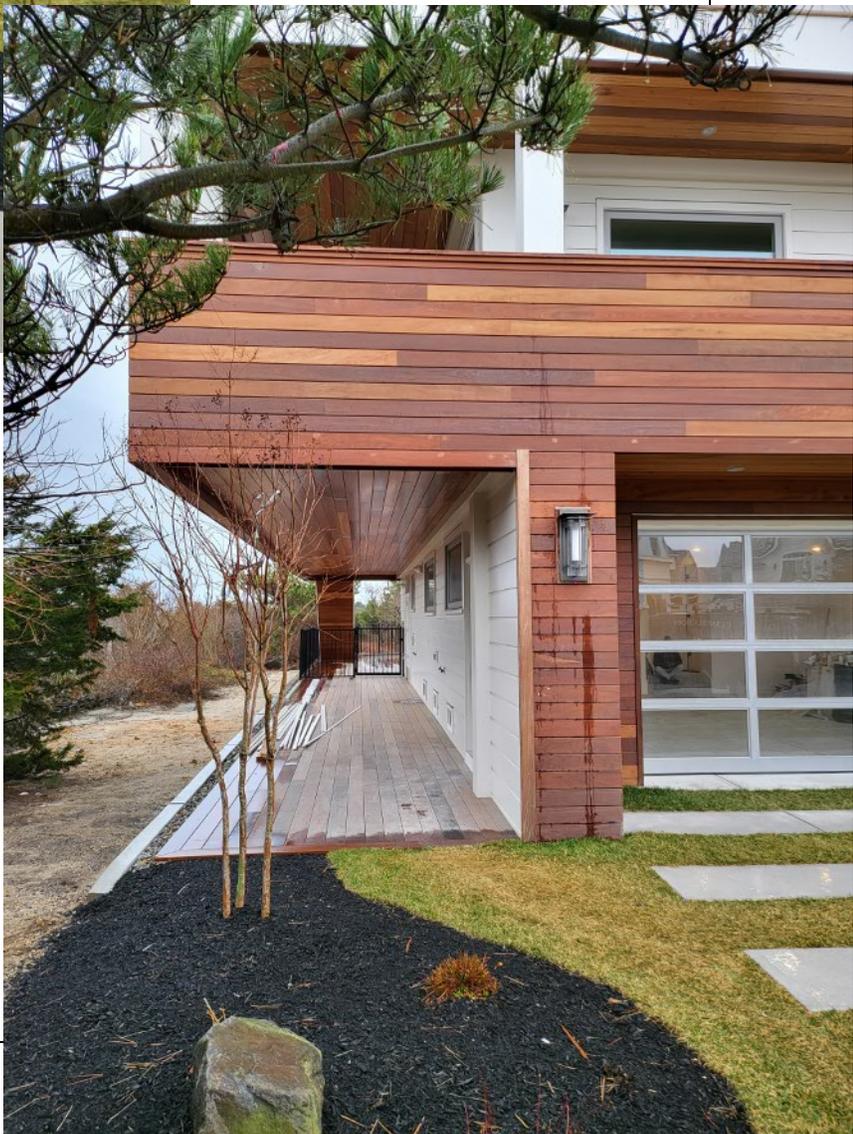
Cantilevered Grade Beam Concept



As-built Side Elevation



Front Entrance



Cantilevered Rear Deck



Front Entrance During Construction



Cantilevered Beams During Construction



Interior 'Floating' Stair

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:

Print name: Andrew Voorhees	Signature: 	Date: 04/01/22
Submitting Firm:	Mulhern + Kulp Structural Engineering	
Mailing address:	300 Brookside Ave, Bldg 4 Ambler, PA 19002	
Telephone: 215-646-8001	Fax:	Email: avorhees@mulhernkulp.com