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		Other Structures Over $1M	
Buildings $40M - $100M		Single Family Home	

Approximate construction cost of facility submitted:	
Name of Project:	Murstein Residence
Location of Project:	Bellevue, WA
Date construction was completed (M/Y):	In Progress
Structural Design Firm:	Mulhern + Kulp
Affiliation:	**All entries must be submitted by DVASE member firms or members.**
Architect:	Architects Northwest
General Contractor:	NCL Homes

Company Logo (insert .jpg in box below)

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

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 and Kulp provided complete structural engineering services for this new 3,900 sf, 3-story residence on slab on grade foundation located in Bellevue, Washington. The i-joist roof system and vaulted ceilings throughout added to the unique challenge of designing this home. The home was laid out to provide stunning views of Lake Washington and Bellevue Beach Park across the street. The large, partially covered deck off the second floor main living space and folding doors bring the outside living area and views right inside. The hard angled edge of the deck, along with the sloping steel columns supporting the deck and roof above, bring a stark contrast to the surrounding vegetation and coast line.

The combination of steel and wood framing throughout the structure, especially at the exterior cantilevered deck, required the design of many cross material connections. This included, but was not limited to, a flush steel beam hung into a flush bottom LVL beam, utilizing a double angled through bolted connection.

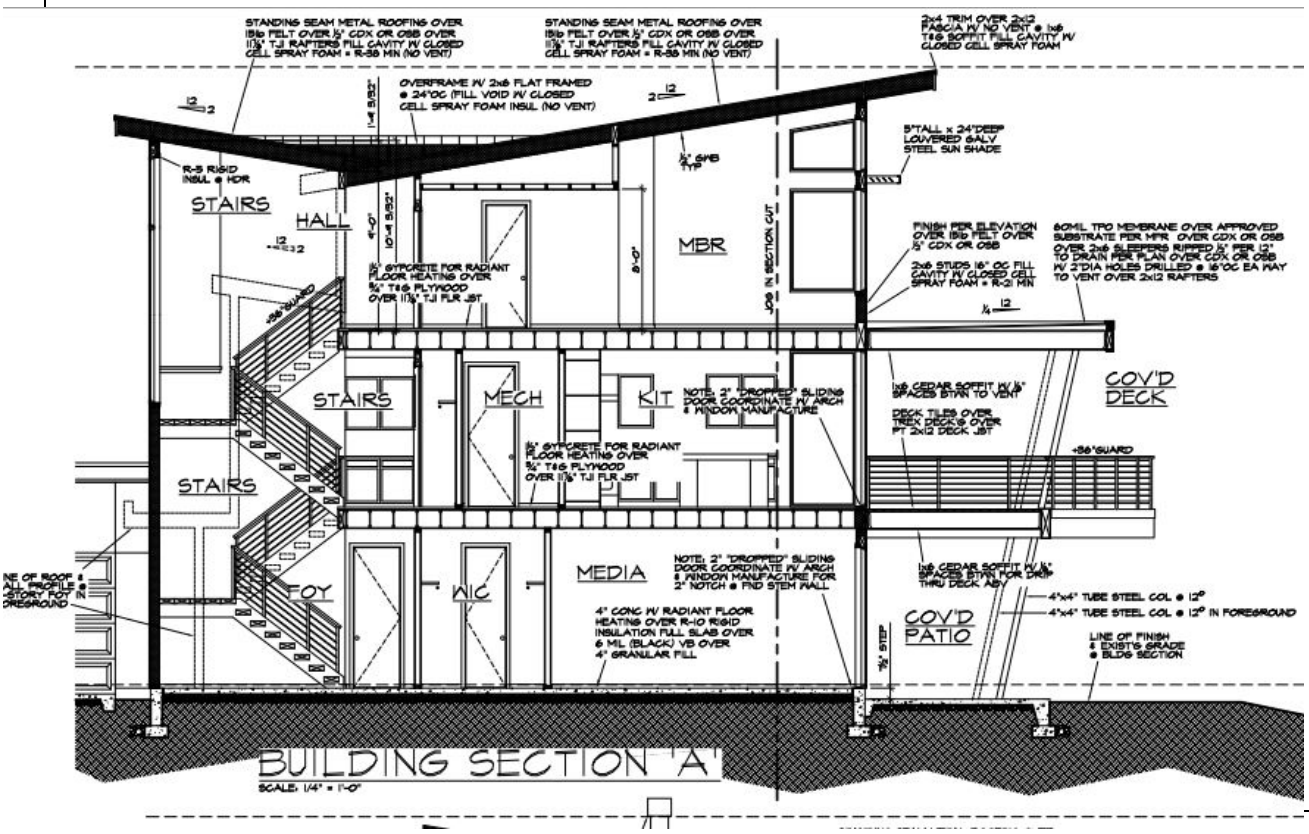
The large 2-story space at the center of the home created an opening within the upper floor framing diaphragm, requiring the design and detailing of sub-diaphragms at each level to distribute and resolve the applied high seismic and wind forces. By utilizing the small number of exterior wall panels provided, some of the interior walls as shear walls, and open front diaphragm theory, a three story steel moment frame was avoided at the large open space, providing significant savings and value to our client.

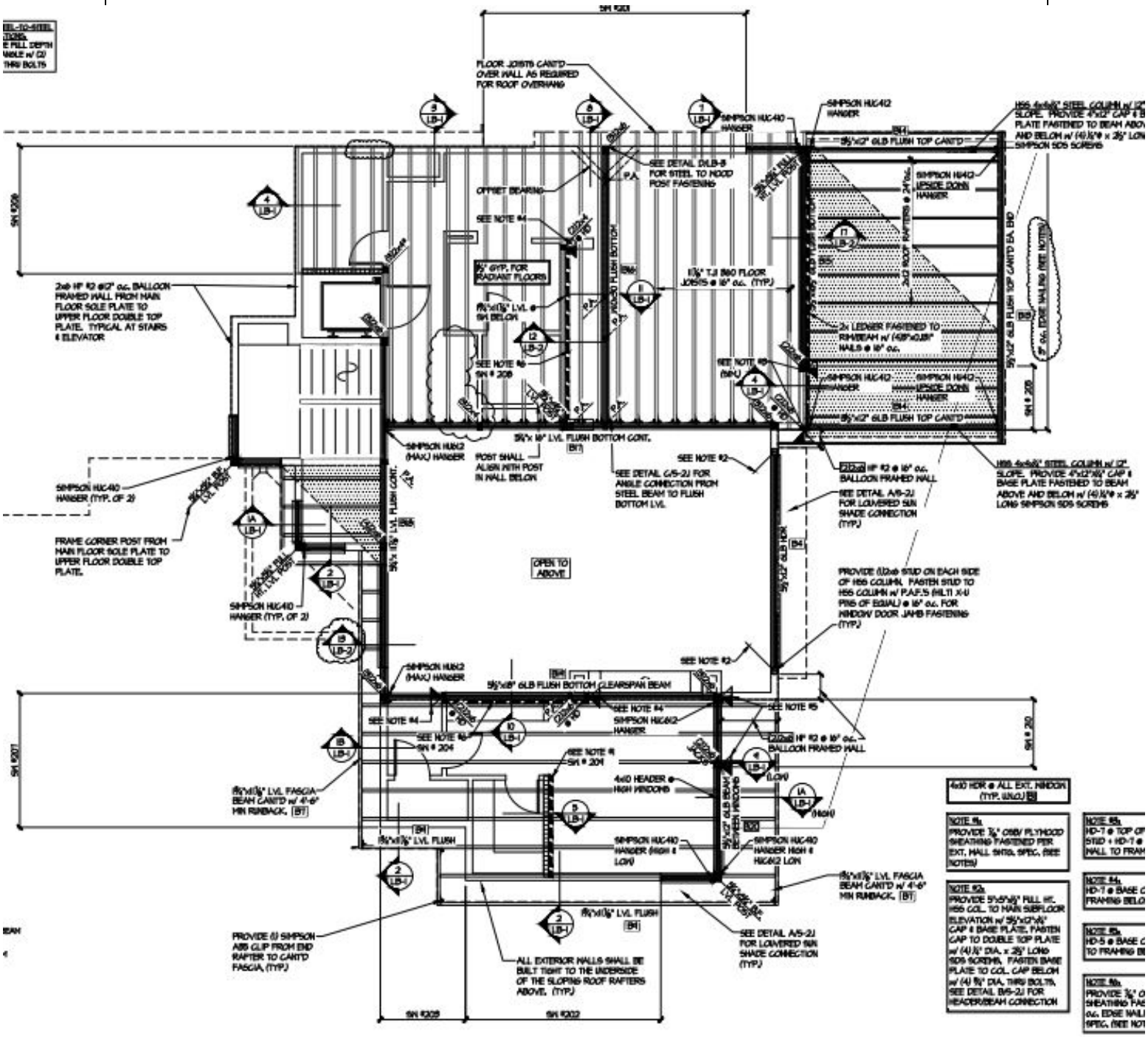
The 3- story open space at the entry, stairs and elevator is another aspect of note for this home. The stairs are comprised of a single HSS framing both the landing and stringer, with 4x10 treads and landing joists cantilevering off each side. The final look with open treads and landings required no intermediate beams or additional exposed framing within this open space. In order to avoid full height steel columns at the corners in excess of 30', the low roof of the garage roof was tied in. This design concept permitted the use of solid wood columns in the corners without requiring architectural changes to the width of the walls due to slenderness limitations.

This home has been under construction since the middle of 2020, and has undergone many architectural changes since the framing has begun. The changes to the architecture affecting interior bearing points, shear walls, and dead loads due to finish materials has required continued partnership between the framer/builders and the design team to ensure the final home is structurally sound, while still meeting client expectations. The final frame inspection is set for late March- early April.

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


STANLEY
Security Solutions


STANDING SEAM METAL ROOFING OVER 15lb FELT OVER ½" CDX OR OSB OVER 11⅞" TJI RAFTERS FILL CAVITY W/ CLOSED CELL SPRAY FOAM = R-38 MIN (NO VENT)
STANDING SEAM METAL ROOFING OVER 15lb FELT OVER ½" CDX OR OSB OVER 11⅞" TJI RAFTERS FILL CAVITY W/ CLOSED CELL SPRAY FOAM = R-38 MIN (NO VENT)
2x4 TRIM OVER 2x12 FASCIA W/ NO VENT @ 1x6 T&G SOFFIT FILL CAVITY W/ CLOSED CELL SPRAY FOAM
OVERFRAME W/ 2x6 FLAT FRAMED @ 24"OC (FILL VOID W/ CLOSED CELL SPRAY FOAM INSUL (NO VENT)
5"TALL x 24"DEEP LOUVERED GALV STEEL SUN SHADE
R-5 RIGID INSUL @ HDR
STAIRS
HALL
MBR
FINISH PER ELEVATION OVER 15lb FELT OVER ½" CDX OR OSB
60MIL TPO MEMBRANE OVER APPROVED SUBSTRATE PER MFR OVER CDX OR OSB OVER 2x6 SLEEPERS RUNNED ½ PER 12" TO DRAIN PER PLAN OVER CDX OR OSB W/ 2"DIA HOLES DRILLED @ 16"OC EA WAY TO VENT OVER 2x12 RAFTERS
2x6 STUDS 16" OC FILL CAVITY W/ CLOSED CELL SPRAY FOAM = R-21 MIN
½" GYPCRETE FOR RADIANT FLOOR HEATING OVER ¾" T&G PLYWOOD OVER 11⅞" TJI FLR JST
JOG IN SECTION CUT
STAIRS
MECH
KIT
NOTE: 2" "DROPPED" SLIDING DOOR COORDINATE W/ ARCH & WINDOW MANUFACTURE
1x6 CEDAR SOFFIT W/ ¼" SPACES STAIN TO VENT
COV'D DECK
DECK TILES OVER TREX DECKING OVER PT 2x12 DECK JST
+36"GUARD
STAIRS
½" GYPCRETE FOR RADIANT FLOOR HEATING OVER ¾" T&G PLYWOOD OVER 11⅞" TJI FLR JST
FOY
WIC
MEDIA
NOTE: 2" "DROPPED" SLIDING DOOR COORDINATE W/ ARCH & WINDOW MANUFACTURE FOR 2" NOTCH @ FND STEM WALL
1x6 CEDAR SOFFIT W/ ¼" SPACES STAIN FOR OVER THRU DECK ABV
4"x4" TUBE STEEL COL @ 12'
4"x4" TUBE STEEL COL @ 12' IN FOREGROUND
4" CONC W/ RADIANT FLOOR HEATING OVER R-10 RIGID INSULATION FULL SLAB OVER 6 MIL (BLACK) VB OVER 4" GRANULAR FILL
7½" STEP
COV'D PATIO
LINE OF FINISH & EXIST'G GRADE @ BLDG SECTION
BUILDING SECTION 'A'
SCALE: 1/4" = 1'-0"



UPPER FLOOR FRAMING PLAN

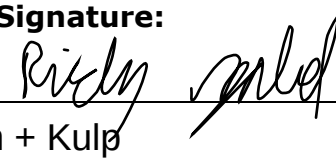
¼" = 1'-0"

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:	**Signature:**	**Date:**
Ricky Zabel, P.E.		3/25/21

Submitting Firm:	Mulhern + Kulp	
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