

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	✓

Approximate construction cost of facility submitted:	3M
Name of Project:	Private Residence
Location of Project:	Park City, Utah
Date construction was completed (M/Y):	Ongoing
Structural Design Firm:	Mulhern + Kulp Structural Engineering
Affiliation:	All entries must be submitted by DVASE member firms or members.
Architect:	McCullough Architect
General Contractor:	North Ridge 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.

This 2-story, 4630 SF, custom rustic mountain house was designed as a vacation home in the picturesque ski-town of Park City, Utah. Mulhern + Kulp was excited to team up with McCullough Architects to bring the vision of this mountain retreat to a reality.

The floor plan is highlighted by a large 2-story Great Room and 3-story Entry-way that divides the (2) wings of the home. The Great Room boasts a large vaulted ceiling that is flanked by a walls of windows and large sliding glass doors that open up to the outdoor deck/patio to the north and south. The field framed trusses utilize locally sourced 12"x12" rough sawn members and are supported by mammoth 12"x24" rough sawn girders that are over 50' long. The girders begin at the covered patio to the south, continue through the Great Room, and extend out over the deck to the north, creating a visual continuity tying the indoor space to the adjacent outdoor spaces. This area created multiple unique design challenges between designing the trusses/beams to support the 142psf ground snow load and the large diaphragm discontinuity in the middle of the floor plan.

The high snow load, in addition to the city disallowing any use of a snow duration factor posed unique design conditions. In order to achieve the desired large roof overhangs custom brackets with metal kerf plates were designed and detailed, as shown in the photos below. The high snow loads coupled with some of the long spans required at vaulted areas resulted in some wood wrapped steel beams, flitch beams, or large rough sawn lumber. This project also involved many revisions due to sourcing issues on some of the large lumber and engineered beams that posed a challenge to meet the realistic construction needs of the builder while still satisfying the desired architectural vision.

Other complexities on the project included the lateral design and foundation design. The lateral design of the structure utilized wood framed shearwalls and had to be broken into multiple sub-diaphragms due to the large open area in the middle and the stepping/vaulted ceilings. The foundation design and implementation encountered some difficulties as the site soils were expansive and the foundations were required to be built on the bedrock, 6-14' below the existing grade.

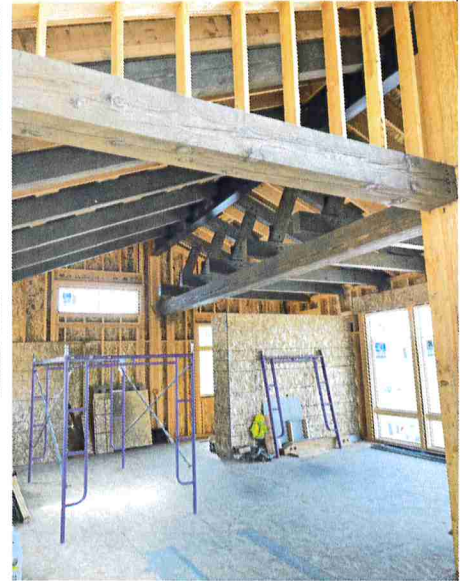
The end product combined the unique design solutions to meet the design conditions the in-progress rustic mountain home shown in the following photos.

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

EXISTING BUILDING STRUCTURE

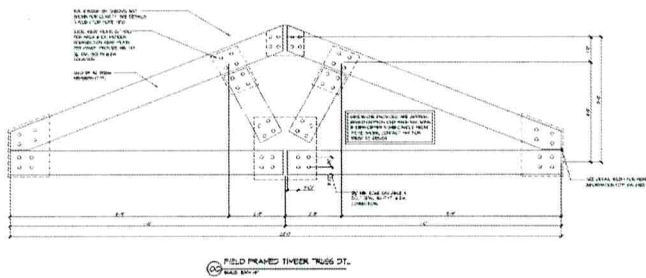
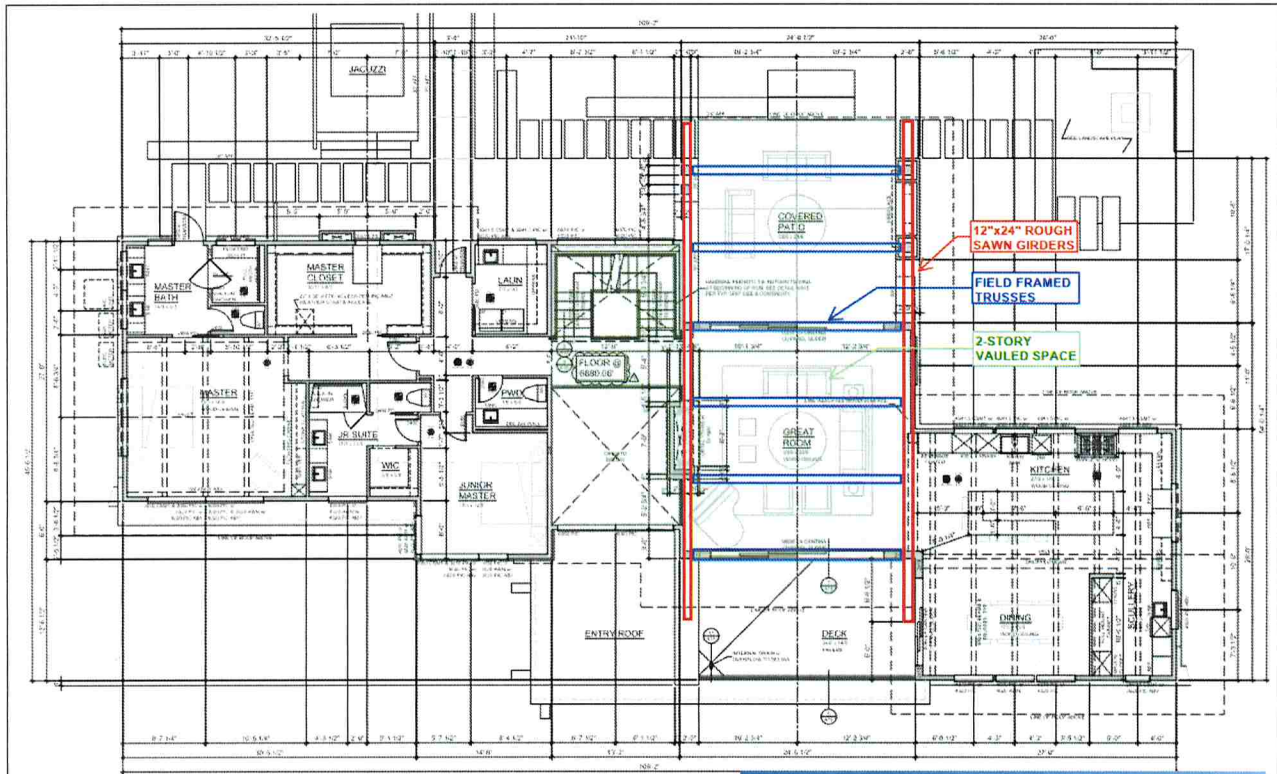


THE SOUTH ELEVATION LOOKING OUT OVER THE MOUNTAINS

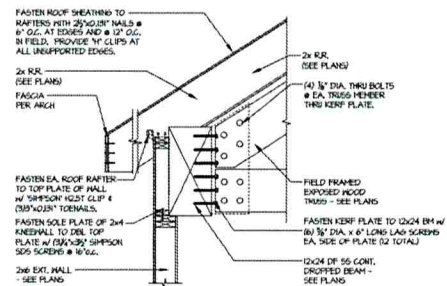
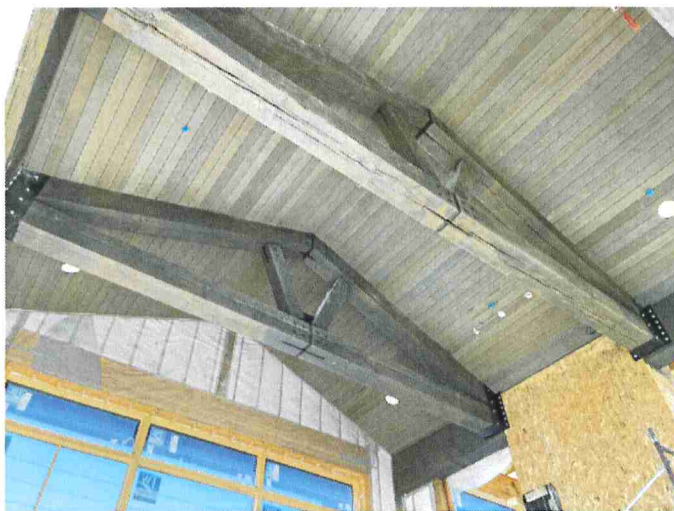


THE VAULTED ROOF FRAMING AT THE KITCHEN AND DINING AREAS.

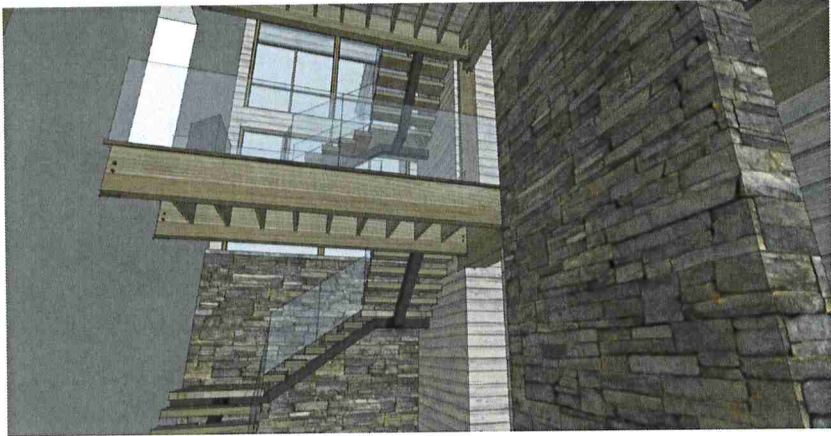




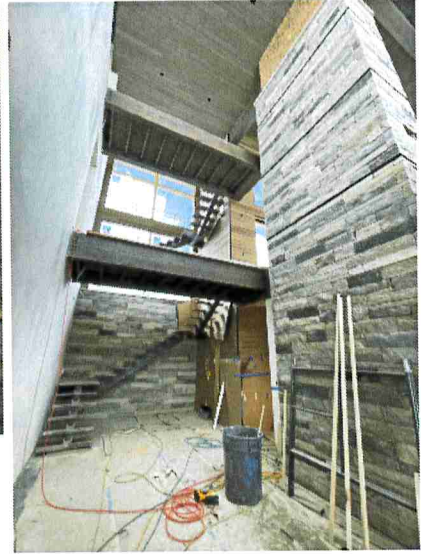
THE FLOOR PLAN IS HIGHLIGHTED BY A LARGE 2-STORY SPACE WITH FIELD FRAMED TRUSSES AND LARGE GIRDERS SPANNING BETWEEN THE COVERED DECK/PATIO TO THE NORTH AND SOUTH



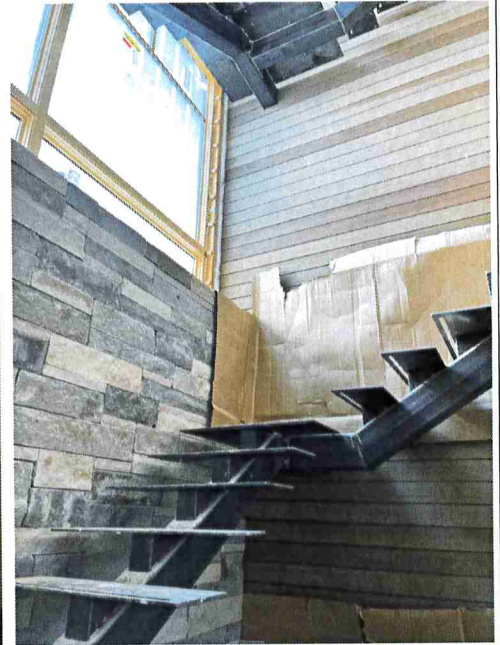
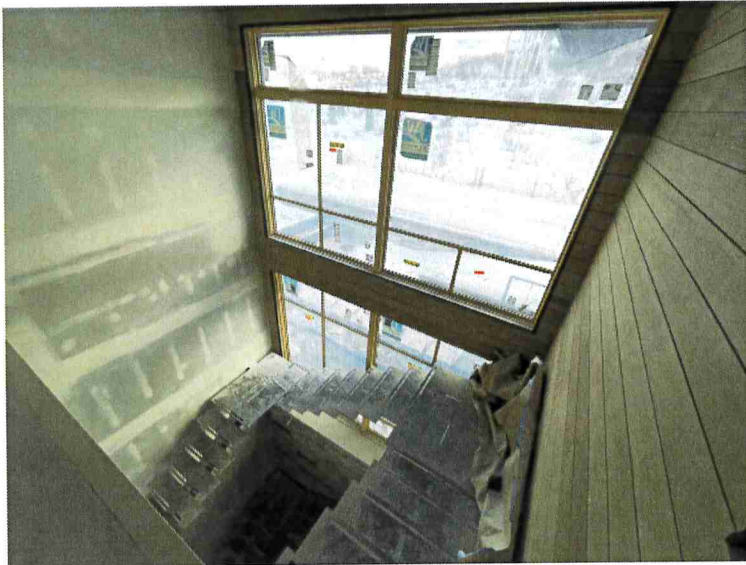
TYPICAL SHEAR TRANSFER DT. @ ROOF RAFTERS w/ TIMBER TRUSSES SCALE: 3/4"=1'-0"



FLOATING LANDINGS SPAN ACROSS THE 3-STORY ENTRYWAY

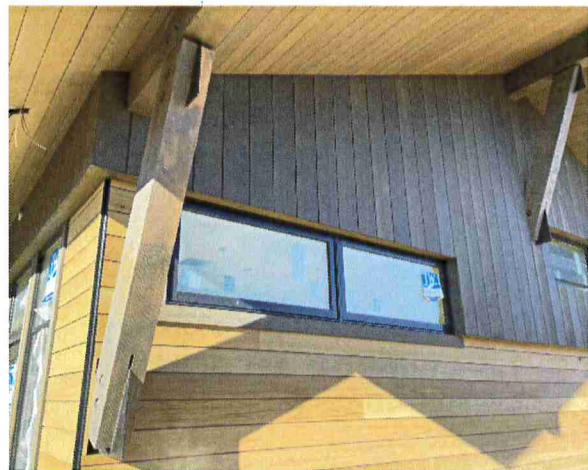
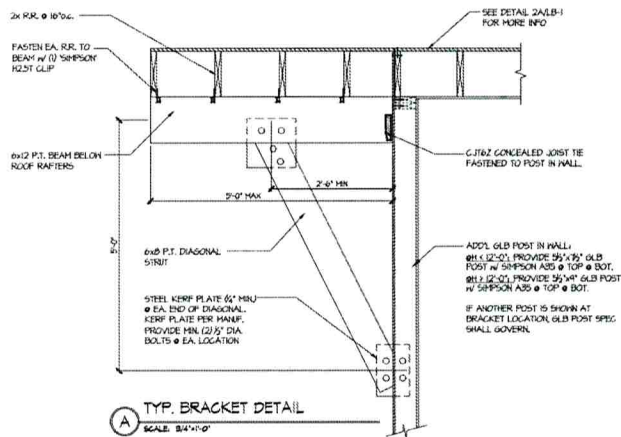


CUSTOM STEEL STAIRS CIRCLE THE PERIMETER OF THE STAIR TOWER





SOUTHWARD ELEVATION
IN WINTER AND SUMMER



CUSTOM BRACKET DETAILS WITH STEEL KERF PLATES WERE DEVELOPED TO SUPPORT THE LARGE OVERHANGINGS WITH THE HIGH SNOW LOAD

NORTH FACADE OF THE BUILDING WITH CONCRETE PEDESTALS SUPPORTING ROOF OVER COVERED PATIO AREA



STEPPED FOUNDATION WALLS TRANSITIONING FROM HIGH CRAWLSPACE TO BASEMENT SLAB ON GRADE TO RECEIVE STONE VENEER



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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