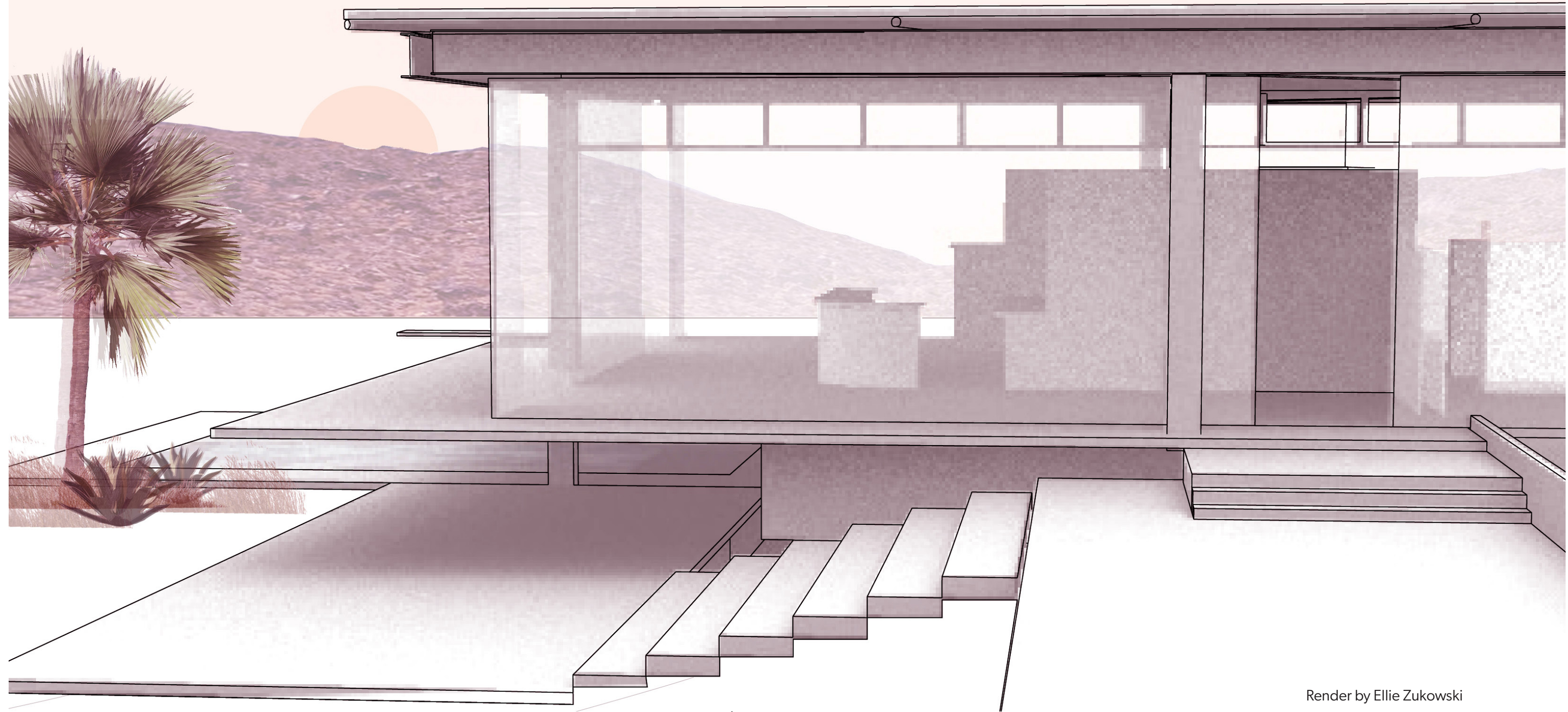


the NOLAN HOUSE



Render by Ellie Zukowski

Final Portfolio

Client: Maria Nolan, Hank Nolan
Project: Residential
Address: 701 W. Panorama Road, Palm Springs, CA 92262

The Green Team.

'Engineers':
Gilbert Munoz, Keiko Sanders,
Michael Bahr, Titas Kavalnis.

'Architects':
Ellie Zukowski, Olivia Scheffler.

Interdisciplinary Studio
ARCE415/ARCH 453
Professors: E. Saliklis, M. Sattler

Date: June 10, 2021

Timeline

glass architecture throughout the century

1850
Built in Hyde Park, London, to house the Great Exhibition of 1851.
Designed by Joseph Paxton.
More than 14,000 exhibitors from around the world gathered in its 990,000 square feet (92,000 m²) exhibition space to display examples of technology developed in the Industrial Revolution.
"a prophecy of the spectacle, or, rather, the nightmare, in which the nineteenth century dreamed the twentieth." Giorgio Agamben

1860
Temperate House of London's Kew Royal Botanic Gardens (1860s)
1862, is a Grade I listed showhouse for the largest plants in Kew Royal Botanic Gardens.
Designed by Decimus Burton.
First opened in 1863.
[Text description provided by the architects.] The design and construction of the Temperate House at the Royal Botanic Gardens, Kew was predicated on a Victorian obsession with the observation and study of the natural world.
Donald Insall Associates were appointed in 2012 as conservation architects to the Temperate House. His art restoration team work revealed how far ahead of his time Decimus Burton was when designing the Temperate House.

1870
Blue Glass (1870s)
Born rich Augustus James Fleuss was fascinated with the color blue and its connection to living organisms.
Built greenhouse with some panels of glass colored blue, tinted blue color halved plants grow.
People started staining blue glass had healing powers, etc.
Blue glass price went up 50 percent in 1877, back down by 1880.

1890
Bradbury Building (1893)
Savory office building with skylit atrium.
Commissioned by gold-mining millionaire.
Budget \$175,000, Cost \$500,000 (roughly \$15 million today).
Built 1893.
Designed by Sumner Hunt/George Wyman (disputed).
Used in films for unique building style, now a national historic landmark.

1900
Red Star: The First Bolshevik Utopia, Alexander Bogdanov (1908)
Novel set on Mars about a utopian society where technology is much more advanced.
Martians live in houses of blue glass due to the "soothing effects".
Glass is everywhere, even on the ships and gondolas that are used as transportation.
Example of glass architecture envisioned as a utopian element.

1910
Glass Pavilion (1914)
Glass and concrete structure/art piece designed by Bruno Taut for the Cologne Deutscher Werkbund Exhibition.
Usage of colored glass with dark blue at base, moss green, golden yellow, pale yellow at top.
Used thick glass bricks at base, first significant use of glass bricks in architecture.
Usage of double glass plates to produce mirror like effect, like a large scale kaleidoscope, also had mosaic walls and running water to shift the light.
Demolished shortly after due to being an art piece rather than a practical building.

1920
The Glass House Project
Sergei Eisenstein.
Came up with idea for The Glass House in Germany 1926.
Metropolis, 1927.
Fritz Lang movie.
Glass dome.
Left an impression on Eisenstein.
"Vision genealogy" of glass architecture (late 20's early 30's).
A symbol of American capitalism.
Vision "Seeing and being seen".
"For the eyes, a comedy for the eyes".
Group led by Bruno Taut between 1919-1920.
Chain of letters on fictional utopian societies by the combination of glass and architecture.

1930
The Gray Cloth: A Novel On Glass Architecture, Paul Scheerbart.
Published in 1914.
Novel about a Swiss architect who travels the world and designs buildings with colored glass.
The architect feels challenged by the colorful fashion of women's clothing, and makes his wife wear gray clothes with 10% white.
The Crystal Chain Letters, Bruno Taut and other Crystal Chain members.
Group led by Bruno Taut between 1919-1920.
Chain of letters on fictional utopian societies by the combination of glass and architecture.

1940
The Glass House, Architect Phillip Johnson, CT, 1949.
Talk was an overblow we'd seen an entirely glass house in this context. "In the case of the Glass House, the stylistic approach is perfectly clear. Mies van der Rohe and I had discussed how you could build a glass house and each of us built one. Mies' was, of course, primary and mine was an adoption from the master, although it's quite a different approach. In my case, there were a lot of historical influences at work. The Glass House stylistically is a mixture of Mies van der Rohe, Malevich, the Parthenon, the English garden, the whole Romantic Movement, the asymmetry of the 19th century. In other words, all these things are mixed up in it but basically it is the last of the modern, in the sense of the historic way we treat modern architecture today, the simple cube.

1950
Crown Hall, 1950.
Talk suspended and, without interior columns, created universal space that could be endlessly adapted to new uses.
His use of off-the-shelf components, including standard glass panes and steel I-beams, made the building economical to construct.
Carefully-proportioned, repetitive elements of the exterior convey both uniformity and precision of construction.
The design is seemingly simple. Mies once described the building as "almost nothing."

1960-2021
Billy Joel Album: Madness, Rebellion (Similar to We by Zomya).
Album opens with sound of glass shattering.
You may be right.
I may be crazy.
But it just may be a lunatic you're looking for ...
You may be wrong for all I know.
But you may be right.
James Carpenter.
American glass artist.
Lots of potential: transmission, reflection, refraction, diffusion.
Successful glass art incorporated design, architecture and engineering.
believed glass had thoughtless overuse in building; artificial light makes us less sensitive to darkness.

C-Glass House
Date: 2014
Location: Marik, California
Architect: Dave Maynard Architects, Deegan Day Design.
Exercises high-performance transparency.
"A home of maximal exposure with minimal environmental impact".
Large winds, up to 100mph in multiple directions.
Features sliding doors that open up the whole house coast architecture which often is designed to fit the structure into nature.
Chanel glass, as used in institutional buildings, used to keep an element of privacy while still letting in light.

As a precedent, The Green Team analyzed the history of glass within architecture, literature, and culture. Based on our research, we found that glass is often depicted as breakable, delicate, and a way to expose or display aspects that would otherwise be hidden. We challenged ourselves to incorporate safety and privacy into our glass house as a way to combat the pre-existing notions of glass in architecture.



MARIA

writer
introvert
observer
reserved
attentive



HANK

storyteller
extrovert
collector
hospitable
accommodating

Our client's differing personalities are summarized in this simple slide. Each desired the home to have spaces where they could feel relaxed and be themselves.

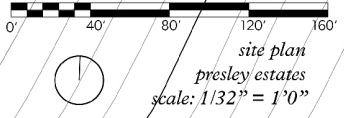
slide created by Keiko Sanders
drawing created by Ellie Zukowski

701 W PANORAMA RD
PRESLEY ESTATES
PALM SPRINGS, CA
92262

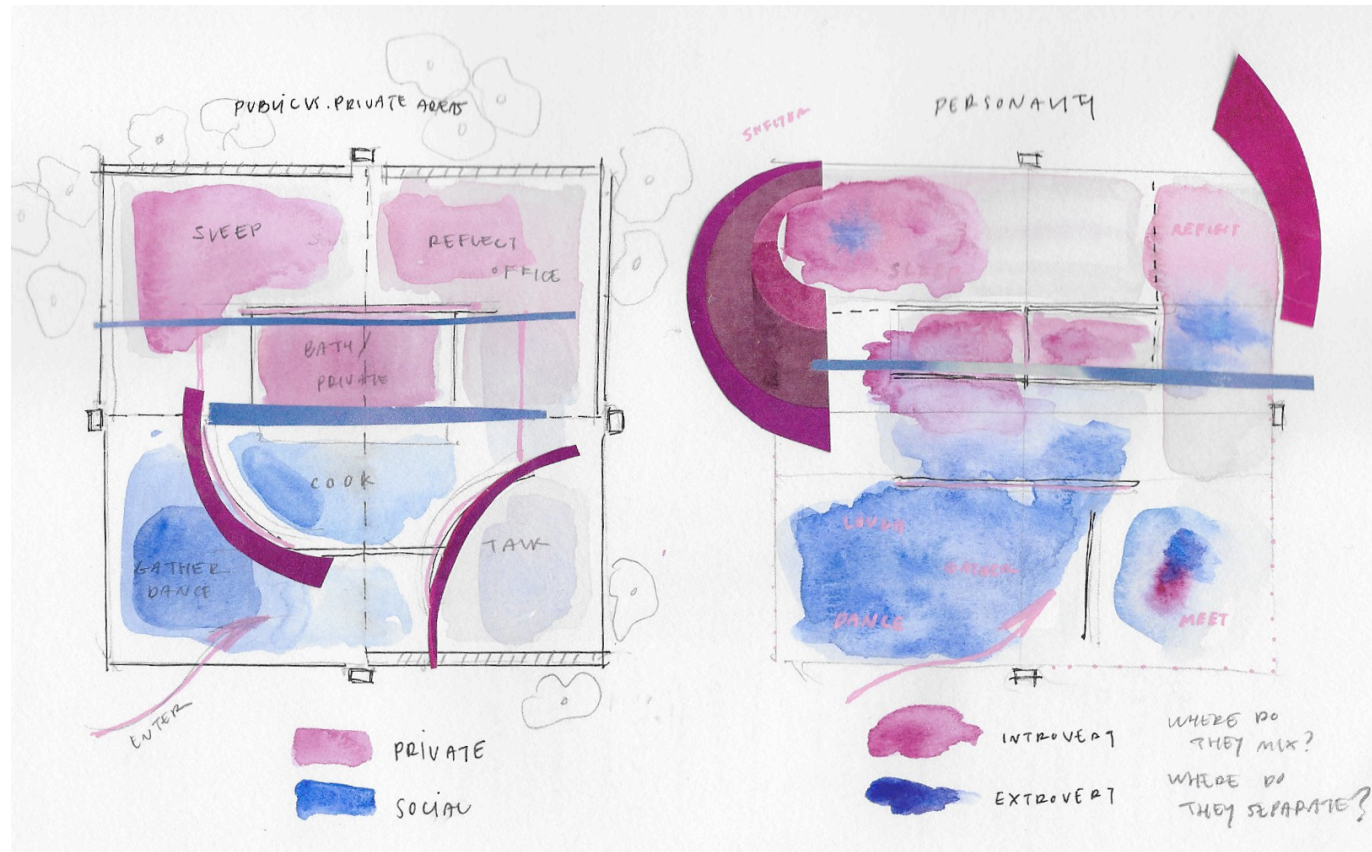


The Nolan House is located in the Presley Estates neighborhood in Palm Springs, California. The sloped site provides an opportunity to create more privacy as well as a cantilevering slab over the swimming pool, the main feature of the Nolan House. The more private areas of the house are oriented into the hill while the more social areas of the house are more oriented downhill towards the pool.

Design by Green Team
Site Plan Drawing by Ellie Zukowski

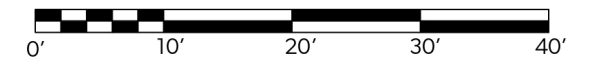
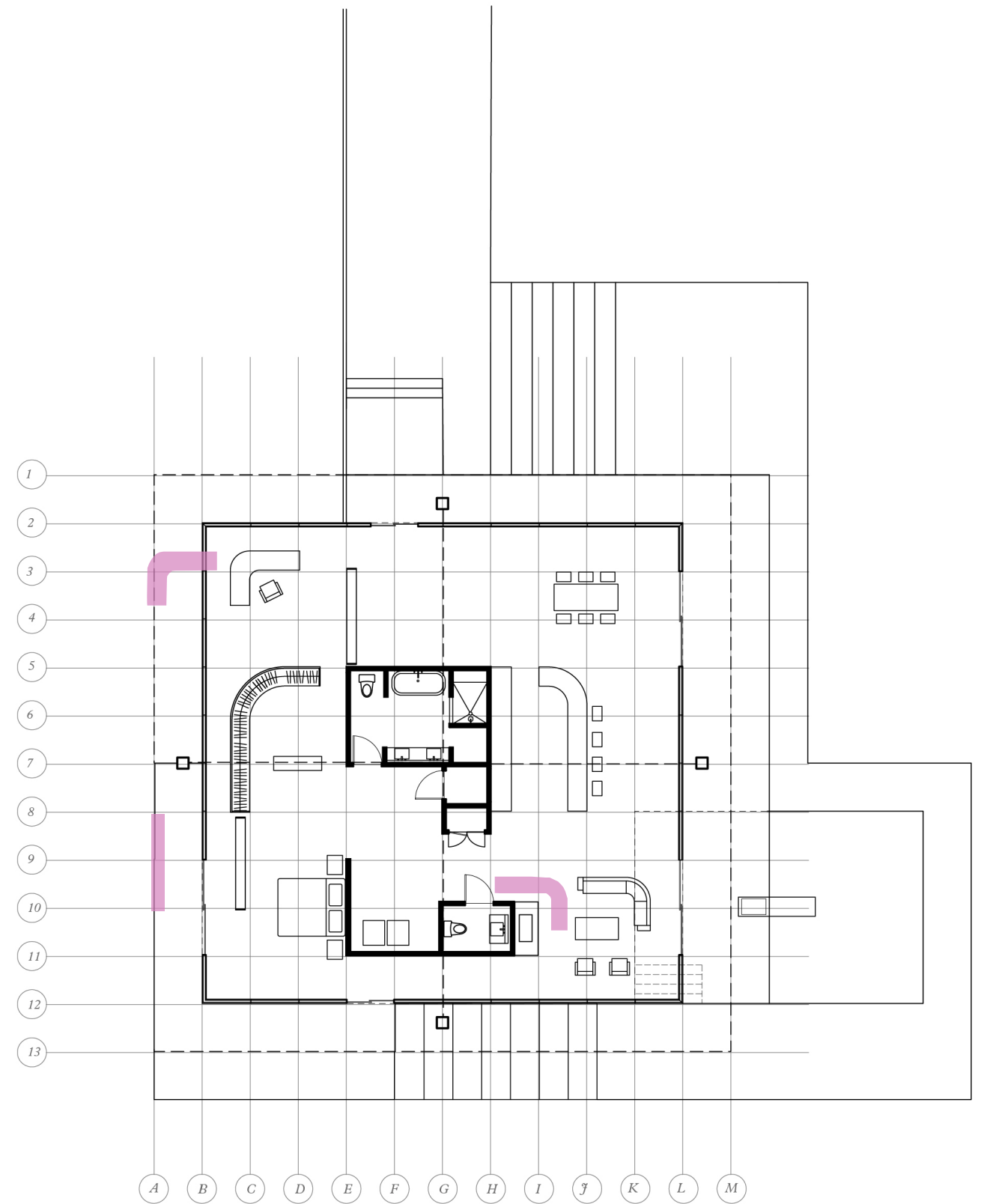


site plan
presley estates
scale: 1/32" = 1'0"

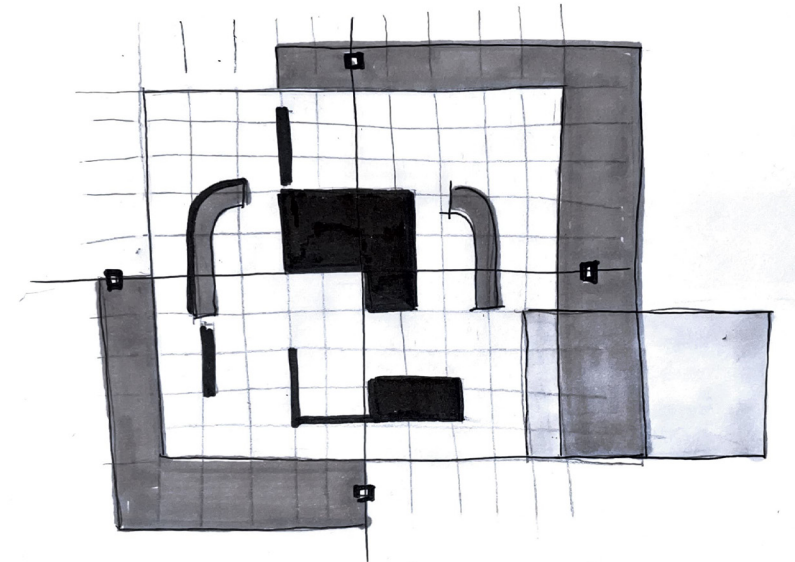
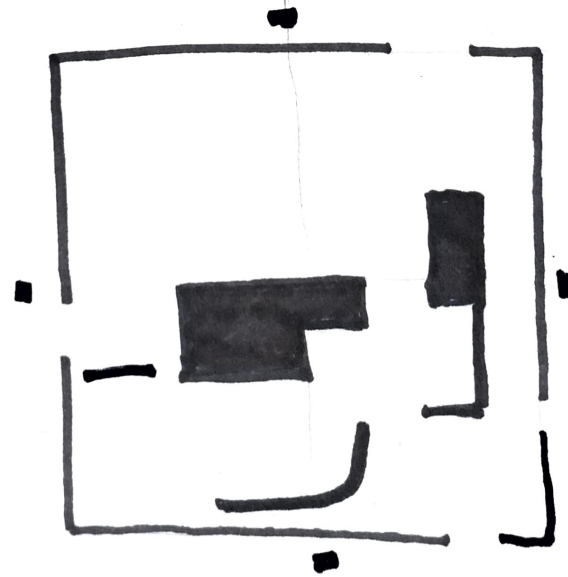
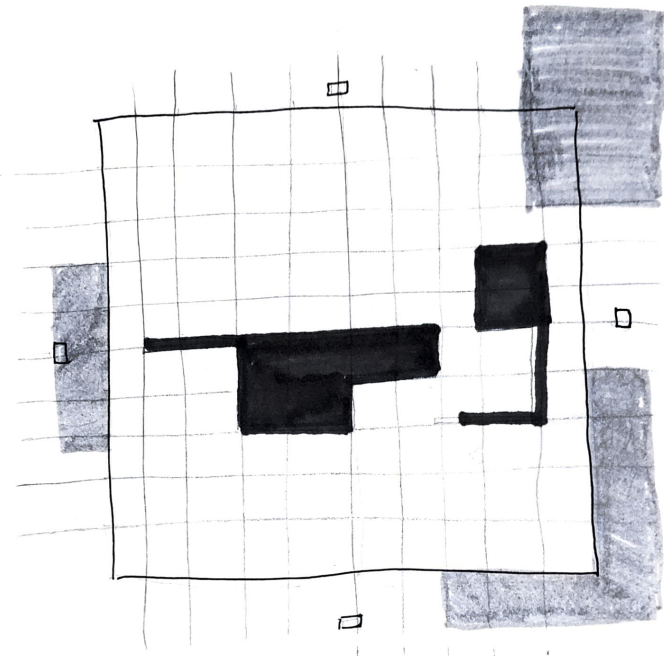


A large driver in our design was the opposing personalities of our clients Maria and Hank Nolan. The house aims to balance the private and social spaces to serve each client equally. We began by mapping out the personalities of each client with hand drawn diagrams to interpret how each person would use the space. In this process we introduced a “curve” in our plan which shelters the private space and divides it from the social space. Being a large deviation from the style of Mies and Myron, after midreview feedback we incorporated the “curve logic” into more elements of the house, making the curve a more prominent language.

Design by Green Team
 Watercolor Diagrams by Ellie Zukowski
 Floorplan Drawing by Ellie Zukowski

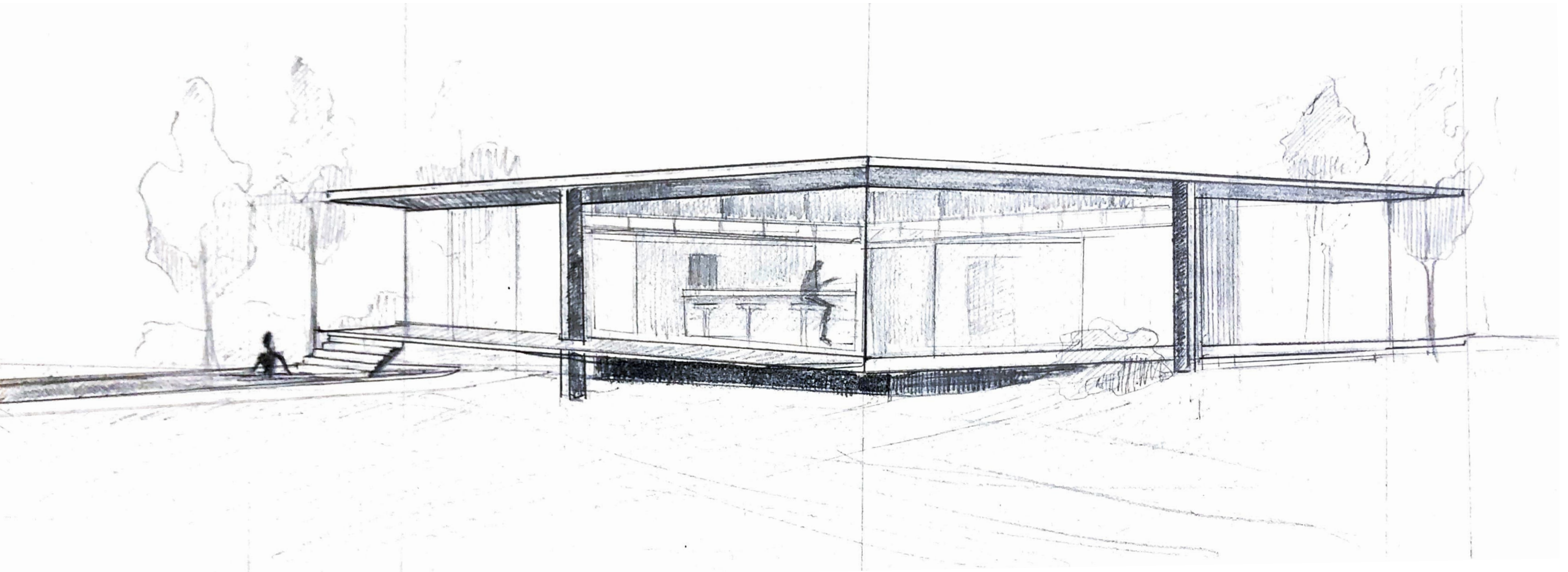


⌚ ground floor plan
 scale: 1/16" = 1'0"



In order to rationalize our design, we introduced a 5x5' grid running throughout the floorplan of the Nolan House. This grid influence the placement of each element of the house and extends into the surrounding landscape design. To accomplish this process we produced a series of Parti Sketches thoroughout the quarter.

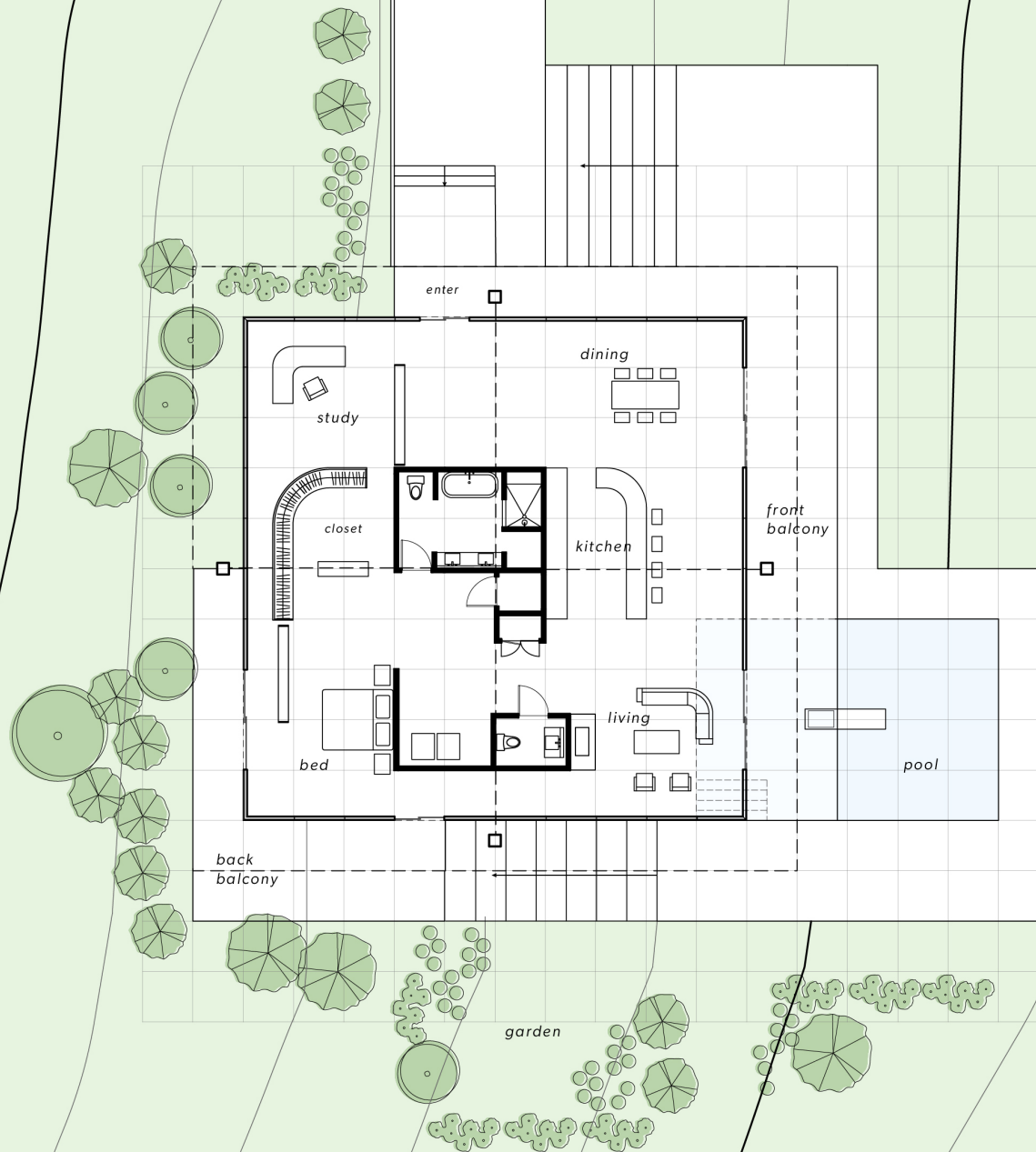
Parti Sketches by Ellie Zukowski



Process Perspective Sketch by Ellie Zukowski

PRESLEY ESTATES
PALM SPRINGS, CA
92262

W PANORAMA RD



The inner utility areas split the house into social and private spaces. After midreview feedback, we made the outdoor balcony spaces a larger element of our design. The back balcony serves as more private outdoor space and the front balcony serves as more social outdoor space and an outdoors extension of the living and dining areas. The main feature of the Nolan House, the pool running underneath the house, also became a larger element after our midreview. It extends out under the living room and serves as an outdoor "social hub".

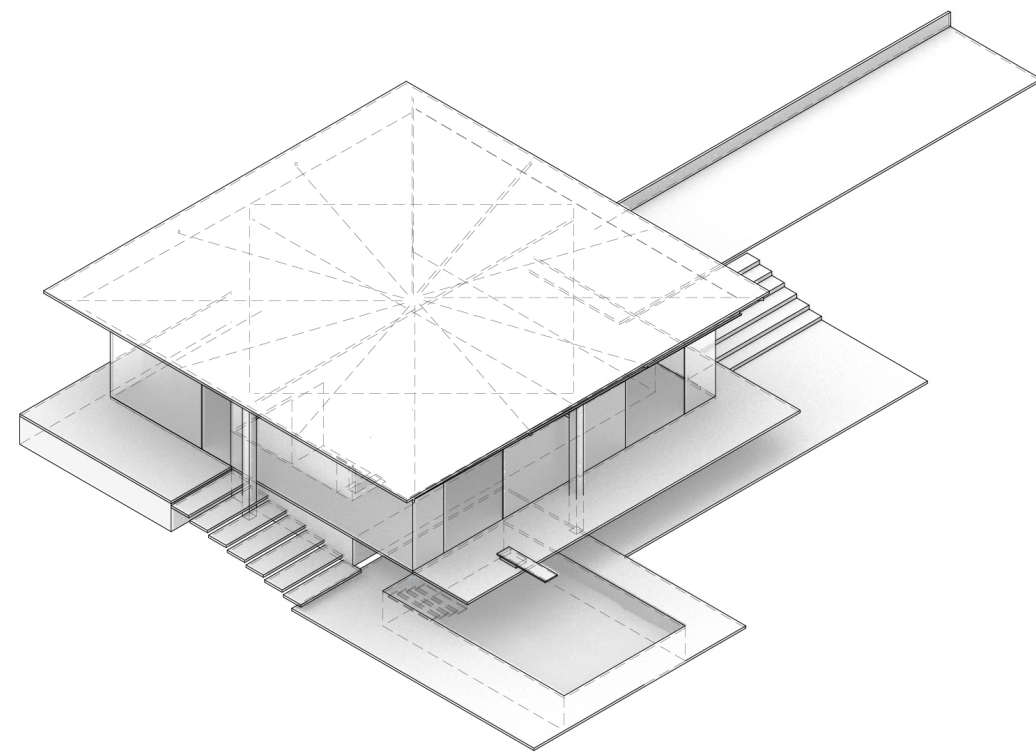
Parti Sketches by Ellie Zukowski



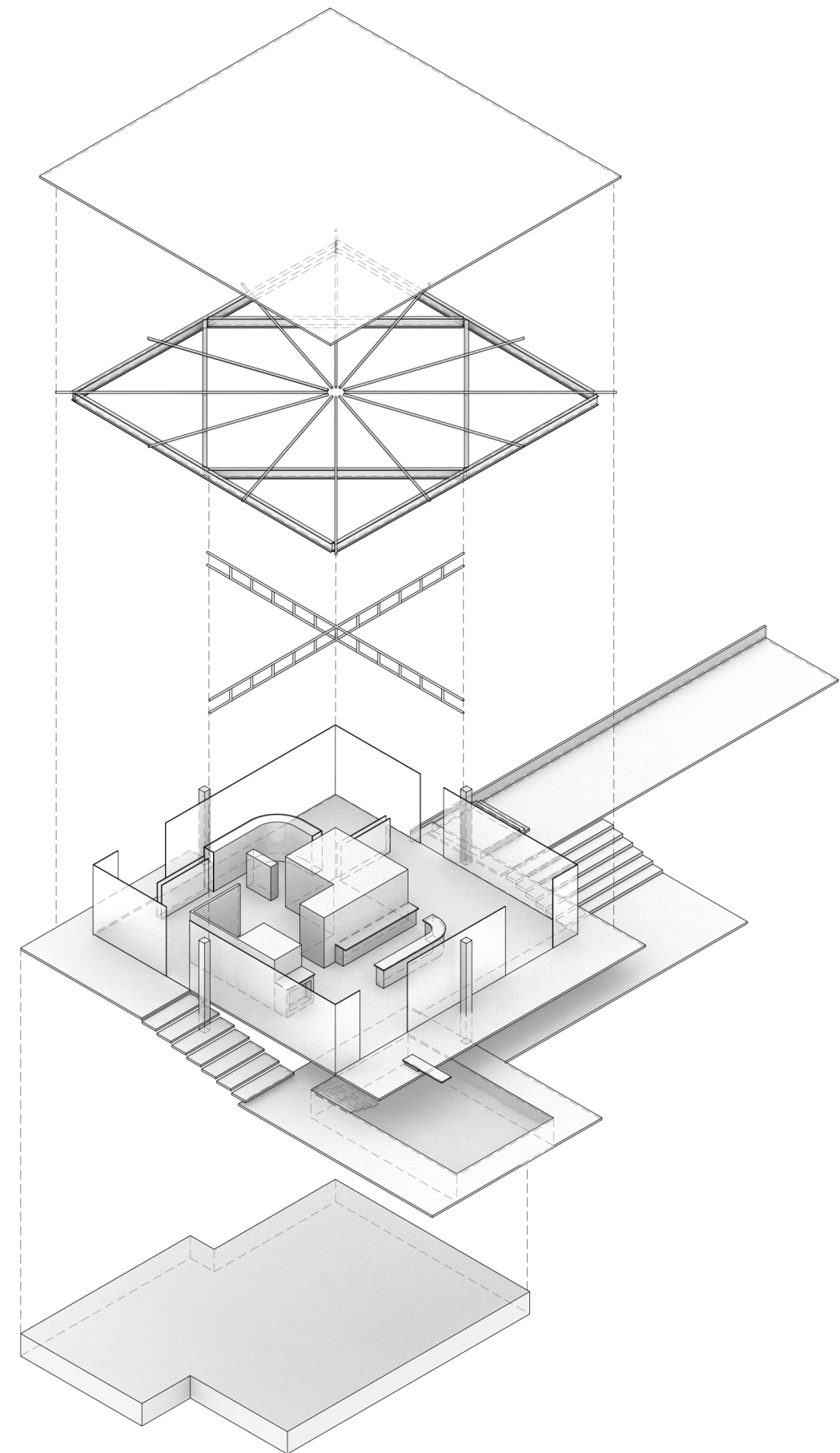
site plan
palm springs, CA
scale: 1/16" = 1'0"

An intact versus exploded view helps understand the relationship between the structure and the floorplan of the Nolan House. The truss crossing in the middle of the roof begins to split the floor plan into quadrants relating to the four main areas of the house -- bedroom, study, living room, dining room. The utilities at the center split these areas into social and private.

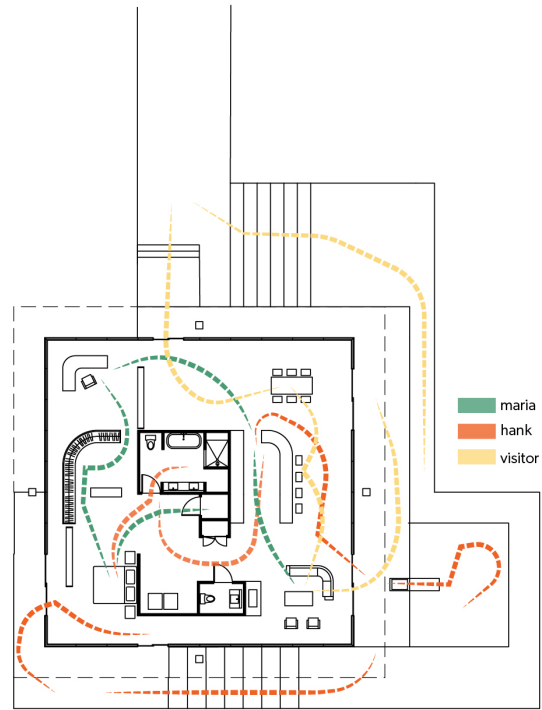
Design by Green Team
Axonometric Drawings by Ellie Zukowski



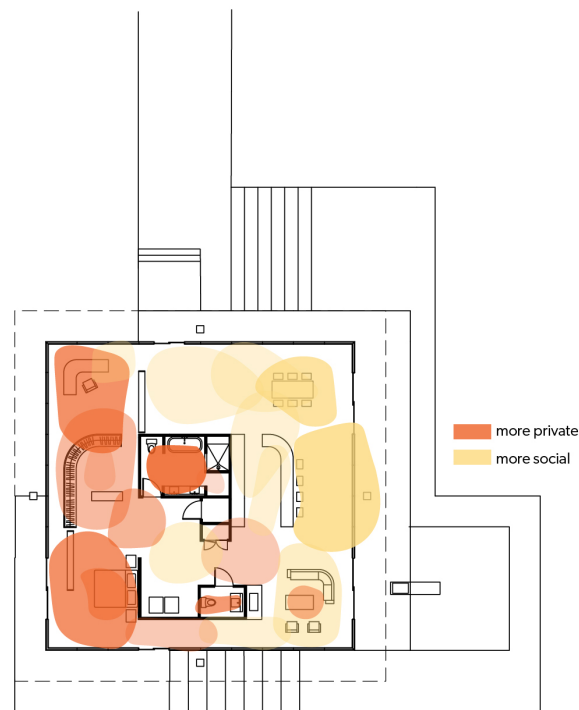
intact



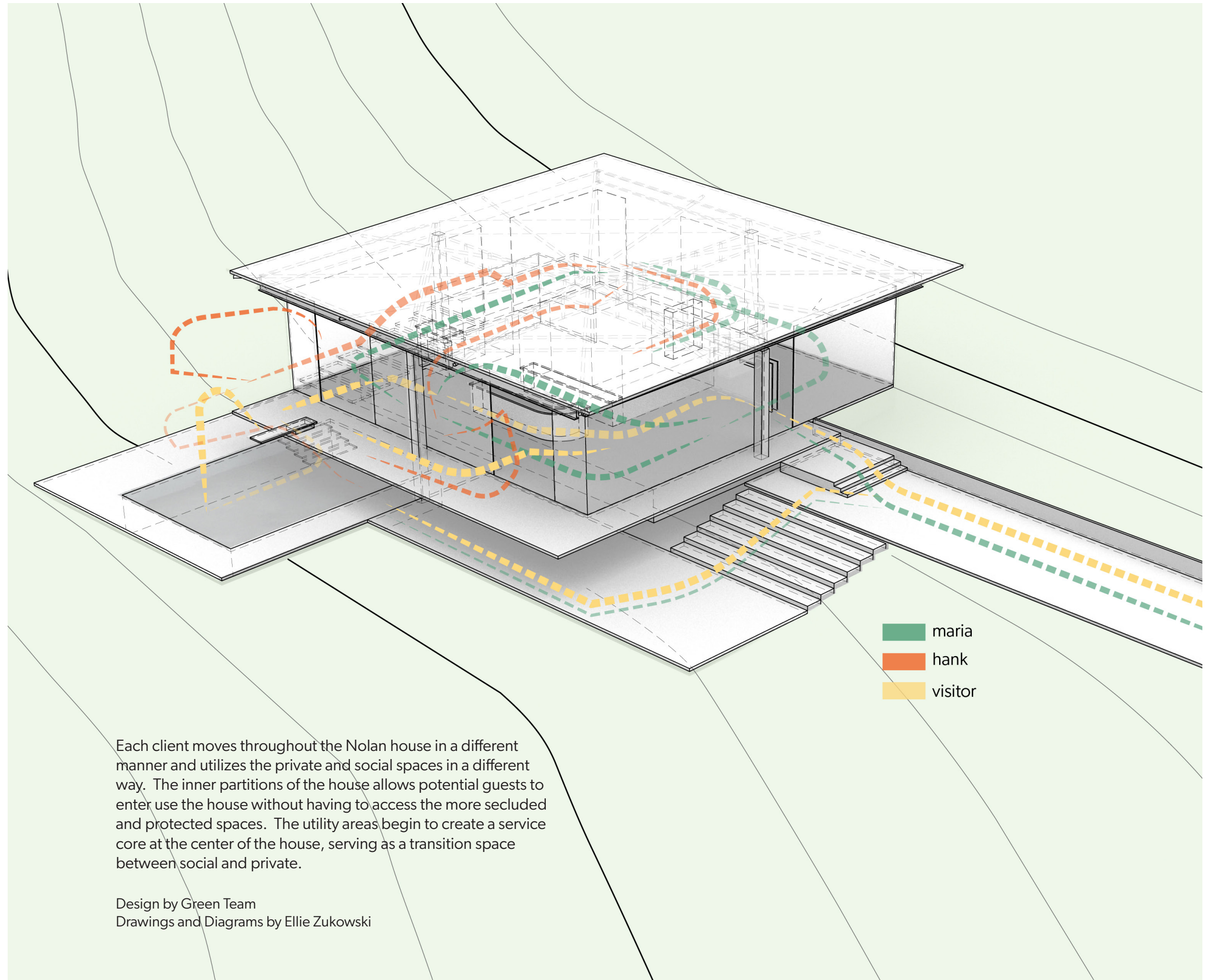
exploded



circulation

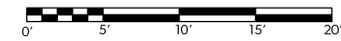
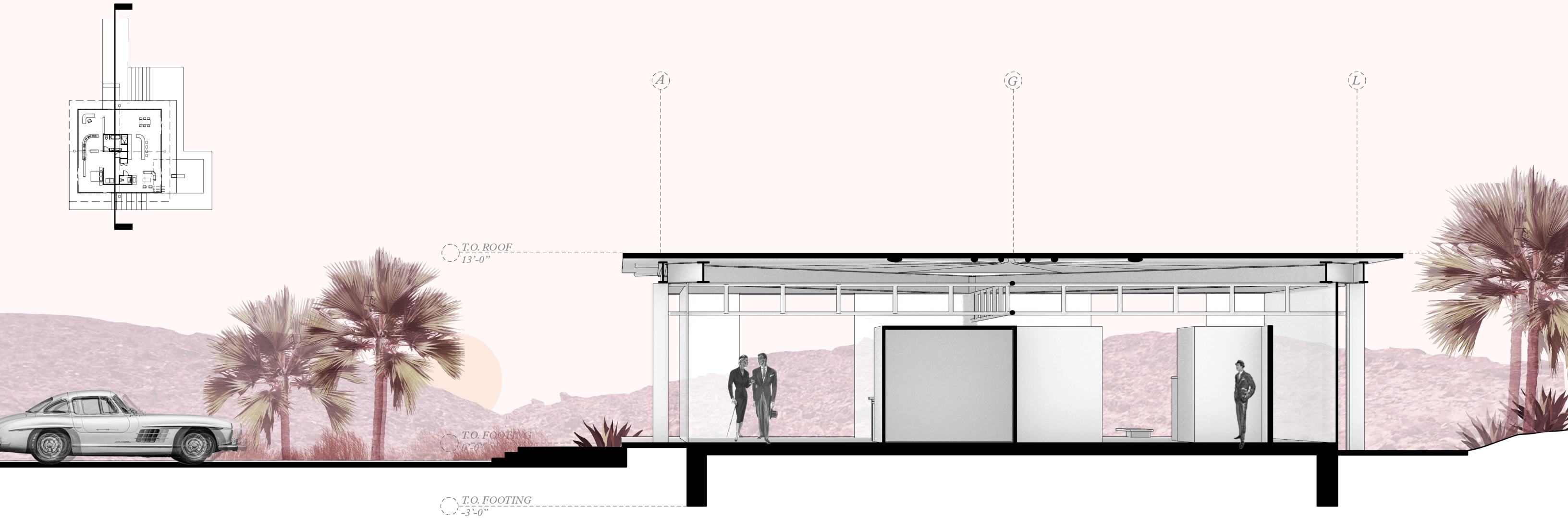
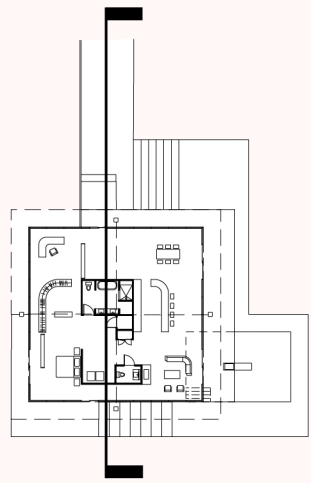


public / private



Each client moves throughout the Nolan house in a different manner and utilizes the private and social spaces in a different way. The inner partitions of the house allows potential guests to enter use the house without having to access the more secluded and protected spaces. The utility areas begin to create a service core at the center of the house, serving as a transition space between social and private.

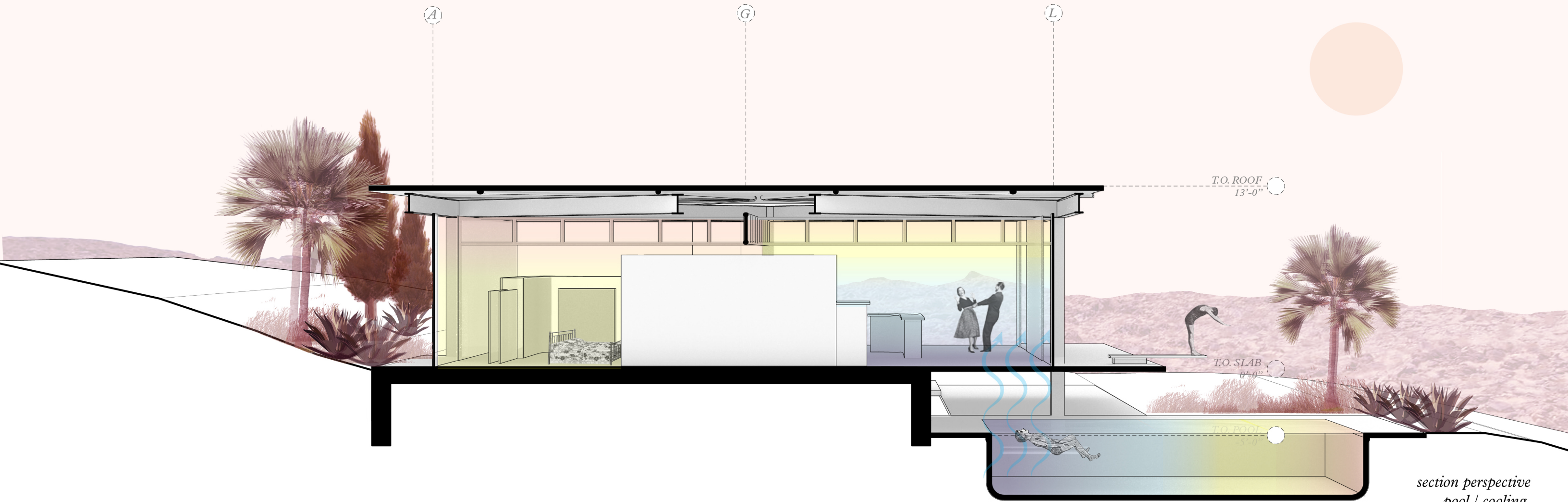
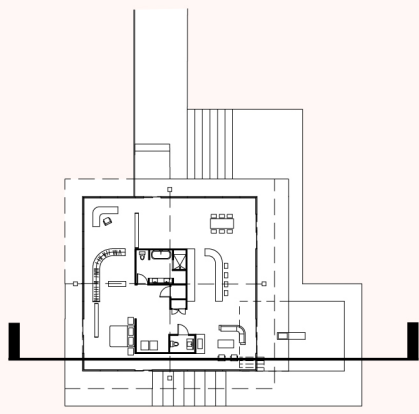
Design by Green Team
 Drawings and Diagrams by Ellie Zukowski



*section perspective
entry sequence
palm springs, CA*

From the driveway, the user steps up onto the front balcony to enter the building. On the other side of the house is the more secluded back balcony.

Design by Green Team
Section Drawing by Ellie Zukowski



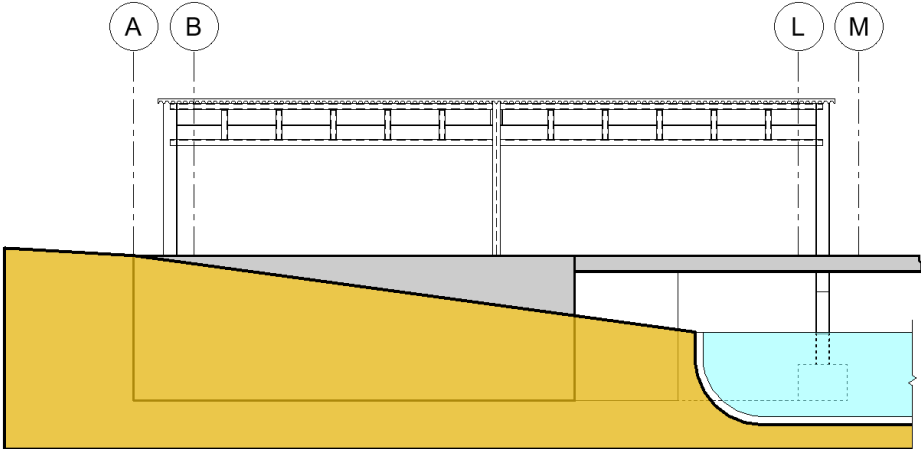
*section perspective
pool / cooling
palm springs, CA*

The cantilevering slab over the pool becomes a shaded place to cool off and relax during hot desert days in Palm Springs. This has a possibility to become a cooling method for the house.

Design by Green Team
Section Drawing by Ellie Zukowski

FOUNDATION PLAN

6" Ribbed Slab System
 Partially On-Grade, Partially Cantilevered
 Grade Beams For Moment Transfer

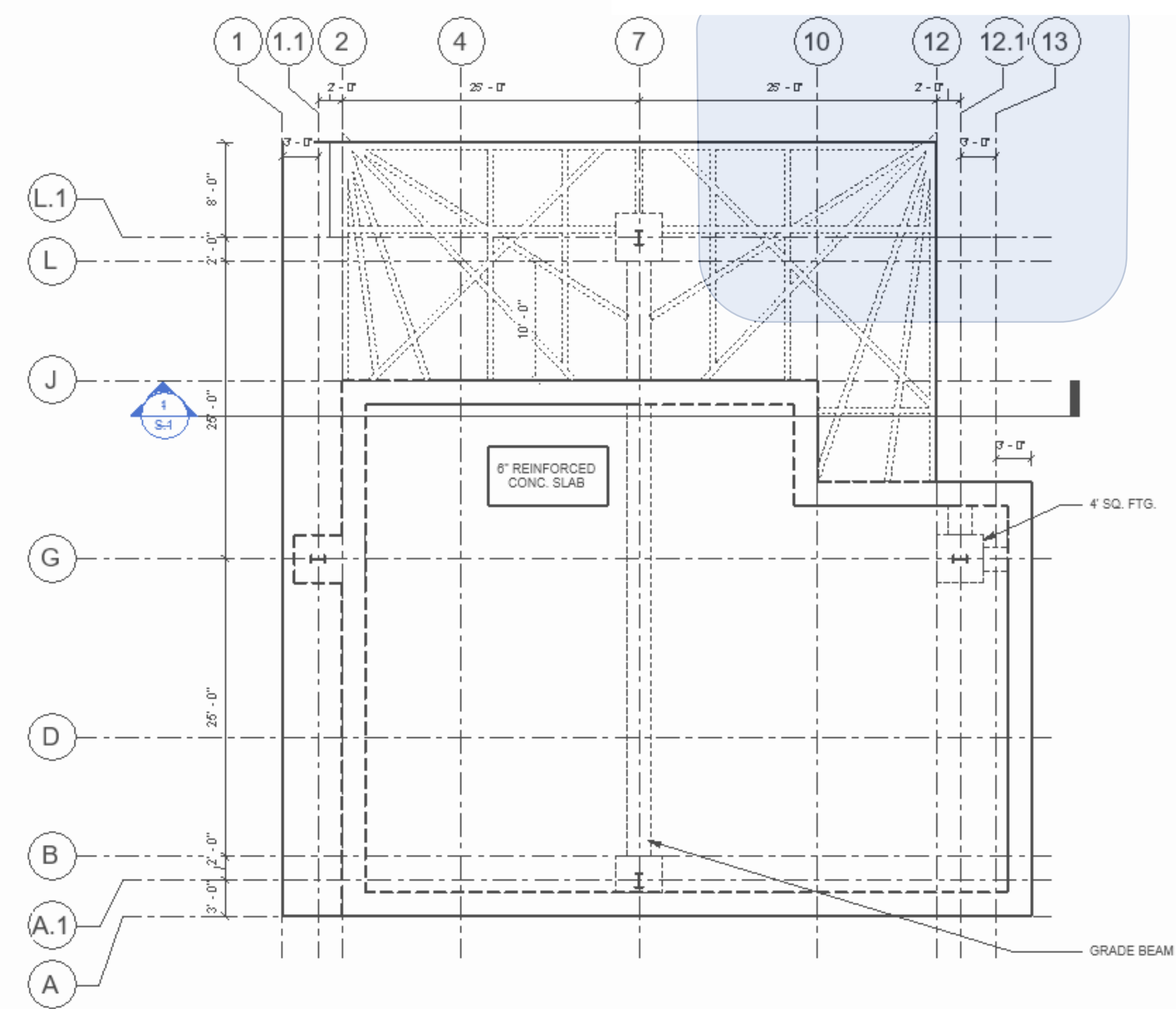


EAST ELEVATION

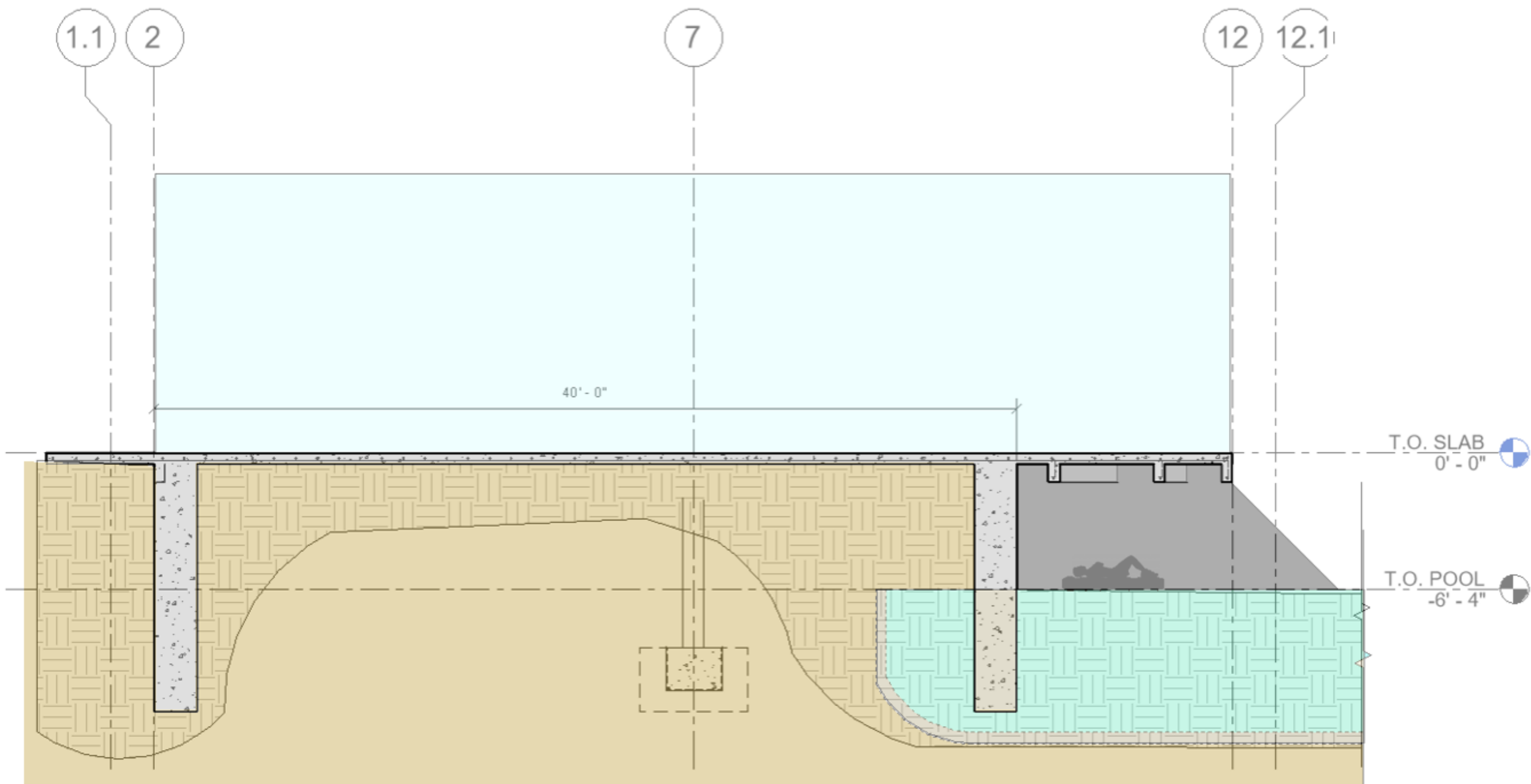
Site slopes ~ 5 feet across site

FLOOR LOADING

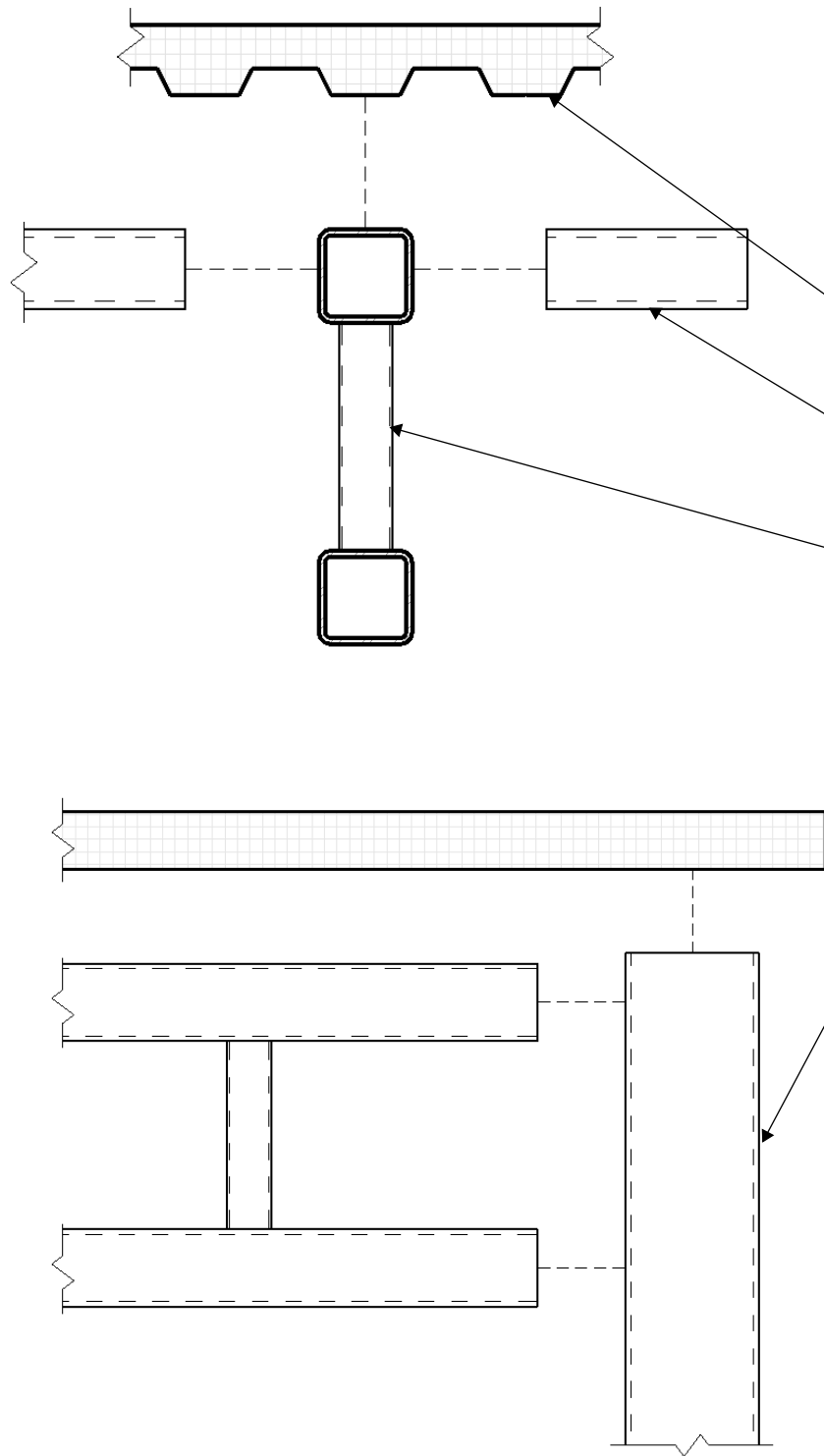
Floor	D	L
Slab	57	0
Kitchen + Living	5	40
Dining	0	50
Total	62	50
1.2D+1.6L	149.4 psf	



FOUNDATION SECTION



GRAVITY SYSTEM DESIGN

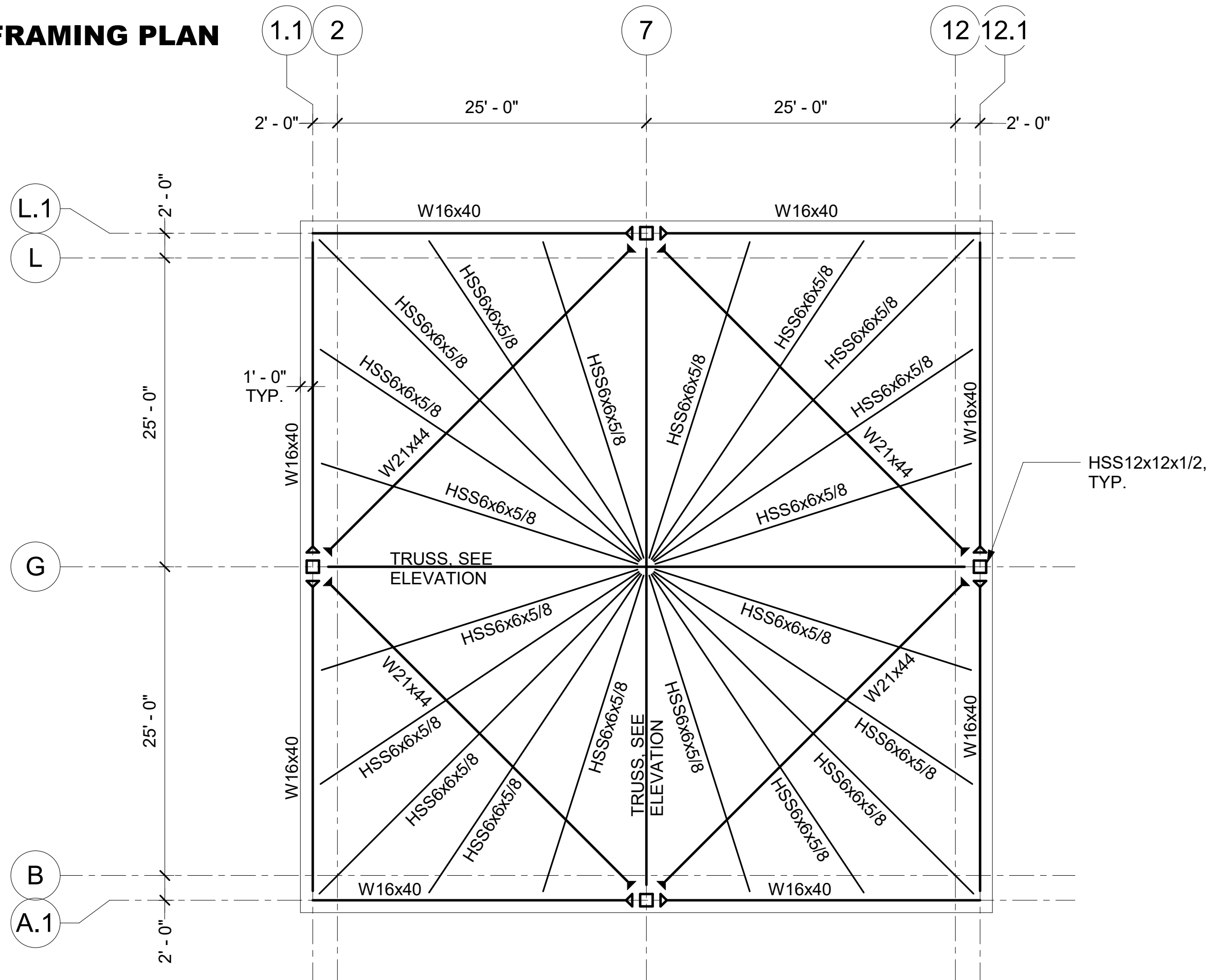


Dead Load Takeoff - Roof Level						
Item	Description	Slab (psf)	Secondary (psf)	Primary (psf)	Columns (psf)	Seismic (psf)
Steel Deck	W2x20Ga	5	5	5	5	5
Secondary Framing	HSS Square		4	4	4	4
Primary Framing	Vierendeel Trusses			3	3	3
Column/Lateral System	SMF Lateral				2	2
Total Structural Weight		5	9	12	14	14
Roofing		4	4	4	4	4
Rigid Insulation (1" Thick)		1.5	1.5	1.5	1.5	1.5
MEP		2	2	2	2	2
Ceiling/Lighting		1	1	1	1	1
Fireproofing		1	1	1	1	1
Miscellaneous		1.5	1.5	3.5	1.5	1.5
Total Design Dead Load		16	20	25	25	25

Live Load per ASCE 7-16, Table 4.3-1		
Live Load	Typical Roof	20

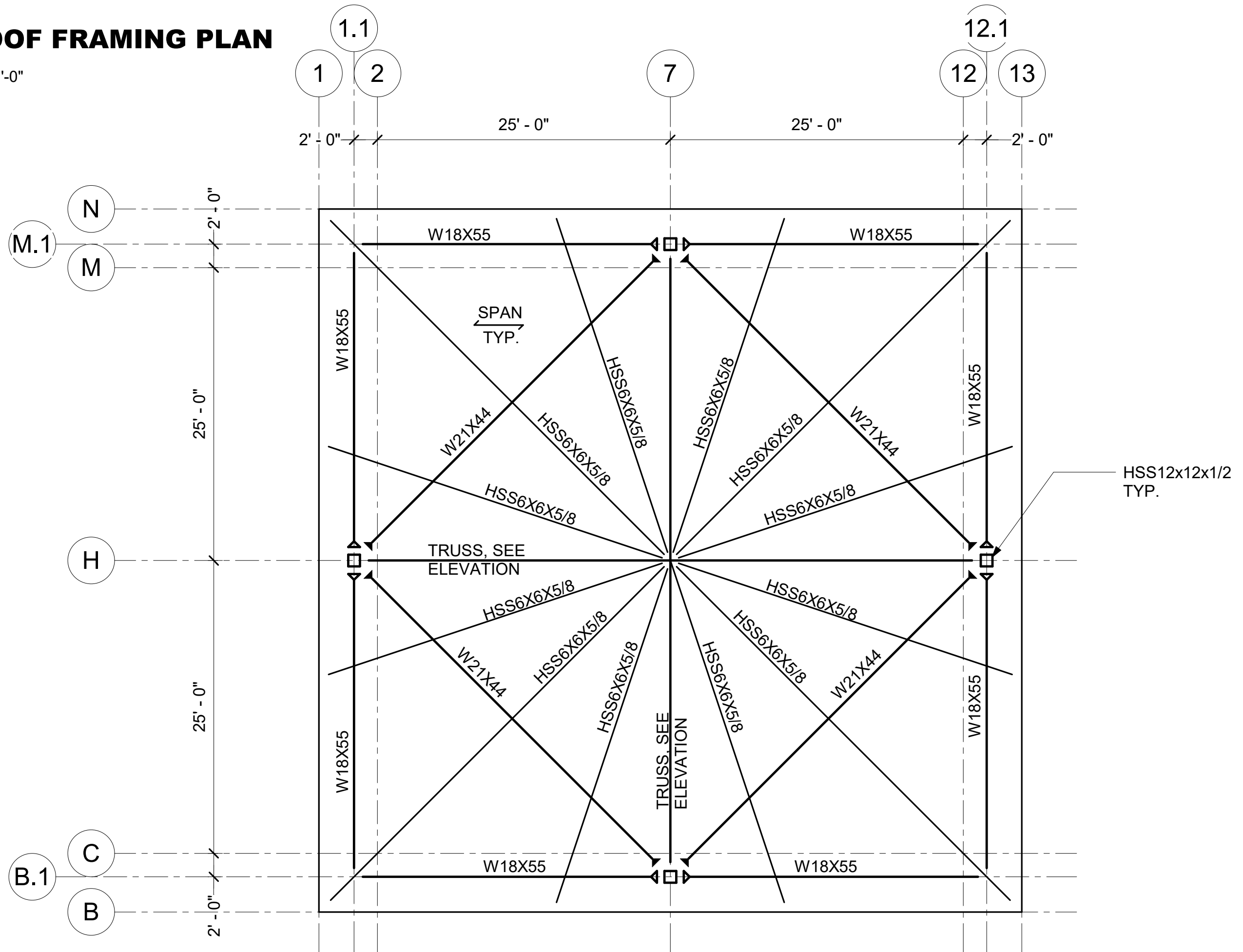
OLD ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"



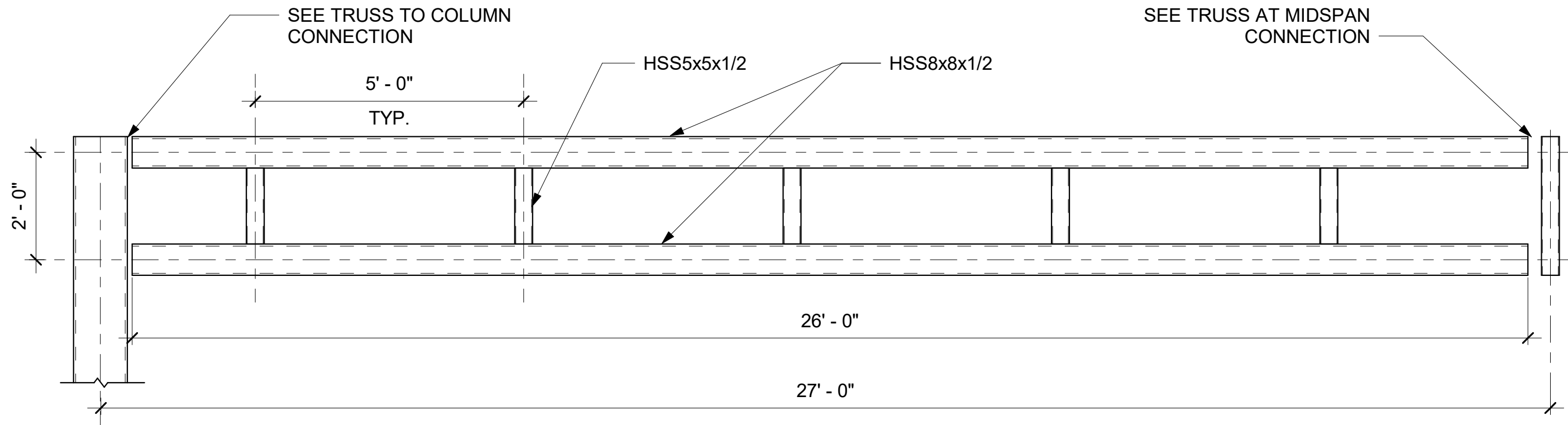
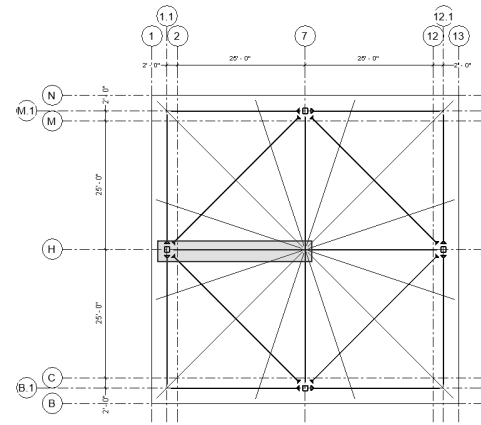
NEW ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

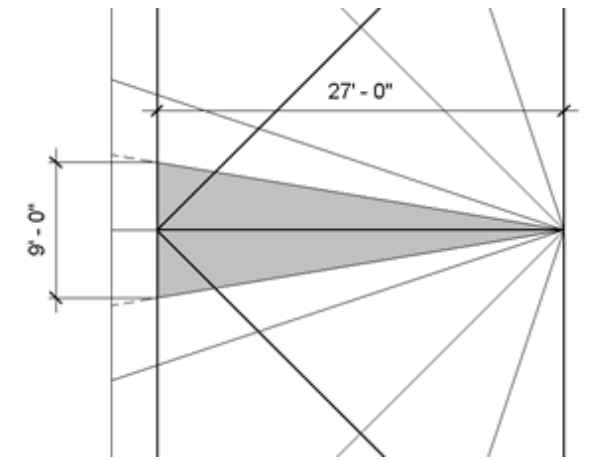
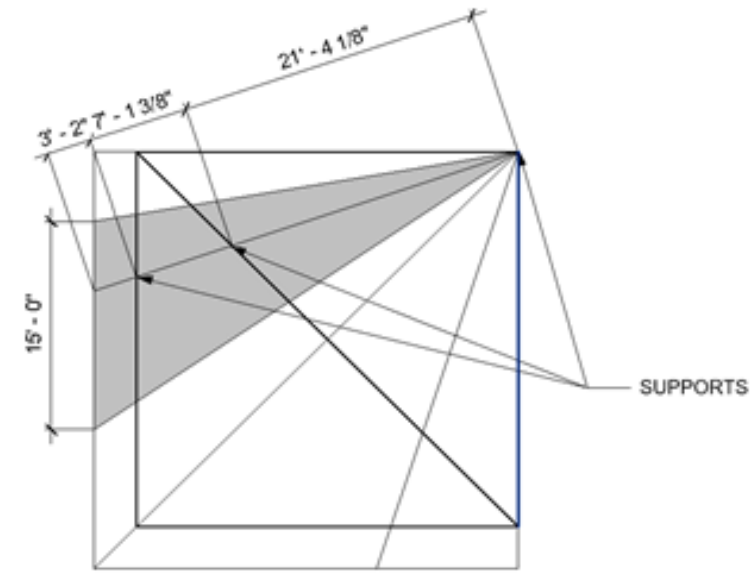
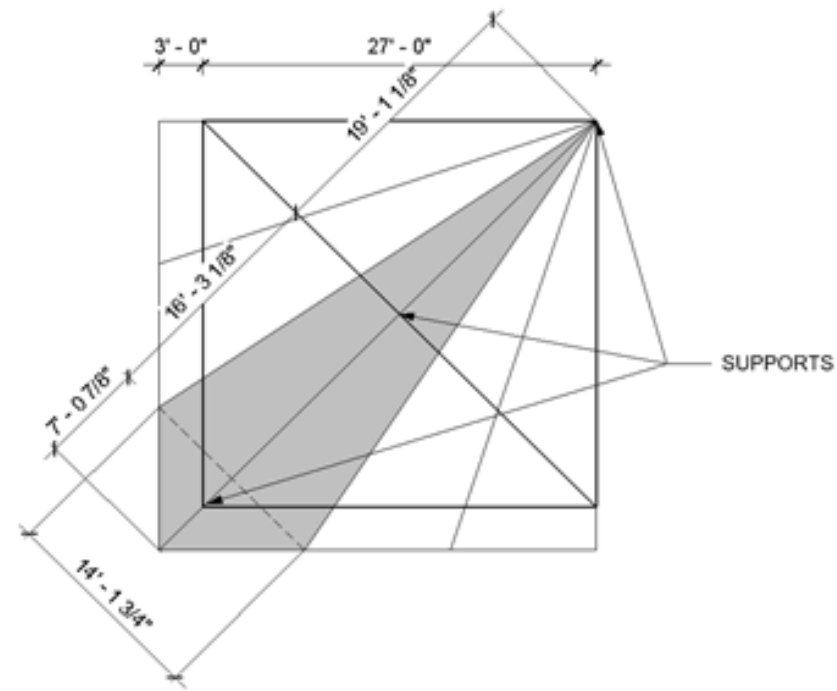
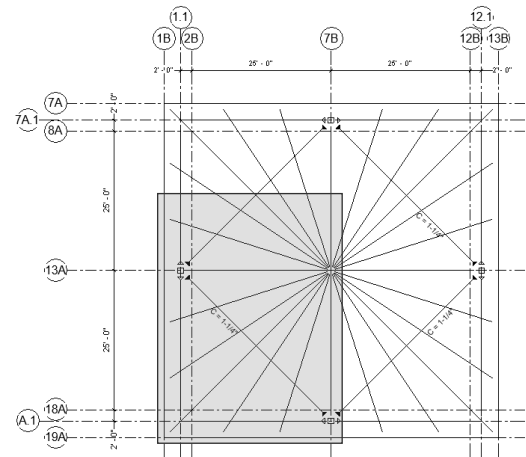


VIERENDEEL TRUSS ELEVATION

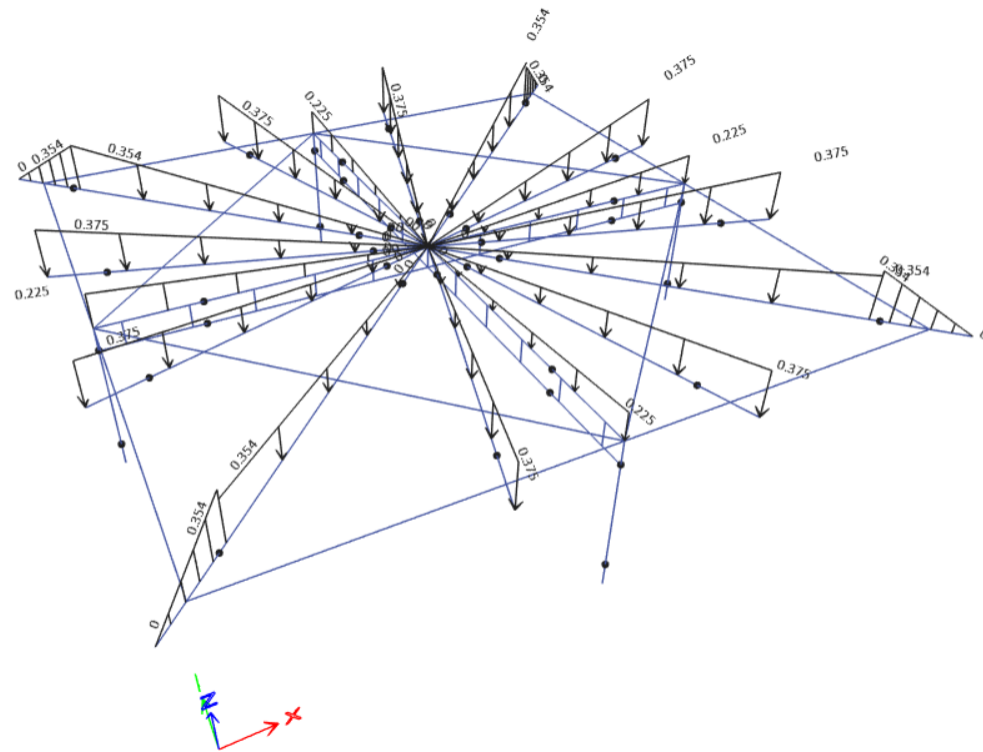
SCALE: 1/2" = 1'-0"



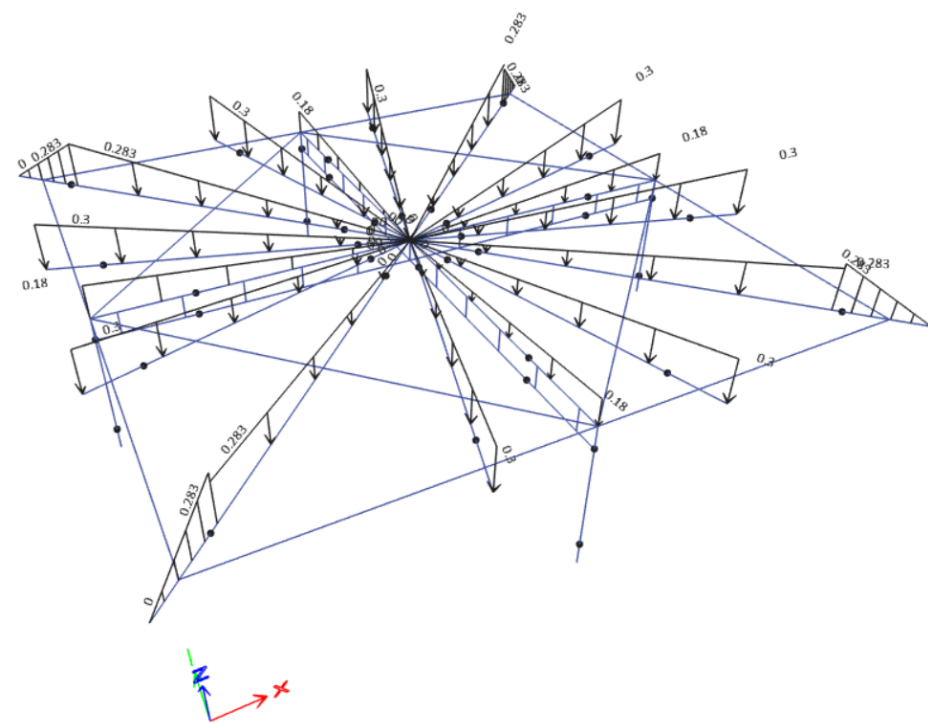
LOAD PATH AND SECONDARY FRAME LOADING



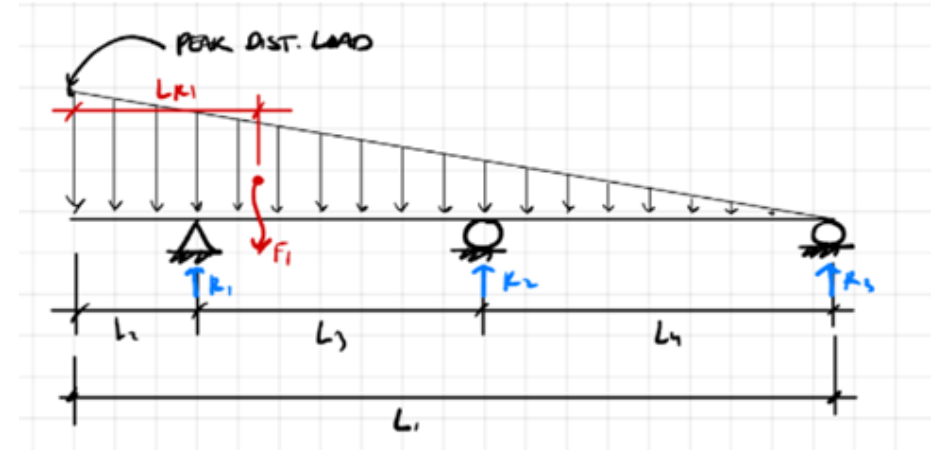
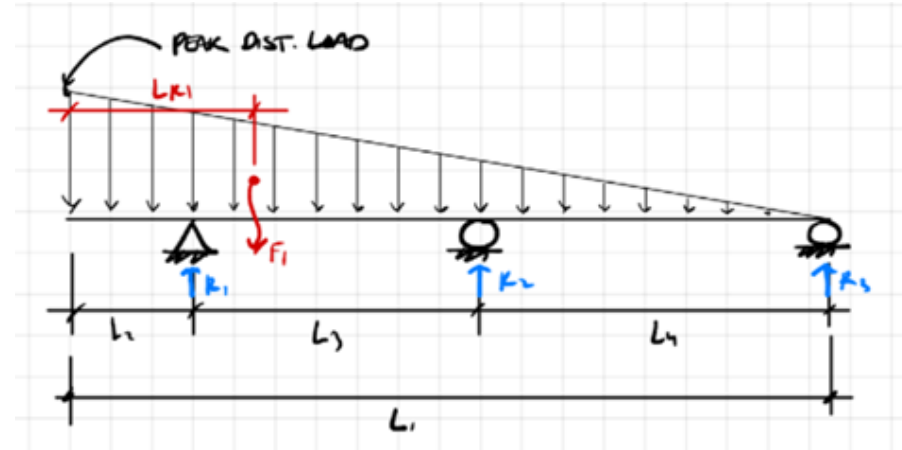
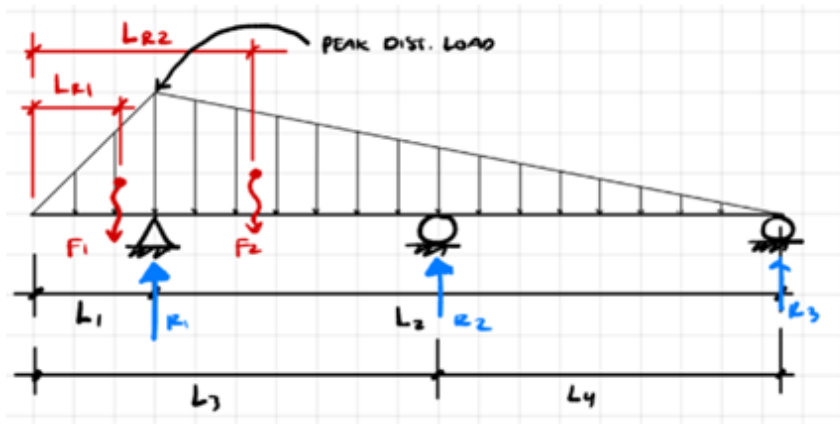
DEAD LOAD



LIVE LOAD



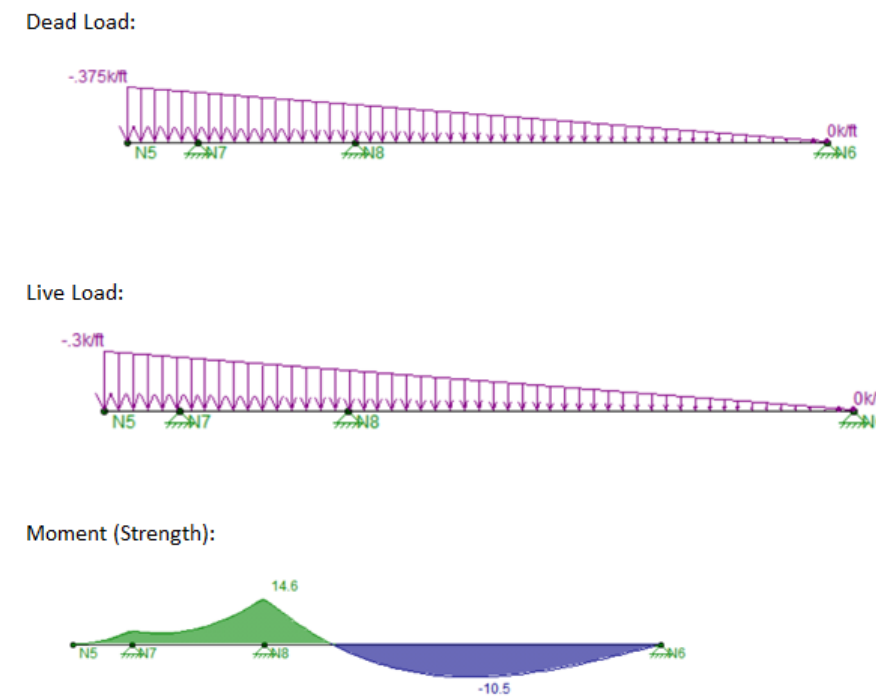
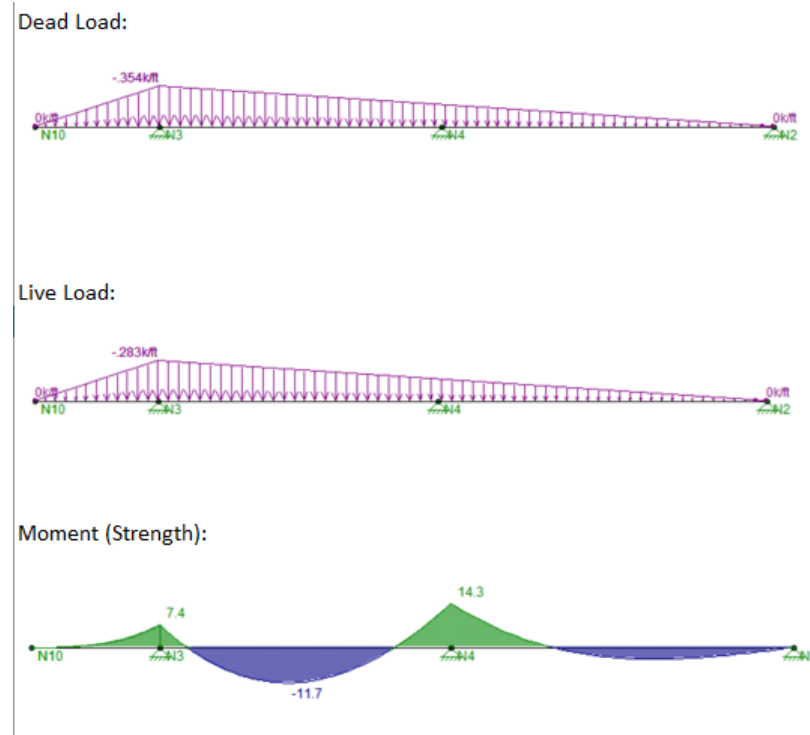
LOAD MODELING



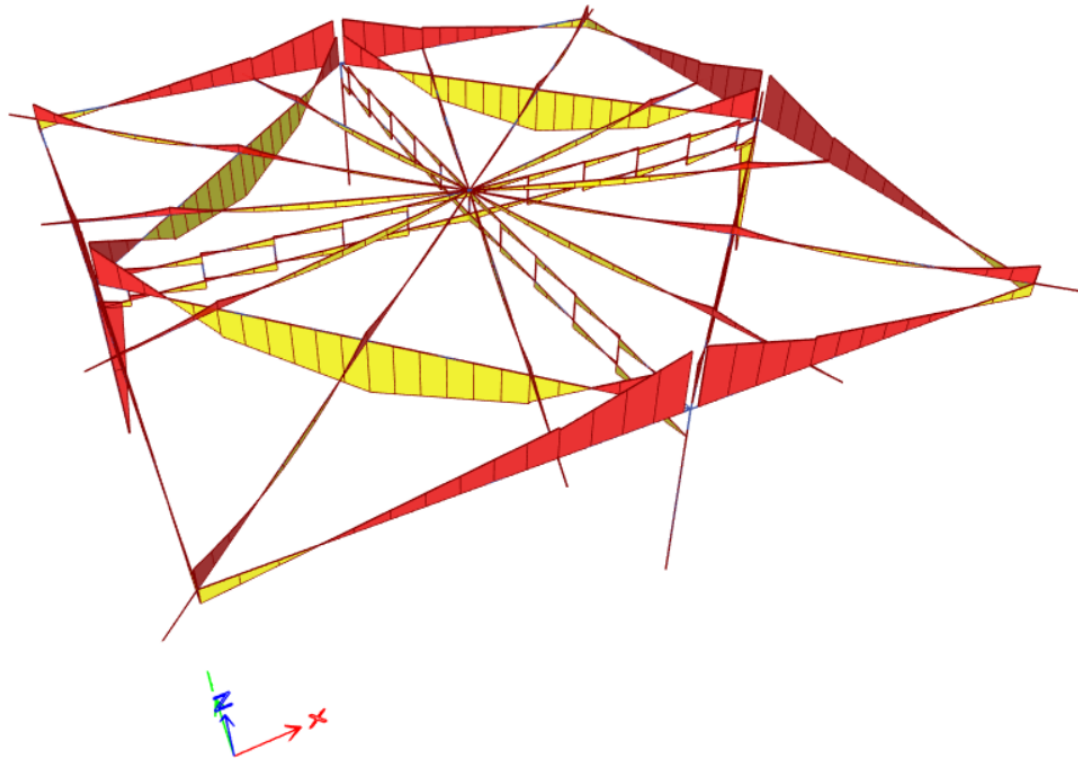
Secondary Beam Design		
Dead Load	25 psf	
Live Load	20 psf	
Load Length 1, L1	7.13 ft	
Load Length 2, L2	35.35 ft	
Total Length	42.48 ft	
Peak Tributary Width	14.15 ft	
	Service	Strength
Peak Distributed Load	636.75 plf	877.3 plf
Resultant load 1	2.27001 kips	3.12757 kips
Resultant Load 2	11.2546 kips	15.5063 kips
Resultant Location, LR1	4.75333 ft	(Relative to Left End of Beam)
Resultant Location, LR2	18.9133 ft	

Secondary Beam Design		
Dead Load	25 psf	
Live Load	20 psf	
Load Length 1, L1	31.63 ft	
Total Length	31.63 ft	
Peak Tributary Width	15 ft	
	Service	Strength
Peak Distributed Load	675 plf	930 plf
Resultant load 1	10.6751 kips	14.708 kips
Resultant Location, LR1	10.54 ft	(Relative to Left End of Beam)

Secondary Beam Design		
Dead Load	25 psf	
Live Load	20 psf	
Load Length 1, L1	27 ft	
Total Length	27 ft	
Peak Tributary Width	9 ft	
	Service	Strength
Peak Distributed Load	405 plf	558 plf
Resultant load 1	5.4675 kips	7.533 kips
Resultant Location, LR1	9 ft	(Relative to Left End of Beam)

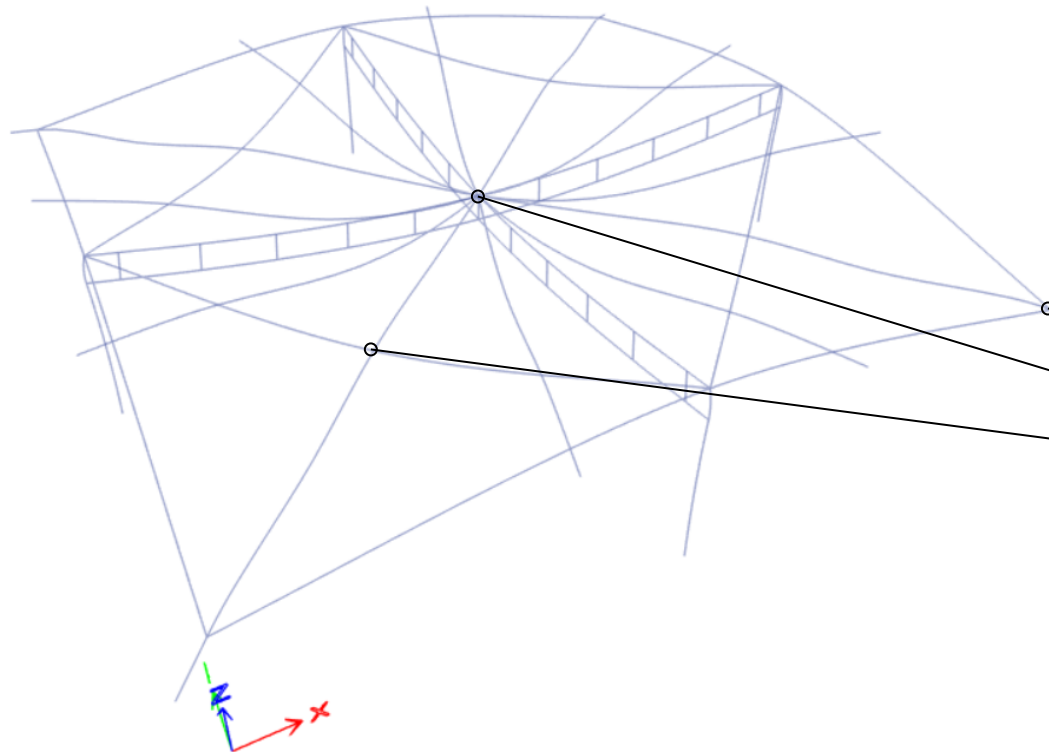


DESIGN CHECKS



Moment Capacity Check (k-ft)			
Member Type	Member Size	Demand	Capacity
Joist	HSS6x6x5/8	14.1	87
Truss Chord	HSS8x8x1/2	15.1	140
Truss Web	HSS5x5x1/2	19.7	49
Perimeter Beam	W18x55	104.2	420
Diagonal Beam	W21x44	98.6	358
Column	HSS12x12x1/2	36.0	336

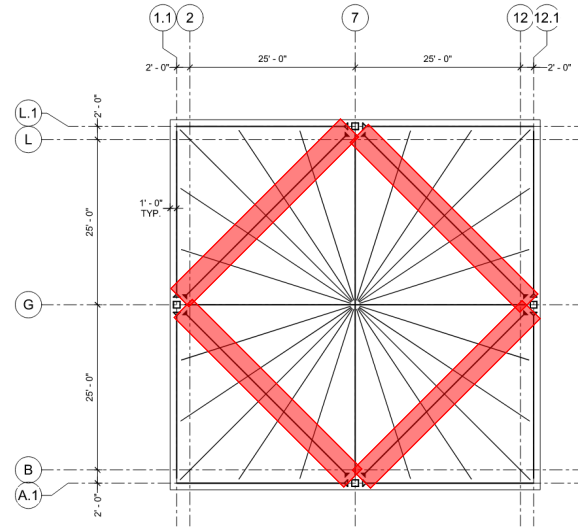
DEFLECTED SHAPE



Maximum Deflections (in)			
	D+L	Asymmetric L D Only	
Corner Deflection	1.23	1.6	0.68
Midspan Deflection	0.92	0.76	0.51
Diagonal Beam Deflection	0.76	0.85	0.42

No camber necessary from dead load deflections.

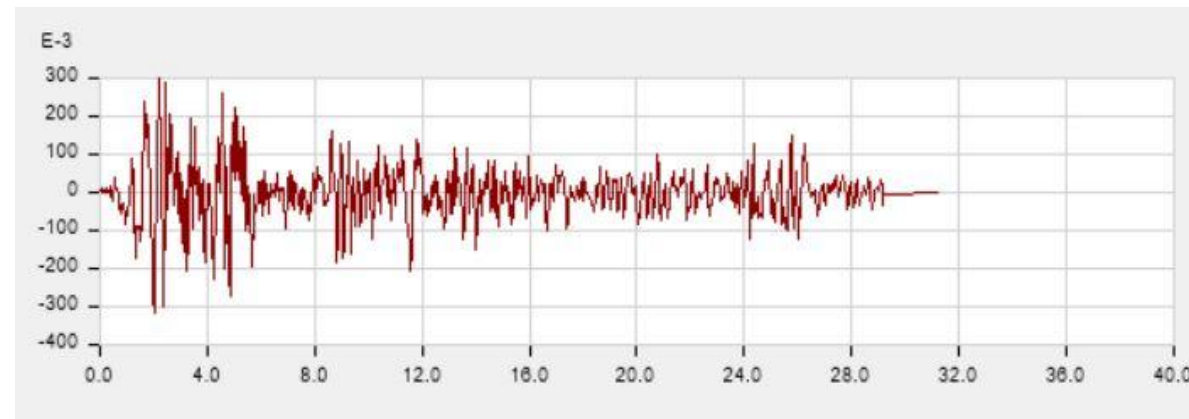
LATERAL SYSTEM ANALYSIS



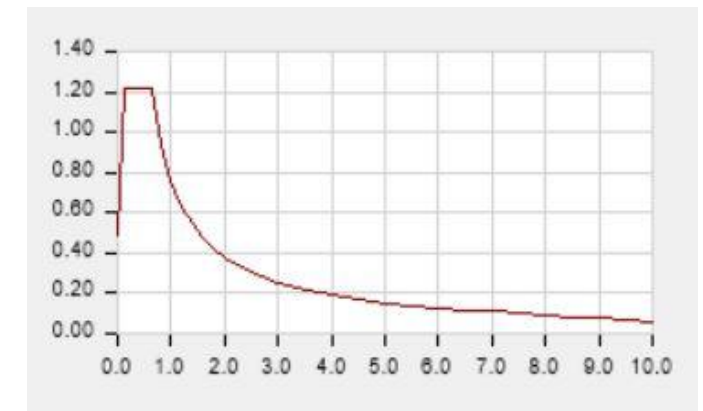
ETABS ANALYSIS

Seismic Coefficients	
Spectral Accel., Ss	1.823
1 Sec Spectral Accel., S1	0.758
Long-Period	8
Site Class	B
Sds	1.0938
Sd1	0.4043
Response Modification, R	8
System Overstrength	3
Deflection Amplification, Cd	5.5
Occupancy Importance	1

EQUIVALENT LATERAL FORCE METHOD



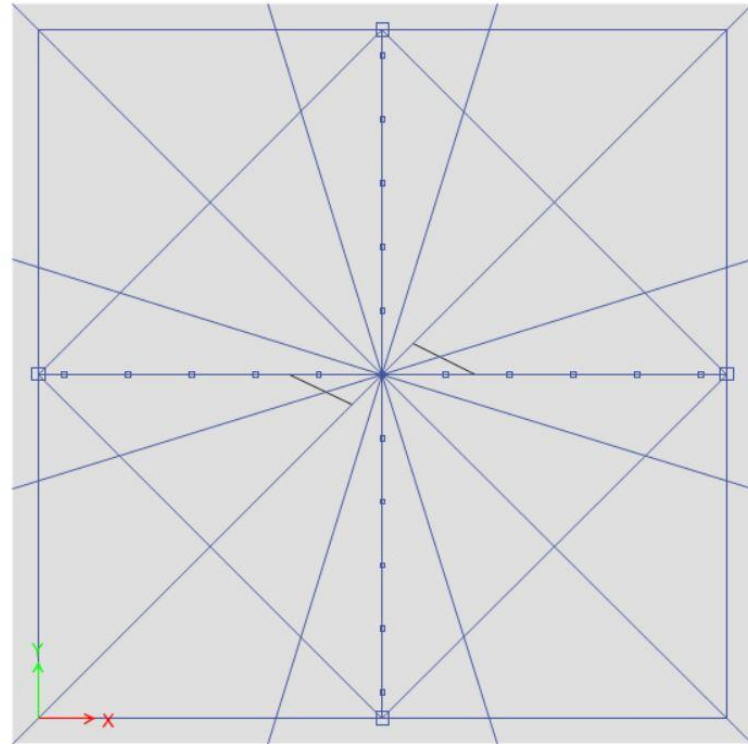
EL CENTRO



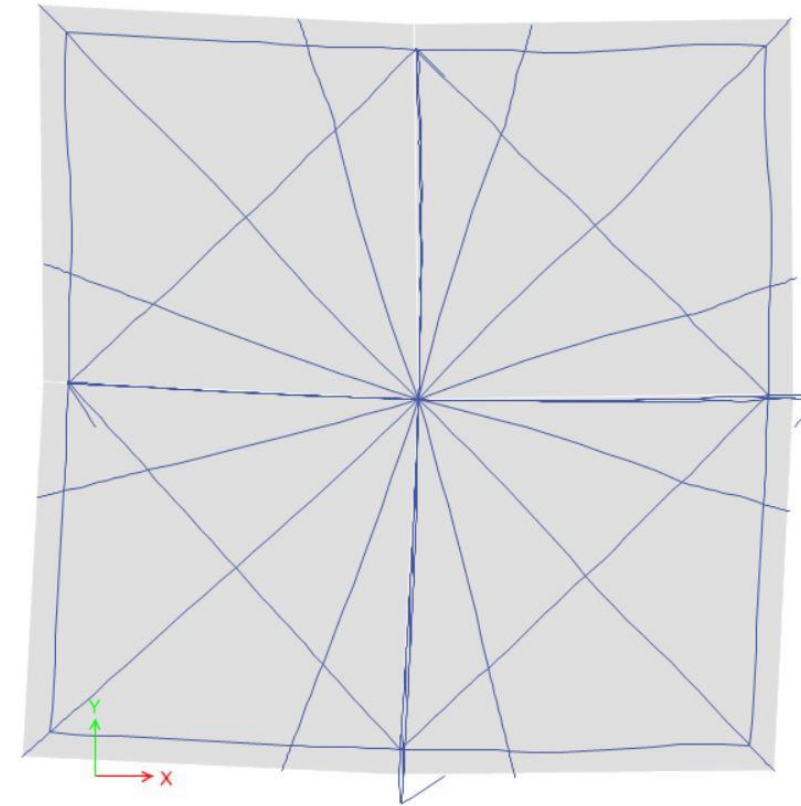
PALM SPRINGS RESPONSE SPECTRA

The information shown below is a summary of the input into the structural analysis program ETABS. Three different approaches were taken to assess the structure. Also, it is important to note that this special moment frame with shared columns is not allowed unless tested first. Further analysis and design will need to take place if the client chooses to opt out of testing approval.

LATERAL SYSTEM ANALYSIS



UNDEFLECTED SHAPE



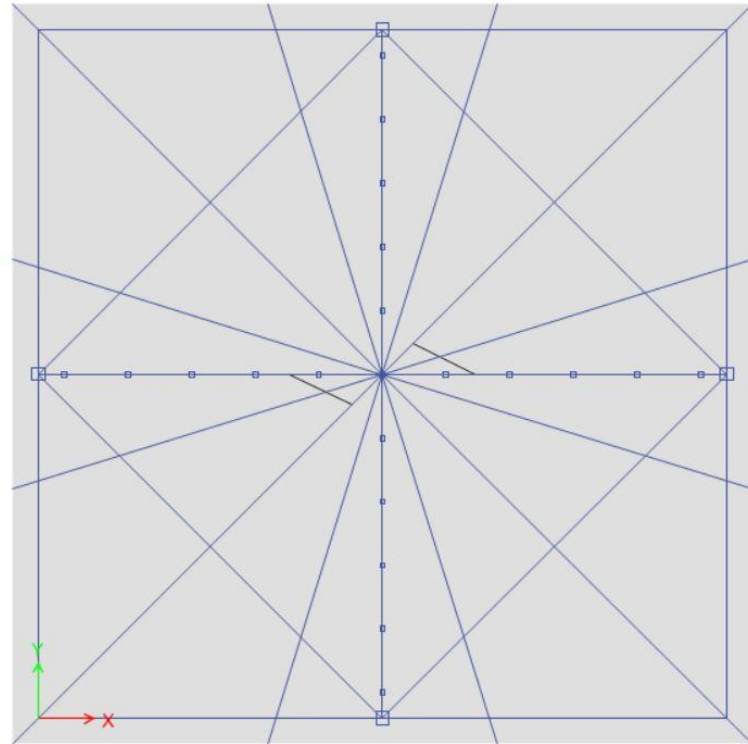
DEFLECTED SHAPE

The story drift results from an enveloped procedure is shown in the table. Compared to the maximum story drift based on the International Building Code, the building drift is well within the limits.

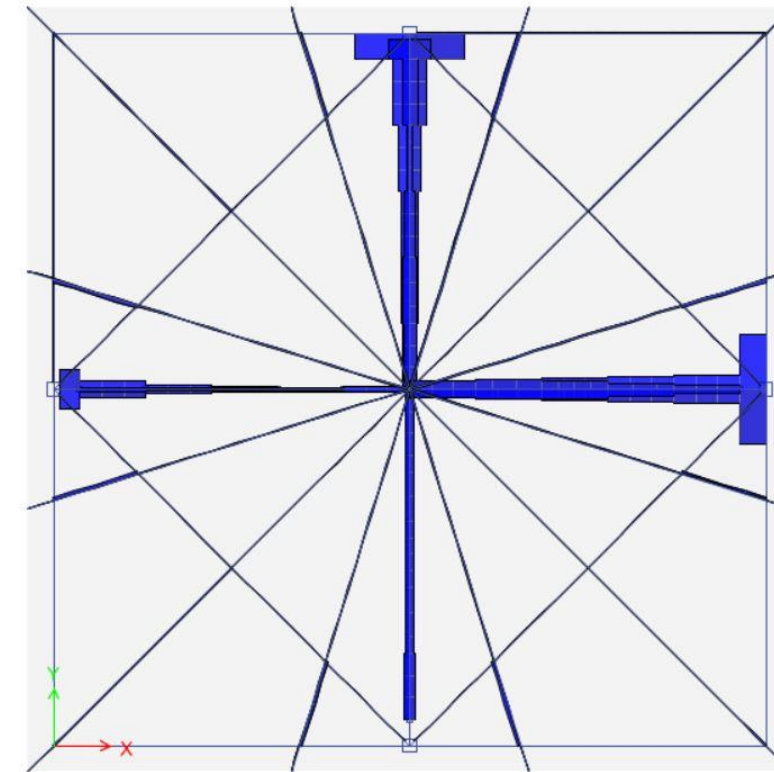
Story Drift Results (inches)	
X	0.0892
Y	0.0871

Maximum Story Drift (inches)	
0.025 x 13'	3.9

LATERAL SYSTEM ANALYSIS



UNDEFLECTED SHAPE

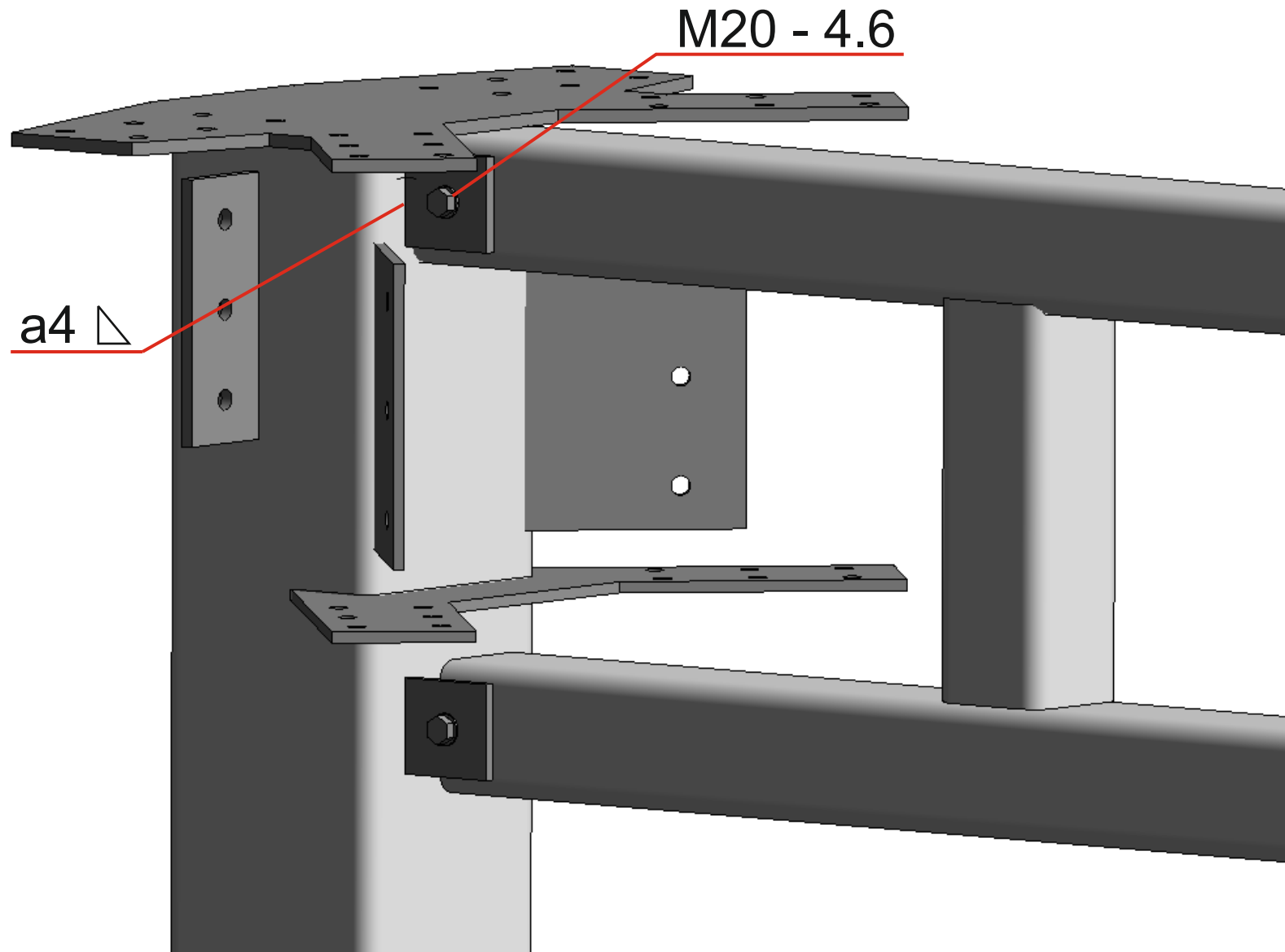


TORSION DIAGRAM

Torsional Irregularity is one of the most important checks when designing an irregularly shaped building or a high rise. Building members are designed to withstand forces in axial, shear, and bending but torsional movements under lateral loads can damage members and connections. Large variations in story drift at a given level can indicate cases of extreme torsional irregularity.

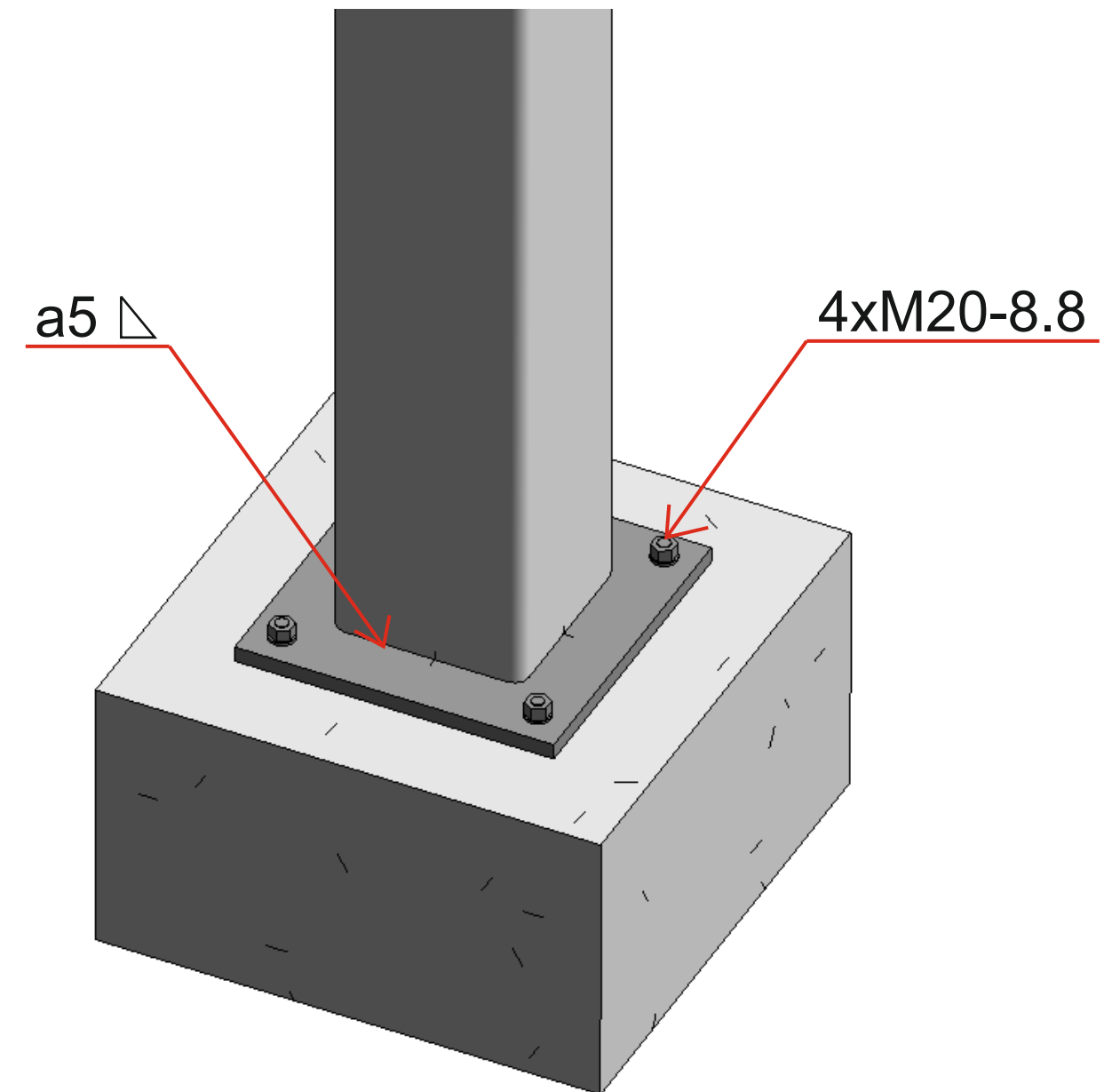
Due to The Nolan House's structural symmetry, the variations between R1 and R2 will be minimal and not contribute to extreme torsional irregularity.

Column to vierendeel truss



- Pinned connection
- HSS column
- HSS truss members

Column base to foundation



- Moment carrying connection
- HSS column

PRIMARY MEMBERS CONNECTIONS

Santvara - kolona

Varžtų kerpamoji galia (EN 1993-1-8, 3.4 lentelė)

$$F_{v,Rd} = n_b \cdot n_v \cdot \frac{\alpha_v \cdot f_{ub} \cdot A_s}{\gamma_{M2}} = 1 \cdot 2 \cdot \frac{0.6 \cdot 400 \cdot 10^6 \text{ Pa} \cdot 245 \cdot 10^{-6} \text{ m}^2}{1.25} = 94.08 \text{ kN}$$

Glemžioji galia (EN 1993-1-8, 3.4 lentelė)

$$F_{b,Rd} = n_b \cdot \frac{k_1 \cdot \alpha_b \cdot f_u \cdot d \cdot t_{min}}{\gamma_{M2}} = 1 \cdot \frac{2.5 \cdot 0.833 \cdot 360 \cdot 10^6 \text{ Pa} \cdot 20 \text{ mm} \cdot (2 \cdot 8 \text{ mm}) \cdot 10^{-6}}{1.25} = 191.92 \text{ kN}$$

kur:

$$k_1 = \min\left(2.8 \frac{e_2}{d_0} - 1.7; 2.5\right) = \min\left(2.8 \cdot \frac{55}{22} - 1.7; 2.5\right) = 2.5$$

$$\alpha_b = \min\left(\alpha_d; \frac{f_{ub}}{f_u}; 1.0\right) = \min\left(0.84; \frac{800}{360}; 1.0\right) = 0.833$$

$$\alpha_d = \frac{55}{3 \cdot 22} = 0.833$$

$$\frac{V_{Ed}}{V_{Rd}} = \frac{27 \text{ kN}}{143.94 \text{ kN}} = 0.188 < 1.0$$

Išvada: varžtų laikomoji galia pakankama

Virintinės siūlės projektavimas

$$\sigma = \frac{M_{Ed}}{W} = \frac{V_{Ed} \cdot e}{\frac{2 \cdot a \cdot l_{eff}^2}{6}} = \frac{27 \cdot 10^3 \text{ N} \cdot 65 \cdot 10^{-3} \text{ m}}{\frac{2 \cdot 0.004 \cdot (0.22 \text{ m})^2}{6}} = 27.2 \text{ MPa}$$

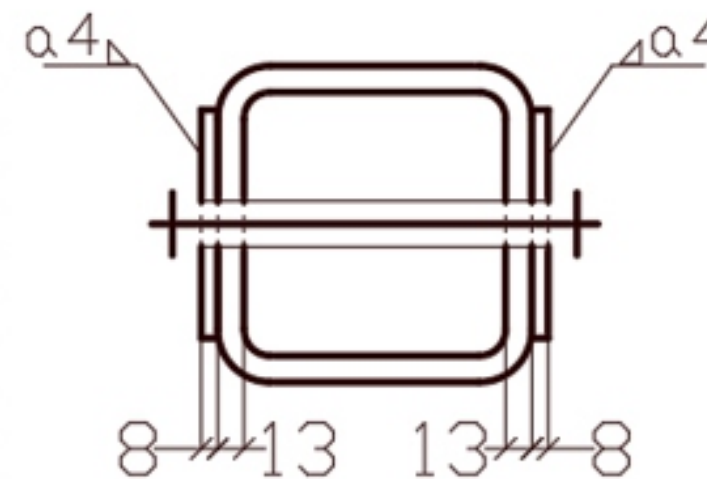
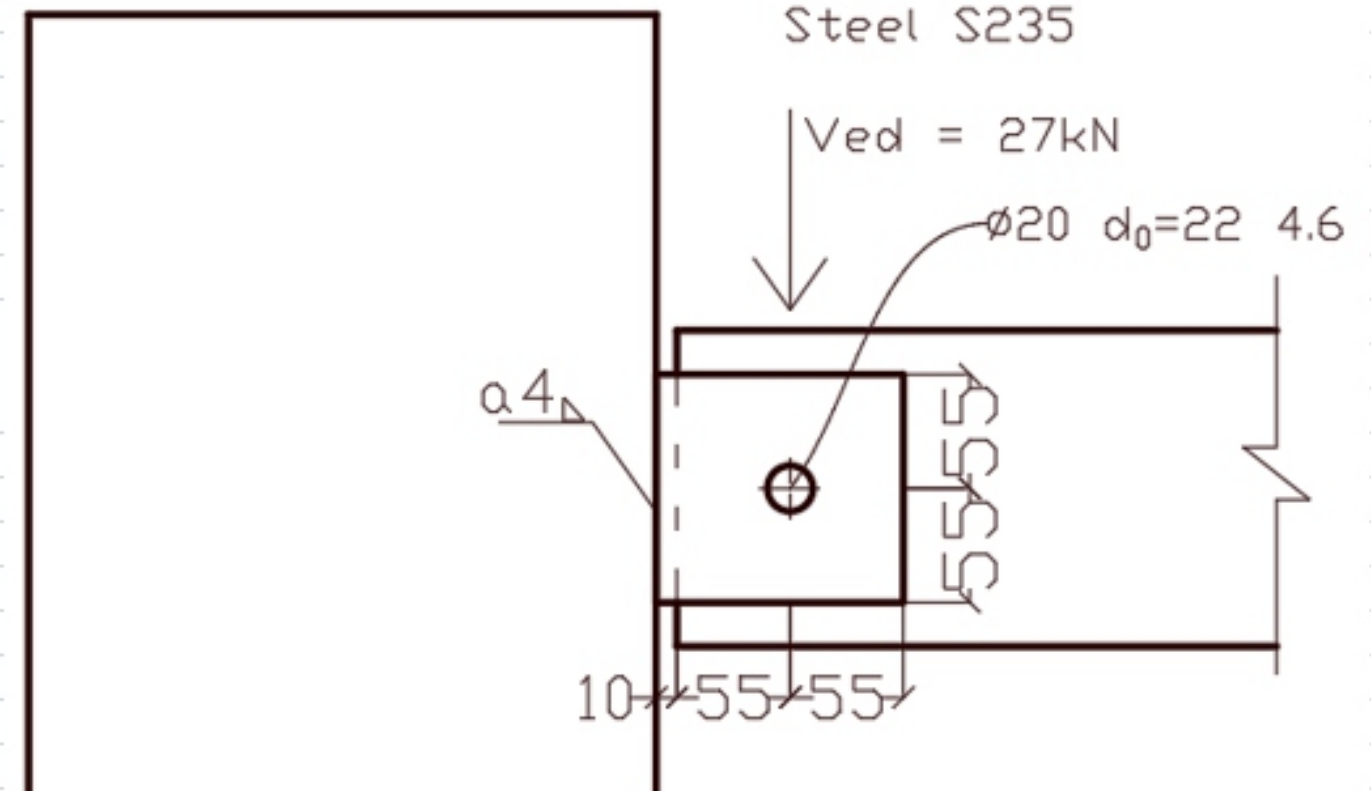
$$\tau_{II} = \frac{V_{Ed}/2}{l_{eff}} = \frac{27 \cdot 10^3 \text{ N}/2}{0.22 \cdot 0.004} = 15.34 \text{ MPa}$$

$$\tau_{\perp} = \sigma_{\perp} = \frac{27.2 \text{ MPa}}{\sqrt{2}} = 19.23 \text{ MPa} < 0.9 \cdot \frac{f_u}{\gamma_{M2}} = 0.9 \cdot \frac{360}{1.25} = 259.2 \text{ MPa}$$

Skaičiuotinė kertinės virintinės siūlės laikomoji galia (EN 1993-1-1, 4.5.3.2)

$$\sqrt{\sigma_{\perp}^2 + 3 \cdot (\tau_{\perp}^2 + \tau_{II}^2)} = \sqrt{19.23^2 + 3 \cdot (19.23^2 + 15.34^2)} = 46.75 \text{ MPa} < \frac{f_u}{\beta_w \cdot \gamma_{M2}} = \frac{360}{0.8 \cdot 1.25} = 360 \text{ MPa}$$

Išvada: kertinės virintinės siūlės galia pakankama.



Kolonos pēdos projektavims

Papildomas glemžiamasis plotas (EN 1993-1-8, 6.2.5)

$$c = t * \sqrt{\frac{f_y}{3 * f_{jd} * \gamma_{M0}}} = 20 \text{ mm} * \sqrt{\frac{235 \text{ MPa}}{3 * 15 \text{ MPa} * 1.0}} = 45.7 \text{ mm}$$

kur:

$$f_{jd} = f_{cd} * \beta_j * \alpha = \frac{f_{ck}}{\gamma_M} * \alpha_{cc} * \beta_j * \alpha = \frac{25 \text{ MPa}}{1.5} * 0.9 * \frac{2}{3} * 1.5 = 15 \text{ MPa}$$

$$\alpha = \sqrt{\frac{A_{c1}}{A_{c0}}} = 1.5 \text{ (EN 1992 - 1 - 1, 6.7)}$$

Efektīvus glemžiamasis plotas

$$A_{eff} = 1569.74 - 353.44 = 1216.3 \text{ cm}^2$$

$$N_{Rd} = f_{jd} * A_{eff} = 15 * 10^6 \text{ Pa} * 1216.3 * 10^{-4} \text{ m}^2 = 1824.45 \text{ kN} > 241 \text{ kN}$$

$$\frac{N_{ed}}{N_{Rd}} = \frac{241 \text{ kN}}{1824.45 \text{ kN}} = 0.132 < 1.0$$

Išvada: pēdos virintinēs siūlēs galia yra pakankama

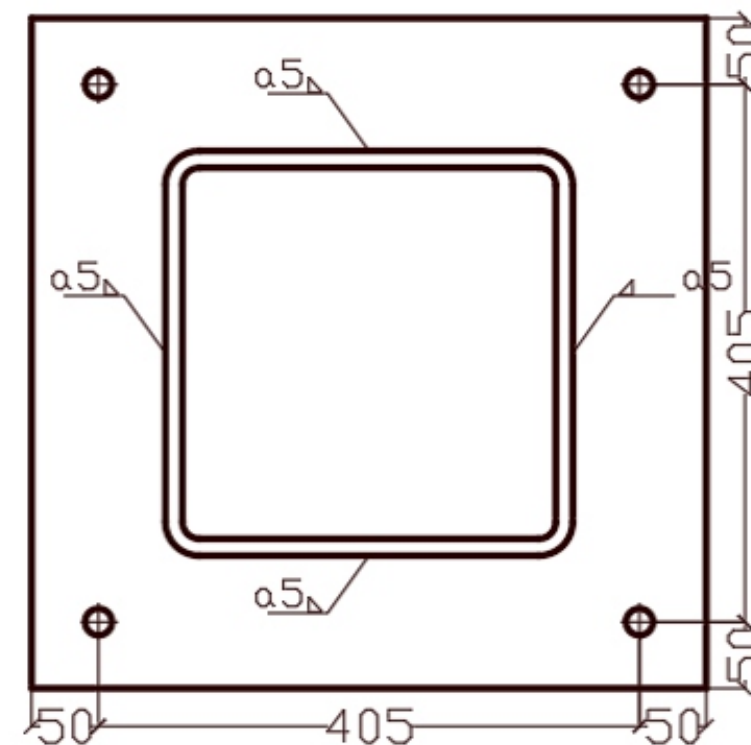
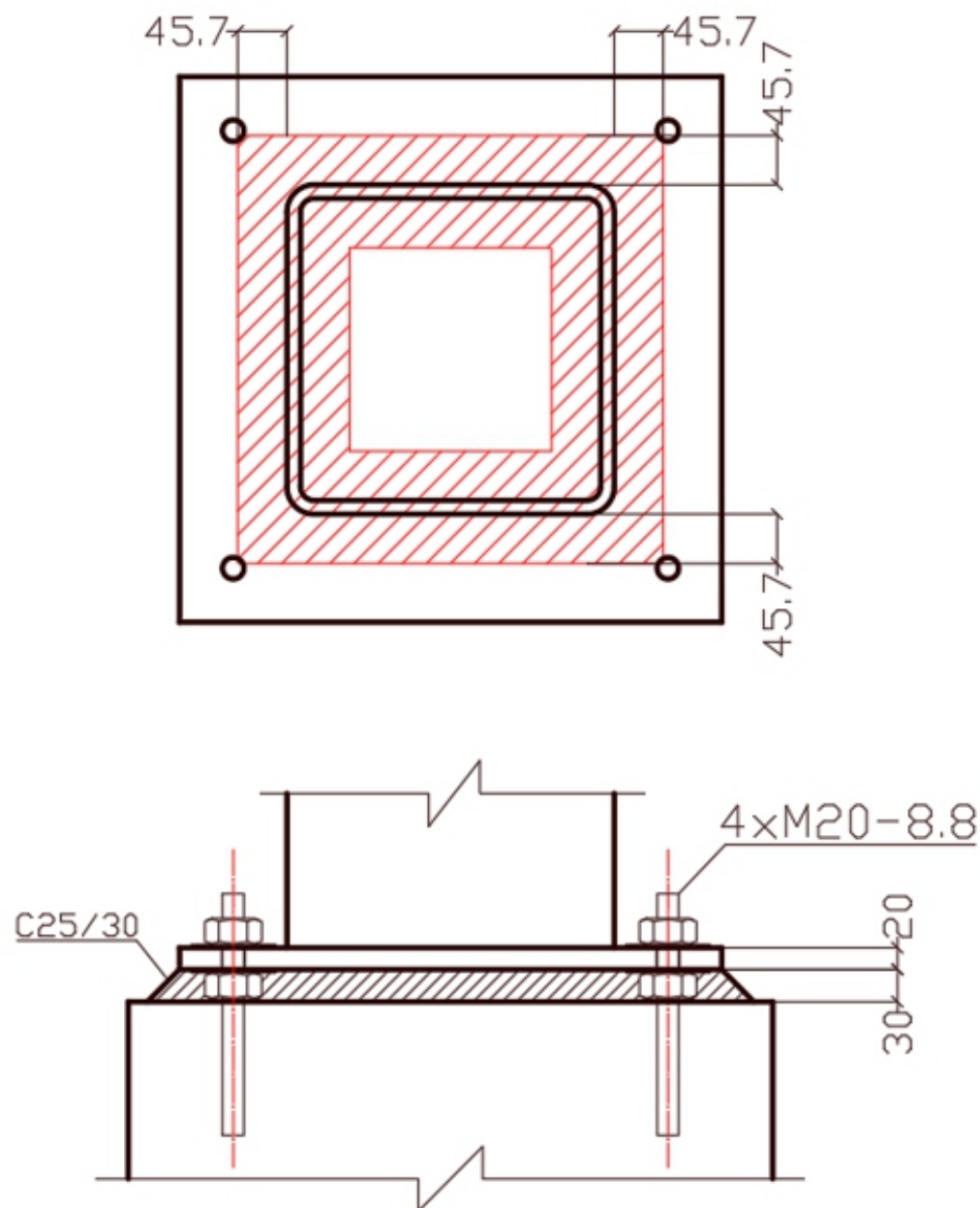
Pēdos virintinēs siūlēs skaičiavimas (EN 1993-1-8, 4.5.3.3)

Kolonos indēlis:

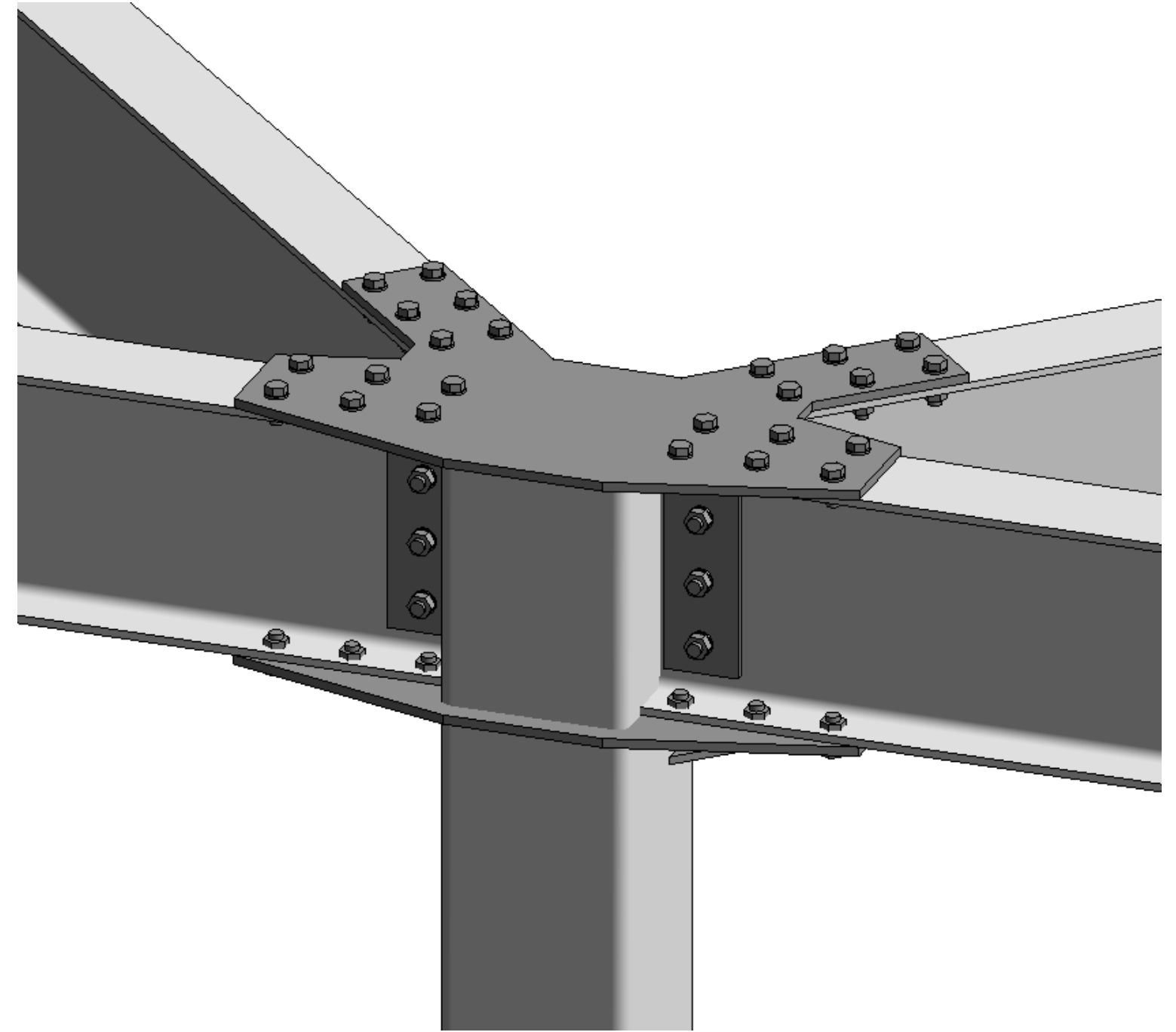
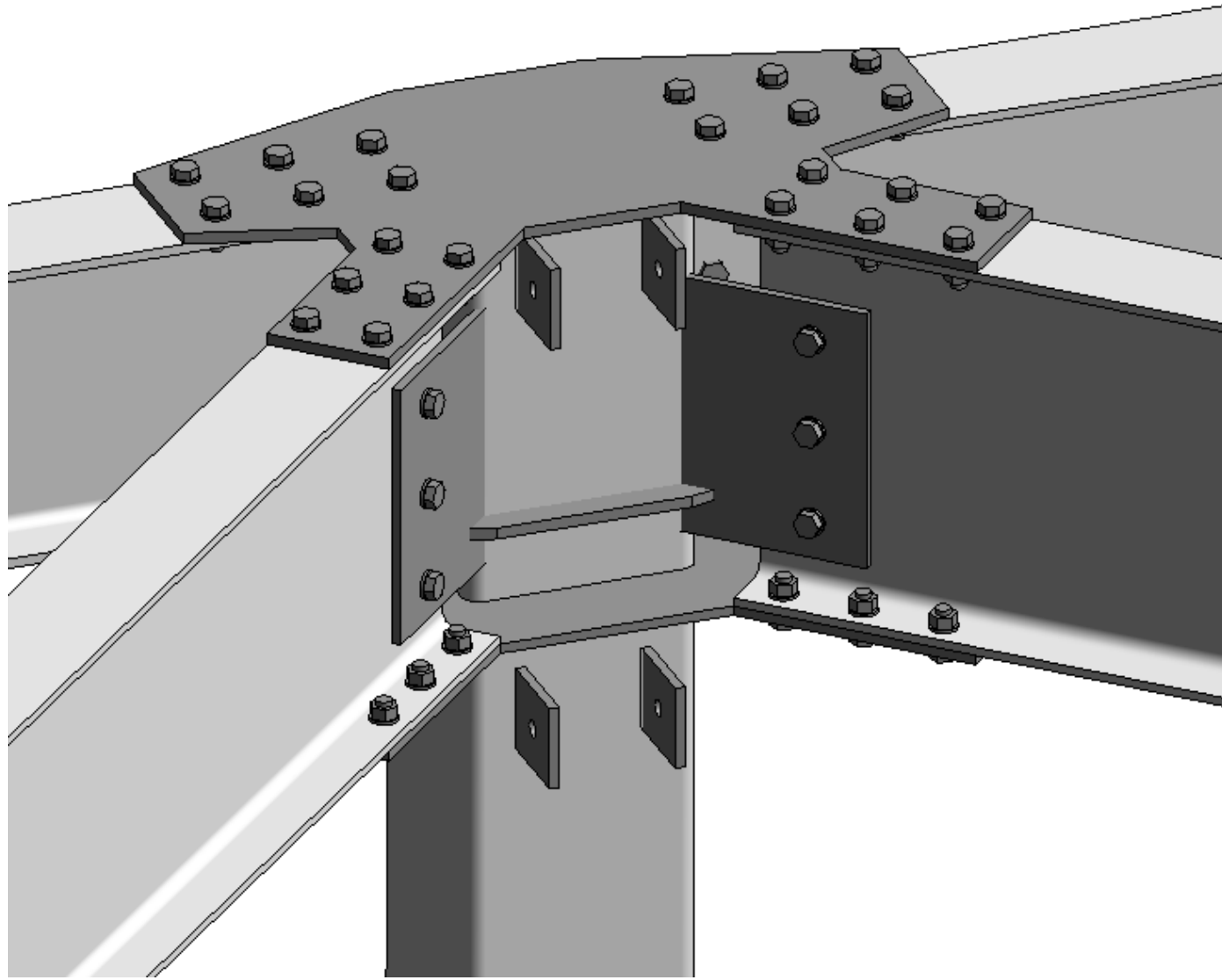
$$F_{w,Rd,k} = f_{vw,d} * a * l = \frac{f_u}{\sqrt{3} * \beta_w * \gamma_{M2}} * a * l = \frac{360 * 10^6 \text{ Pa}}{\sqrt{3} * 0.8 * 1.25} * 0.005 \text{ m} * 1.175 \text{ m} = 1221 \text{ kN}$$

$$\frac{V_{ed}}{V_{Rd}} = \frac{241 \text{ kN}}{1221 \text{ kN}} = 0.197 < 1.0$$

Išvada: pēdos virintinēs siūlēs galia yra pakankama

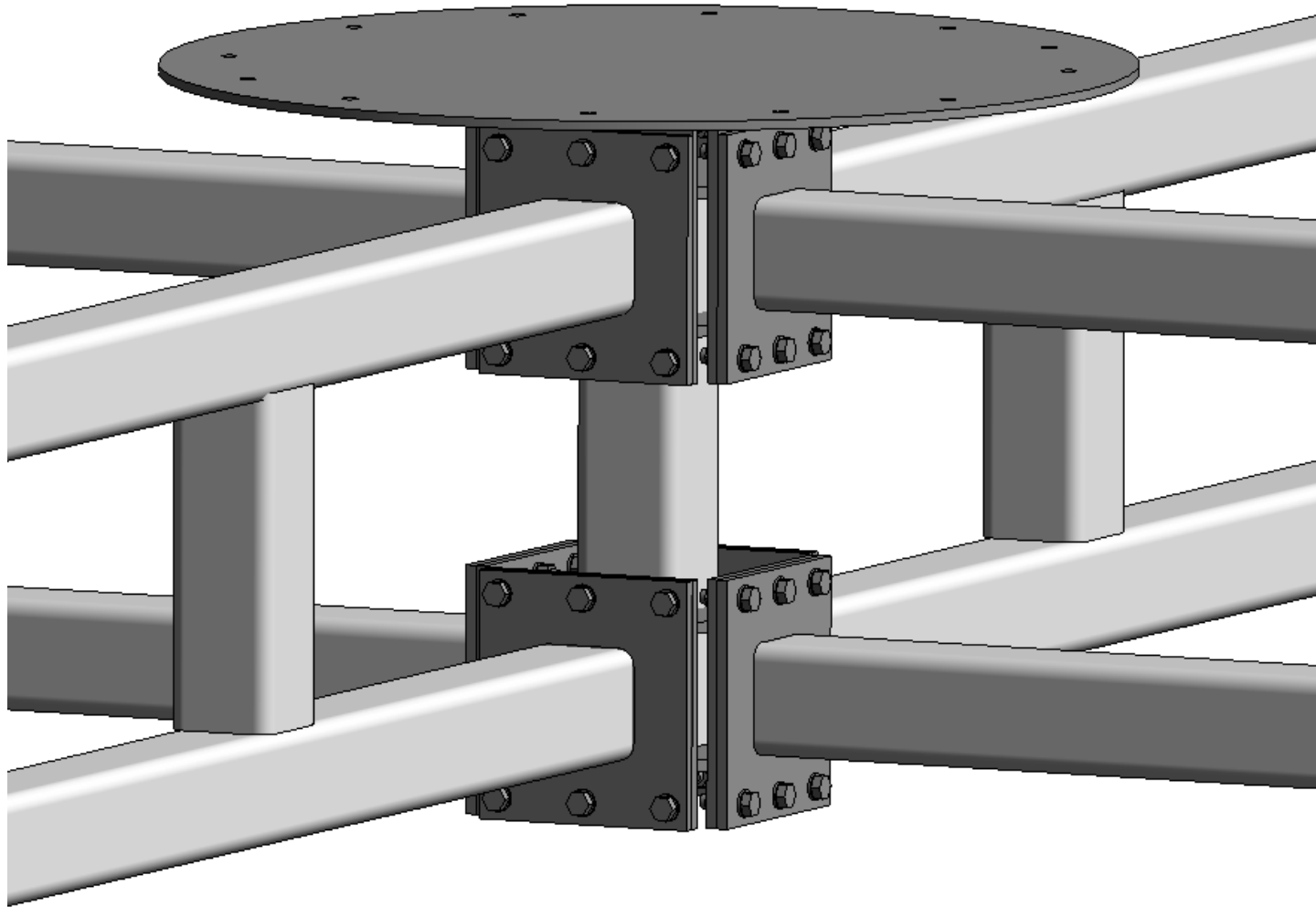


Column to edge members and diagonals

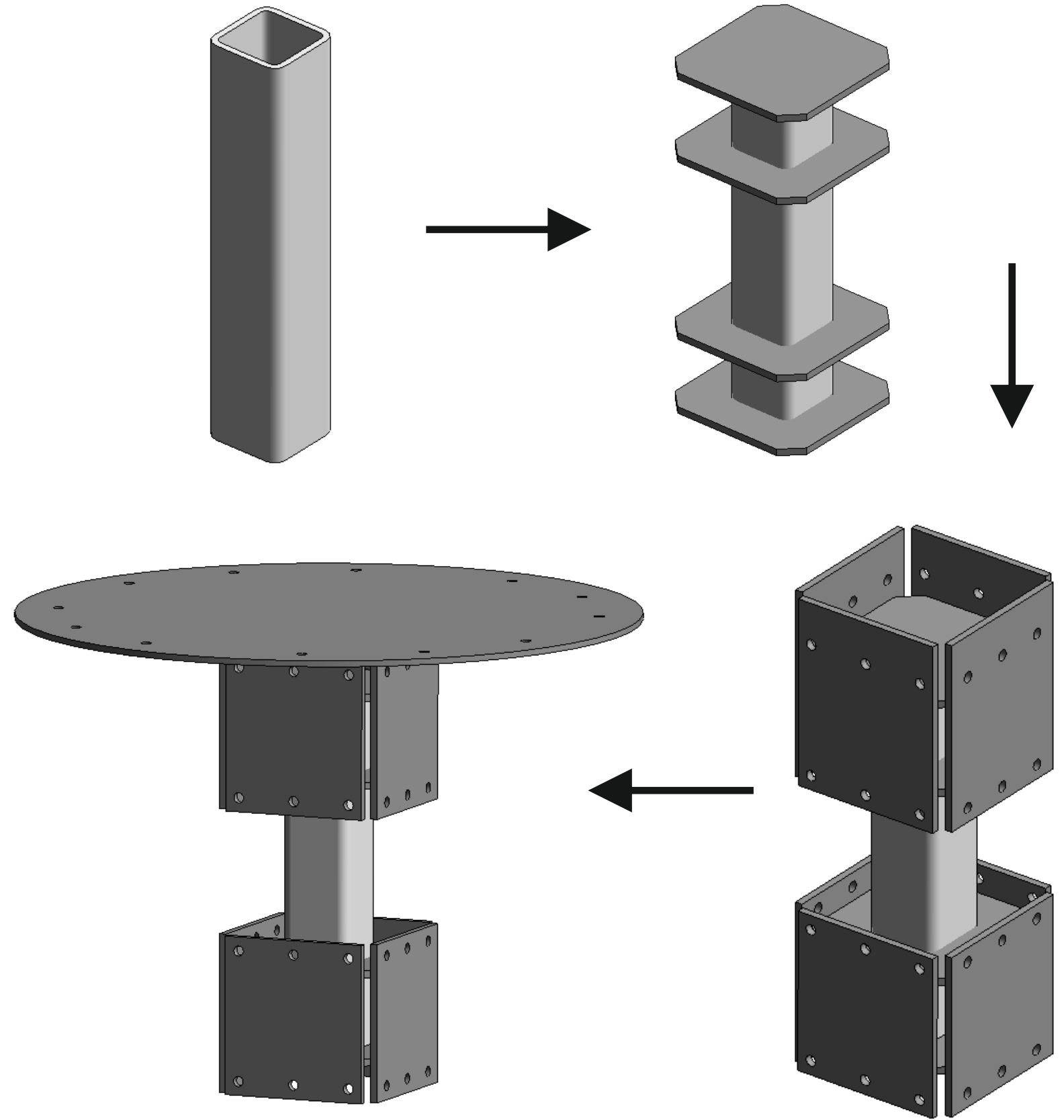


- Moment carrying connection
- HSS column
- W-flange edge members and diagonals

Truss to truss connection



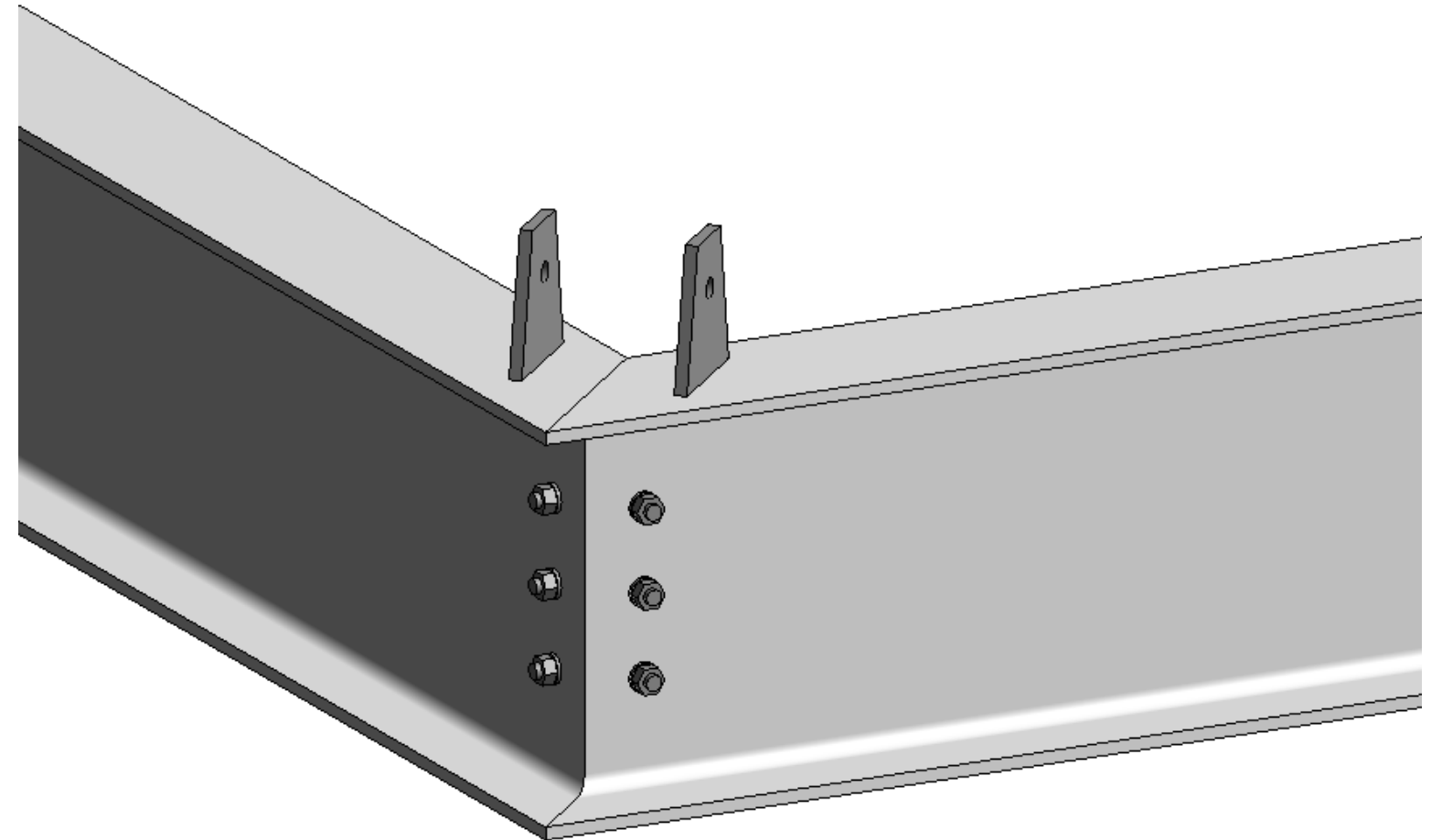
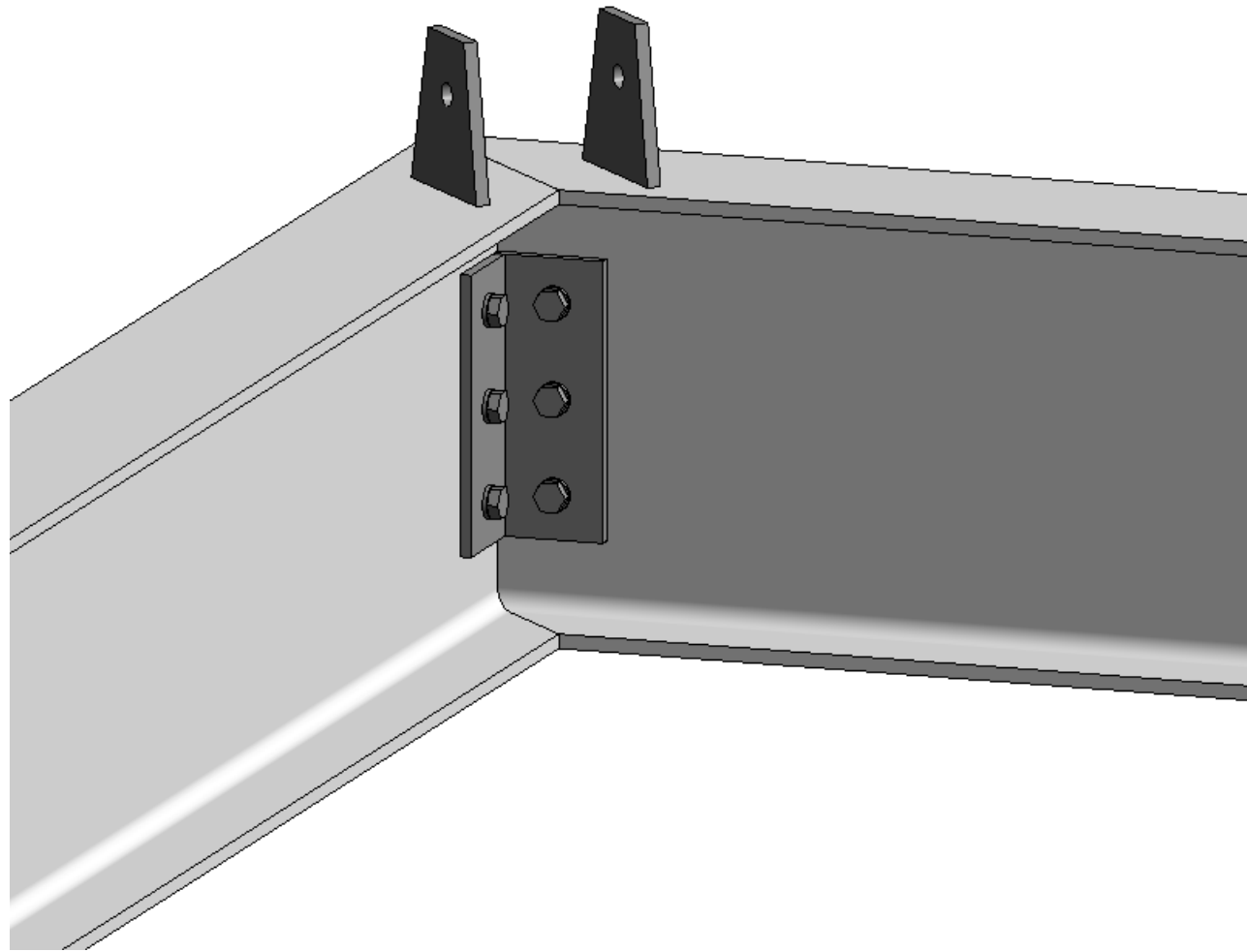
- Moment carrying connection
- HSS truss members
- Embedded prefabricated element



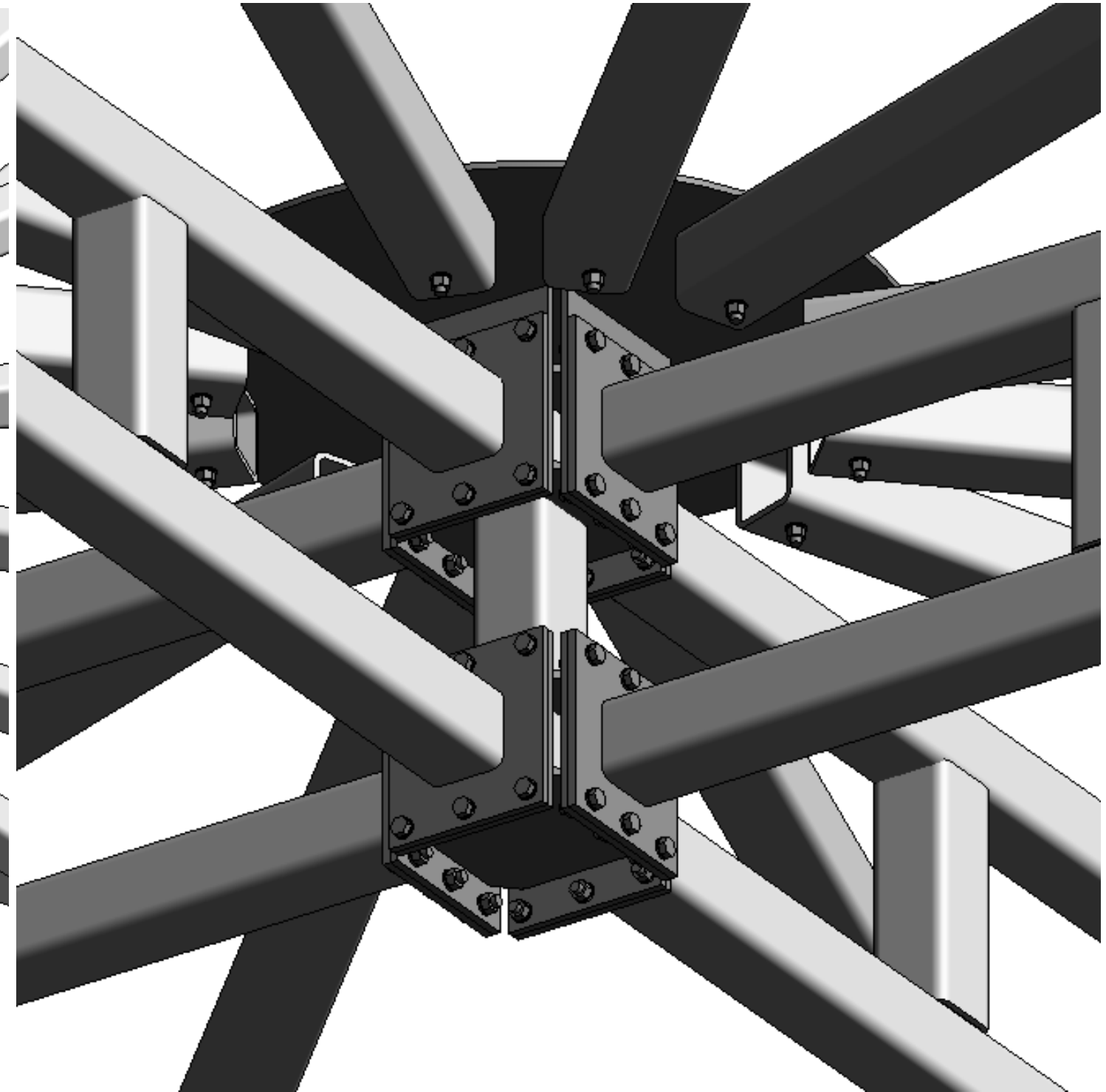
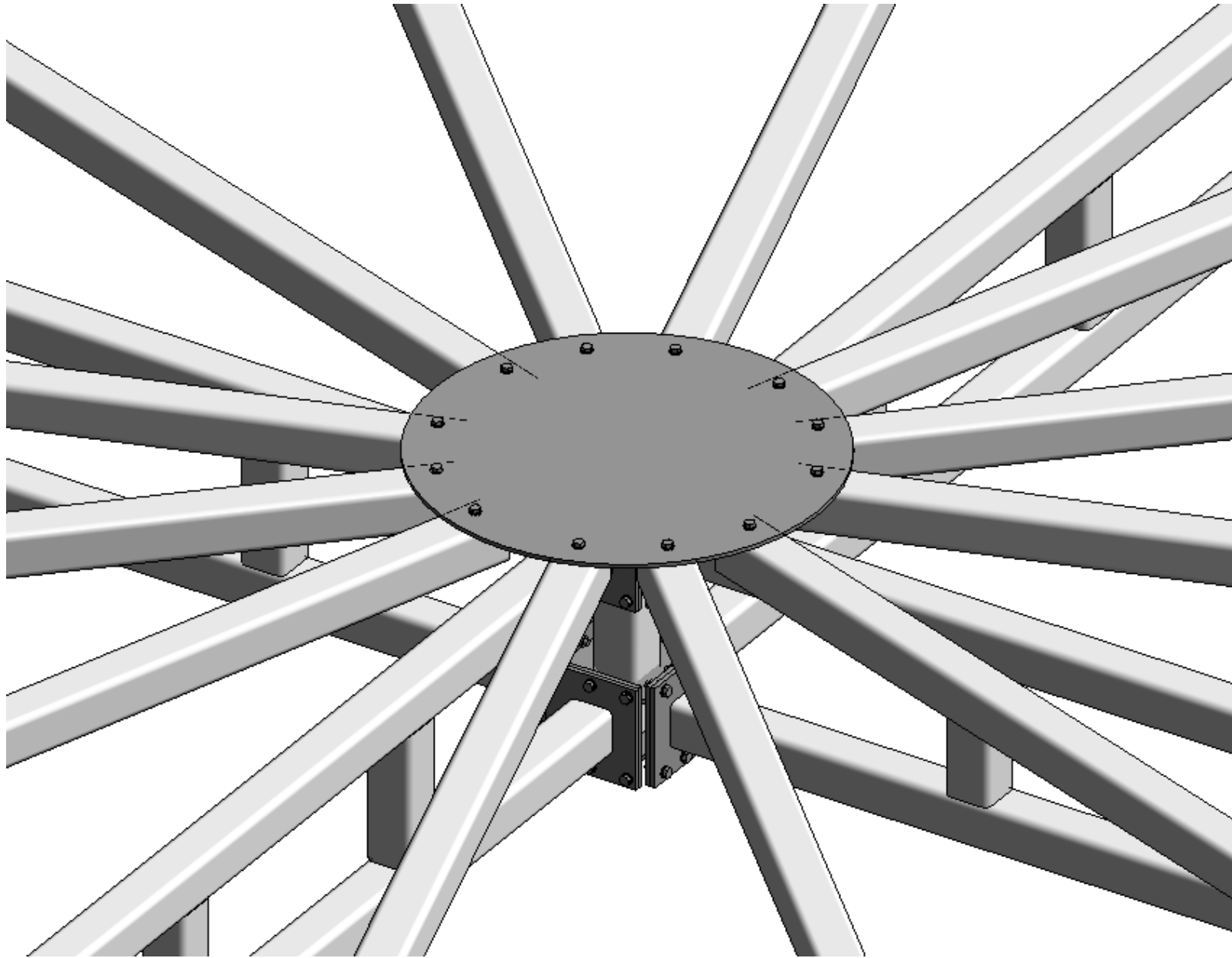
PRIMARY MEMBERS CONNECTIONS

From: Titas Kavalnis

Corner connection



Diagonal secondary members on top of truss

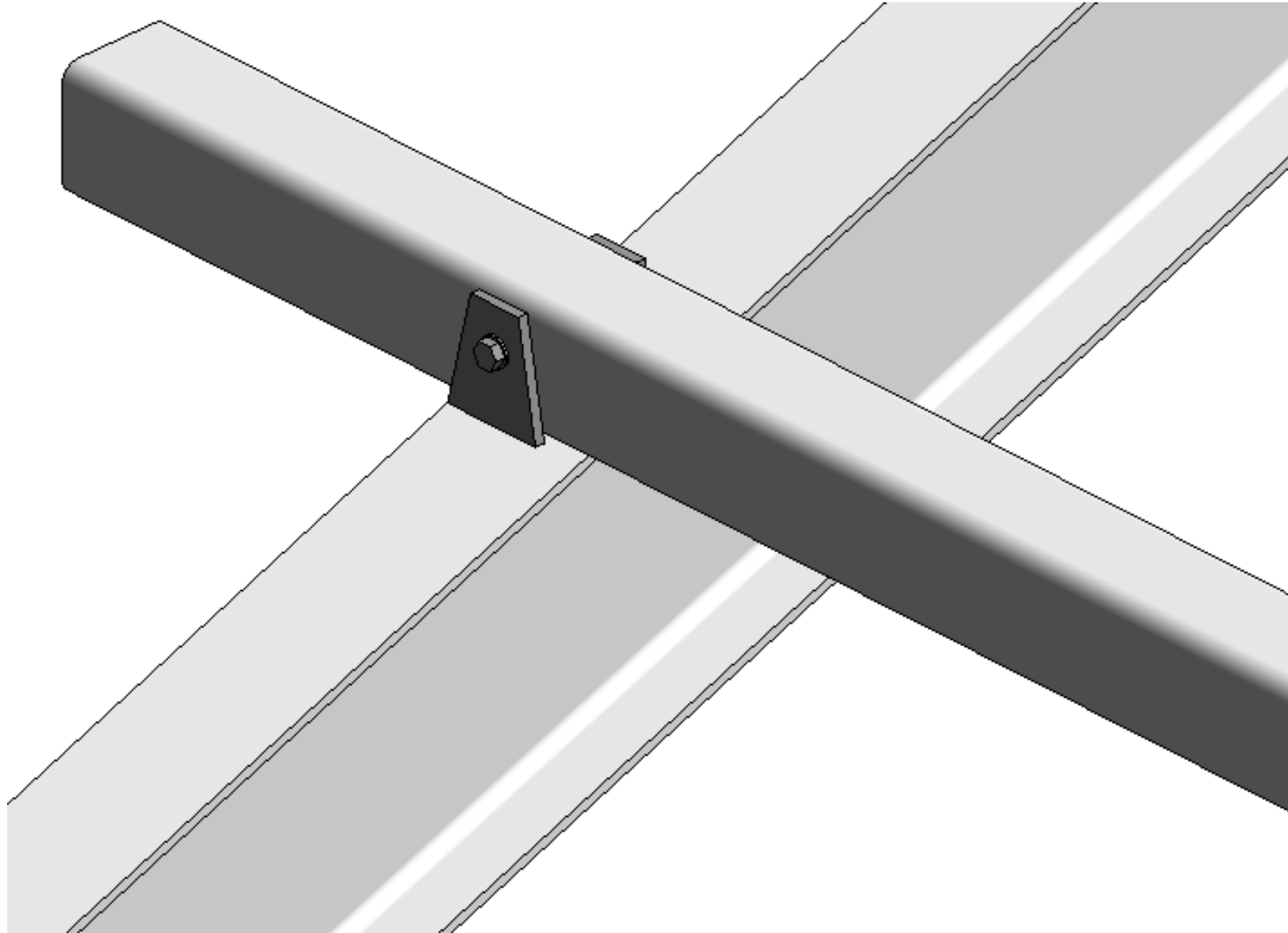


- Pinned connection
- HSS diagonal member
- To embedded element top plate

SECONDARY MEMBERS CONNECTIONS

From: Titas Kavalnis

HSS to W-flange top connection



- Pinned connection

SECONDARY MEMBERS CONNECTIONS

From: Titas Kavalnis

Artifacts

HANK
NOLAN

JOE
CARPINTERO

MARCUS
BRAVO



SHATTERED

A FILM BY GILBERT MUNOZ BASED ON THE NOVEL BY MARIA NOLAN

GLASS HOUSE STUDIOS IN ASSOCIATION WITH MIES AND MYRON PRODUCTION FROM GREEN TEAM FILMS PRESENTS "SHATTERED" HANK NOLAN MARCUS BRAVO JOE CARPINTERO
SCREENPLAY BY CHRISTOPHER MALDONADO COSTUME DESIGNER FATMA RAMIREZ-PEREZ PRODUCTION DESIGNER MICHAEL BAHR DIRECTOR OF PHOTOGRAPHY JONATHAN BARRENECHE CO-EXECUTIVE PRODUCER GARRETT BARRENECHE
EXECUTIVE PRODUCER TITAS KAVALNIS CO-PRODUCER OLIVIA SCHEFFLER CO-PRODUCER FELIX ZELONOWSKI SCREENPLAY KEIKO SANDERS DIRECTED BY GILBERT MUNOZ

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Gilbert Munoz

Resin Art

My artifact mimics the looks and aesthetics of glass with the transparency of the resin and the delicacy of the flowers preserved inside it.

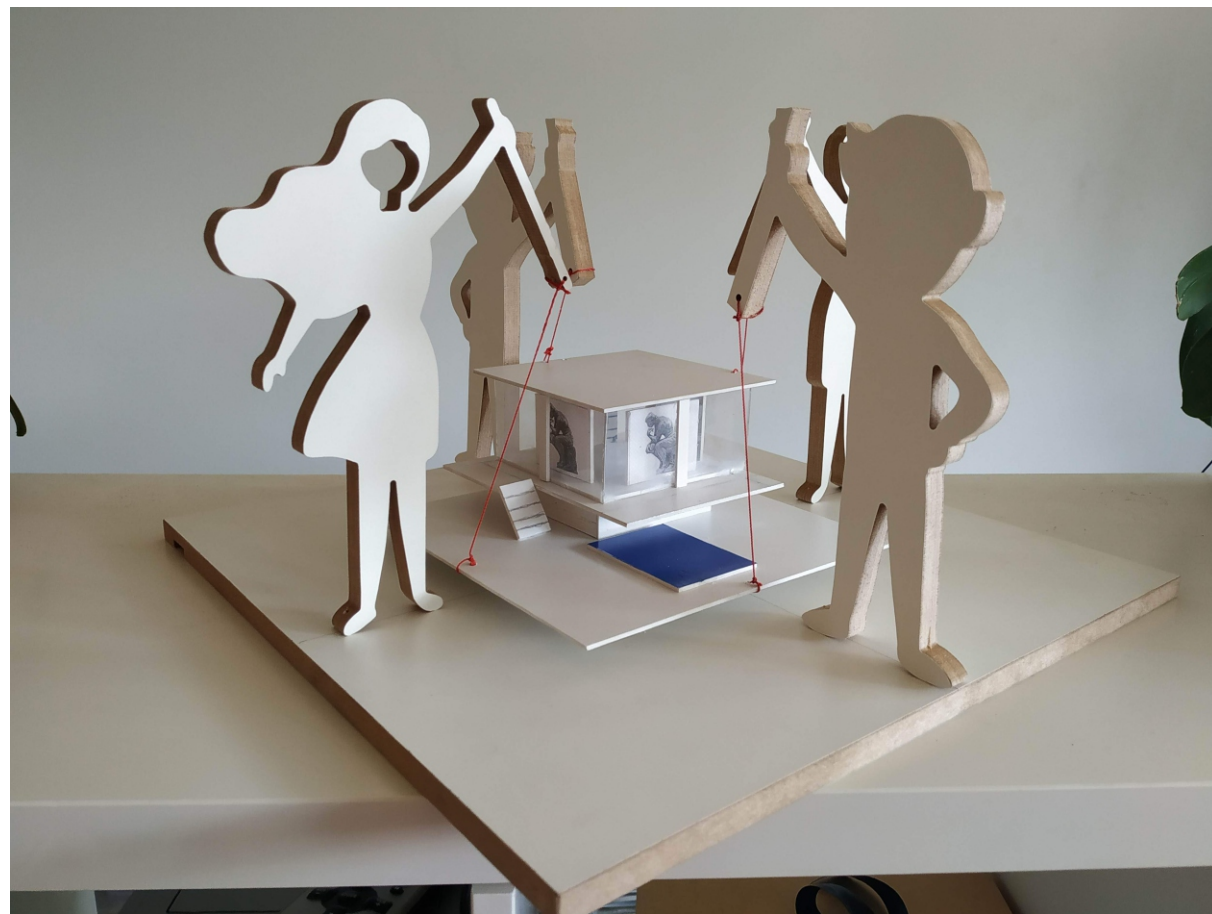
The flowers were a special gift from a friend. It took weeks to dry them, flatten them, and allow enough time for the resin to cure. Overall, I am very pleased with the color, texture, and shine that resulted from this project. Not only did I create something useful, but I also successfully preserved a wonderful gift and memory. I hope to make more unique coasters to match this one.



Dried and Flattened Flowers Preserved in a Resin Coaster

Going into the glass house project, I was worried about how glass would act as a structural property. However, after exploring its many uses through the research of our timeline, I began to appreciate it as a building material. The idea for this artifact came from my curiosity in exploring glass structures as a way to preserve and protect its interior.



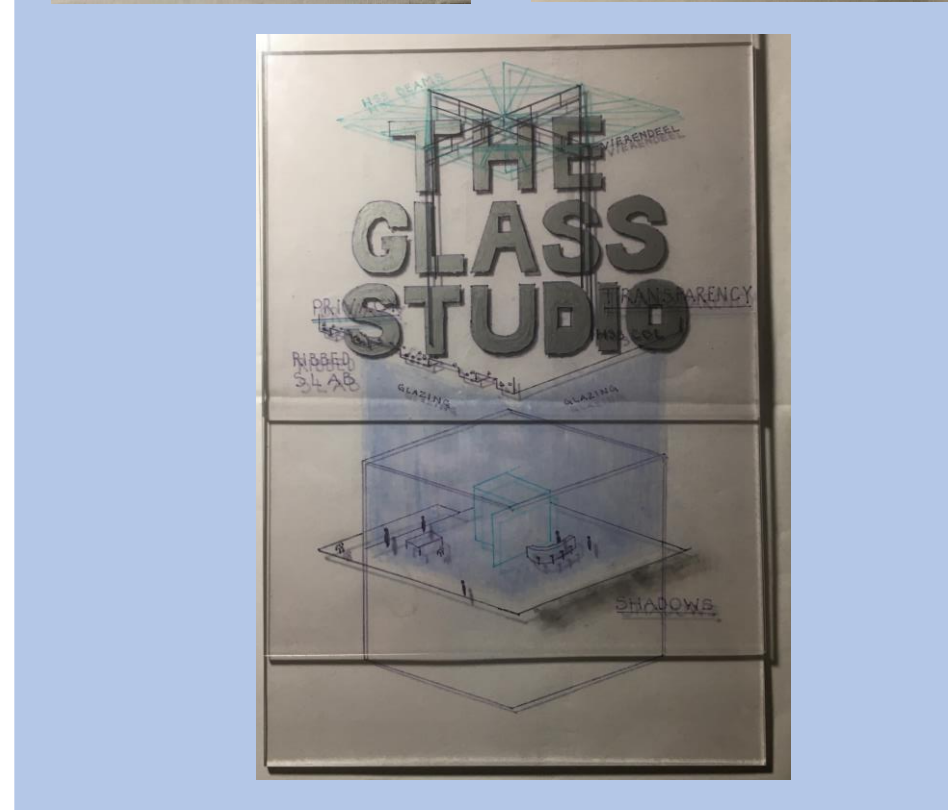
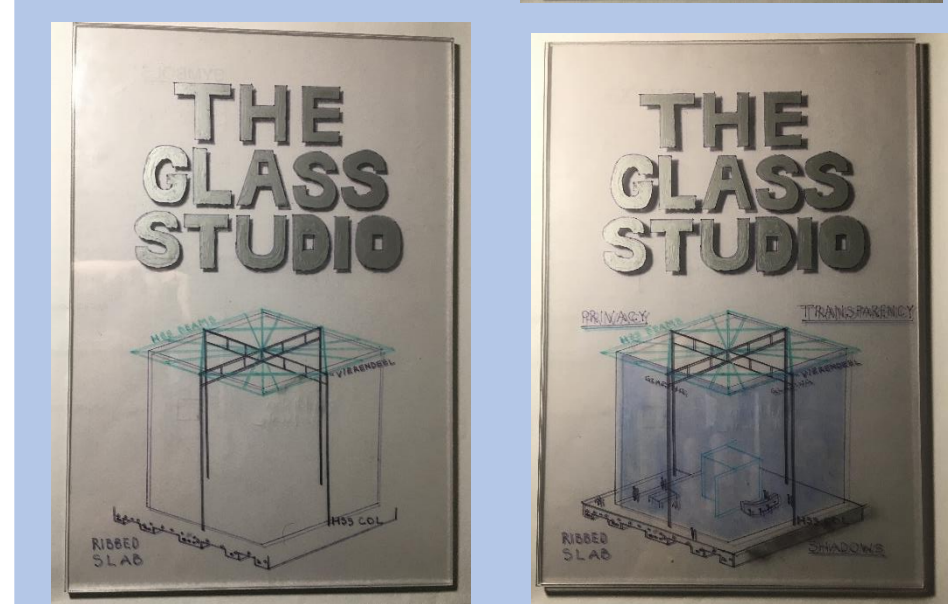
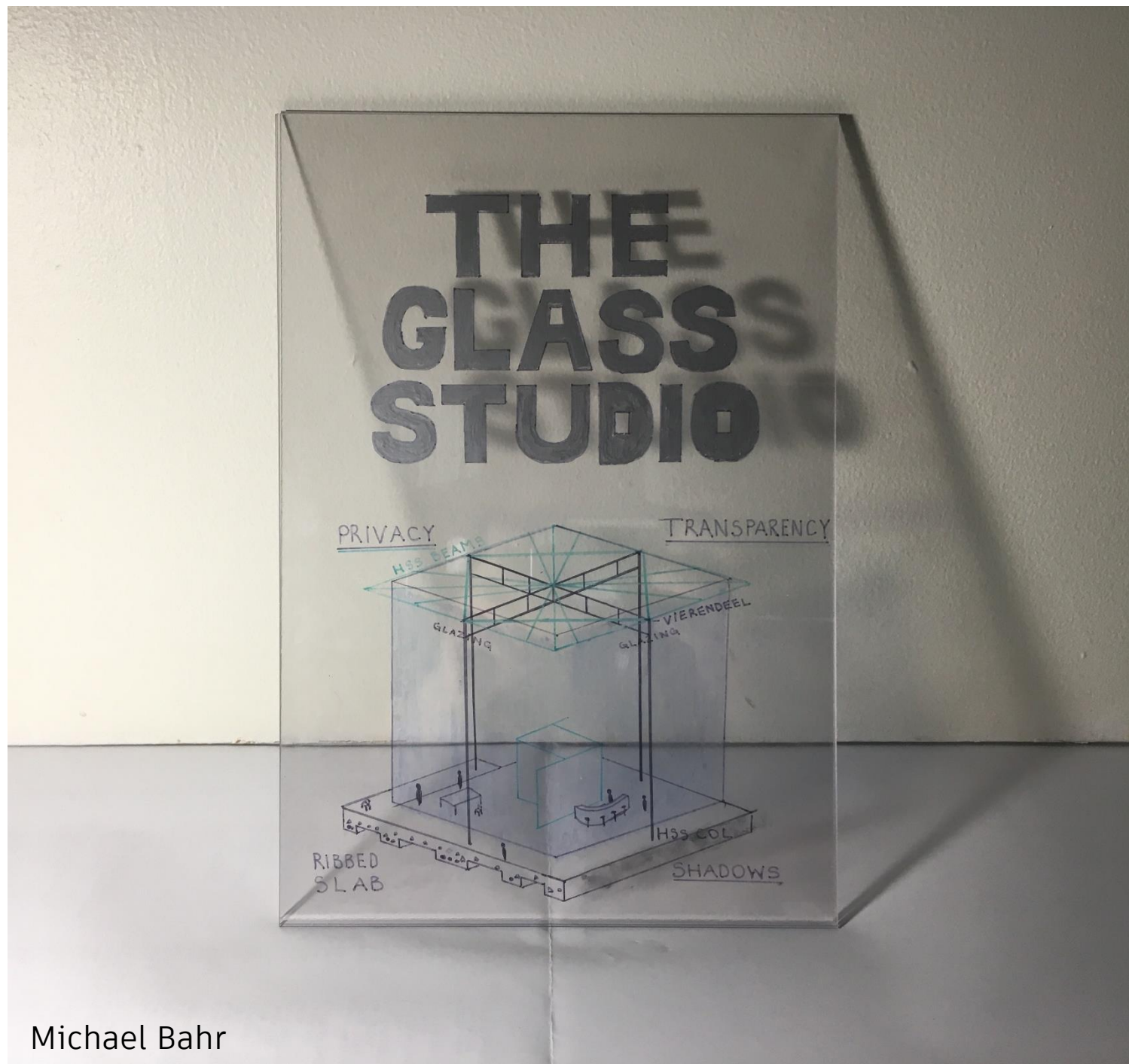
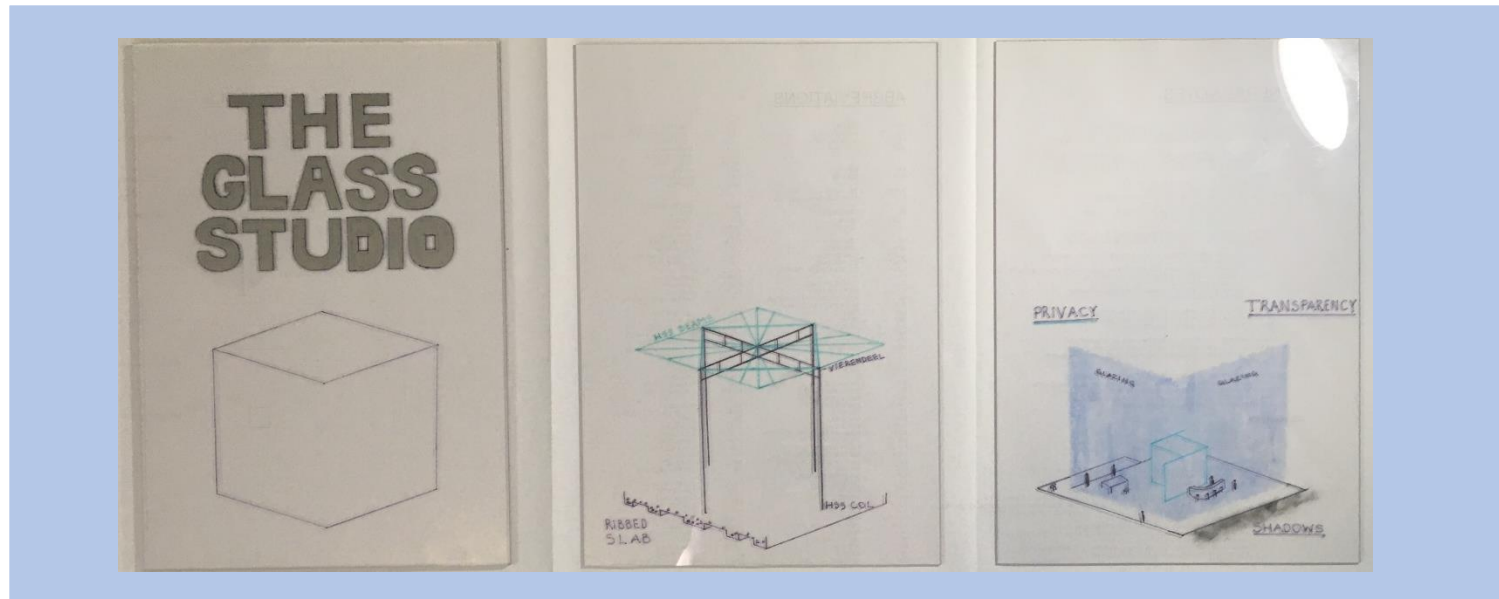


2 people, one woman and one man holding and controlling our entire glass house project as a marionette.

They symbolizes our clients, a husband and a wife who describes their desire and needs from the project.

On inside from all 4 sides you can see a sculpture called "The Thinker" made by Auguste Rodin.

It defines us, engineers and architects, who try to adapt project and come up with the best ideas that would be appropriate for clients although not very easy to imagine and come up with.



Michael Bahr

Final Fantasy

Final Fantasy

“Retirement home” often has a negative or dreary connotation. Typically, people are not looking forward to the day they are required to live in a retirement home. With our final fantasy project, we are taking a utopian approach to the “retirement home”. Glass housing modules are used to provide the elderly with a connection to the environment as well as foster a strong sense of community.

This luxury retirement complex is designed for celebrities and other high profile individuals. It is built floating on top of the beautiful Gunsight Butte of Lake Powell in southern Utah. The secluded and natural environment surrounding the community gives these residents an opportunity to relax and let their guard down with no pressure from fans or paparazzi. While they may have been living in the spotlight previously, these clients are now able to enjoy a close connection to nature and a small community feel associated with the glass house. With limited mobility, the glass housing modules allow residents to maintain a close relationship with the environment and nature, ultimately improving their health, wellbeing and enjoyment of life.

Water serves as a social hub while also providing a calm and serene scenic quality to the retirement homes. A close connection with water creates an opportunity for the utilization of water for therapeutic purposes, both emotionally and physically.

