

# ENTRY FORM



## DVASE 2022 Excellence in Structural Engineering Awards Program

### PROJECT CATEGORY (check one):

Buildings under \$5M	<input checked="" type="checkbox"/>	Buildings Over \$100M	<input type="checkbox"/>
Buildings \$5M - \$15M	<input type="checkbox"/>	Other Structures Under \$1M	<input type="checkbox"/>
Buildings \$15M - \$40M	<input type="checkbox"/>	Other Structures Over \$1M	<input type="checkbox"/>
Buildings \$40M - \$100M	<input type="checkbox"/>	Single Family Home	<input type="checkbox"/>

Approximate construction cost of facility submitted:	3M
Name of Project:	39 Banks Avenue - Harvest Pizzeria
Location of Project:	Asheville, NC
Date construction was completed (M/Y):	12/21
Structural Design Firm:	Mulhern + Kulp Structural Engineering
Affiliation:	<b>All entries must be submitted by DVASE member firms or members.</b>
Architect:	BCA Architecture & Design
General Contractor:	Falcon Construction and Development

Company Logo (insert .jpg in box below)



### Important Notes:

- Please .pdf your completed entry form and email to [bsagusti@barrhorstman.com](mailto: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.

While most of our work in the North Carolina area centers around custom single-family projects, we took a detour in late 2018 to tackle this adaptive re-use in the heart of the South Slope Brewing District in Asheville. What is now a contemporary pizzeria serving up local ingredients with a focus on sustainability, began as just a shell of the original 1920's construction.

Starting with just a few free-standing multi-wythe brick walls connected by steel bowstring trusses, this project was an exercise in thinking outside the box from the start. The sustainable mission of the future business led the team to keep as much of the existing structure as possible, re-purposing the brick walls as a veneer with a new steel super-structure built within. Due to the dimensional limits to the inside face of the existing brick the design had to coordinate all column placement with regard to overall seismic drift of the structure to ensure the structure could move freely within the existing building shell. With 20' tall columns and directive from the Architect to place them as close to the inside face of the existing walls as possible the design team chose to utilize double angle kicker braces in addition to moment frames where the architecture allowed to help reduce overall drift limits.

Additionally, through a series of slotted connections, over-sized holes, and hand-tightened bolts, our design team was able to provide three degrees of freedom in detailing our new steel structure to brace the existing walls without imparting any new lateral load. Down to the very foundation of the building the design team faced challenges with placing the structure inside of the existing footprint without disturbing the existing brick. To avoid costly under-pinning we were able to utilize a variety of eccentrically loaded strap footings and combined footings to avoid interference between our new perimeter column foundation and the existing foundations.

Though one of the bowstring trusses had to be removed and another cut-back and re-braced, three are still featured in the final design to maintain the rustic aesthetic for the diners below. The design team was also able to design lateral bracing for one existing bowstring truss to be incorporated into the mezzanine level as a railing/guard rail which is a unique feature at that framing level. From start to finish this project was a lesson in coordination not only between architect and engineer, but also between engineer and steel fabricator due to some of the unique stair connections to the wood framing mezzanine including hanging steel stringer connections to cantilevered wood beams.

The final result of the structure is a two-story dining area with mid-height mezzanine, all beneath a partially covered rooftop bar. From the unique history and intriguing finished product to the one-of-a-kind design, this ambitious project was a pleasure to be a part of, no matter which way you slice it.

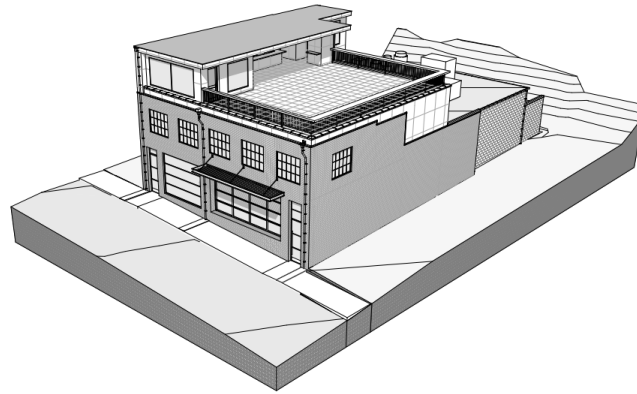
- The following 5 pages (maximum) can be used to portray your project to the awards committee through photos, renderings, sketches, plans, etc...



EXISTING BUILDING STRUCTURE



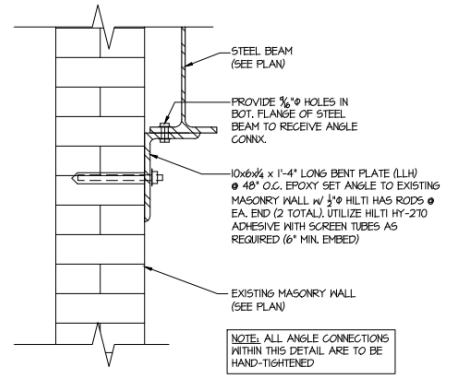
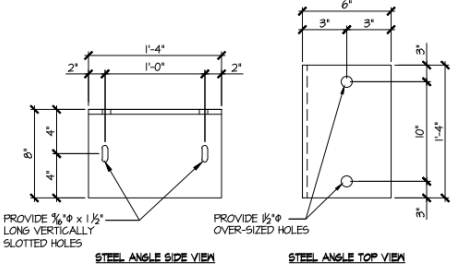
COMPLETED STRUCTURE



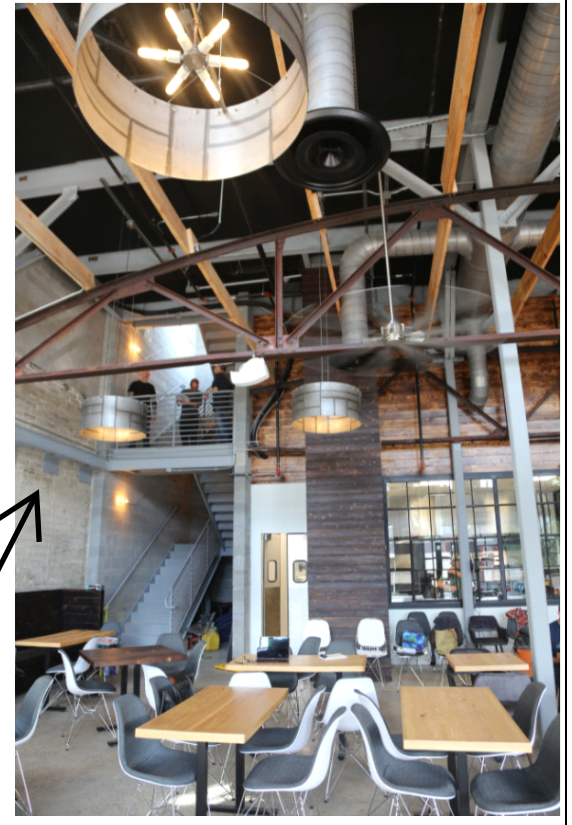
EXISTING BOWSTRING TRUSSES



CONSTRUCTION OF ROOF DECK SUPERSTRUCTURE



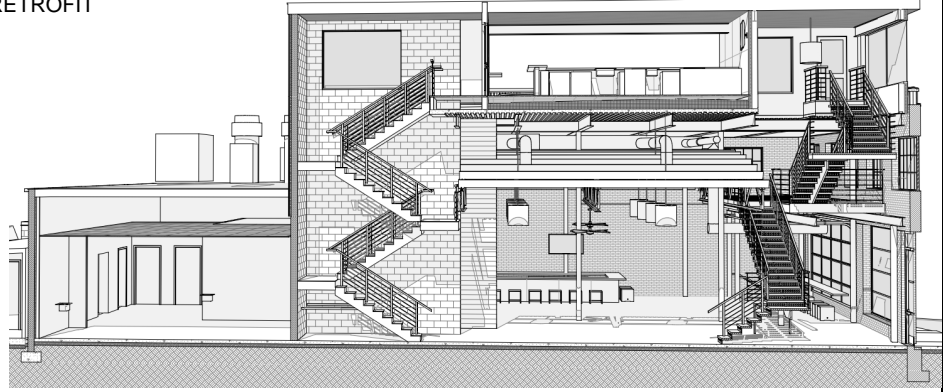
CONNECTION OF BETWEEN EXISTING BRICK WALL & NEW STEEL STRUCTURE ALLOWING THREE DEGREES OF FREEDOM FOR STRUCTURE TO MOVE Laterally & DEFLECT UNDER GRAVITY LOADING WITHOUT IMPARTING LOAD ON EXISTING WALL



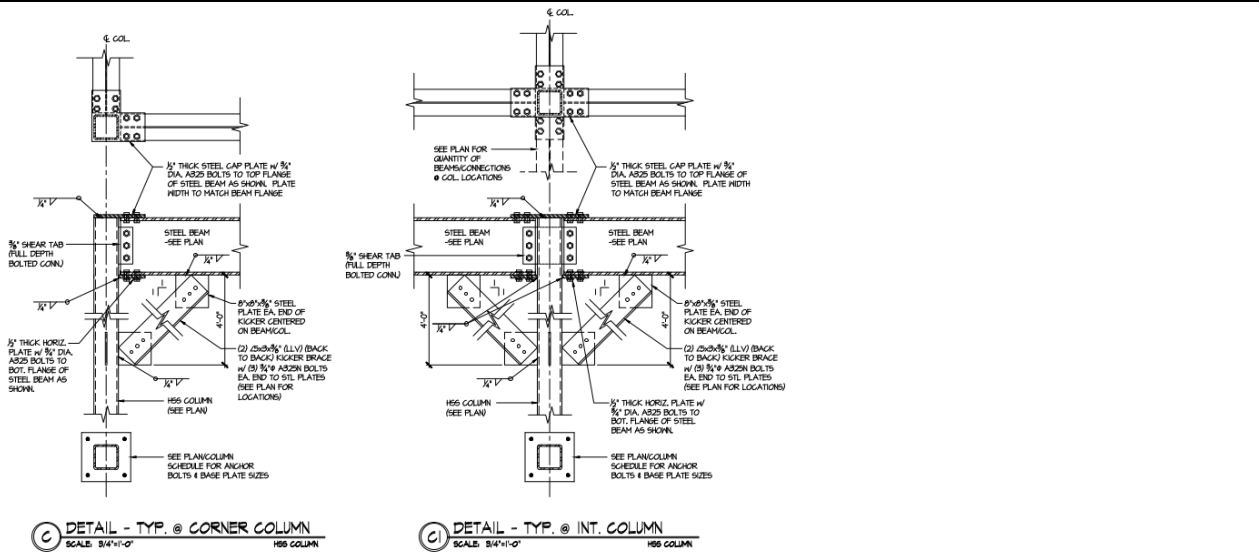
COMPLETED INTERIOR SPACE HIGHLIGHTING AN EXISTING BOWSTRING TRUSS, NEW MASONRY STAIR TOWER, AND CONNECTIONS BACK TO EXISTING BRICK



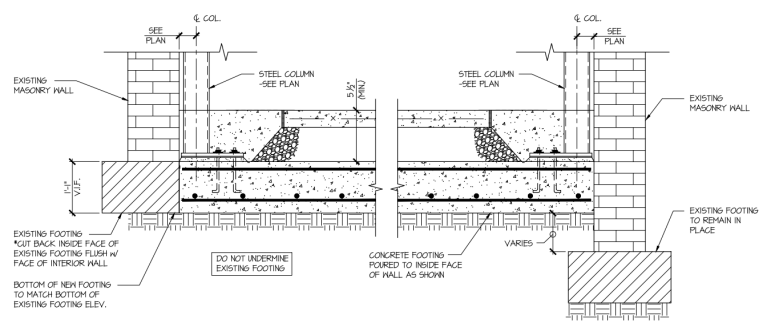
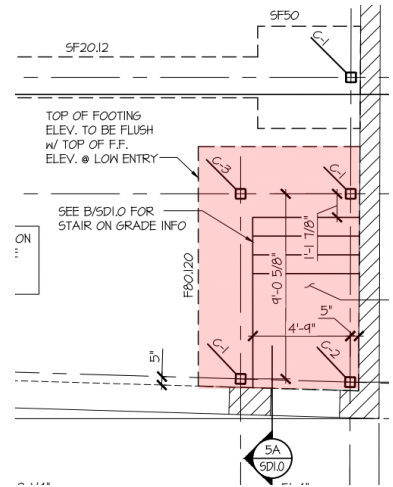
INTERIOR SPACE PRIOR TO RETROFIT





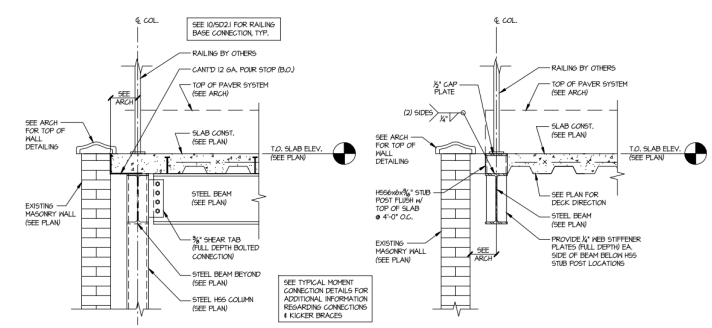


**TYPICAL MOMENT/KICKER CONNECTIONS**

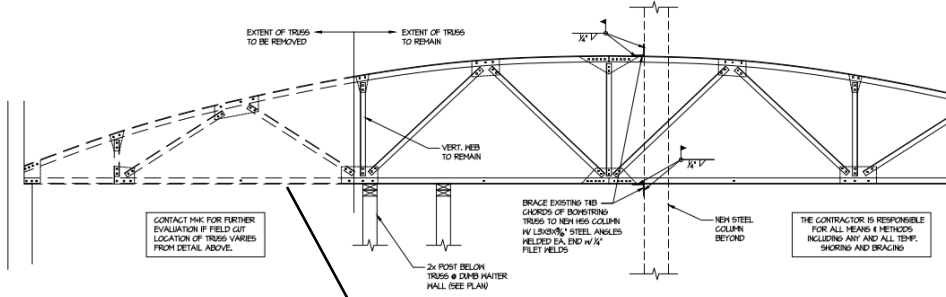


**CONTINUOUS STRAP FOOTINGS WERE PROVIDED AT INTERIOR COLUMNS TO PULL LOAD AWAY FROM THE EDGES OF THE FOUNDATION**

**COMBINED FOOTINGS WERE UTILIZED AT CORNERS DUE TO PROXIMITY TO EXISTING WALL WITHOUT THE ABILITY TO PROVIDE STRAP FOOTINGS**

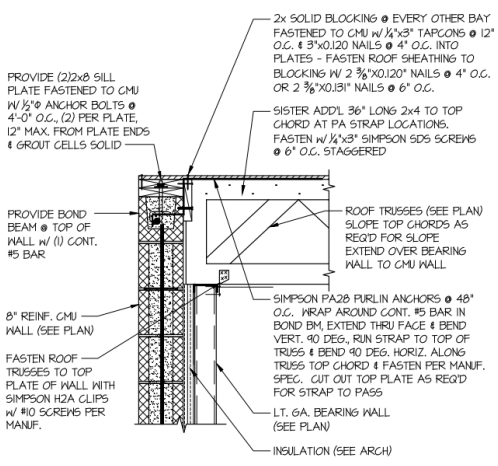


**TYPICAL EXTERIOR WALL DETAILING AT ROOF DECK**



AT ONE LOCATION THE EXISTING BOWSTRING TRUSS HAD TO BE BRACED AND CUT BACK IN ORDER TO ACCOMMODATE THE NEW CMU STAIR TOWER TO THE ROOF DECK

**32 EXISTING BOWSTRING TRUSS PROFILE/RETROFIT**  
SCALE: 3/4"=1'-0"

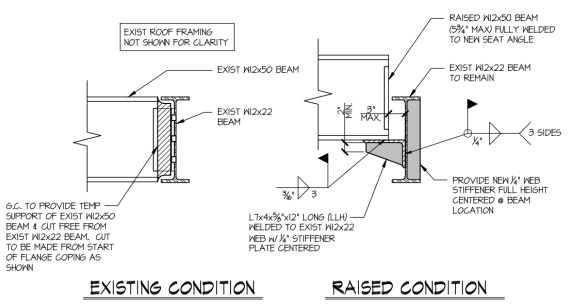
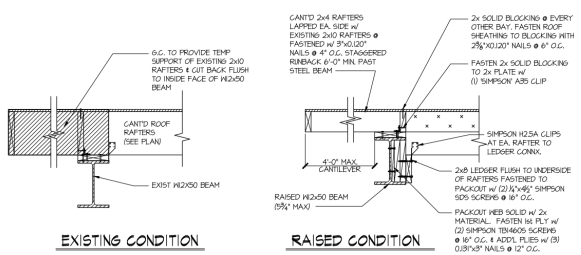


TYP. EXT. DETAIL AT NEW EXTENDED FLAT ROOF

AS THE EXISTING BUILDING FOOTING WAS EXTENDED AT THE REAR, 48" DEEP PARALLEL CHORD ROOF TRUSSES WERE UTILIZED AND 8" THICK REINF. MASONRY WALLS WERE INTEGRATED INTO THE BUILDING ENVELOPE w/ INTERIOR LT. GA. BEARING WALLS. THIS PHOTO ALSO HIGHLIGHTS THE MODIFIED BOWSTRING TRUSS



OWNER DECIDED ADDITIONAL HEADROOM WAS REQUIRED AFTER ROOFTOP COVERED BAR STEEL WAS INSTALLED SO BEAM/COLUMN RETROFIT WAS REQUIRED TO RAISE BEAM APPROX 5"



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:

<b>Print name:</b> Ian McEwing, P.E., S.E.	<b>Signature:</b>	<b>Date:</b> 04/01/22
<b>Submitting Firm:</b>	Mulhern + Kulp Structural Engineering	
<b>Mailing address:</b>	300 Brookside Ave Building 4, STE 150 Ambler, PA 19002	
<b>Telephone:</b> 215-646-8001	<b>Fax:</b>	<b>Email:</b> imcewing@mulhernkulp.com