



CITY OF MADISON
ZONING BOARD OF APPEALS
VARIANCE APPLICATION

\$500 Filing Fee

Type or legibly print using blue or black ink.

Address of Subject Property: 2654 Union Street Madison WI 53704

Name of Owner: Adam Nunez

Address of Owner (if different than above):

Daytime Phone:

Email Address: adam.a.nunez@gmail.com

Name of Applicant (Owner's Representative): James Westring
Westring Construction LLC

Address of Applicant: 4617 Dovetail Drive Ste 8 Madison WI 53704

Daytime Phone: (608) 441-5435

Email Address: info@westringconstruction.com

Description of Requested Variance:

This variance request addresses an administrative hardship created by the city's decision to merge two historically separate blocks and average their setback requirements. The proposed second-story addition maintains neighborhood character and aligns with the original block's established pattern, while preserving character-defining front porches that contribute to community cohesion.

FOR OFFICE USE ONLY

Amount Paid: <u>\$500</u>	Hearing Date: <u>11/20/2025</u>
Receipt: <u>155207-0002</u>	Published Date: <u>11/13/2025</u>
Filing Date: <u>10/17/2025</u>	Appeal Number: <u>LNDVAR-2025-00008</u>
Received By: <u>William</u>	GQ: _____
Parcel Number: <u>071006129128</u>	Code Section(s): <u>28.045 (2)</u>
Zoning District: <u>TR-C4</u>	_____
Alder District: <u>15</u>	_____

☐ **CHECK HERE.** City of Madison staff has given me a copy of the standards that the Zoning Board of Appeals will use to review variance applications.

Owner's Signature: _____ Date: _____

------(For Office Use Only)-----

DECISION

The Board, in accordance with its findings of fact, hereby determines that the requested variance for _____ **(does) (does not)** meet all the standards for a variance. Further findings of fact are stated in the minutes of this public hearing.

The Zoning Board of Appeals: ☐ Approved ☐ Denied ☐ Conditionally Approved

Zoning Board of Appeals Chair:

Date:

Notice of Public Hearing Signs

The City of Madison zoning ordinance requires applicants to post signs for public hearings of the Board of Zoning Appeals (ZBA) on the properties requesting a variance or appeal.

Sign Pickup

- Signs must be picked up at the Building Inspection Zoning Counter, which is open by appointment only. Schedule an appointment at: <https://www.cityofmadison.com/dpced/bi/schedule-a-counter-appointment/3423/>. The Zoning Counter is located in the Madison Municipal Building at 215 Martin Luther King, Jr. Blvd., Ste. 017, Madison, WI 53701.
- Signs will include a short description of the request, the address of the property subject to the hearing, applicant name, phone number, and email, and the date and time of the ZBA hearing. You may receive phone calls or emails regarding your request from people who see the signs.

Sign Posting

- Signs must be posted at least 21 days prior to the ZBA meeting date.
- Signs must be on the property which is the subject of the public hearing.
- If the property has frontage on more than street, a sign shall be placed facing each street.
- Signs must be posted on private property. Signs may not be in the City right-of-way, public terrace, on a public tree or on a street sign. It is recommended that the signs be placed not more than five feet behind the property line.
- Signs and the information on the signs must face the street so that they are visible to pedestrians and vehicles from the street and the public walkway.
- When there is no front yard to post signs, you may post signs on the outside of the building, in a ground floor window or glass door. Signs should not be displayed more than six feet above the ground or sidewalk. The intent is for signs to be visible to the public.
- Signs shall not be posted in a location that would obstruct the views of any traffic or entrances or exits to the property.
- Signs must be removed no more than seven days after the hearing.

|
If you have any questions, please call our office at 608-266-4551.

Setback Averaging

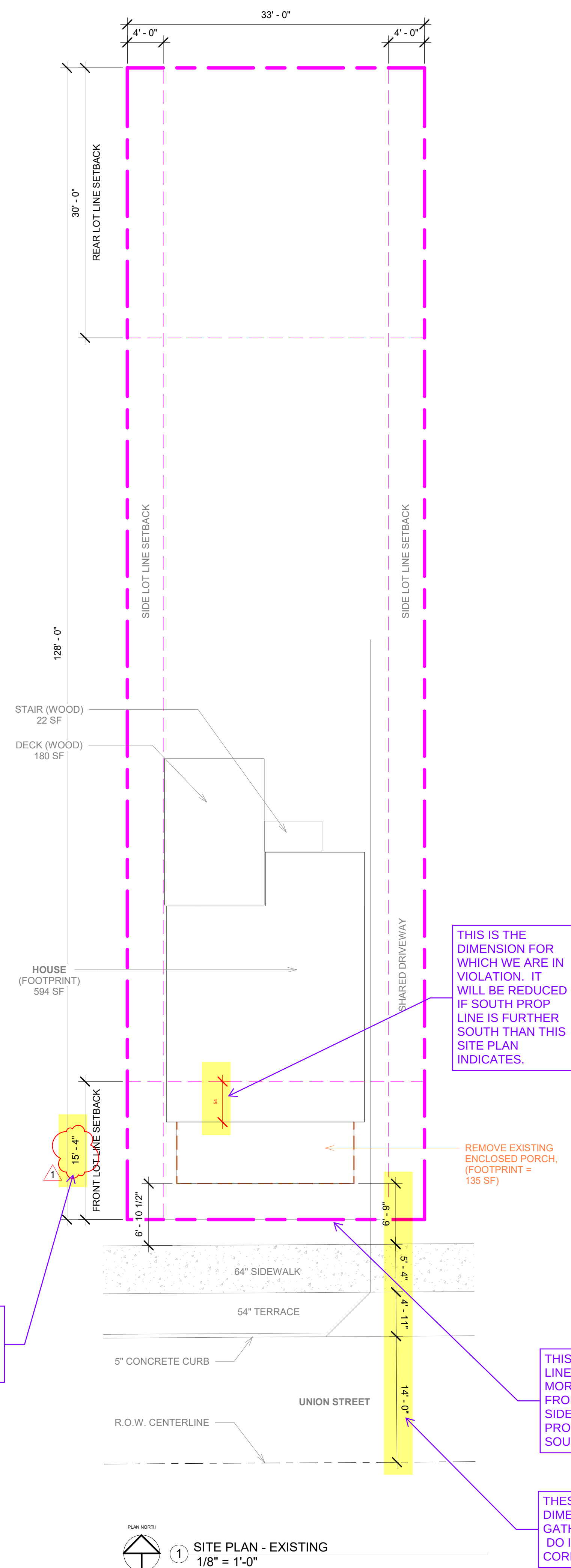
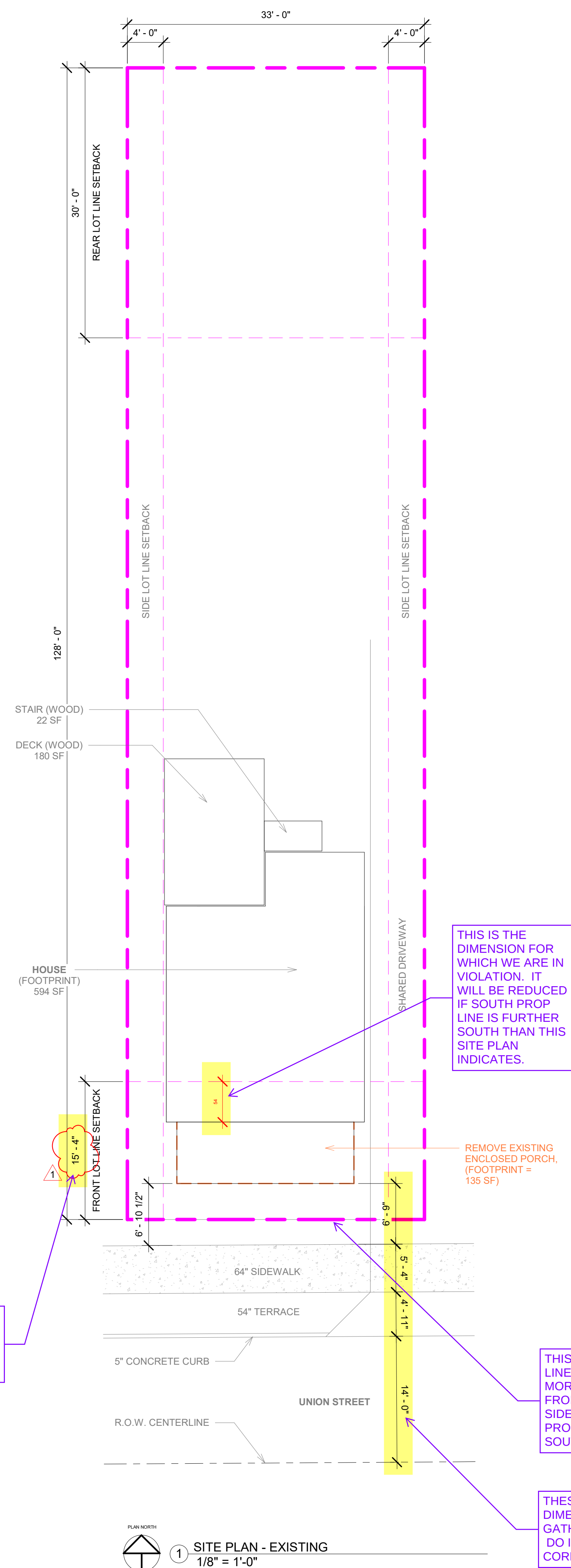
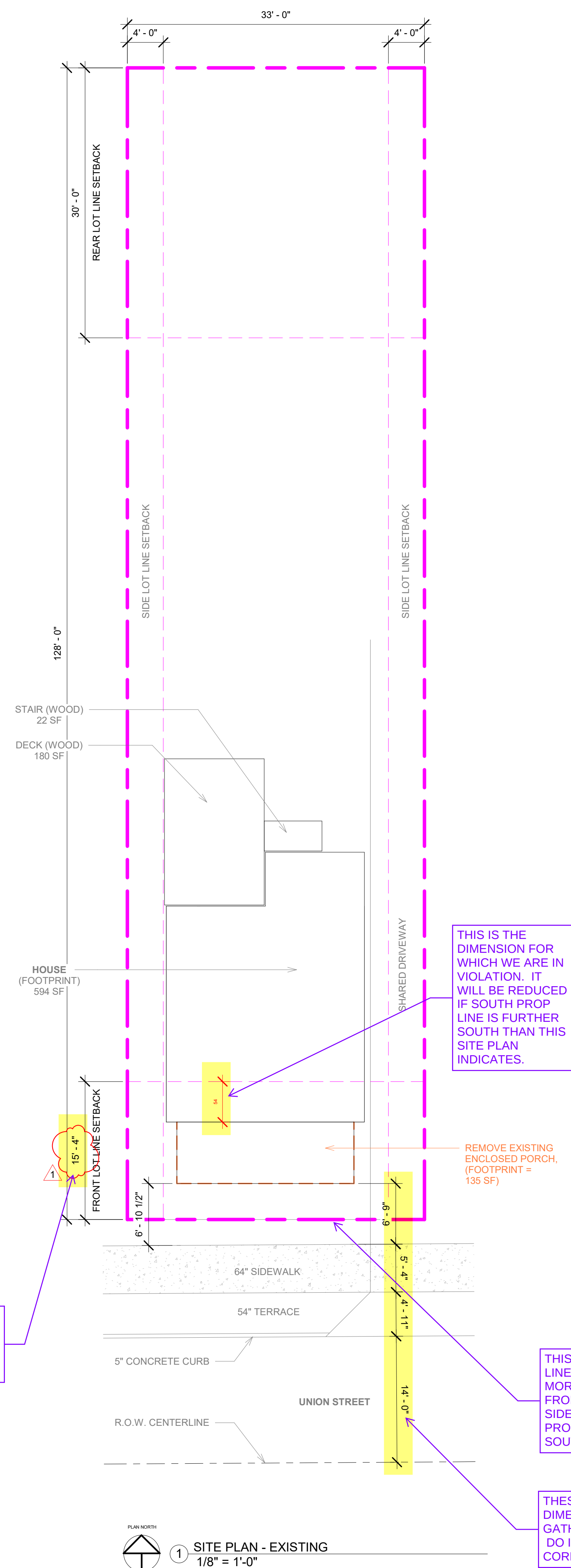
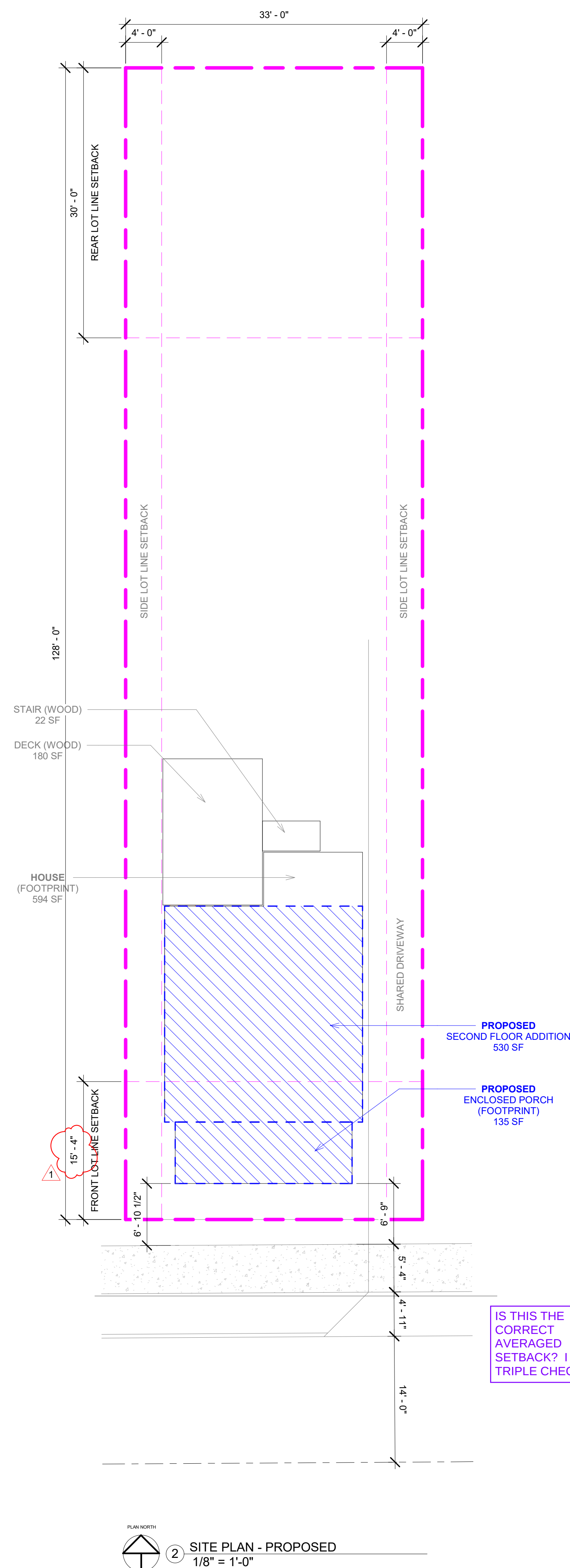
Subject Property: 2654 Union St
Zoning District TR-C4
Minimum FYS 20'

Stoop - measured from sidewalk to house

Open - measured from sidewalk to house

Closed - measured from sidewalk to porch

Property Address	Front yard Setback		=>Total Inches	Total Inches	
	Feet	Inches			
2622			0	228	Stoop
2624			0	198	Open
2626			0	102	Closed
2630			0	158	Open
2634			0	146	Stoop
2638			0	96	Closed
2642			0	117	Closed
2646			0	128	Closed
2650			0	87	Closed
2654			0	82	Closed
2658			0	70	Closed
2662			0	72	Closed
2666			0	112	Closed
2702			0	300	Closed
2706			0	272	Stoop
2710			0	280	Open
2716			0	256	Open
2718			0	236	Open
2722			0	246	Open
2726			0	264	Open
2730			0	300	Stoop
2734			0	198	Closed
2738			0	259	Closed
2744			0	154	Closed
2746			0	242	Open
2750			0	161	Closed
Average	0	0.0	-	183.2	
	Feet	Inches			



LOT COVERAGE CALCULATIONS - SITE PLAN

EXISTING TO REMAIN	
HOUSE FOOTPRINT	594 SF
GARAGE	(NONE EXISTING)
DRIVEWAY	(NONE EXISTING)
SIDEWALK OVER 5' WIDE	(NONE EXISTING)
PAVED STEPS	(NONE EXISTING)
PAVED PATIOS	(NONE EXISTING)
COVERED PORCH	000 SF

PROPOSED ADDITION	
HOUSE FOOTPRINT	000 SF
GARAGE	000 SF
DRIVEWAY	000 SF
SIDEWALK OVER 5' WIDE	000 SF
PAVED STEPS	000 SF
PAVED PATIOS	000 SF
COVERED PORCH	135 SF

TOTALS	
LOT COVERAGE	729 SF
LOT SIZE, AREA	4,223 SF / 0.1 ACRE
LOT COVERAGE, PERCENT	17.3 %

PERMITTED BY ZONING ORDINANCE

LOT COVERAGE, MAX.	65%
LOT COVERAGE, MAX.	2,745 AF

Lot Coverage. The total area of buildings, accessory structures, pools, patios, and paved areas as a percentage of the total area of the lot. Excepting the following: sidewalks or paved area less than five (5) feet, pervious pavement, green roofs and decks.

ZONING INFORMATION - SITE PLAN

PARCEL NUMBER	071006129128
PARCEL DESCRIPTION	CLYDE A. GALLAGHER REPLAT OF PART OF LOT S 118 & 119 FARWELLS EASTERN ADDITION, LOT 22
ZONING DESIGNATION	<i>TR-C4 (TRADITIONAL RESIDENTIAL)</i>

LOT CHARACTERISTICS, TYPICAL

1.	MINIMUM AREA:	4,000 SF
2.	MAXIMUM COVERAGE:	65%
3.	MINIMUM WIDTH:	40 FT

SETBACKS, PRINCIPAL STRUCTURE		1
1.	FRONT YARD, MIN.:	15'-4" (block average as calculated)
2.	FRONT YARD, MAX.:	30' <u>or</u> UP TO 20% MORE THAN THE BLOCK AVERAGE
3.	REAR YARD:	LESSER OF 30% LOT DEPTH <u>or</u> 30'
4.	SIDE YARD:	5' <u>or</u> 10% OF LOT WIDTH <50'
5.	REVERSE CORNER:	12'

PRINCIPLE STRUCTURE		
1.	MAXIMUM SIZE PERMITTED:	N/A
2.	MINIMUM SIZE PERMITTED:	N/A
3.	MAXIMUM HEIGHT PERMITTED:	35' / 2-STORIES

GENERAL NOTES - SITE PLAN

1. LOCATE AND IDENTIFY UNDERGROUND UTILITIES. COORDINATE WITH DIGGERS HOTLINE PRIOR TO PROCEEDING WITH WORK.
2. LOCATE AND IDENTIFY OVERHEAD UTILITIES
3. PROTECT EXISTING UTILITIES. COORDINATE WITH UTILITIES SERVICES PRIOR TO ANY WORK TO AVOID DISRUPTION OF UTILITIES AND SERVICES SHALL BE AVOIDED TO THE GREATEST EXTENT FEASIBLE. COORDINATE THESE WITH THE OWNER.
4. ADJACENT AREAS AND NEIGHBORING PARCELS SHALL NOT BE IMPACTED BY WORK WHERE IMPACTS ARE INCURRED, REPAIRS SHALL BE MADE.
5. PROVIDE EROSION CONTROL / SILT FENCING IN ACCORDANCE WITH RULES AND REGULATIONS OF THE MUNICIPALITY

LEGEND - SITE PLAN

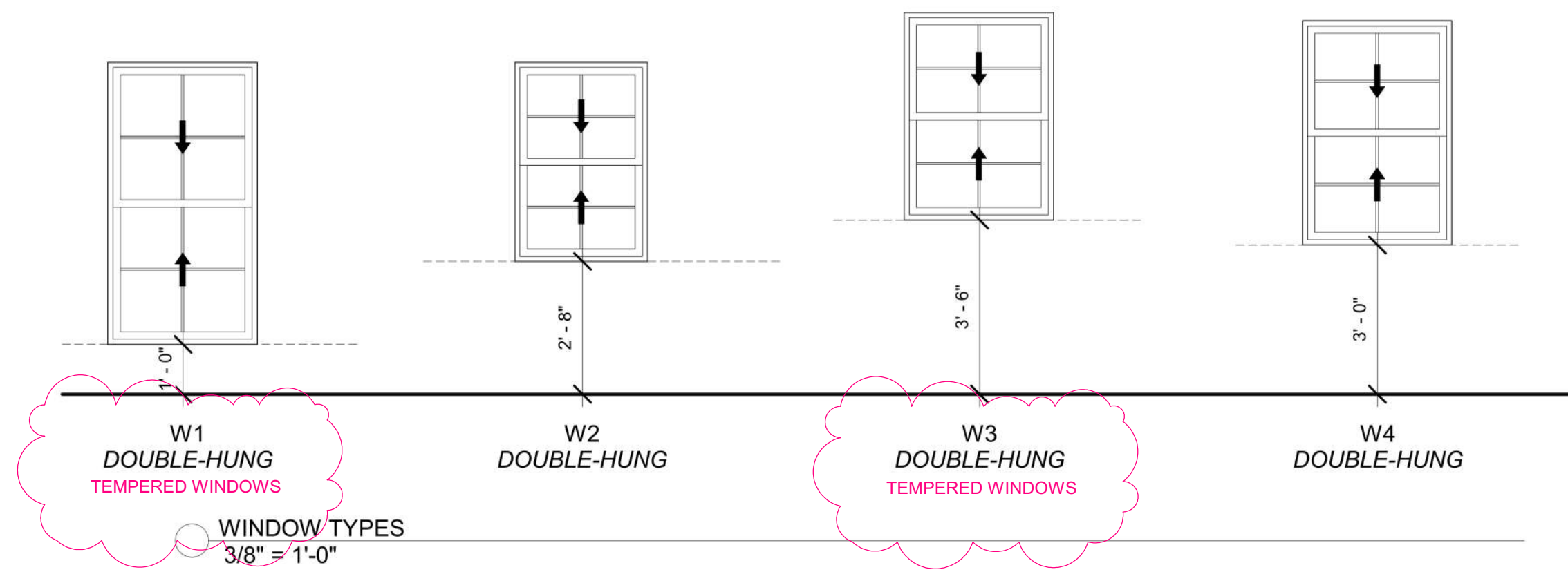
Legend:

- PROPERTY BOUNDARY
- SETBACK
- EASEMENT (WHERE/IF KNOWN)
- SILT FENCING
- GRAVEL CONSTRUCTION ACCESS
- ROLL-OFF CONTAINER LOCATION

SURVEY INFORMATION 08/09/2020

1. SITE BOUNDARIES SHOWN ARE APPROXIMATE AND ARE BASED ON GIS MAPPING AND IMAGES.
2. A SURVEY HAS NOT BEEN PROVIDED BY THE OWNER.
3. NO KNOWN SURVEY HAS BEEN RECORDED WITH THE MUNICIPALITY.

WINDOW SCHEDULE - PROPOSED			
Window Type	Count	Width	Height
W1	2	3' - 0"	5' - 8"
W2	4	2' - 8"	4' - 0"
W3	6	3' - 0"	4' - 2"
W4	3	3' - 0"	4' - 6"



BUILDING ENVELOPE REQUIREMENTS:

09/18/2025 FENESTRATION - BASIS OF DESIGN:

WINDOWS:	
MANUF:	MIDWAY WINDOWS AND DOORS, www.midwaywindows.com
PRODUCT:	WINDGATE
TYPE:	VINYL
INTERIOR:	WHITE
EXTERIOR:	WHITE
SASHES:	DIVIDED LITES TO MATCH EXISTING.

WINDOW NOTES:

1. PROVIDE REMOVEABLE/RETRACTABLE INSECT SCREENS, TYPICAL.
2. INTERIOR TRIM AT PORCH SHALL BE SOLID WOOD (POPLAR) WITH PAINT FINISH. TRIM WILL NOT BE INSTALLED AT 2ND FLOOR.
3. WINDOWS SHALL BE OPERABLE, DOUBLE-HUNG OPERATION.

EXTERIOR SWINGING DOORS
MANUF: MARVIN WINDOWS AND DOORS, www.marvin.com
PRODUCT: ULTIMATE COLLECTION
TYPE: ALUMINUM CLAD
INTERIOR: WHITE
EXTERIOR: WHITE

EXTERIOR DOOR NOTES:
1. HARDWARE AND HARDWARE FINISH SELECTIONS SHALL BE
MADE BY THE OWNER.

INTERIOR DOORS
MANUF: TBD
PRODUCT: SHAKER STYLE, STILE AND RAIL PANELED DOOR
FINISH: PAINTED

INTERIOR DOOR NOTES:

1. DOOR, FRAME, AND TRIM SHALL BE SOLID WOOD WITH PAINT FINISH. MATCH EXISTING AT KITCHEN AREA.
2. HARDWARE AND HARDWARE FINISH SELECTIONS SHALL BE MADE BY THE OWNER.

INTERIOR FINISHES - BASIS OF DESIGN:

INTERIOR TRIM, WALL BASE, AND CASING*
MATERIAL: POPLAR OR SIMILAR SOLID WOOD.
FINISH: PAINTED WHITE
*PROVIDE AT PORCH. WILL NOT BE INSTALLED AT 2ND FLOOR.

ASSEMBLIES - BASIS OF DESIGN:

ROOFING
MANUF.: GAF
PRODUCT: Timberline HDZ, Algae Resistant Architectural Roof Shingles
COLOR: Oyster Gray
CLASS: 3 or 4 rating for fire- and impact-resistance

AIR AND WEATHER BARRIER
MANUF.: DUPONT, www.dupont.com
PRODUCT: TYVEK HOMEWRAP or TYVEK DRAINWRAP

<u>SIDING/CLADDING</u>	
MANUF.:	Certainteed
PRODUCT:	MainStreet vinyl, double-4 lap siding.
COLOR:	PACIFIC BLUE, wood grain texture.
TRIM:	Windows will have J-Channel (blue) trim (minimal look). The inside and outside corners to match the field color (blue).

GENERAL NOTES - STANDARD

1. LUMBER IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED (PT) FOR GROUND CONTACT
2. AIR AND VAPOR BARRIERS, AND VAPOR BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS WITHOUT EXCEPTION
3. CONCRETE SHALL BE REINFORCED. REFER TO STRUCTURAL DRAWINGS.
4. PREFINISHED BENT METAL FLASHINGS, DRIP EDGES, AND OTHER COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH BEST PRACTICES, AS SHOWN, AND AS RECOMMENDED BY SYSTEM COMPONENTS MANUFACTURER'S RECOMMENDATIONS. VINYL AND PVC ARE NOT ACCEPTABLE SUBSTITUTIONS.
5. EXTERIOR WALLS ARE TO BE CONSTRUCTED USING NOMINAL 2X6 STUD DEPTH MINIMALLY AND TYPICALLY. STUD DEPTH MAY BE INCREASED AT DISCRETION, BUT NOT BE DECREASED WITHOUT ARCHITECT'S WRITTEN APPROVAL
6. WHERE BATT INSULATION IS SHOWN, EITHER MINERAL WOOL OR FIBERGLASS ARE ACCEPTABLE MATERIALS. MINERAL WOOL IS RECOMMENDED FOR ITS SUPERIOR PERFORMANCE AND RESISTANCE TO PEST, MOLD, MILDEW, AND SAGGING.
7. SPRAY FOAM INSULATION SHOWN SHALL BE CLOSED CELL UNLESS SPECIFICALLY NOTED OTHERWISE
8. INTERIOR WALLS AND PARTITIONS SHALL EXTEND BETWEEN THE FLOOR LEVEL TO THE UNDERSIDE OF THE FLOOR / CEILING STRUCTURE ABOVE
9. AUSTIC INSULATION IS RECOMMENDED IN PARTITIONS AND WALLS SEPARATING BEDROOM, BATHROOM, AND MECHANICAL SPACES FROM OTHER SPACES. AUSTIC INSULATION AND AUSTIC SEALANTS (WALL HEAD, BASE OF WALL, WALL PENETRATIONS) IS RECOMMENDED AT BEDROOM AND BATHROOM WALLS
10. RADON TESTING AND MITIGATION IS ADVISED. CRAWLSPACES AND BASEMENTS SHALL BE ACTIVELY-OR PASSIVELY-VENTED IN ACCORDANCE WITH SPECIALIST RECOMMENDATIONS AND BUILDING CODES.
11. GYPSUM BOARD SURFACES SHALL RECEIVE PAINT FINISH. THE ATTIC IS DESIGNED TO BE UN-VENTED AND UN-INHAIBED. REQUIRED THERMAL R-VALUE SHALL BE ACHIEVE BY INSTALLING INSULATION TO THE UNDERSIDE OF THE ROOF DECKING AS SHOWN IN THE ROOF ASSEMBLY.
12. ACCESS TO THE ATTIC IS TO BE PROVIDED. ACCESS LOCATION MAY BE AT THE DISCRETION OF THE OWNER. ACCESS OPENING SHALL NOT BE LESS THAN 14"x24"
13. ACCESS TO THE SECOND STORY ADDITION SHALL BE VIA THE EXISTING STAIRS.
14. SET DOOR OPENING JAMB OFF ADJACENT WALL 4", TYPICAL.
15. MECHANICAL S/LUMBING ELECTRICAL:
 - A. HEATING FOR ADDITION SHALL BE VIA THE EXISTING FURNACE.
 - B. COOLING FOR ADDITION SHALL BE VIA THE EXISTING AC UNIT.
16. METAL COMPONENTS, FLASHINGS, AND ACCESSORIES SHALL BE PREFINISHED AND THE COLOR SHALL BE WHITE.
17. METAL FASCIA SHALL BE WHITE. METAL FASCIA TO BE SMOOTH (NOT RIDGED OR OTHERWISE TEXTURED).
18. CONTRACTOR TO PROVIDE PREFINISHED METAL DRIP EDGE AT ALL ROOF EDGES. COLOR TO BE WHITE.
19. 6" GUTTERS TO BE PROVIDED ALONG ALL EAVES. COLOR SHALL BE WHITE.
20. DOWNSPOUTS TO BE 4X5 IN CROSS SECTION. MINIMUM 5' EXTENSIONS TO BE PROVIDED AT GRADE. COLOR SHALL BE WHITE.
21. SOFFIT PANELS SHALL BE PROVIDED. A VENTED PANEL IS RECOMMENDED. COLOR SHALL BE WHITE.
22. ROOFING UNDERLAYMENT TO BE INSTALLED IN ACCORDANCE WITH ROOFING MANUFACTURER'S RECOMMENDATIONS.
23. ADDITIONALLY, 5'-0" WIDE UNDERLAYMENT SHALL BE INSTALLED ALONG THE LOW SIDES OF ALL ROOF AREAS FOR A MINIMUM HEIGHT OF 6'.

ARCHITECT / ENGINEER OF RECORD

SP ARCHITECTURE LLC
Residential + Commercial

A PROJECT FOR:

Westring Construction
4617 Dovetail Dr STE 8
Madison, WI 53704
(608) 441-5435

RESIDENCE - ADDITION

2654 Union Street
Madison, WI 53704

[illegible]

PERMIT SET

ASSEMBLIES, SCHEDULES & NOTES

Project number	-
Date	08/13/2025
Drawn by	SP
Checked by	-

A0.41

Scale	As indicated
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Westring Construction
4617 Dovetail Dr STE 8
Madison, WI 53704
(608) 441-5435

RESIDENCE - ADDITION

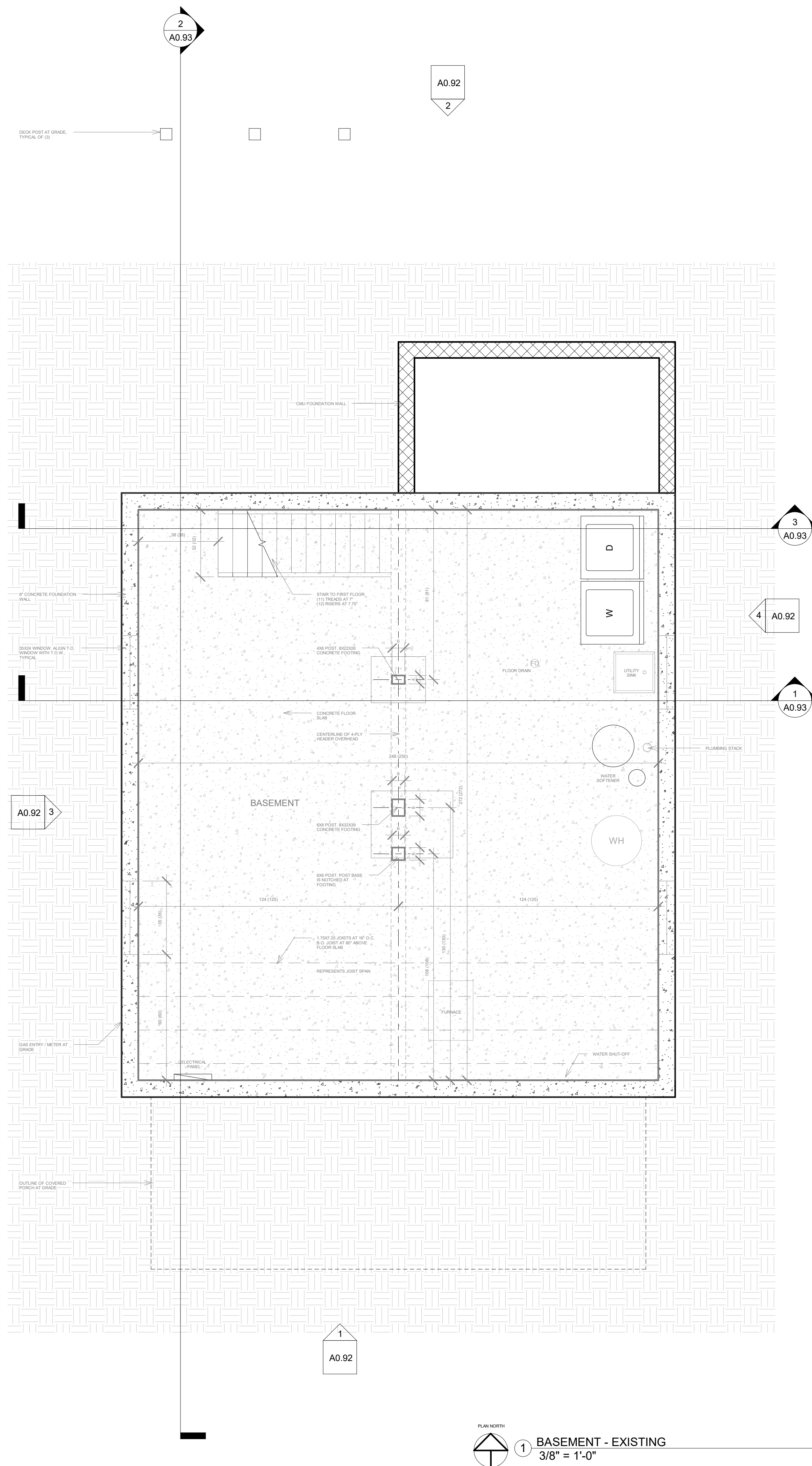
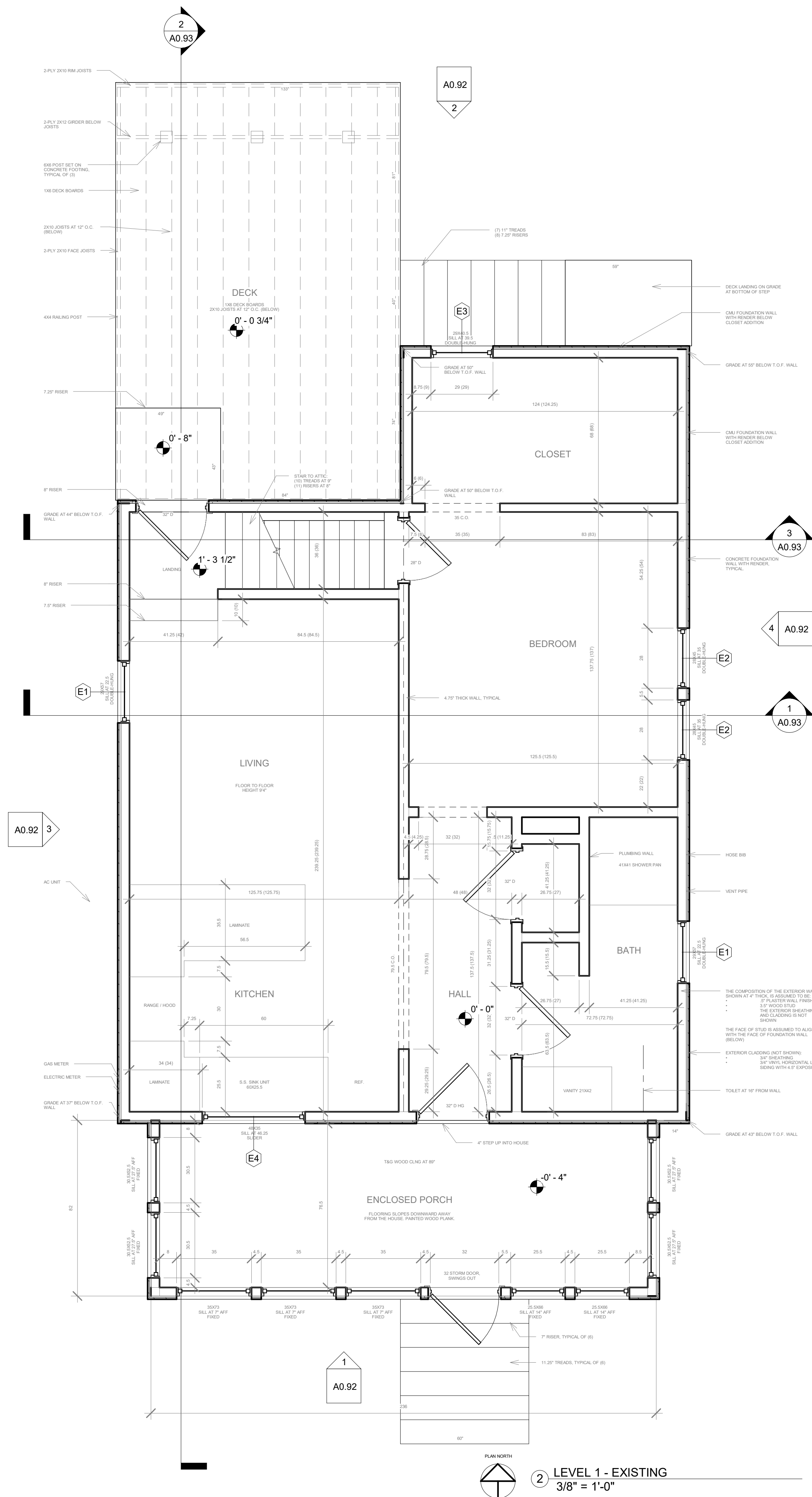
2654 Union Street
Madison, WI 53704

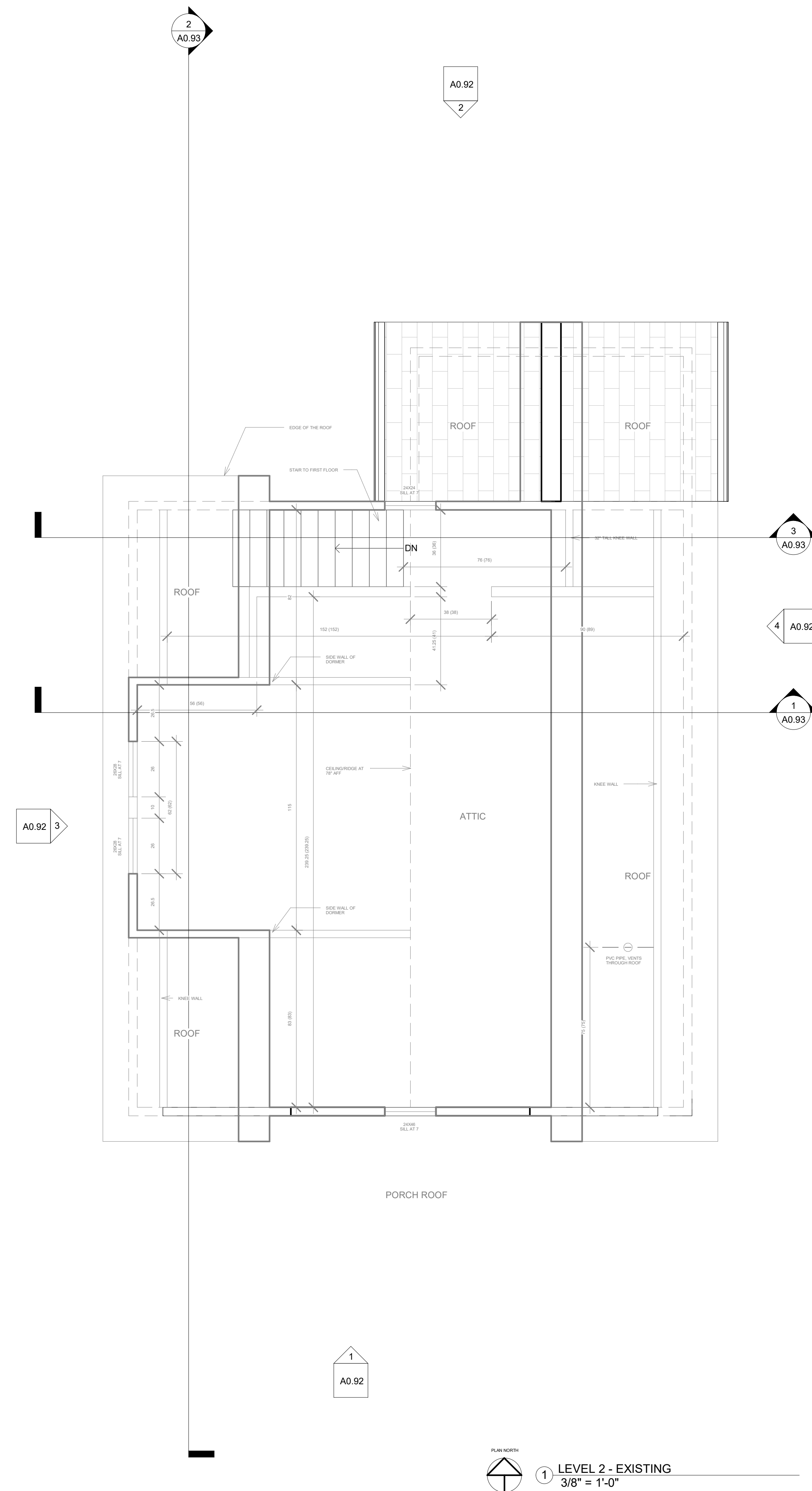
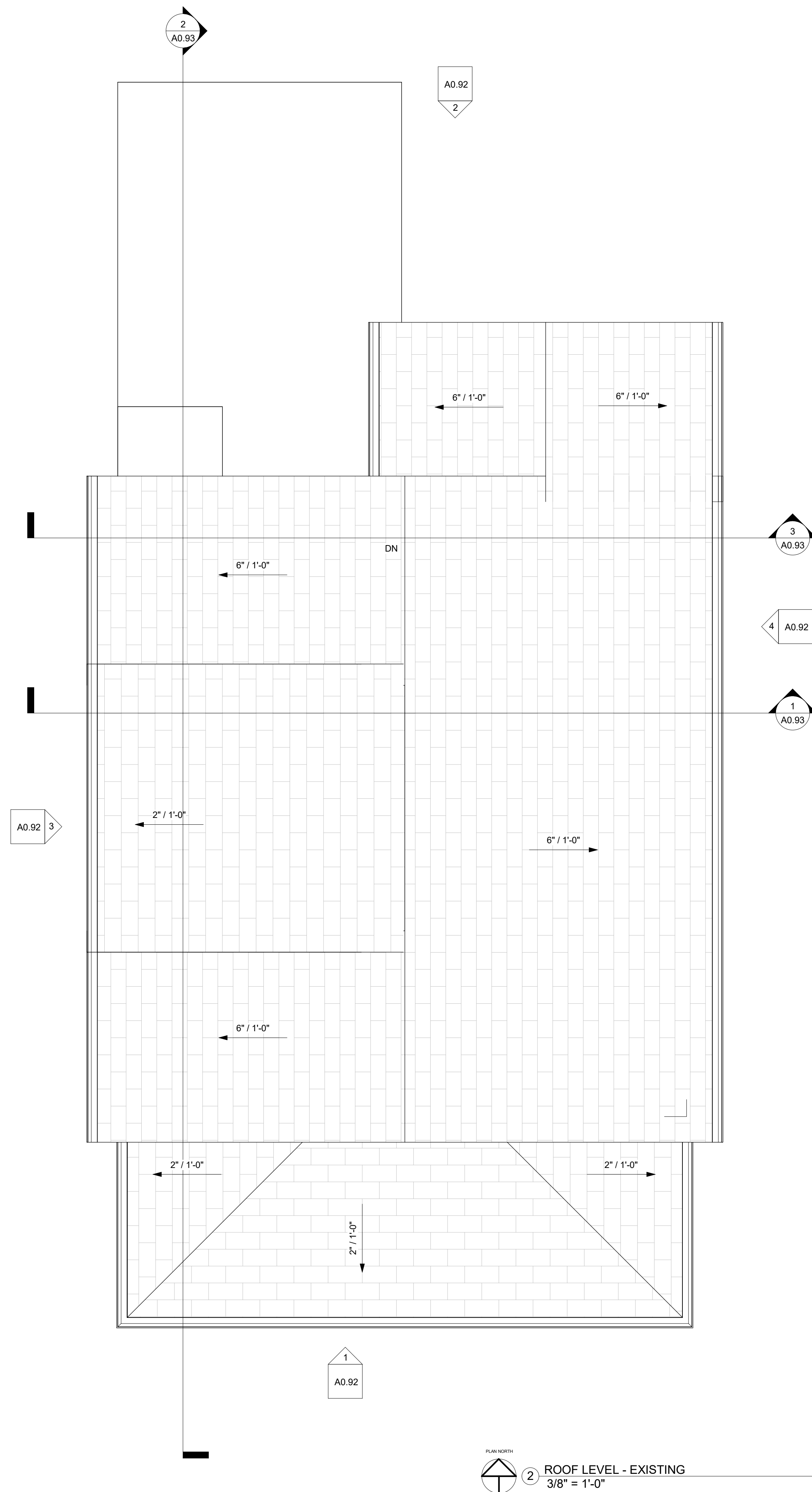
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AS-BUILT - BASEMENT AND FIRST FLOOR

A0.90

Scale $3/8" = 1'-0"$





ARCHITECT / ENGINEER OF RECORD

SP ARCHITECTURE LLC
Residential + Commercial

A PROJECT FOR:

Westring Construction
4617 Dovetail Dr STE 8
Madison, WI 53704
(608) 441-5435

RESIDENCE - ADDITION

2654 Union Street
Madison, WI 53704

[illegible]

PERMIT SET

AS-BUILT - ATTIC AND ROOF PLAN

Project number	-
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Date	08/13/2025
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Drawn by	SP
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Checked by	-
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A0.91

Scale	3/8" = 1'-0"
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Residential + Commercial

Westring Construction
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RESIDENCE - ADDITION

2654 Union Street
Madison, WI 53704

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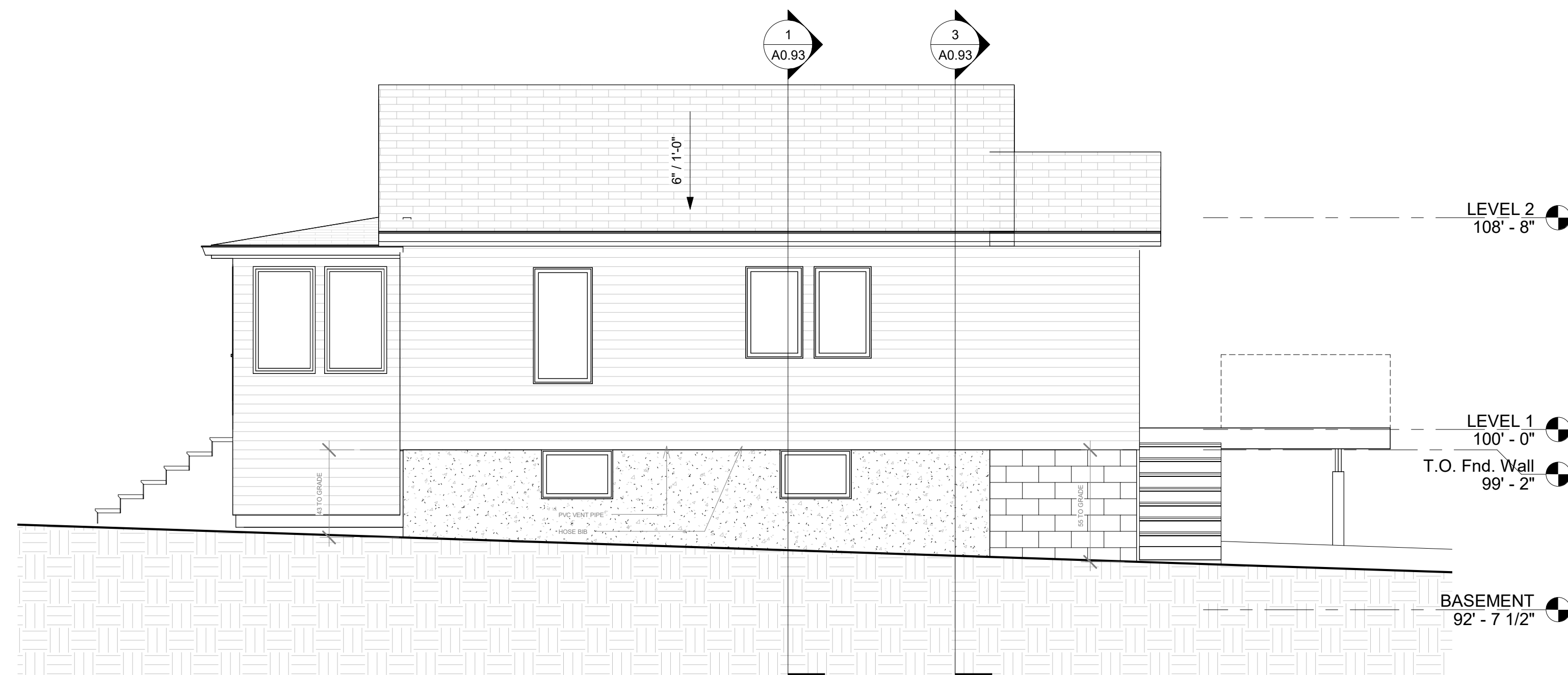
PERMIT SET

AS-BUILT - ELEVATIONS

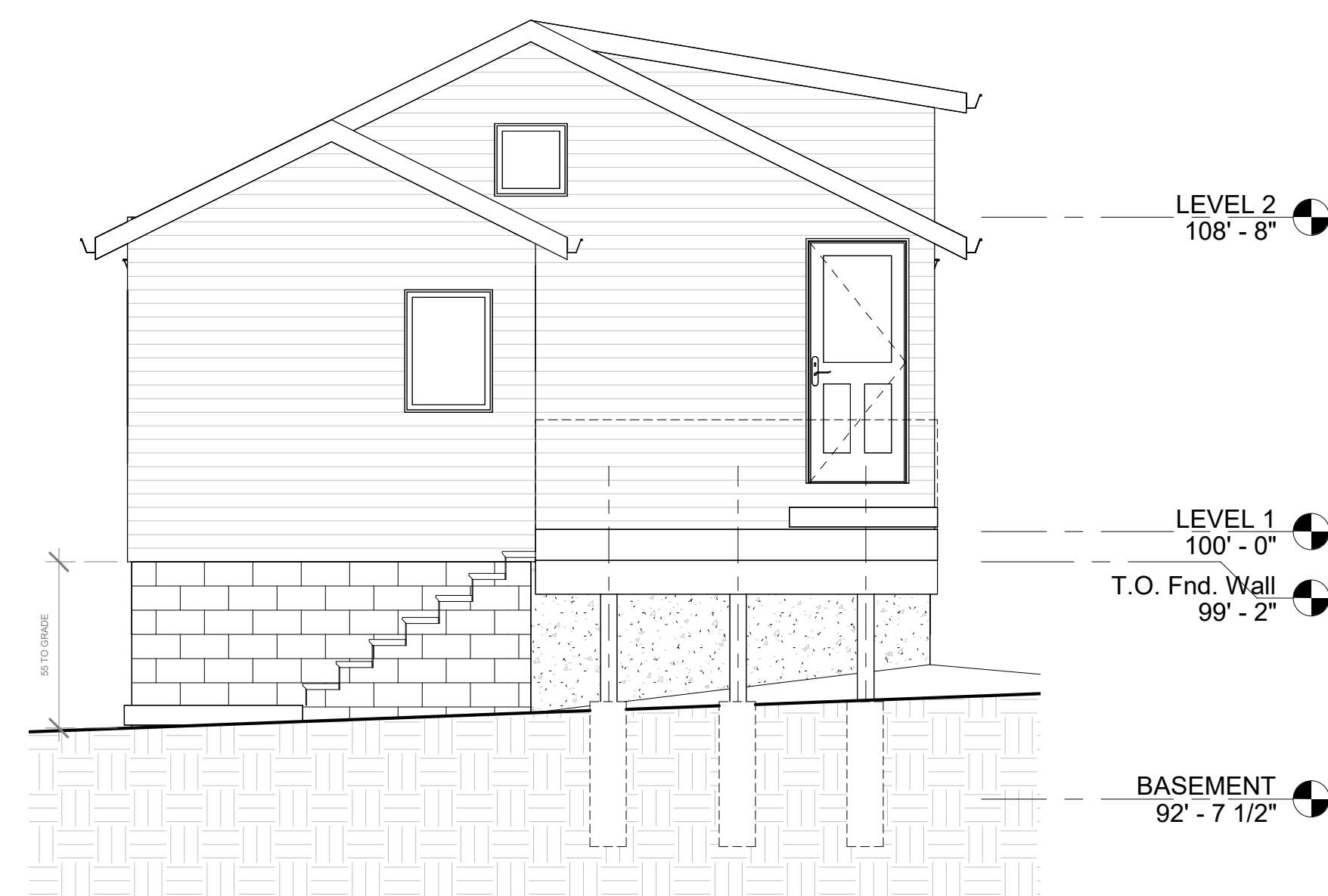
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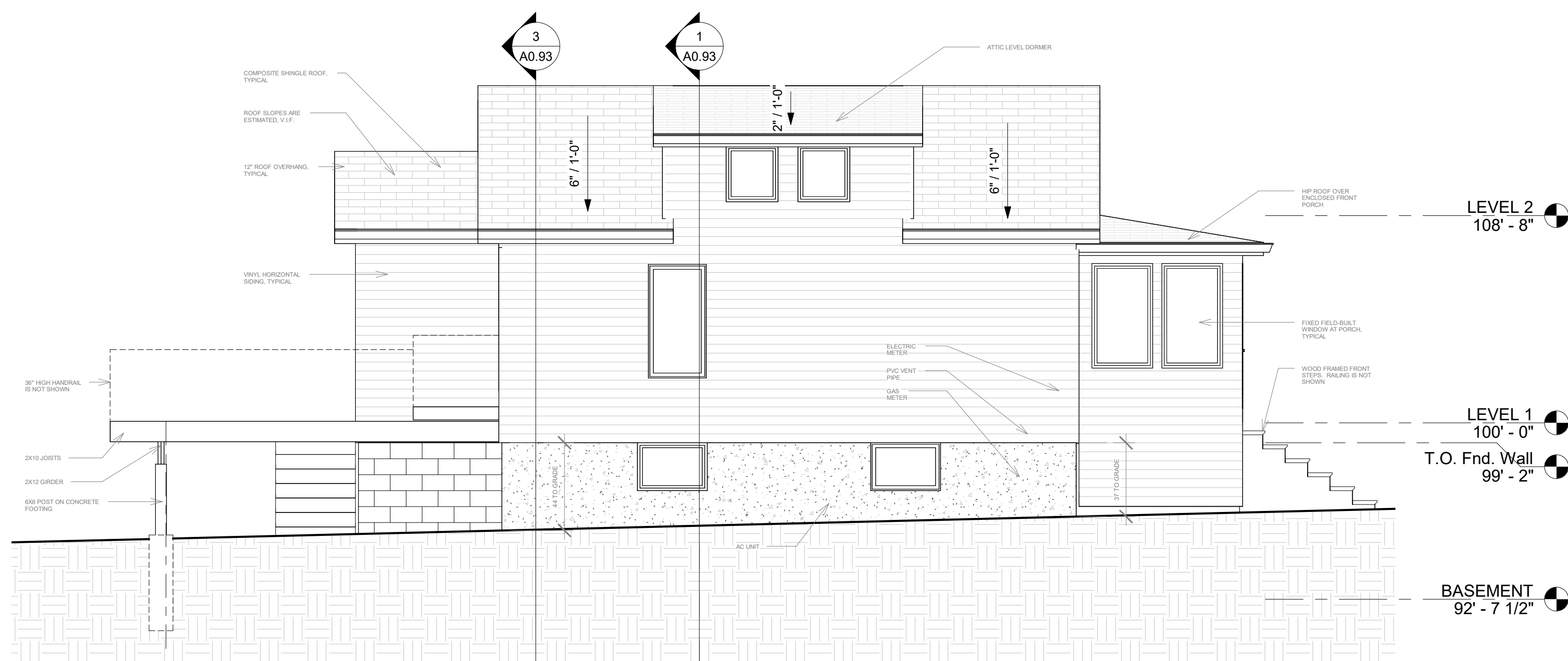
Scale $1/4" = 1'-0"$



④ EAST ELEVATION - AS-BUILT
1/4" = 1'-0"



② NORTH ELEVATION - AS-BUILT
1/4" = 1'-0"



③ WEST ELEVATION - AS-BUILT
1/4" = 1'-0"



① SOUTH ELEVATION - AS-BUILT
1/4" = 1'-0"

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RESIDENCE - ADDITION

2654 Union Street
Madison, WI 53704

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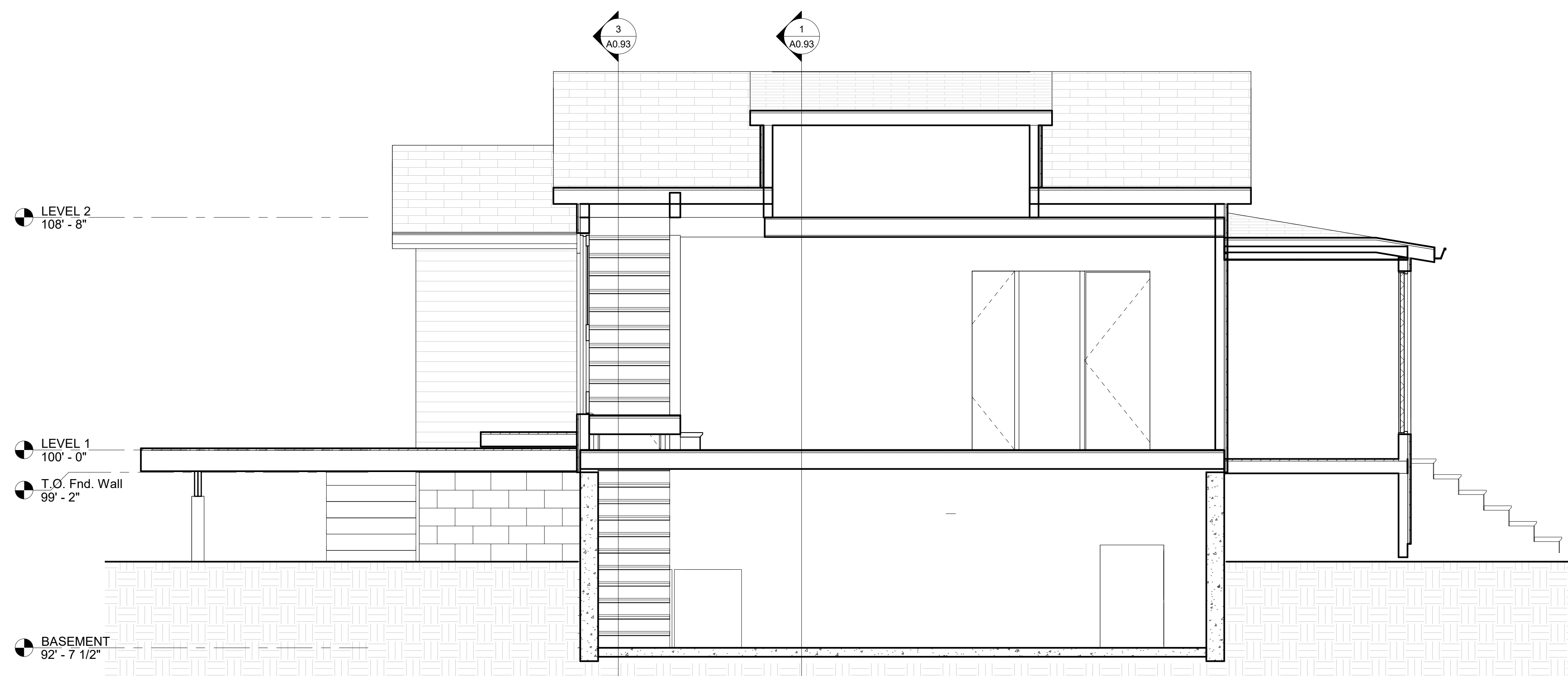
AS-BUILT - SECTIONS

Project number	-
Date	08/13/2025
Drawn by	SP
Checked by	-

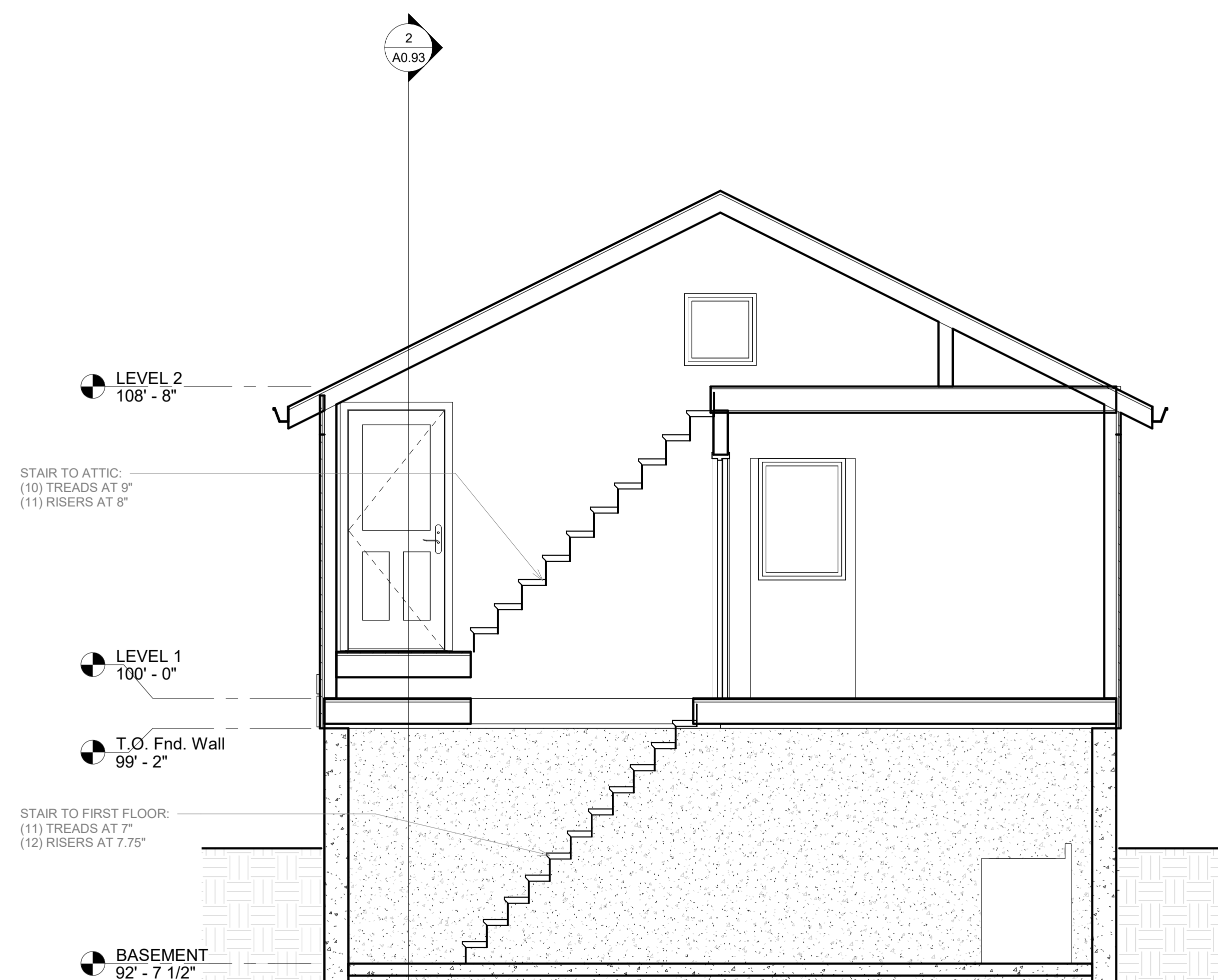
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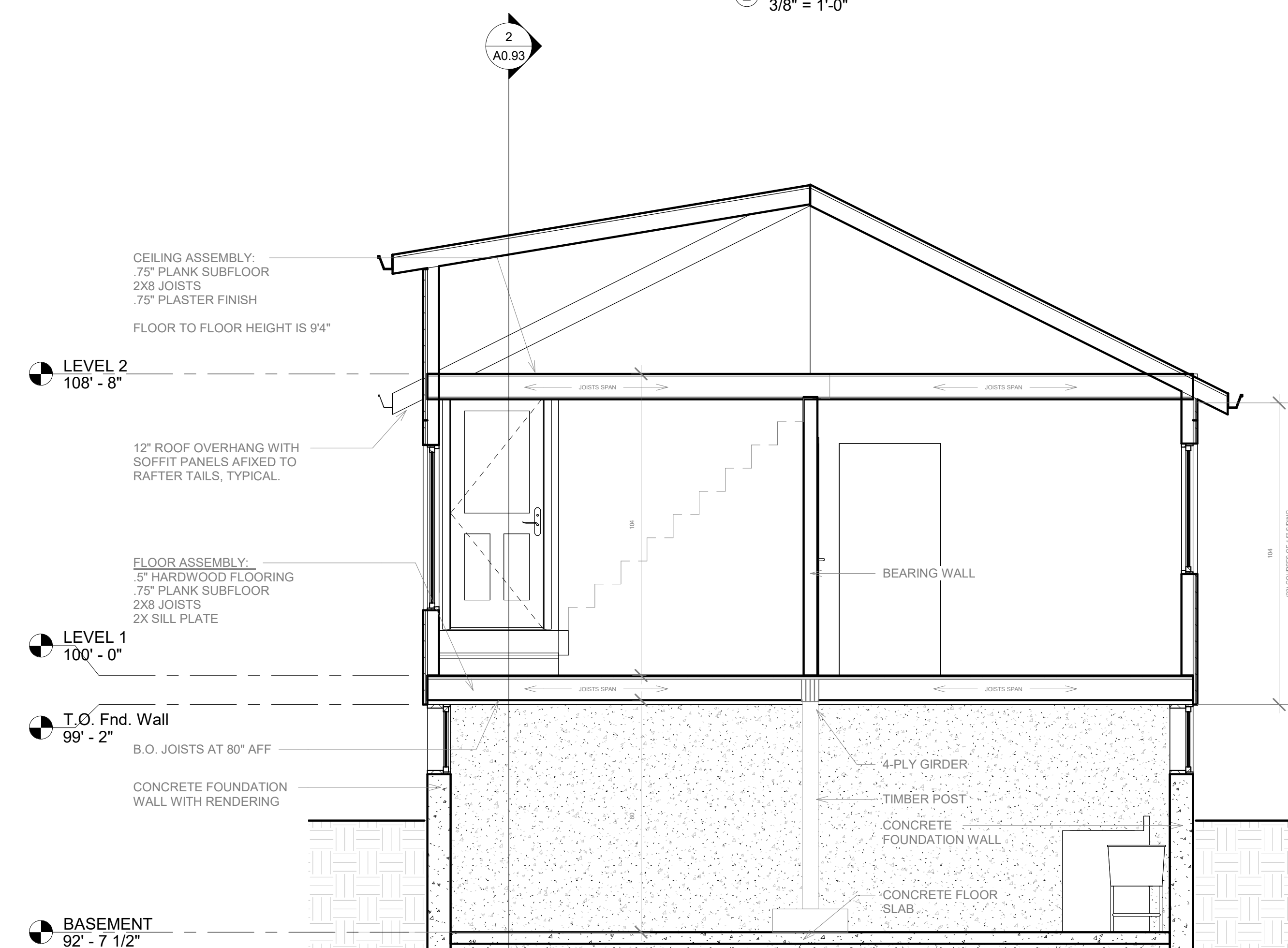
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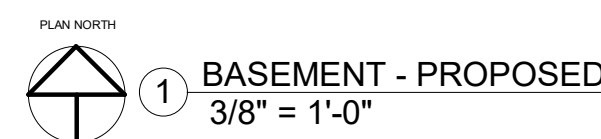
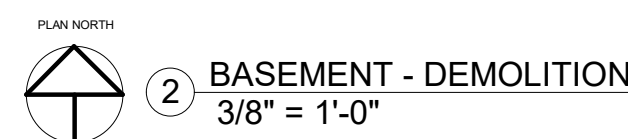
② LONG SECTION - EXISTING
3/8" = 1'-0"



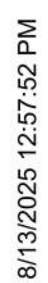
③ CROSS SECTION - EXISTING AT STAIRS
3/8" = 1'-0"

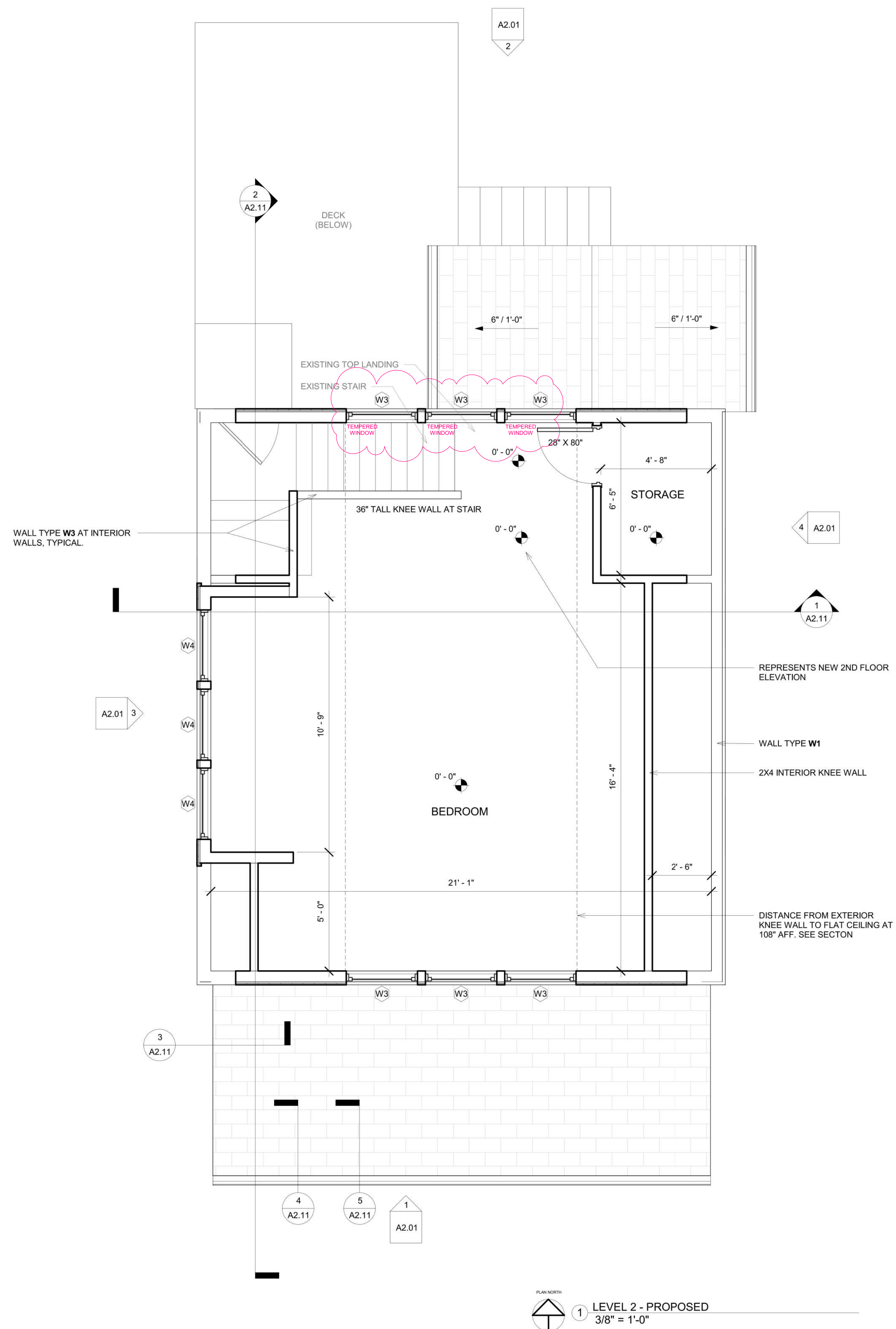


① CROSS SECTION - EXISTING
3/8" = 1'-0"



Scale	3/8" = 1'-0"
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2654 Union Street
Madison, WI 53704

Scale	$3/8" = 1'-0"$
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Residential + Commercial

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RESIDENCE - ADDITION

2654 Union Street
Madison, WI 53704

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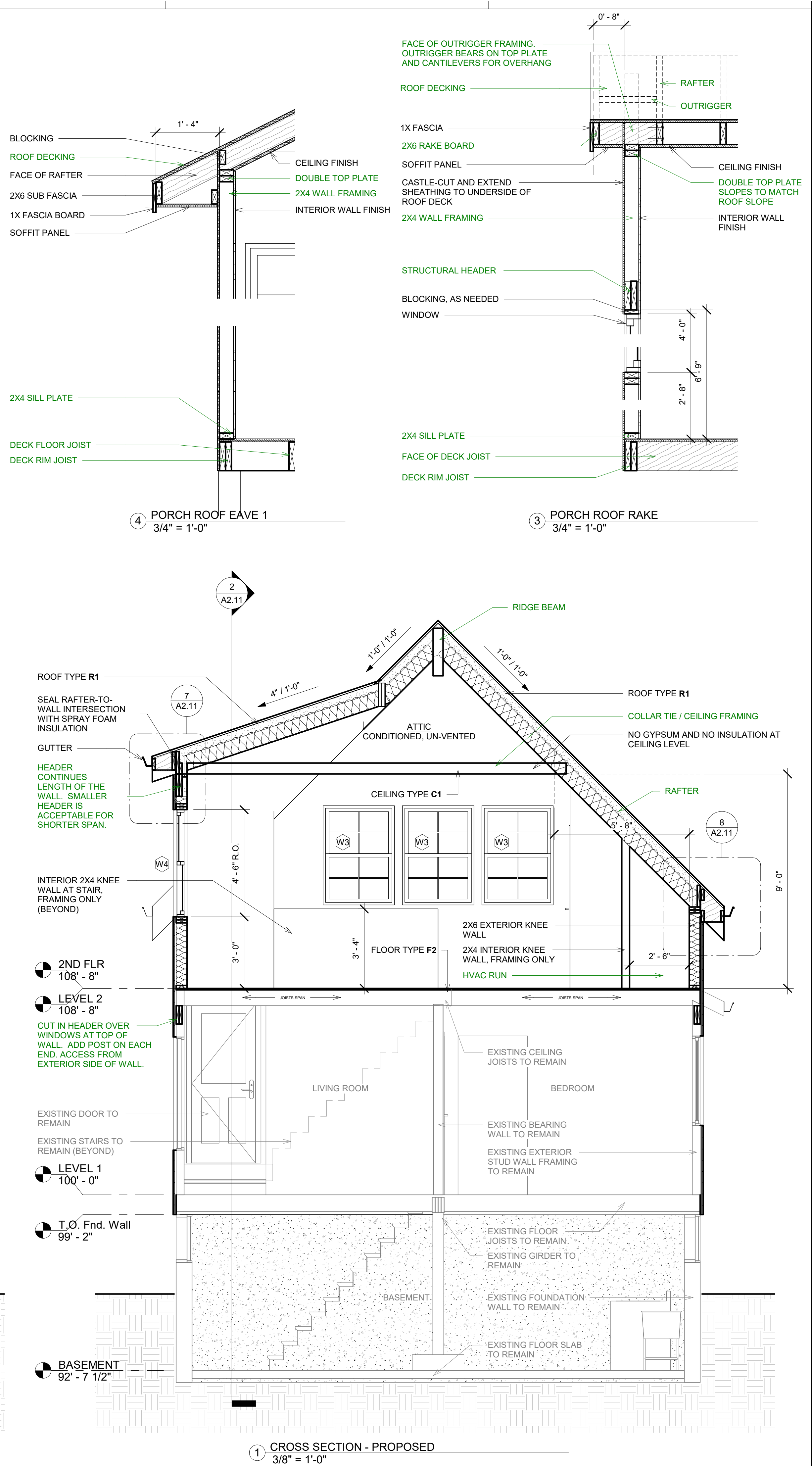
ELEVATIONS

Project number	-
Date	08/13/2025
Drawn by	SP
Checked by	-

A2.01

Scale	1/4" = 1'-0"
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PROJECT FOR:

Westring Construction
617 Dovetail Dr STE 8
Madison, WI 53704
(608) 441-5435

RESIDENCE - ADDITION

2654 Union Street
Madison, WI 53704

[illegible]

PERMIT SET

FLOOR PLANS

Project number -

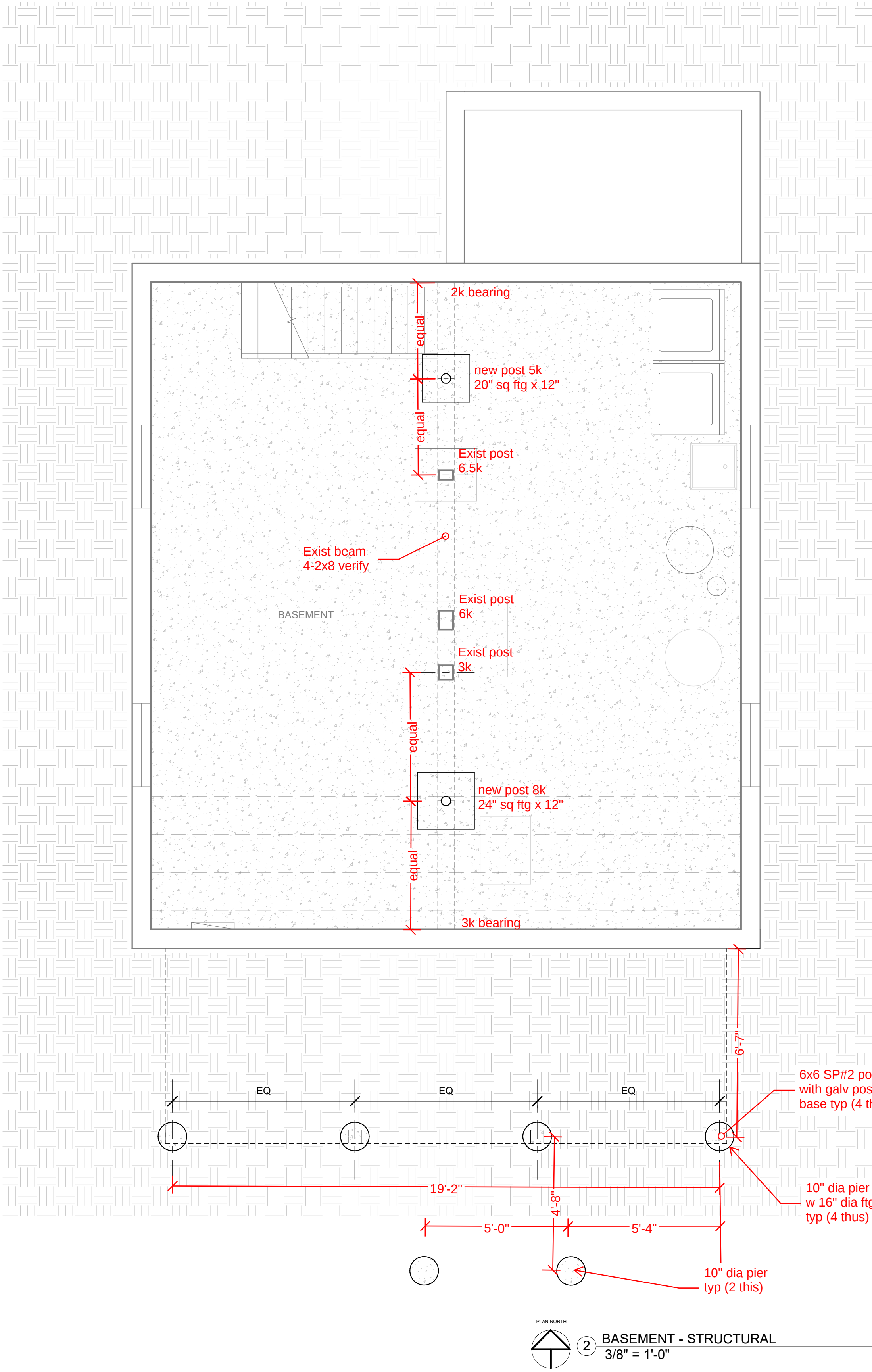
Date 08/13/2025

Drawn by _____ -

Checked by _____ -

S1.11

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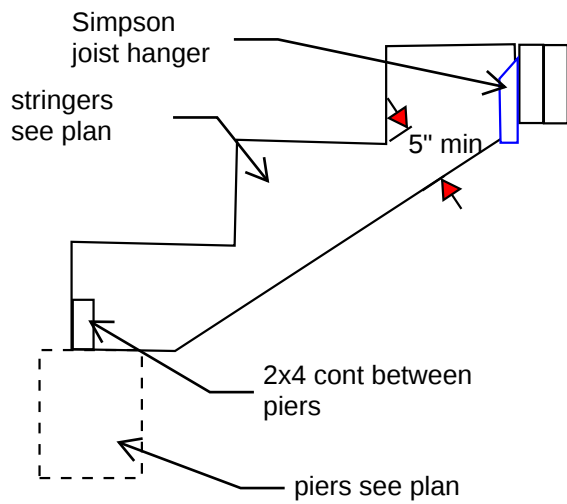


Shearwall legend

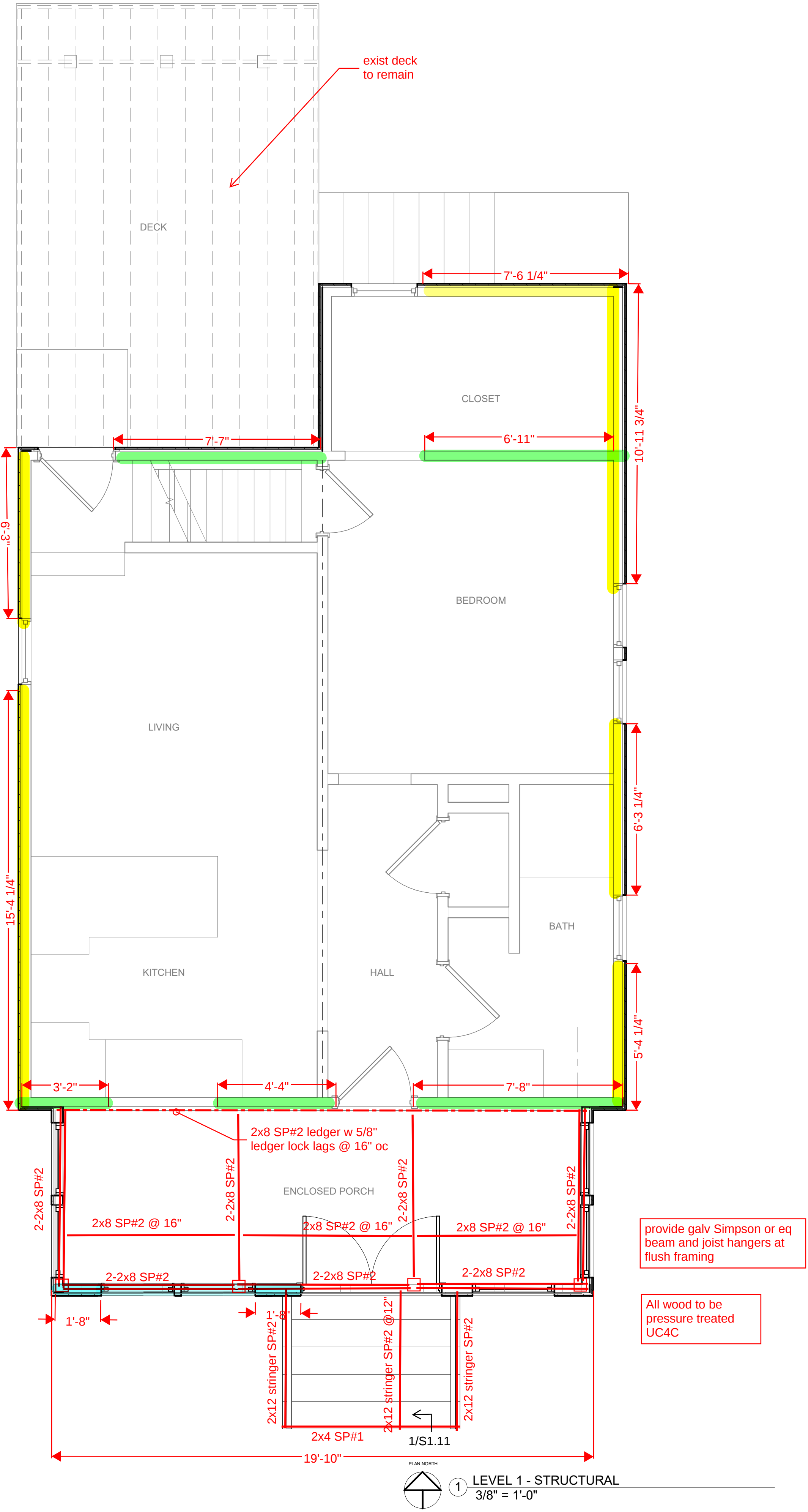
Existing Shearwall sheathing
1x8 horizontal

7/16" Ply sheathing blocked
w 8d @ 6" at edges, 12" in field,
replacing Existing 1x8 sheathing,
or similar with 10d nails over
existing sheathing

FTAO Panel
7/16" Ply sheathing blocked,
w 8d @ 6" at edges, 12" in field;
extend above and below window
16 ga coil strap at head and sill to blocking
full width 4-8d ea end & 8d @ 6" oc
16d @ 12" @ base



1/S1.11stair section



① LEVEL 1 - STRUCTURAL
3/8" = 1'-0"



PROJECT FOR:

RESIDENCE - ADDITION

2034 Orion Street
Madison, WI 53704

PERMIT SET

FLOOR PLANS

Project number	-
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Date	08/13/2025
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Drawn by _____ -

Checked by	-
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S1.21

Scale $3/8" = 1'-0"$



2 ROOF LEVEL - STRUCTURAL
3/8" = 1'-0"



LEVEL 2 - STRUCTURAL
3/8" = 1'-0"



PROJECT FOR:

RESIDENCE - ADDITION

2034 Orion Street
Madison, WI 53704

PERMIT SET

ELEVATIONS

Project number	-
Date	08/13/2025
Drawn by	-
Checked by	-

S2.01

Scale	1/4" = 1'-0"
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William McWilliams, PE, LLC
 4130 Birch Ave.
 Madison, WI 53711
 (608) 217-4565

Nunez

Wall Panel Shear loads:

		wind load pressure		15 psf	25 ft wide						
roof	NS	zone 1 panels	12.5 ft shear uplift # (-)		zone 2 panels	12.5 ft shear uplift # (-)					
gable	0 ft										
ridge	12.5 ft	6.25 ft	-500.625		6.25 ft	-500.625					
height	3.5 ft	6.25 ft	-500.625		6.25 ft	-500.625					
roof load	60 #/ft										
Story shear	5343.8 #										
min panel	2.00 ft	213.8 plf	-748 #		213.8 plf	-748 #					
	HF studs	7/16" w 8d @ 6" 339 #/ft allow			7/16" w 8d @ 6" 339 #/ft allow						
		16d @8" oc straps MST37 14-16d x2.5" 1500#			16d @8" oc straps MST37 14-16d x2.5" 1500#						
2nd	NS	31.41 ft wide									
		zone 1 panels	15.5 ft shear uplift # (-)		zone 2 panels	15.91 ft shear uplift # (-)	porch zone 3 panels 3.41 ft shear uplift # (-)		closet zone 0 panels 3 ft shear uplift # (-)		
low ridge	1 ft										
height	9.5 ft	7.58 ft	-2121.56		3.17 ft	-2333.42	1.67 ft	514.80	7.5 ft	313.5	
wall load	120.00 #/ft	6.91 ft	-2161.76		4.33 ft	-2263.82	1.67 ft				
					7.67 ft	-2063.42					
Story shear	8334.1 #									20 sf	9.17 ft
										150 #	27 sf
panel h	8.83	283.8 plf	-2696 #		278.3 plf	-2644 #	44.9 plf	-427 #	202.5 #		
min panel	2.52 ft									27.0 plf	-257
	HF studs	7/16" w 8d @ 6" 339 #/ft allow			7/16" w 8d @ 6" 339 #/ft allow		FTAO 7/16" w 8d @ 6" 339 #/ft allow		1x8 horizontal existing 65 #/ft		

Wall Panel Shear loads:

		wind load pressure		15 psf	22 ft wide	
roof	EW	zone 1		11 ft	zone 2	
		panels	shear	uplift # (-)	panels	shear uplift # (-)
gable	12.5 ft					
ridge	ft	7.33 ft		213.2134	22 ft	1230
height	3.5 ft	6 ft		133.4134		
roof load	120 #/ft					
Story shear	2640 #					
min panel	2.00 ft	99.0 plf		-347 #	60.0 plf	-210 #
		7/16" w 8d @ 6"			7/16" w 8d @ 6"	
		339 #/ft allow			339 #/ft allow	
	HF studs	16d @12" oc			16d @12" oc	
2nd	EW			22 ft wide		
		zone 1	11 ft	zone 2		11 ft
		panels	shear	uplift # (-)	panels	shear uplift # (-)
low ridge	1	6.25 ft		-846.982	11 ft	-681.588
height	9.5 ft	15.3 ft		-619.982	6.25 ft	-800.338
wall load	50 #/ft				5.33 ft	-823.338
Story shear	4785 #					
panel h	8.83 ft	110.9 plf		-1053 #	106.0 plf	-1007 #
min panel	2.52 ft					
		1x8 horizontal existing			1x8 horizontal existing	
		65 #/ft			65 #/ft	
		1/2" gyp 75 #/ft			1/2" gyp 75 #/ft	
		140#/ft			140#/ft	

shear wall anchorage

Wind		Wind	
Concrete		Wood	
590 # for 1/2" dia to 2x in conc F SPF		120 # 16d in 1 1/2" SPF	
1.4 C _D		1.4 C _D	Wind
826 #		168 #	
spcg in		Spcg in	
12	826 #/ft	4	504 #/ft
16	620 #/ft	6	336 #/ft
24	413 #/ft	8	252 #/ft
32	310 #/ft	12	168 #/ft

Allowable Shear values ASD

Shearwall Sheathing AWC SDPWS table 4.3A				HF studs G	0.43
				SGAdjustFactor	0.93
Seismic	Wind				
studs at 16"oc	studs at 24"oc	studs at 16"oc	studs at 24"oc		
7/16" w 8d @ 6"	19/32" w 10d @ 6"	7/16" w 8d @ 6"	19/32" w 10d @ 6"		
288 #/ft allow	307 #/ft allow	339 #/ft allow	442 #/ft allow		
7/16" w 8d @ 4"	19/32" w 10d @ 4"	7/16" w 8d @ 4"	19/32" w 10d @ 4"		
427.8 #/ft allow	474 #/ft allow	466 #/ft allow	665 #/ft allow		
7/16" w 8d @ 3"	19/32" w 10d @ 3"	7/16" w 8d @ 3"	19/32" w 10d @ 3"		
558 #/ft allow	618 #/ft allow	637 #/ft allow	865 #/ft allow		
7/16" w 8d @ 2"	19/32" w 10d @ 2"	7/16" w 8d @ 2"	19/32" w 10d @ 2"		
716 #/ft allow	809 #/ft allow	832 #/ft allow	1133 #/ft allow		

Shearwall Sheathing AWC SDPWS table 4.3D

Seismic			Wind		
Horizontal Lumber	common	box	common	box	
1x6 & smaller	2-8d	3-8d	2-8d	3-8d	65 #/ft allow
1x8 & larger	2-8d	3-8d	2-8d	3-8d	
Diagonal Lumber					
1x6 & smaller	2-8d	3-8d	2-8d	3-8d	391 #/ft allow
1x8 & larger	2-8d	3-8d	2-8d	3-8d	
Double diagonal Lumber					
1x6 & smaller	2-8d	3-8d	2-8d	3-8d	781 #/ft allow
1x8 & larger	2-8d	3-8d	2-8d	3-8d	
Vertical Lumber					
1x6 & smaller	2-8d	3-8d	2-8d	3-8d	523 #/ft allow
1x8 & larger	2-8d	3-8d	2-8d	3-8d	



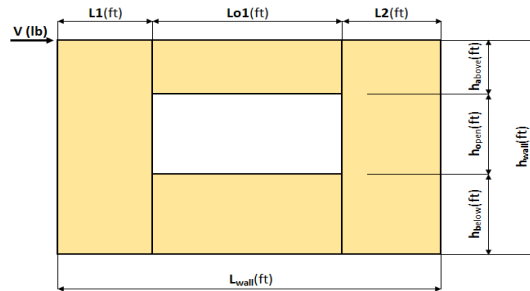
Force Transfer Around Openings Calculator

ONE OPENING

The force transfer around openings (FTAO) method of shear wall analysis is an approach that aims to reinforce the wall such that it performs as if there was no opening. This approach lends certain advantages over segmented shear walls: more versatility, because it allows for narrower wall segments while still meeting the height-to-width ratios and, often, fewer required hold-downs.

Project Information

Code:		Date:	
Designer:			
Client:			
Project:			
Wall Line:			



Shear Wall Calculation Variables

V	150 lbf	Opening 1	Adj. Factor Method =	1.25-0.125h/bs
L1	1.67 ft	ha	Wall Pier Aspect Ratio	Adj. Factor
L2	1.67 ft	ho	P1=ha/L1=	3.40
hwall	9.08 ft	hb	P2=ho/L2=	3.40
Lwall	9.01 ft	Lo1		

Note to Designer: 2021 Special Design Provisions for Wind and Seismic (SDPWS) limits wall pier widths to 24 inches, but APA testing successfully utilized blocked pier widths as narrow as 18 inches.

1. Hold-down forces: $H = Vh_{wall}/L_{wall}$ 151 lbf

2. Unit shear above + below opening
First opening: $va1 = vb1 = H/(h_a + h_b) =$ 44 plf

3. Total boundary force above + below openings
First opening: $O1 = va1 \times (Lo1) =$ 251 lbf

4. Corner forces
 $F1 = O1(L1)/(L1+L2) =$ 126 lbf
 $F2 = O1(L2)/(L1+L2) =$ 126 lbf

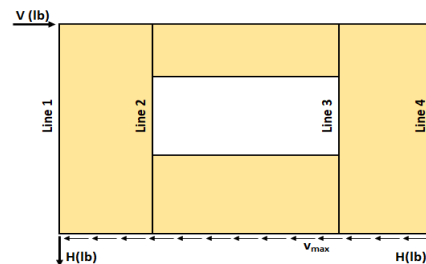
5. Tributary length of openings
 $T1 = (L1 \times Lo1)/(L1+L2) =$ 2.84 ft
 $T2 = (L2 \times Lo1)/(L1+L2) =$ 2.84 ft

6. Unit shear beside opening
 $v1 = (V/L)/(L1+T1)/L1 =$ 45 plf
 $v2 = (V/L)/(T2+L2)/L2 =$ 45 plf
Check $v1 \times L1 + v2 \times L2 = V?$ 150 lbf OK

7. Resistance to corner forces
 $R1 = v1 \times L1 =$ 75 lbf
 $R2 = v2 \times L2 =$ 75 lbf

8. Difference corner force + resistance
 $R1 - F1 =$ -51 lbf
 $R2 - F2 =$ -51 lbf

9. Unit shear in corner zones
 $vc1 = (R1 - F1)/L1 =$ -30 plf
 $vc2 = (R2 - F2)/L2 =$ -30 plf



Check Summary of Shear Values for One Opening

Line 1: $vc1(h_a + h_b) + v1(h_o) = H?$	-103	255	151 lbf
Line 2: $va1(h_a + h_b) - vc1(h_a + h_b) - v1(h_o) = 0?$	151	-103	0
Line 3: $va1(h_a + h_b) - vc2(h_a + h_b) - v1(h_o) = 0?$	151	-103	0
Line 4: $vc2(h_a + h_b) + v2(h_o) = H?$	-103	255	151 lbf

Design Summary*

Req. Sheathing Capacity	54 plf	**	4-Term Deflection		3-Term Deflection	
Req. Strap Force	126 lbf		4-Term Story Drift %		3-Term Story Drift %	
Req. HD Force (H)	151 lbf					
Req. Shear Wall Anchorage Force (v_{max})	17 plf					

**Req. Sheathing Capacity has been adjusted per the Aspect Ratio Adjustment Factor

*The Design Summary assumes that the shear wall is designed as blocked.

Wind Load**ASCE 7-16****8/13/2025**

figure 27.4.1

Nunez

Main Wind Frame Resisting System Design Loads:**Wind in Transverse Direction:**

$p = qGC_p - q_i h(GC_{pi})$	V(wind speed) =	107 mph	L=	38		
GC _{pi} = + or - .18	Risk category =	II	B=	22	elevation	856
	Exposure	B	a=	7	k _e =	0.97
	GC _{pi} =	0.18	zg=	1200	k _{zt} =	1.00
	h =	29.5 ft	z _{min} =	15		
12 /12	slope=	45.0 deg	L/B=	1.7272727		
	kd=	0.85	h/L=	0.776		

Surface	z ft	k _z	k _d	k _{zt} *k _e	q psf	G	C _p	Ext. Pressure (qGC _p)	Net Pressure (psf) With	
									(+GC _{pi})	(-GC _{pi})
Windward Wall	29.5	0.70	0.85	0.97	16.84	0.85	0.8	11.45	8.42	14.48
Leeward Wall	29.5	0.70	0.85	0.97	16.84	0.85	-0.3545	-5.08	-8.11	-2.04
combined								16.53	16.53	16.53
Side Walls	29.5	0.70	0.85	0.97	16.84	0.85	-0.7	-10.02	-13.05	-6.99
Roof										
(Windward)	29.5	0.70	0.85	0.97	16.84	0.85	0	0.00	-3.03	3.03
							0.4	5.73	2.69	8.76
(Leeward)	29.5	0.70	0.85	0.97	16.84	0.85	-0.6	-8.59	-11.62	-5.56
average								-4.29	-7.33	-1.26

Wind in Longitudinal Direction:

$p = qGC_p - q_i h(GC_{pi})$	V(wind speed) =	107 mph	L=	22		
GC _{pi} = + or - .18	Risk category =	II	B=	38	elevation	856
	Exposure	B	a=	7	k _e =	0.97
	GC _{pi} =	0.18	zg=	1200	k _{zt} =	1.00
	h =	29.5 ft	z _{min} =	15		
	slope=	0.000 deg	L/B=	0.5789474		
	kd=	0.85	h/L=	1.341		

Surface	z ft	k _z	k _d	k _{zt} *k _e	q psf	G	C _p	Ext. Pressure (qGC _p)	Net Pressure (psf) With	
									(+GC _{pi})	(-GC _{pi})
Windward Wall	29.5	0.70	0.85	0.97	16.84	0.85	0.8	11.45	8.42	14.48
Leeward Wall	29.5	0.70	0.85	0.97	16.84	0.85	-0.5	-7.16	-10.19	-4.13
combined								18.61	18.61	18.61
Side Walls	29.5	0.70	0.85	0.97	16.84	0.85	-0.7	-10.02	-13.05	-6.99
Roof										
0 to h/2	29.5	0.70	0.85	0.97	16.84	0.85	-1.3	-18.61	-21.64	-15.58
h/2 to h	29.5	0.70	0.85	0.97	16.84	0.85	-0.7	-10.02	-13.05	-6.99
h to 2h	29.5	0.70	0.85	0.97	16.84	0.85	-0.7	-10.02	-13.05	-6.99
>2h	29.5	0.70	0.85	0.97	16.84	0.85	-0.7	-10.02	-13.05	-6.99

service

18.61 /1.6=

11.63 psf

Use 15 psf

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Nunez Aditiion

2nd Floor

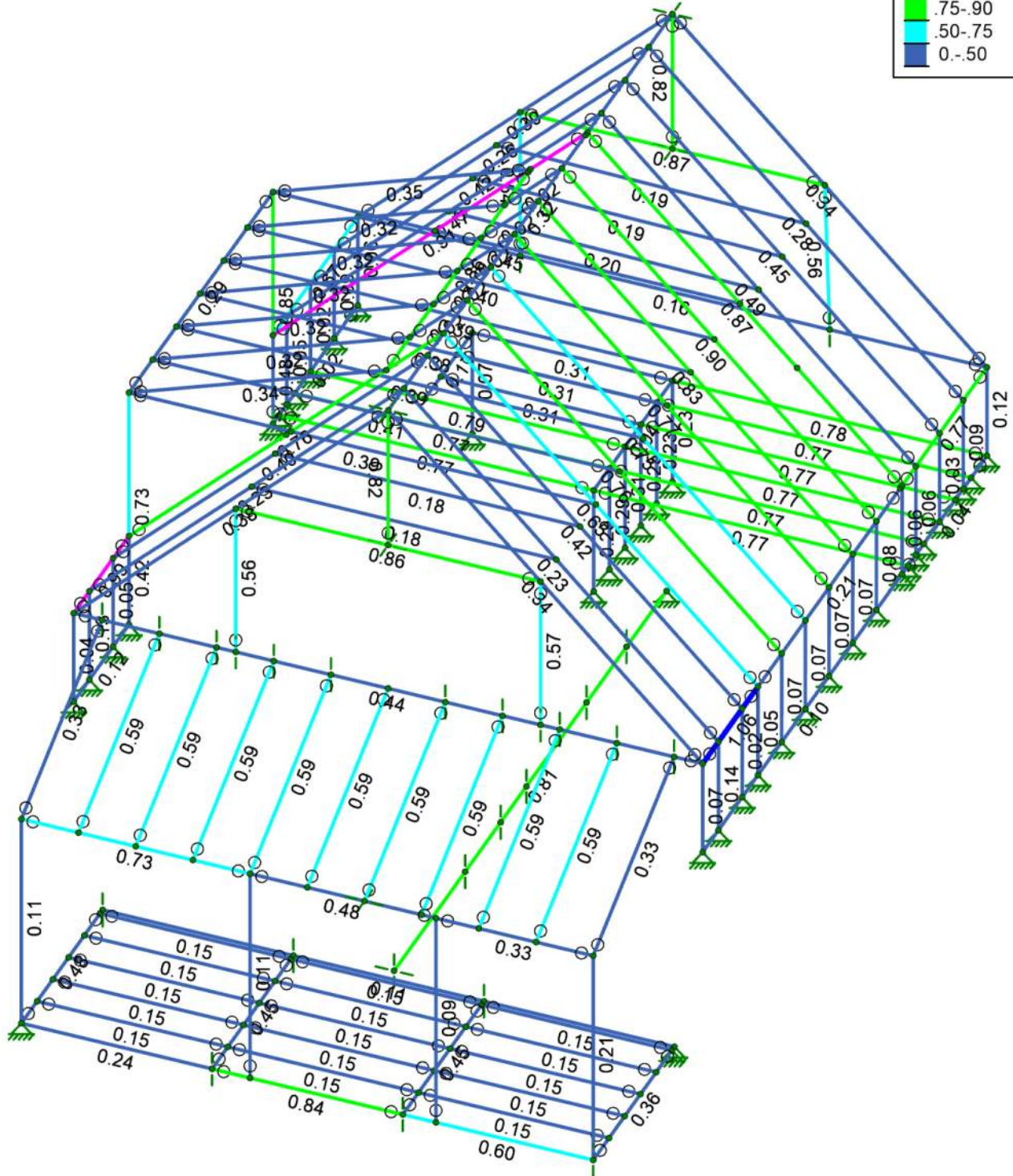
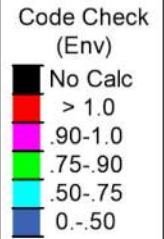
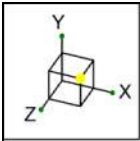
Floor headers	W1		W2		$\Delta_{LL}=L/480$
	dl	15 psf		15 psf	
	ll	40 psf		40 psf	
	tl	55 psf		55 psf	

req'd typical:

	span		w1	w2	M	R1	R2	c1	c2	EI	2x6 HF#2 old			2x10 HF#2 old		
	spacing	L									M	V	EI	M	V	EI
	ft	ft	ft	ft	ft#	#	#	ft	ft	$\times 10^6$						
h1	11.08	6.67	1	5.67	3389	2032	2032	3.335	3.335	59	2.60	1.60	0.82	1.74	1.26	0.40
h2	11.08	3	3	0	686	914	914	1.5	1.500	5	0.53	0.72	0.07	0.35	0.56	0.04
											Use 2			use 2		

Beam data	M	V	EI
	ft #	#	$\times 10^6$
2x6 HF#2 old	812	963	31.5
2x8 HF#2 old	1,303	1,269	72.2
2x10 HF#2 old	1,944	1,619	150.0
2x12 HF#2 old	2732.2	2013	288.3
7.25" LVL	3557.3	2411	111.1
9.25" LVL	5,566	3,076	231
11 7/8" LVL	8,924	3,948	488
14" LVL	12,129	4,655	800
16" LVL	15,557	5,320	1,195
18" LVL	19,689	5,985	1,701
24" LVL	35,003	7,980	4,032

old w= 1.75 in



Member Code Checks Displayed (Enveloped)



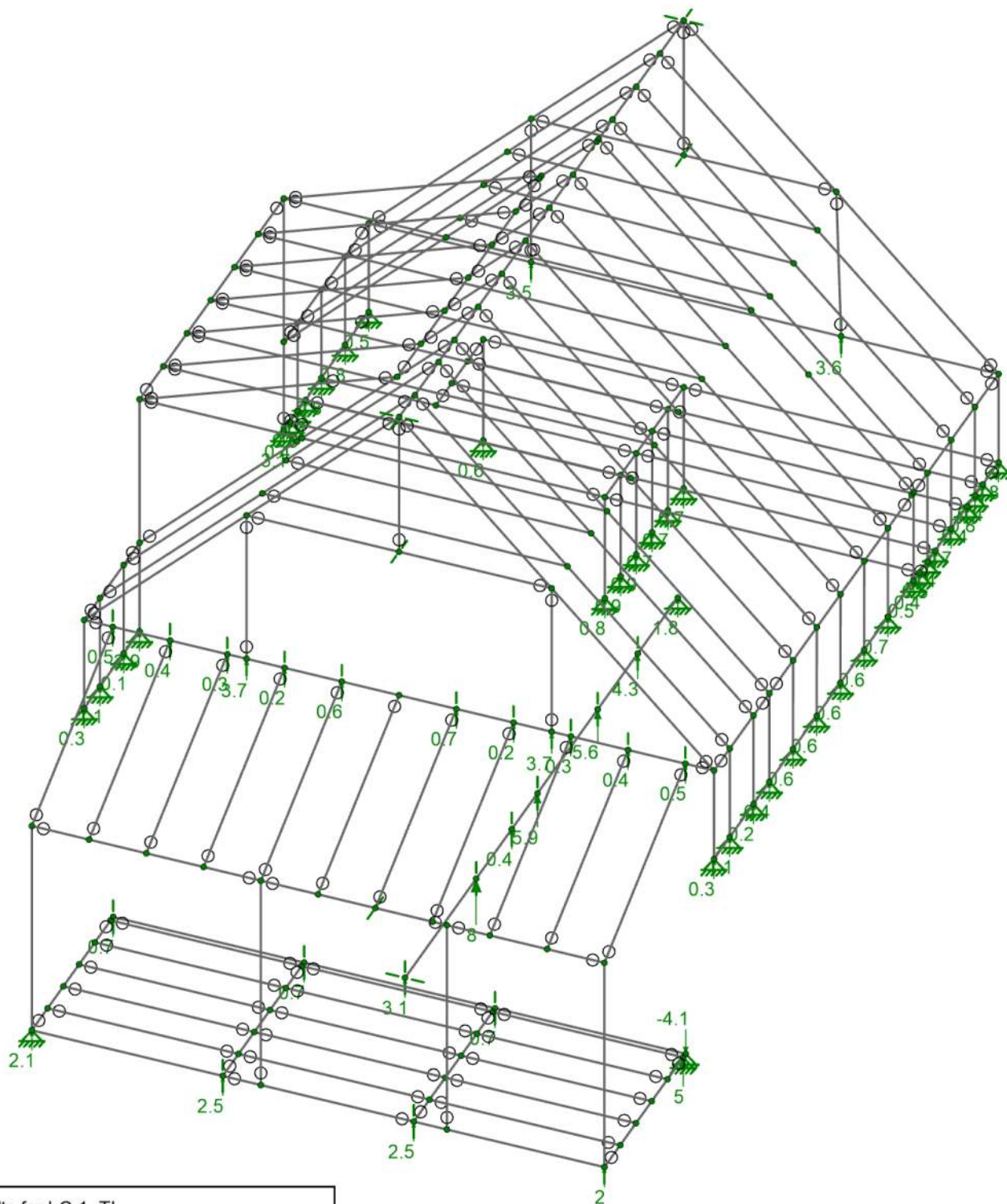
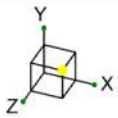
William McWilliams PE
Bill

Union roof

SK-2

Sep 13, 2025 at 11:42 AM

Nunez Union st roof ridge b...



Results for LC 1, TL
Y-direction Reaction Units are kips and kip-ft



William McWilliams PE
Bill

Union roof

SK-3

Sep 13, 2025 at 11:44 AM

Nunez Union st roof ridge b...

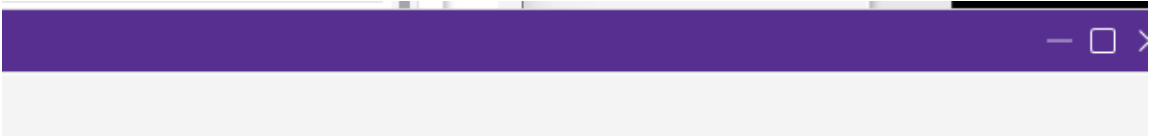
Load Combinations

Combinations Design

LC Generator RSA Scaling Factor

ksf typ

	Description	Solve	P-Delta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	TL	☒			Y	-1	1	0.015	2	0.018	3	0.022	4	0.005



Solve Current LC Solve Batch + Envelope Solve Envelope Only

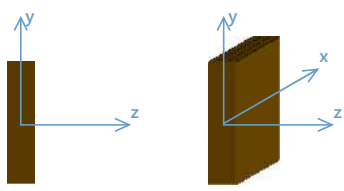
BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
5	0.015	6	0.04	7	0.01	8	0.01	9	0.005

Basic Load Cases								
	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed
1	roof DL	None						51
2	slope R LL	None						28
3	Shallow R LL	None						24
4	Collar Tie DL	None						14
5	Floor LL	None						31
6	floor DL	None						13
7	deck DL	None						18
8	deck wall	None						5
9	interior wall	None						1

Detail Report: M14

Load Combination: LC 1: TL

Code check: 0.323 (axial/bending)

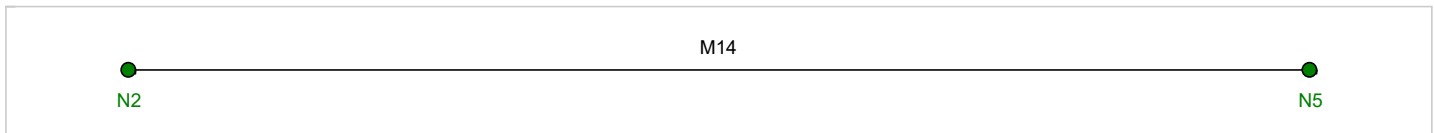


Input Data			
Shape:	3-1.75X24FS (nominal)	I Node:	N2
Member Type:	Beam	J Node:	N5
Length (ft):	24	I Release:	Fixed
Material Type:	Wood	J Release:	Fixed
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

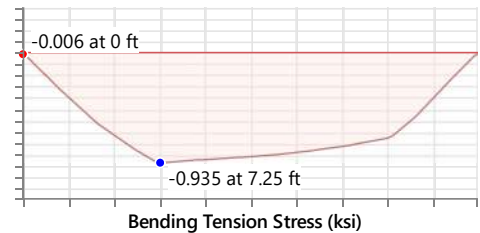
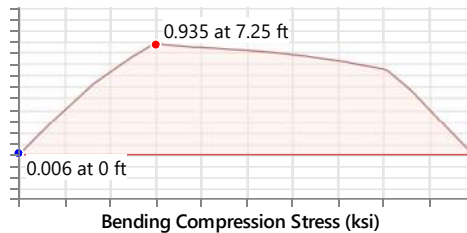
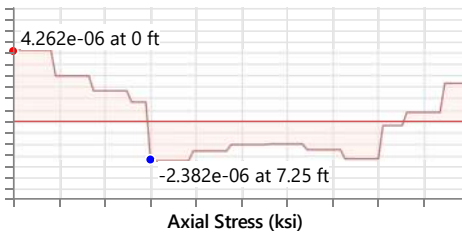
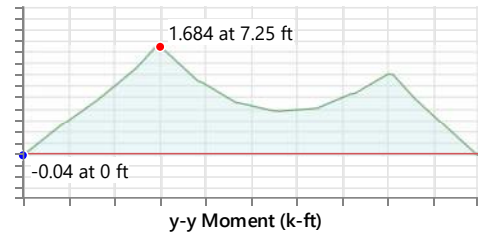
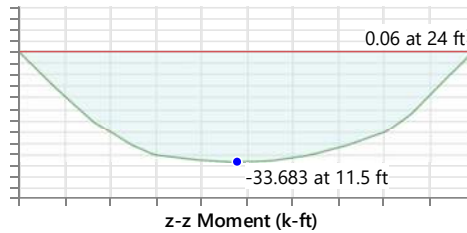
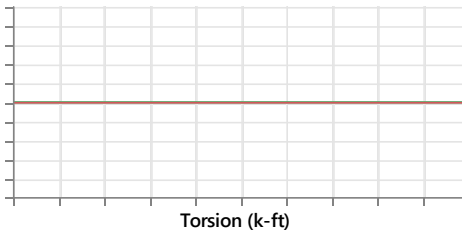
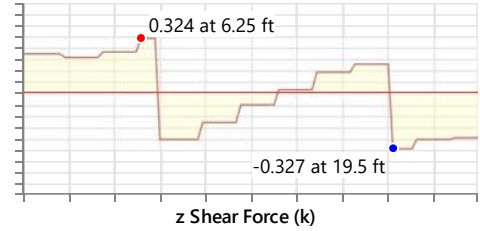
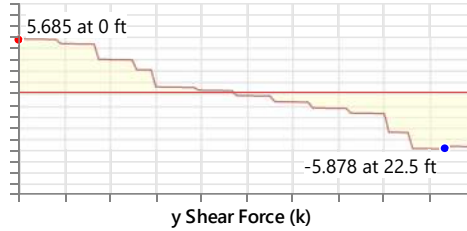
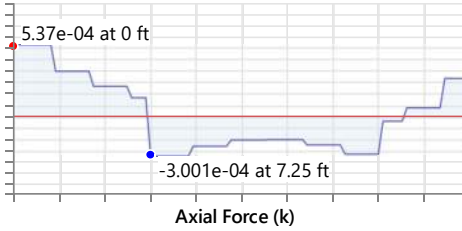
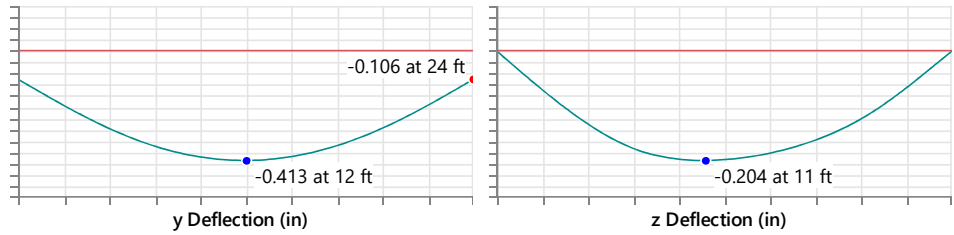
Material Properties			
Material:	2.0E_DF Parallam PSL	Grade:	na
Type:	SCL	Cm:	No
Database:	TrusJoist	Ci:	No
Species:	2.0E_DF Parallam PSL	Emod:	1
		Nu:	0.3
		Alpha (1e ⁵⁰ F ⁻¹):	0.3
		Density (k/ft ³):	0.035

Shape Properties			
Fb _{joist} (ksi):	2.9	Fc _{plank} (ksi):	0.475
Fb _{plank} (ksi):	2.8	Ft (ksi):	2.025
Fv _{joist} (ksi):	0.29	Fc (ksi):	2.9
Fv _{plank} (ksi):	0.21	E _{plank_min} (ksi):	1056.958
E _{joist_min} (ksi):	1056.958	E _{joist} (ksi):	2000
Fc _{joist} (ksi):	0.75	E _{plank} (ksi):	2000
		Emod (ksi):	1
		COV _E (Table F1):	0.1
		b (actual) (in):	5.25
		d (actual) (in):	24
		# of Plies (ksi):	3
		K _f (ksi):	0.6

Design Properties			
le2 (ft):	2	z sway:	No
le1 (ft):	24	C _p :	1
le-bend top:	Lbyy	R _B :	4.571
le-bend bot (ft):	24	C _L :	0.998
K _{y-y} :	1	C _v :	1
K _{z-z} :	1	C _r :	1
y sway:	No	C _{ru} :	1
		C _p :	0.596
		K _f :	0.6
		Max Defl Ratio:	L/940
		Max Defl Location:	12
		Span:	1



Diagrams:



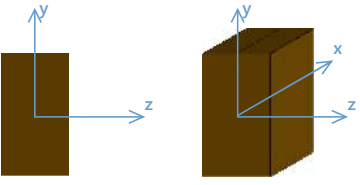
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0 ksi	1.727 ksi	-	-
Axial Tension Analysis	-2.382e-6 ksi	2.025 ksi	-	-
Flexural Analysis, Fb1'	0.752 ksi	2.893 ksi	-	-
Flexural Analysis, Fb2'	0.183 ksi	2.9 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.323	PASS
Bending & Axial Tension Analysis	-	-	0.322	PASS
Shear Analysis	0.07 ksi	0.29 ksi	0.241	PASS

Detail Report: M125

Load Combination: LC 1: TL

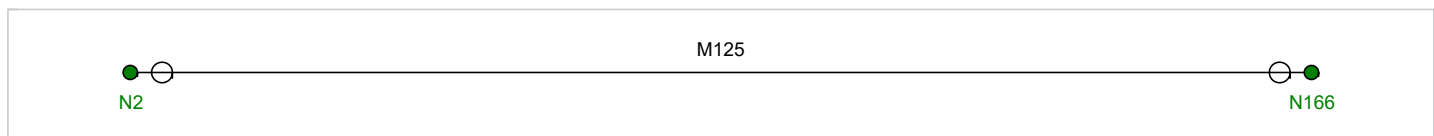
Code check: 0.824 (axial/bending)

		Input Data	
Shape:	2-2X6 (nominal)	I Node:	N2
Member Type:	Column	J Node:	N166
Length (ft):	5.33	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

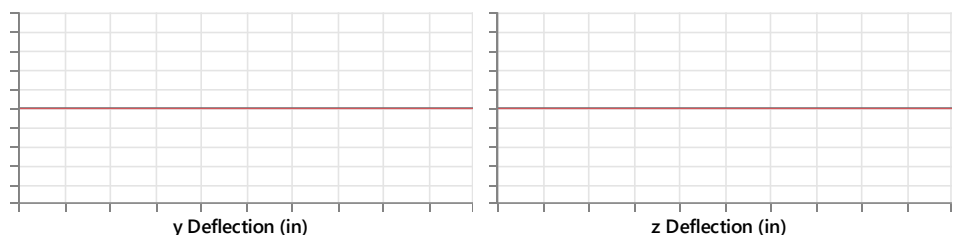
Material Properties			
Material:	HF	Grade:	No.2
Type:	Solid Sawn	Cm:	No
Database:	Visually Graded	Ci:	No
Species:	Hem-Fir	Emod:	1
		Nu:	0.3
		Alpha ($10^{-5} F^{-1}$):	0.3
		Density (k/ft^3):	0.035

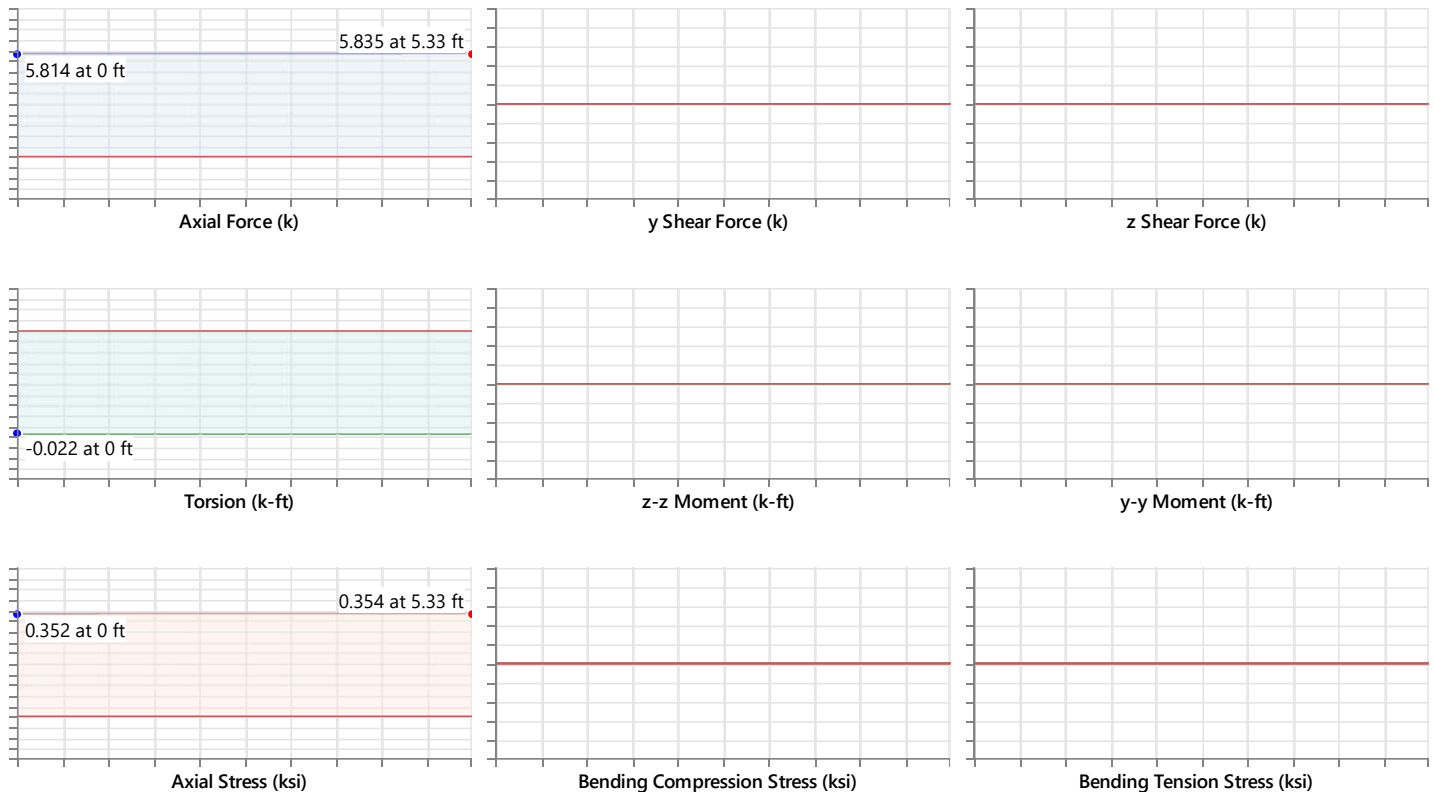
Shape Properties			
F_b (ksi):	0.85	E (ksi):	1300
F_t (ksi):	0.525	Emod:	1
F_v (ksi):	0.15	COV_E (Table F1):	0.25
F_c (ksi):	1.3	E_{min} (ksi):	474.901
		b (actual) (in):	3
		d (actual) (in):	5.5
		# of Plies (ksi):	2
		K_f (ksi):	0.6

Design Properties			
le2 (ft):	5.33	y sway:	No
le1 (ft):	5.33	z sway:	No
le-bend top:	Lbyy	C_D:	1
le-bend bot (ft):	5.33	R_B:	6.252
K_{y-y}:	1	C_L:	0.996
K_{z-z}:	1	C_r:	1
		C_{fu}:	1
		C_p:	0.3
		K_r:	0.6
		Max Defl Ratio:	L/10000
		Max Defl Location:	0
		Span:	N/A



Diagrams:





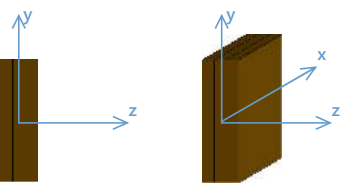
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0.354 ksi	0.429 ksi	-	-
Axial Tension Analysis	0 ksi	0.683 ksi	-	-
Flexural Analysis, Fb1'	0 ksi	1.101 ksi	-	-
Flexural Analysis, Fb2'	0 ksi	1.105 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.824	PASS
Bending & Axial Tension Analysis	-	-	0	PASS
Shear Analysis	0.022 ksi	0.15 ksi	0.147	PASS

Detail Report: M27

Load Combination: LC 1: TL

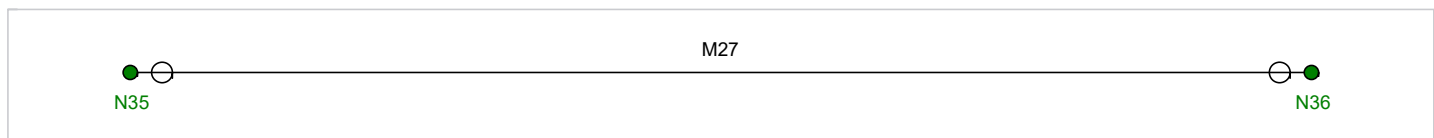
Code check: 0.869 (axial/bending)

		Input Data	
Shape:	3-1.75X18FS (nominal)	I Node:	N35
Member Type:	Beam	J Node:	N36
Length (ft):	10.66	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

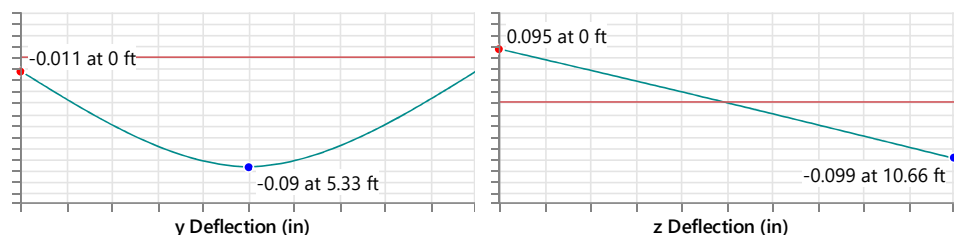
Material Properties			
Material:	SPF	Grade:	No.1
Type:	Solid Sawn	Cm:	No
Database:	Visually Graded	Ci:	No
Species:	Spruce-Pine-fir	Emod:	1
		Nu:	0.3
		Alpha (1e⁵⁰ F⁻¹):	0.3
		Density (k/ft³):	0.035

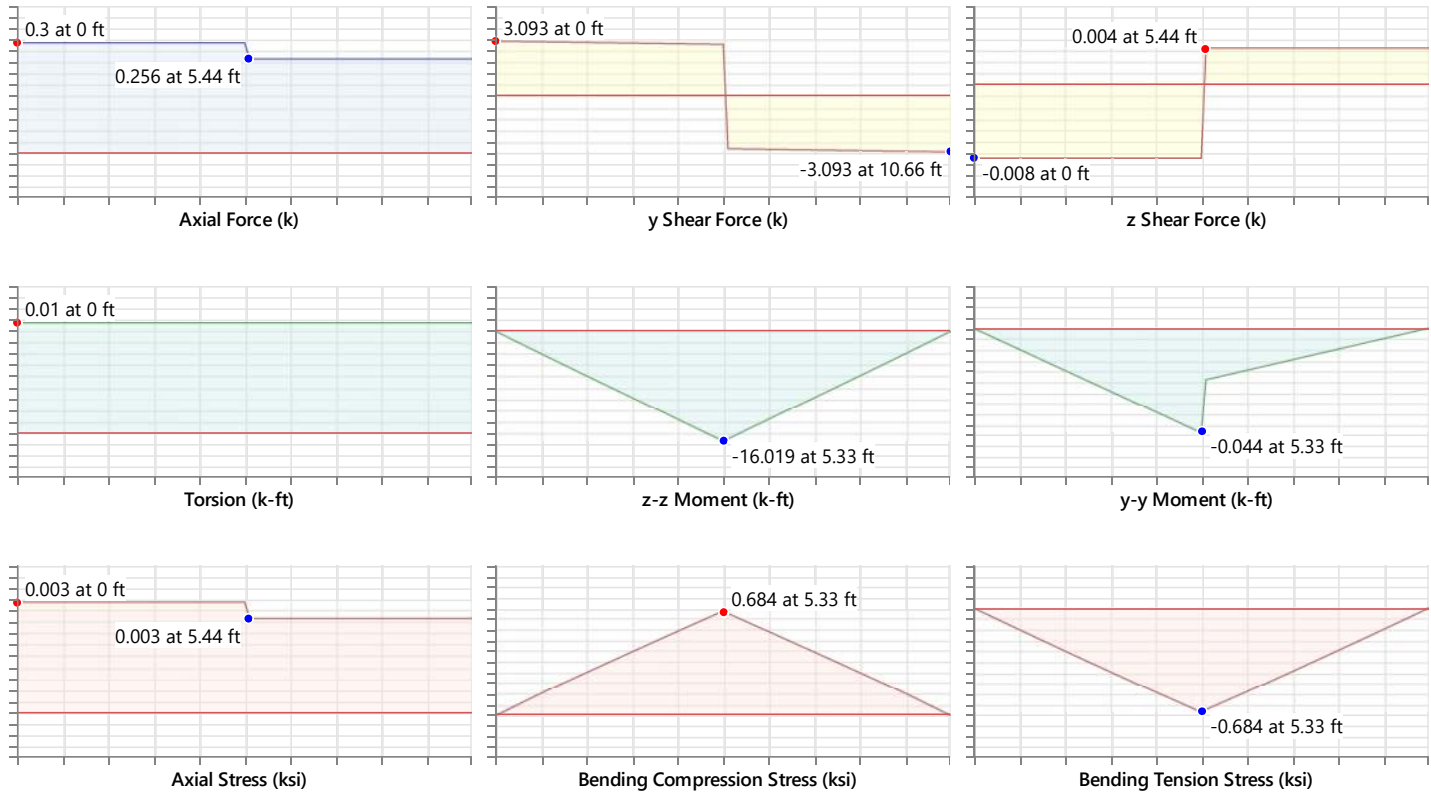
Shape Properties			
F_b (ksi):	0.875	E (ksi):	1400
F_t (ksi):	0.45	E_{mod}:	1
F_v (ksi):	0.135	COV_E (Table F1):	0.25
F_c (ksi):	1.15	E_{min} (ksi):	511.432
		b (actual) (in):	5.25
		d (actual) (in):	18
		# of Plies (ksi):	3
		K_f (ksi):	0.6

Design Properties			
le2 (ft):	2	y sway:	No
le1 (ft):	10.66	z sway:	No
le-bend top:	L _{byy}	C_D:	1
le-bend bot (ft):	10.66	R_B:	3.959
K_{y-y}:	1	C_L:	0.999
K_{z-z}:	1	C_r:	1
		C_{fu}:	1.2
		C_p:	0.594
		K_r:	0.6
		Max Defl Ratio:	L/4478
		Max Defl Location:	3.109
		Span:	1



Diagrams:





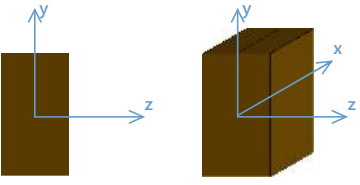
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0.003 ksi	0.614 ksi	-	-
Axial Tension Analysis	0 ksi	0.405 ksi	-	-
Flexural Analysis, Fb1'	0.678 ksi	0.787 ksi	-	-
Flexural Analysis, Fb2'	0.006 ksi	0.945 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.869	PASS
Bending & Axial Tension Analysis	-	-	0.869	PASS
Shear Analysis	0.05 ksi	0.135 ksi	0.37	PASS

Detail Report: M127

Load Combination: LC 1: TL

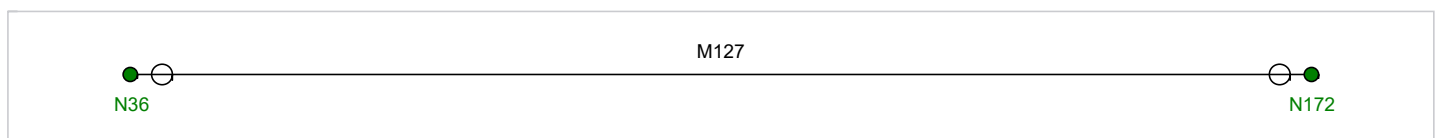
Code check: 0.562 (axial/bending)

		Input Data	
Shape:	2-2X6 (nominal)	I Node:	N36
Member Type:	Column	J Node:	N172
Length (ft):	5.673	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

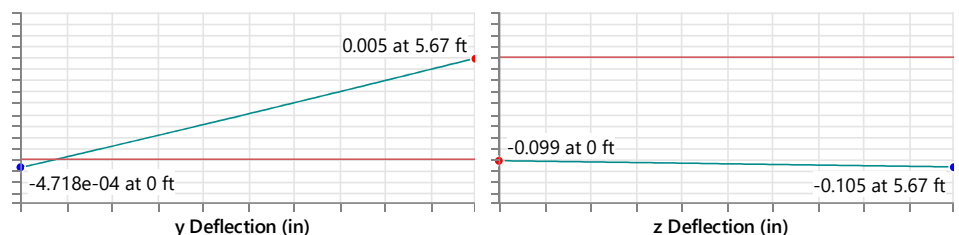
Material Properties			
Material:	HF	Grade:	No.2
Type:	Solid Sawn	Cm:	No
Database:	Visually Graded	Ci:	No
Species:	Hem-Fir	Emod:	1
		Nu:	0.3
		Alpha ($10^{-5} \text{ } ^\circ\text{F}^{-1}$):	0.3
		Density (k/ft^3):	0.035

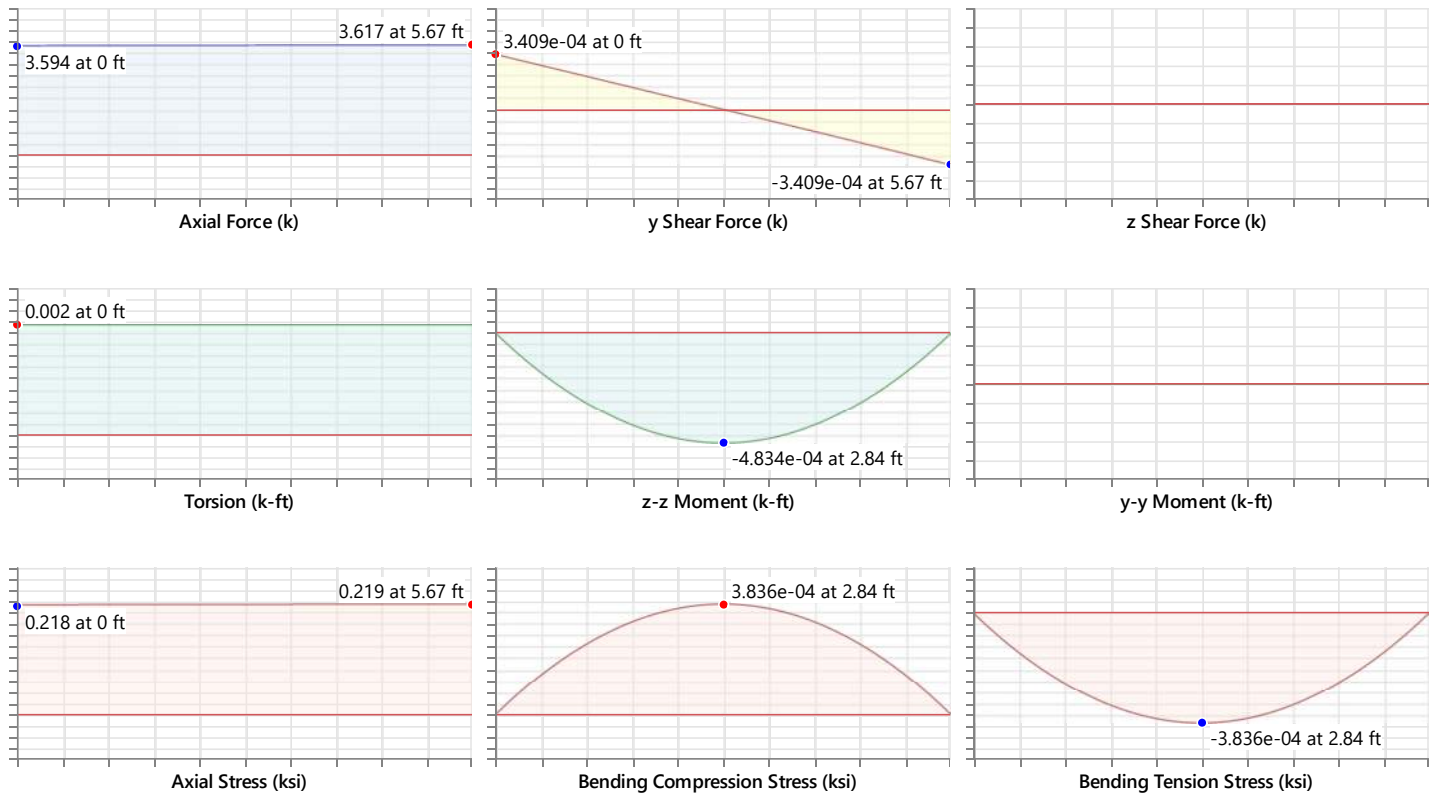
Shape Properties			
F_b (ksi):	0.85	E (ksi):	1300
F_t (ksi):	0.525	Emod:	1
F_v (ksi):	0.15	COV_E (Table F1):	0.25
F_c (ksi):	1.3	E_{min} (ksi):	474.901
		b (actual) (in):	3
		d (actual) (in):	5.5
		# of Plies (ksi):	2
		K_f (ksi):	0.6

Design Properties			
le2 (ft):	5.673	y sway:	No
le1 (ft):	5.673	z sway:	No
le-bend top:	Lbyy	C_D:	1
le-bend bot (ft):	5.673	R_B:	6.45
K_{y-y}:	1	C_L:	0.996
K_{z-z}:	1	C_r:	1
		C_{fu}:	1
		C_p:	0.273
		K_r:	0.6
		Max Defl Ratio:	L/10000
		Max Defl Location:	0
		Span:	N/A



Diagrams:





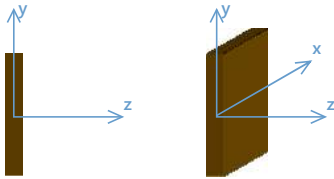
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0.219 ksi	0.39 ksi	-	-
Axial Tension Analysis	0 ksi	0.683 ksi	-	-
Flexural Analysis, Fb1'	0 ksi	1.1 ksi	-	-
Flexural Analysis, Fb2'	0 ksi	1.105 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.562	PASS
Bending & Axial Tension Analysis	-	-	0.0003486	PASS
Shear Analysis	0.002 ksi	0.15 ksi	0.011	PASS

Detail Report: M41

Load Combination: LC 1: TL

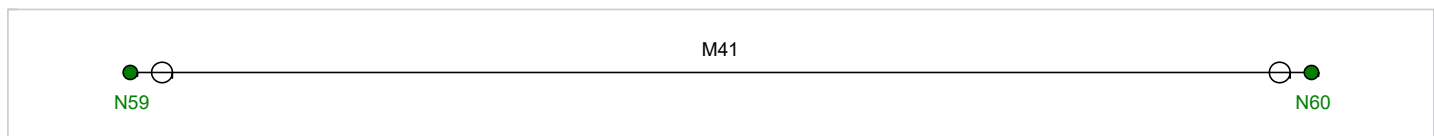
Code check: 0.902 (axial/bending)

		Input Data	
Shape:	2X12 (nominal)	I Node:	N59
Member Type:	Beam	J Node:	N60
Length (ft):	15.556	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

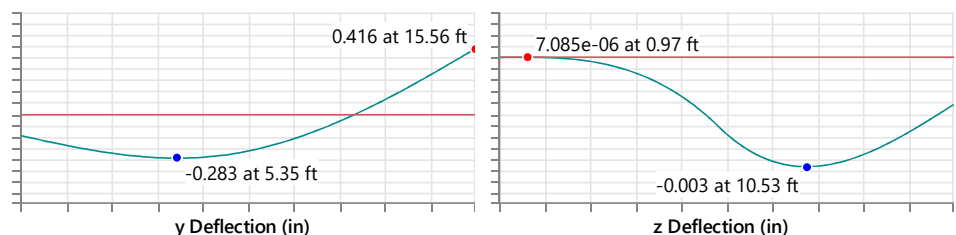
Material Properties			
Material:	HF	Grade:	No.2
Type:	Solid Sawn	Cm:	No
Database:	Visually Graded	Ci:	No
Species:	Hem-Fir	Emod:	1
		Nu:	0.3
		Alpha (1e⁵⁰ F⁻¹):	0.3
		Density (k/ft³):	0.035

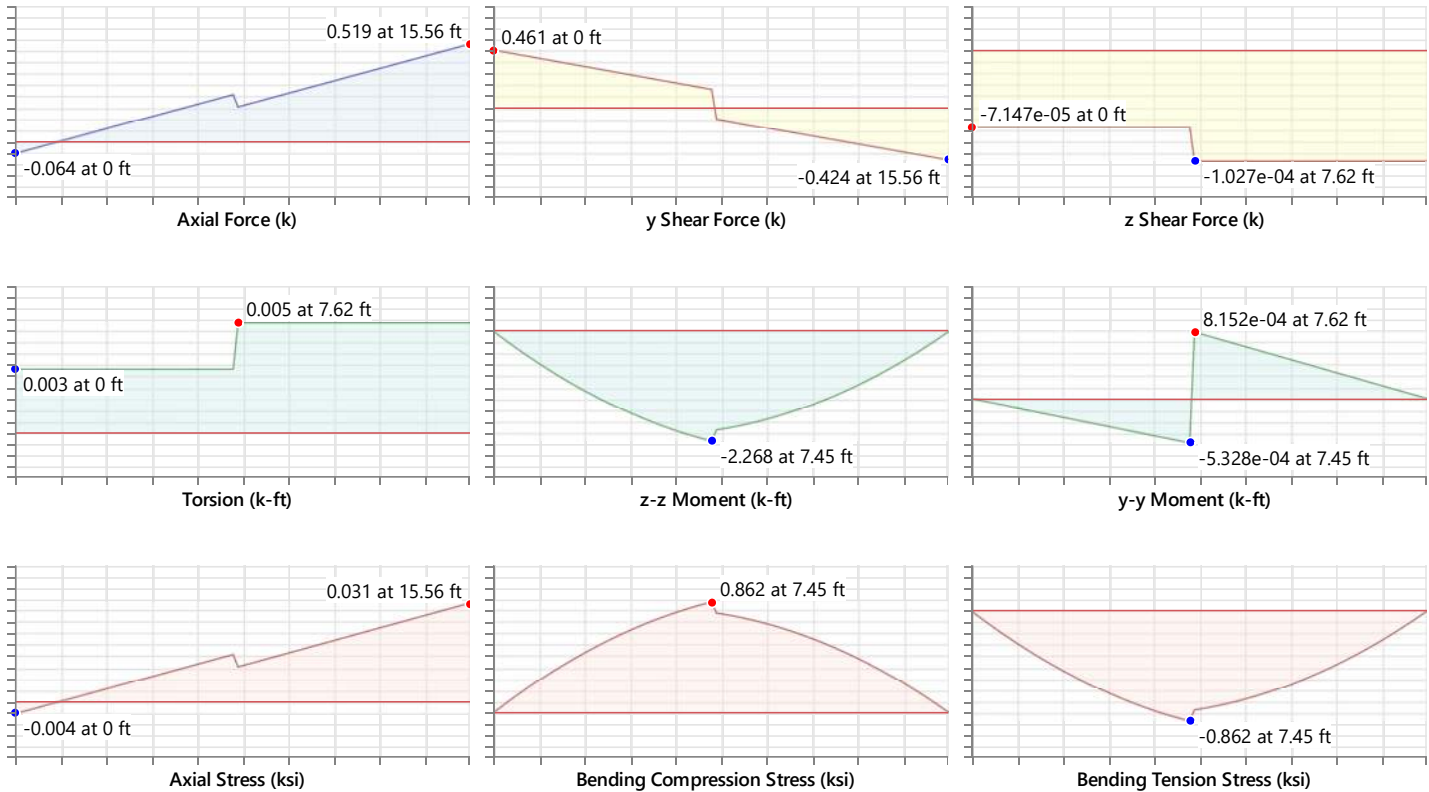
Shape Properties			
F_b (ksi):	0.85	E (ksi):	1300
F_t (ksi):	0.525	E_{mod}:	1
F_v (ksi):	0.15	COV_E (Table F1):	0.25
F_c (ksi):	1.3	E_{min} (ksi):	474.901
		b (actual) (in):	1.5
		d (actual) (in):	11.25

Design Properties			
le2 (ft):	2	y sway:	No
le1 (ft):	15.556	z sway:	No
le-bend top:	Lbyy	C_D:	1
le-bend bot (ft):	15.556	R_B:	10.954
K_{y-y}:	1	C_L:	0.987
K_{z-z}:	1	C_r:	1.15
		C_{fu}:	1
		C_p:	0.72
		Max Defl Ratio:	L/494
		Max Defl Location:	7.616
		Span:	1



Diagrams:





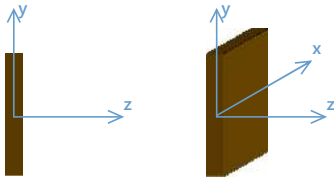
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0.015 ksi	0.936 ksi	-	-
Axial Tension Analysis	0 ksi	0.525 ksi	-	-
Flexural Analysis, Fb1'	0.86 ksi	0.965 ksi	-	-
Flexural Analysis, Fb2'	0.002 ksi	0.978 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.902	PASS
Bending & Axial Tension Analysis	-	-	0.893	PASS
Shear Analysis	0.046 ksi	0.15 ksi	0.303	PASS

Detail Report: M39

Load Combination: LC 1: TL

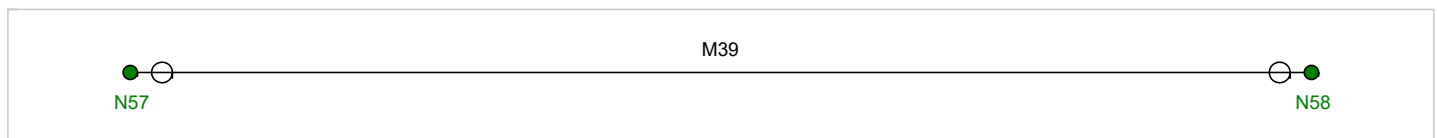
Code check: 0.320 (axial/bending)

		Input Data	
Shape:	2X12 (nominal)	I Node:	N57
Member Type:	Beam	J Node:	N58
Length (ft):	9.596	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

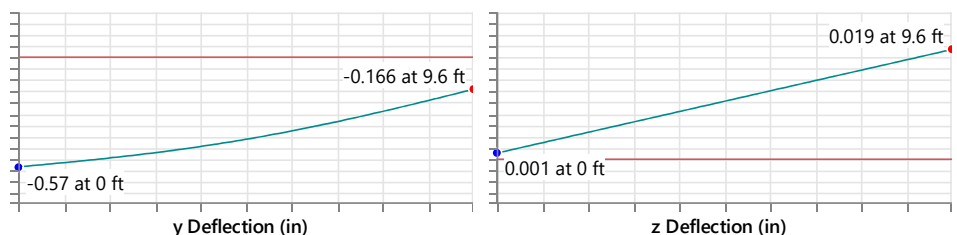
Material Properties			
Material:	HF	Grade:	No.2
Type:	Solid Sawn	Cm:	No
Database:	Visually Graded	Ci:	No
Species:	Hem-Fir	Emod:	1
		Nu:	0.3
		Alpha (1e⁵⁰ F⁻¹):	0.3
		Density (k/ft³):	0.035

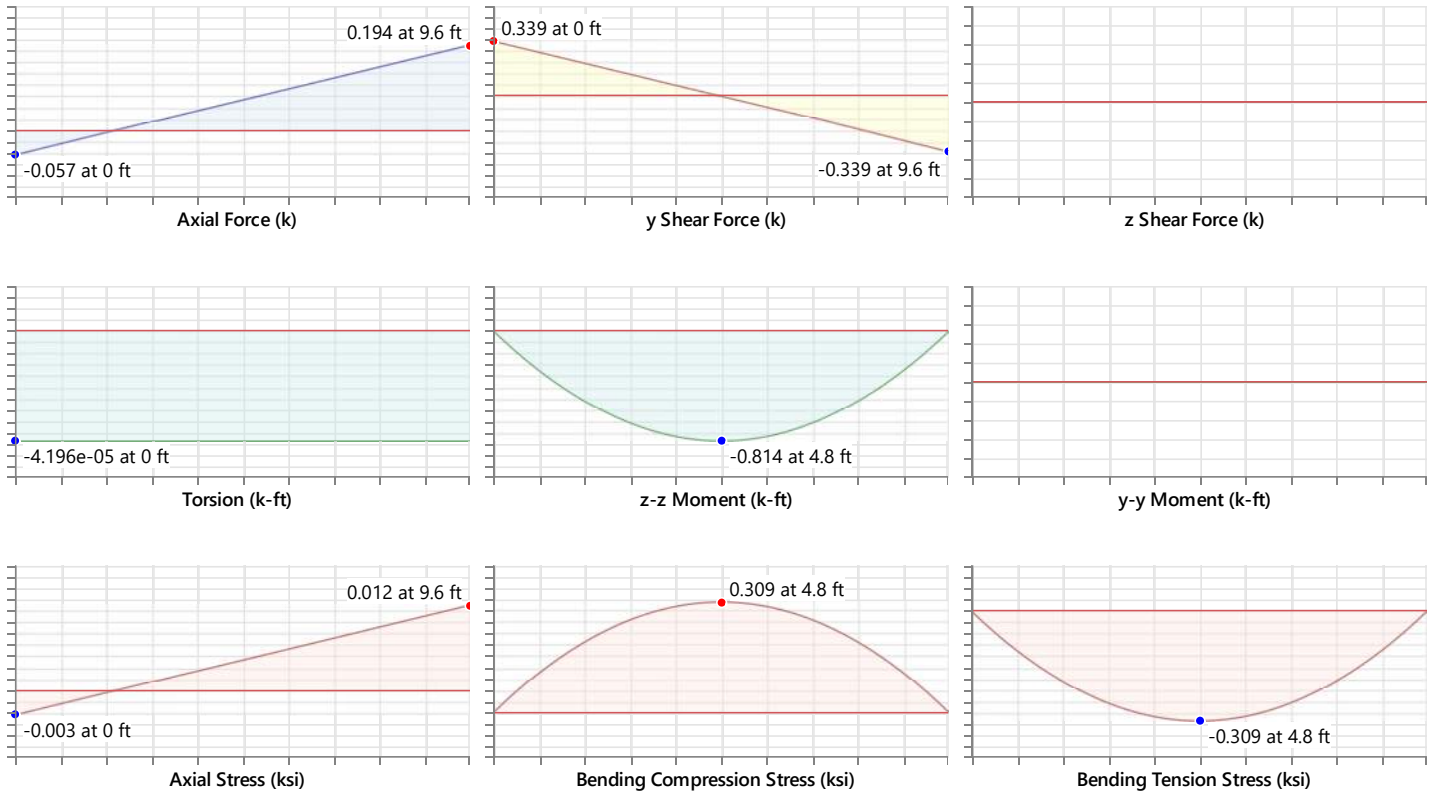
Shape Properties			
F_b (ksi):	0.85	E (ksi):	1300
F_t (ksi):	0.525	E_{mod}:	1
F_v (ksi):	0.15	COV_E (Table F1):	0.25
F_c (ksi):	1.3	E_{min} (ksi):	474.901
		b (actual) (in):	1.5
		d (actual) (in):	11.25

Design Properties			
le2 (ft):	2	y sway:	No
le1 (ft):	9.596	z sway:	No
le-bend top:	L _{byy}	C_D:	1
le-bend bot (ft):	9.596	R_B:	10.954
K_{y-y}:	1	C_L:	0.987
K_{z-z}:	1	C_r:	1.15
		C_{fu}:	1
		C_p:	0.743
		Max Defl Ratio:	L/1975
		Max Defl Location:	4.798
		Span:	1



Diagrams:





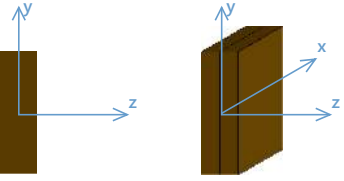
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0.004 ksi	0.966 ksi	-	-
Axial Tension Analysis	0 ksi	0.525 ksi	-	-
Flexural Analysis, Fb1'	0.309 ksi	0.965 ksi	-	-
Flexural Analysis, Fb2'	0 ksi	0.978 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.32	PASS
Bending & Axial Tension Analysis	-	-	0.32	PASS
Shear Analysis	0.03 ksi	0.15 ksi	0.201	PASS

Detail Report: M12

Load Combination: LC 1: TL

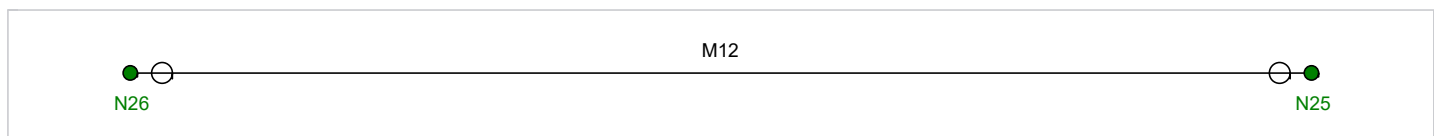
Code check: 0.864 (axial/bending)

	Input Data			
	Shape:	2-1.75X11.875FS (nominal)	I Node:	N26
	Member Type:	Beam	J Node:	N25
	Length (ft):	12.16	I Release:	BenPIN
	Material Type:	Wood	J Release:	BenPIN
	Design Rule:	Typical	I Offset:	N/A
	Internal Sections:	97	J Offset:	N/A
	Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

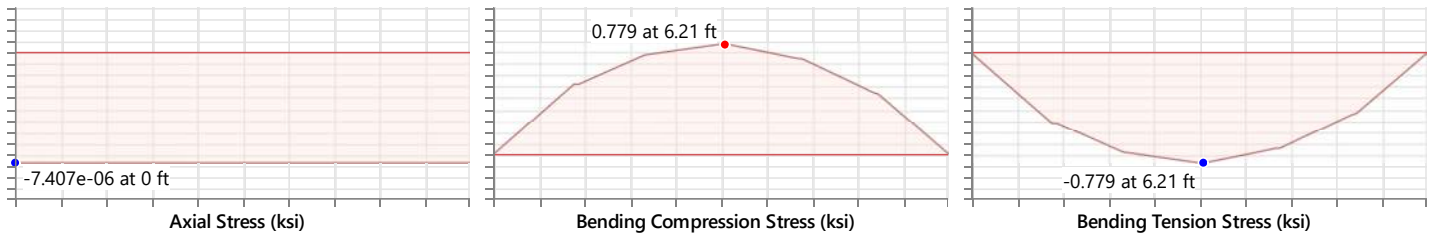
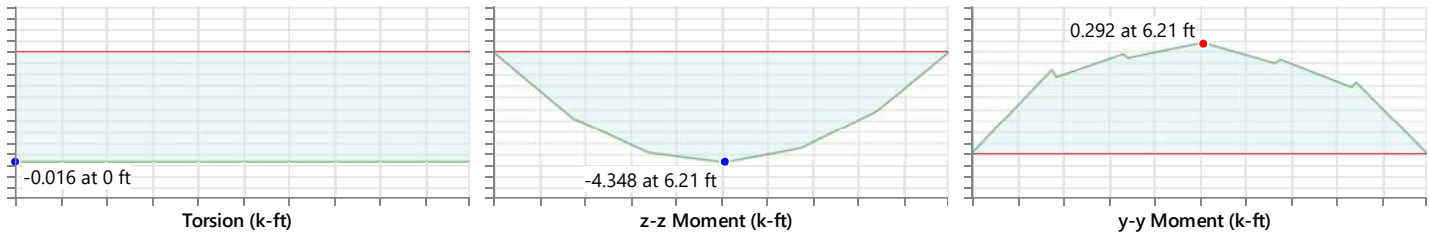
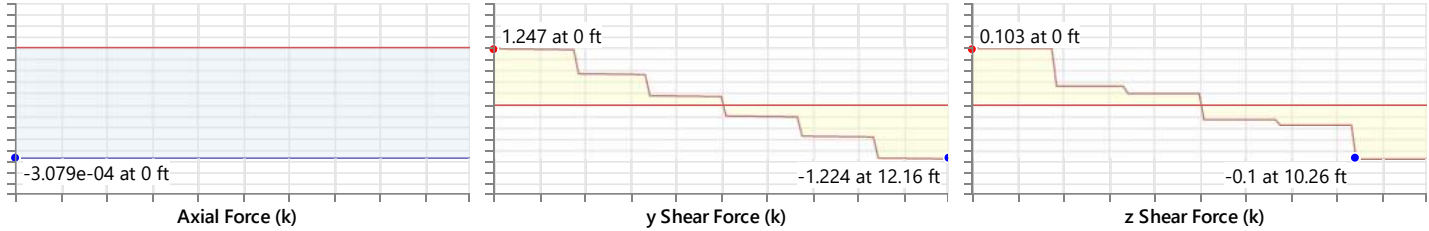
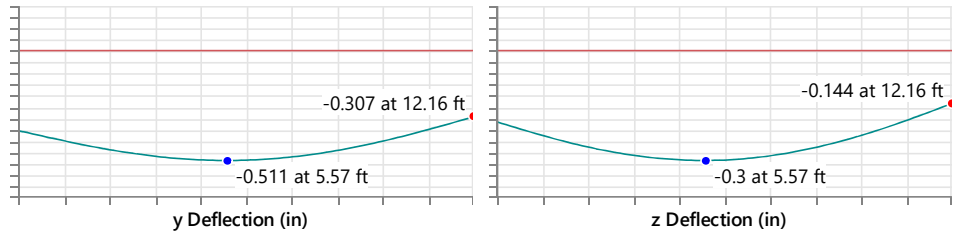
Material Properties			
Material:	SPF	Grade:	No.1
Type:	Solid Sawn	Cm:	No
Database:	Visually Graded	Ci:	No
Species:	Spruce-Pine-fir	Emod:	1
		Nu:	0.3
		Alpha (1e ⁵ °F ⁻¹):	0.3
		Density (k/ft ³):	0.035

Shape Properties			
F _b (ksi):	0.875	E (ksi):	1400
F _t (ksi):	0.45	Emod:	1
F _v (ksi):	0.135	COV _E (Table F1):	0.25
F _c (ksi):	1.15	E _{min} (ksi):	511.432
		b (actual) (in):	3.5
		d (actual) (in):	11.875
		# of Plies (ksi):	2
		K _f (ksi):	0.6

Design Properties			
le2 (ft):	2	y sway:	No
le1 (ft):	12.16	z sway:	No
le-bend top:	Lbyy	C _D :	1
le-bend bot (ft):	12.16	R _B :	4.823
K _{y-y} :	1	C _L :	0.998
K _{z-z} :	1	C _r :	1
		C _{fu} :	1.2
		C _p :	0.583
		K _f :	0.6
		Max Defl Ratio:	L/857
		Max Defl Location:	6.08
		Span:	1



Diagrams:



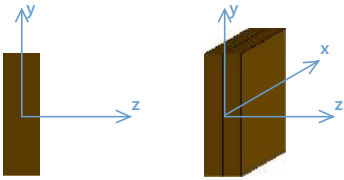
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0 ksi	0.671 ksi	-	-
Axial Tension Analysis	-7.407e-6 ksi	0.45 ksi	-	-
Flexural Analysis, Fb1'	0.634 ksi	0.874 ksi	-	-
Flexural Analysis, Fb2'	0.144 ksi	1.05 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.864	PASS
Bending & Axial Tension Analysis	-	-	0.862	PASS
Shear Analysis	0.05 ksi	0.135 ksi	0.369	PASS

Detail Report: M11

Load Combination: LC 1: TL

Code check: 0.290 (axial/bending)

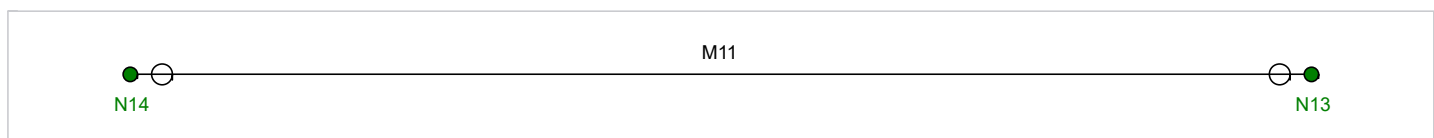


Input Data			
Shape:	2-1.75X11.875FS (nominal)	I Node:	N14
Member Type:	Beam	J Node:	N13
Length (ft):	12.16	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

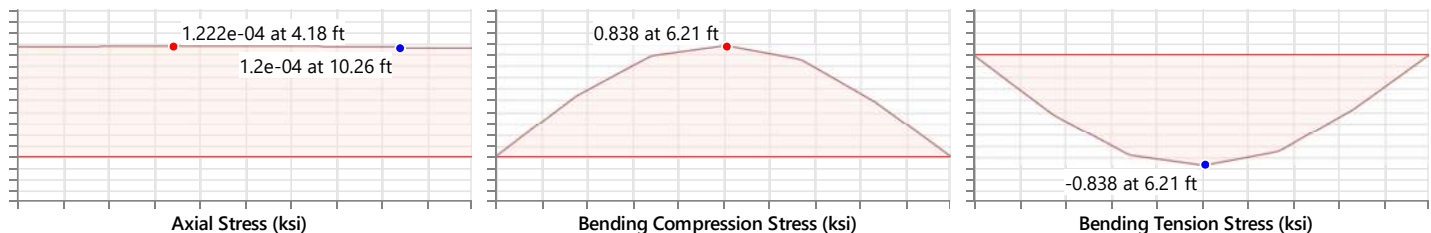
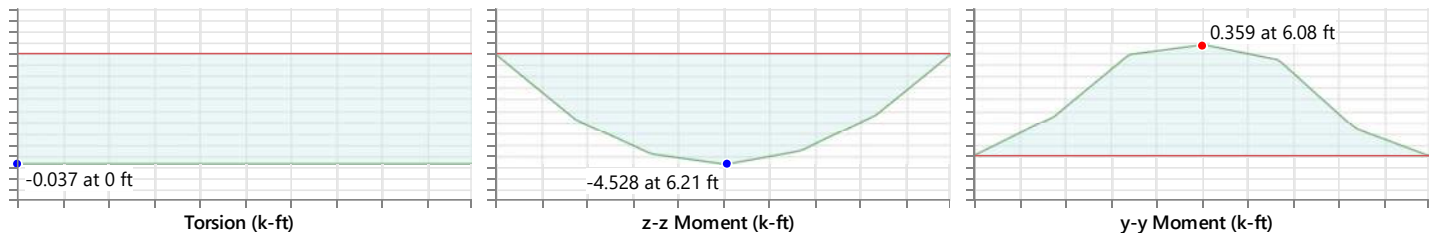
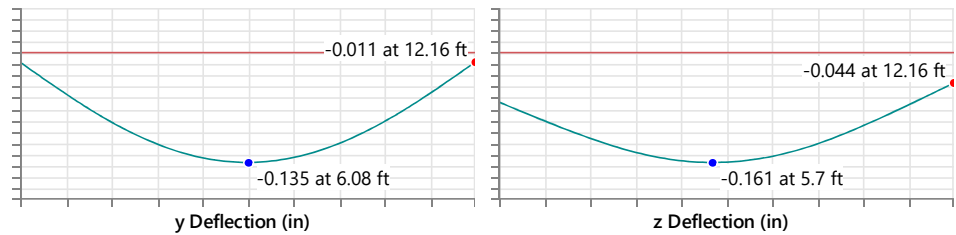
Material Properties			
Material:	2.0E_DF Parallam PSL	Grade:	na
Type:	SCL	Cm:	No
Database:	TrusJoist	Ci:	No
Species:	2.0E_DF Parallam PSL	Emod:	1
		Nu:	0.3
		Alpha (1e ⁵ °F ⁻¹):	0.3
		Density (k/ft ³):	0.035

Shape Properties			
Fbjoist (ksi):	2.9	Fcplank (ksi):	0.475
Fbplank (ksi):	2.8	Ft (ksi):	2.025
Fvjoist (ksi):	0.29	Fc (ksi):	2.9
Fvplank (ksi):	0.21	Eplank_min (ksi):	1056.958
Ejoist_min (ksi):	1056.958	Ejoist (ksi):	2000
Fcjoist (ksi):	0.75	Eplank (ksi):	2000
		Emod (ksi):	1
		COV _E (Table F1):	0.1
		b (actual) (in):	3.5
		d (actual) (in):	11.875
		# of Plies (ksi):	2
		K _f (ksi):	0.6

Design Properties			
le2 (ft):	2	z sway:	No
le1 (ft):	12.16	C _D :	1
le-bend top:	Lbyy	R _B :	4.823
le-bend bot (ft):	12.16	C _L :	0.997
K _{y-y} :	1	C _v :	1
K _{z-z} :	1	C _p :	1
y sway:	No	C _{fu} :	1
		C _p :	0.589
		K _f :	0.6
		Max Defl Ratio:	L/1181
		Max Defl Location:	6.08
		Span:	1



Diagrams:



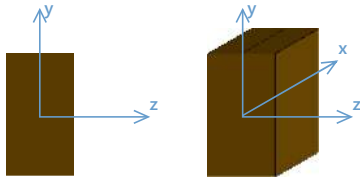
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0.0001219 ksi	1.709 ksi	-	-
Axial Tension Analysis	0 ksi	2.025 ksi	-	-
Flexural Analysis, Fb1'	0.661 ksi	2.892 ksi	-	-
Flexural Analysis, Fb2'	0.177 ksi	2.9 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.29	PASS
Bending & Axial Tension Analysis	-	-	0.29	PASS
Shear Analysis	0.057 ksi	0.29 ksi	0.197	PASS

Detail Report: M73

Load Combination: LC 1: TL

Code check: 0.854 (axial/bending)



Input Data

Shape:	2-2X6 (nominal)	I Node:	N21
Member Type:	Column	J Node:	N14
Length (ft):	9.17	I Release:	Fixed
Material Type:	Wood	J Release:	Fixed
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

Material Properties

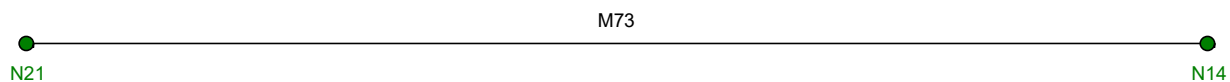
Material:	HF	Grade:	No.2	Nu:	0.3
Type:	Solid Sawn	Cm:	No	Alpha ($1e^{50} F^{-1}$):	0.3
Database:	Visually Graded	Ci:	No	Density (k/ft^3):	0.035
Species:	Hem-Fir	Emod:	1		

Shape Properties

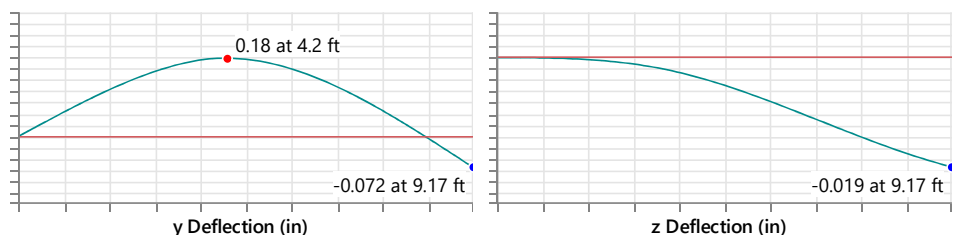
F_b (ksi):	0.85	E (ksi):	1300	b (actual) (in):	3
F_t (ksi):	0.525	Emod:	1	d (actual) (in):	5.5
F_v (ksi):	0.15	COV _E (Table F1):	0.25	# of Plies (ksi):	2
F_c (ksi):	1.3	E _{min} (ksi):	474.901	K _f (ksi):	0.6

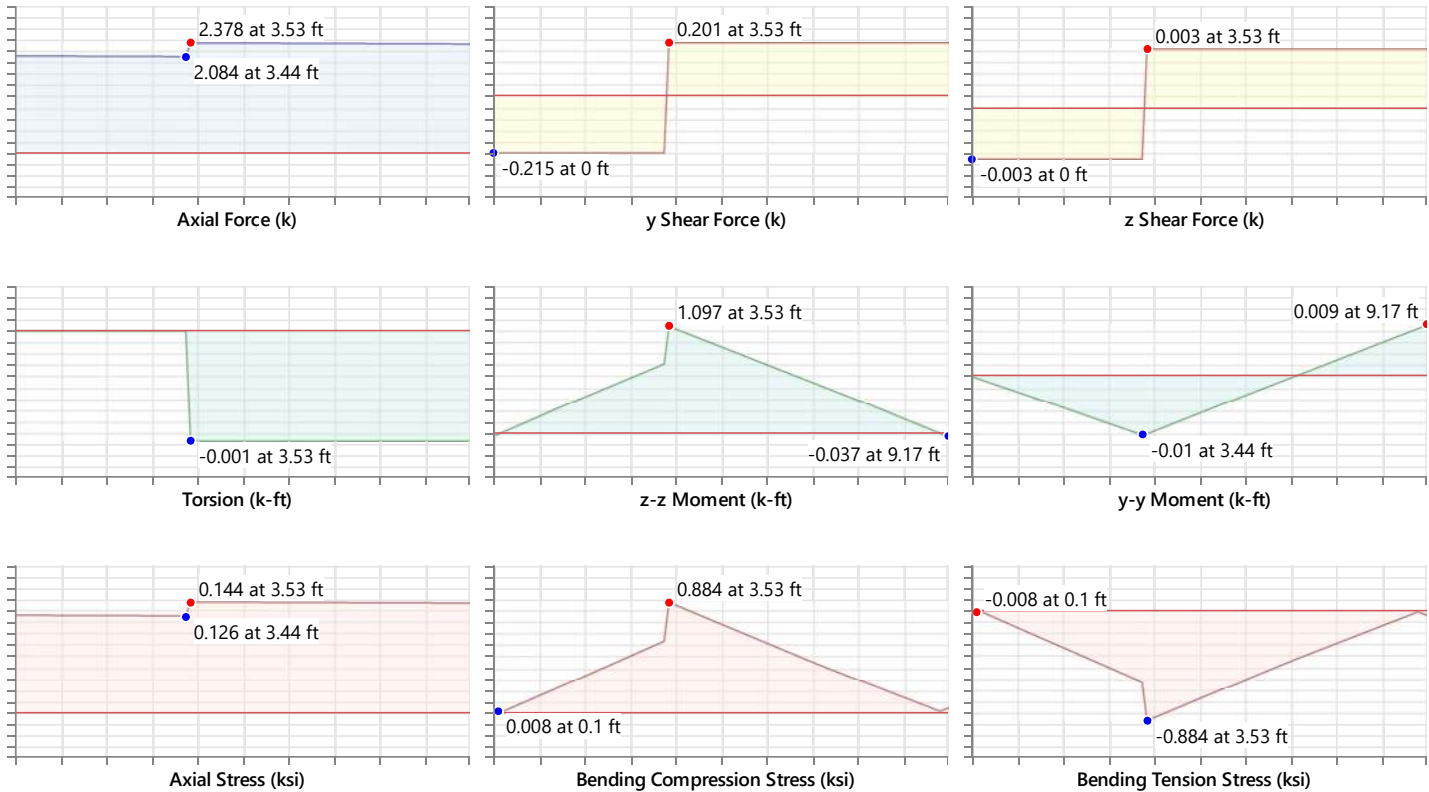
Design Properties

le2 (ft):	2	y sway:	No	C _{fu} :	1.15
le1 (ft):	9.17	z sway:	No	C _p :	0.549
le-bend top:	Lbyy	C _D :	1	K _f :	0.6
le-bend bot (ft):	9.17	R _B :	8.2	Max Defl Ratio:	L/514
K _{y-y} :	1	C _L :	0.991	Max Defl Location:	4.394
K _{z-z} :	1	C _r :	1.15	Span:	N/A



Diagrams:





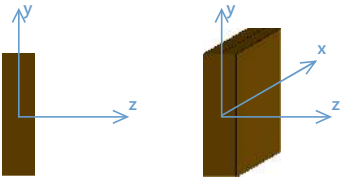
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0.144 ksi	0.785 ksi	-	-
Axial Tension Analysis	0 ksi	0.683 ksi	-	-
Flexural Analysis, Fb1'	0.87 ksi	1.26 ksi	-	-
Flexural Analysis, Fb2'	0.014 ksi	1.461 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.854	PASS
Bending & Axial Tension Analysis	-	-	0.7	PASS
Shear Analysis	0.02 ksi	0.15 ksi	0.132	PASS

Detail Report: M7

Load Combination: LC 1: TL

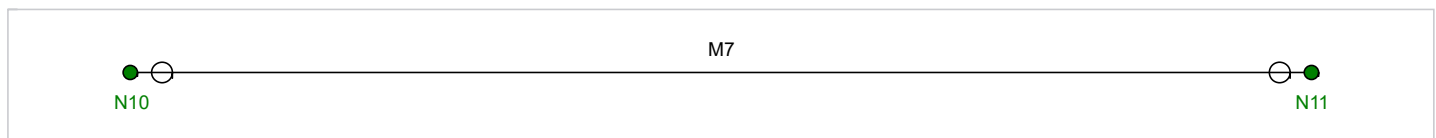
Code check: 0.912 (axial/bending)

		Input Data	
Shape:	2-2X12 (nominal)	I Node:	N10
Member Type:	Beam	J Node:	N11
Length (ft):	15.556	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

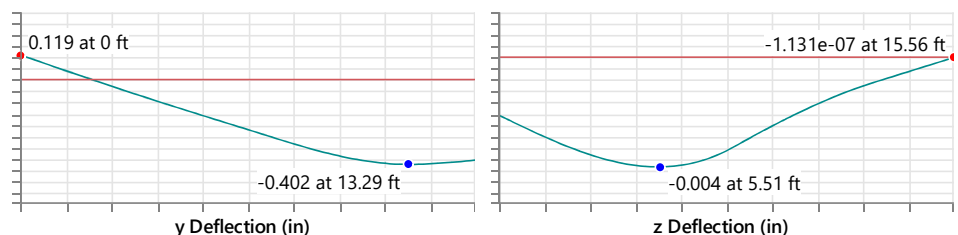
Material Properties			
Material:	HF	Grade:	No.2
Type:	Solid Sawn	Cm:	No
Database:	Visually Graded	Ci:	No
Species:	Hem-Fir	Emod:	1
		Nu:	0.3
		Alpha (1e⁵⁰ F⁻¹):	0.3
		Density (k/ft³):	0.035

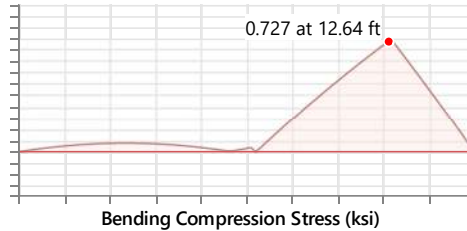
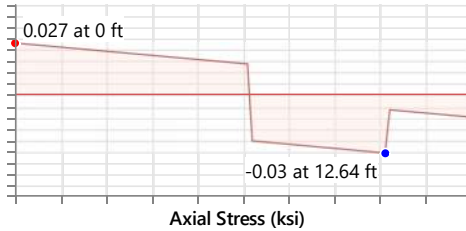
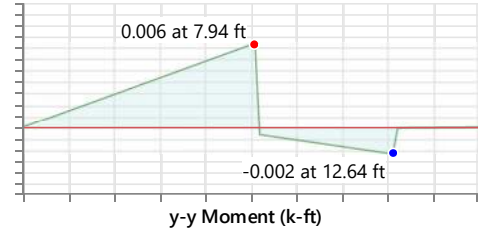
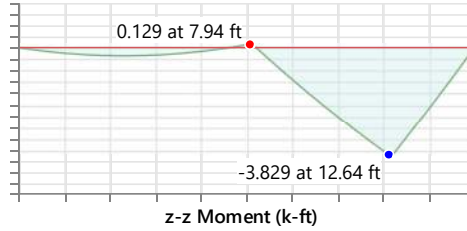
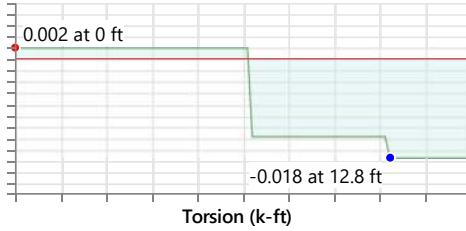
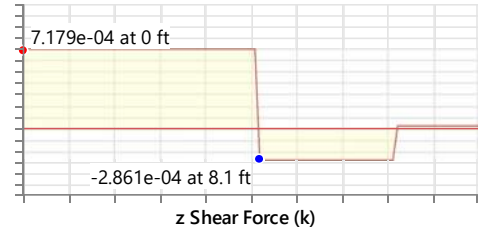
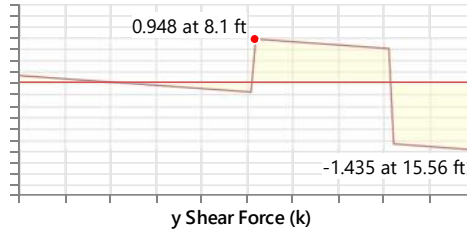
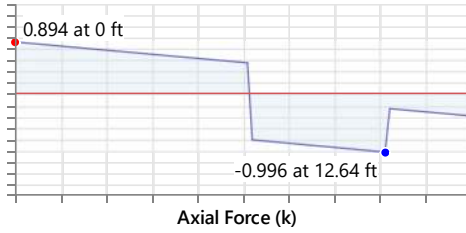
Shape Properties			
F_b (ksi):	0.85	E (ksi):	1300
F_t (ksi):	0.525	Emod:	1
F_v (ksi):	0.15	COV_E (Table F1):	0.25
F_c (ksi):	1.3	E_{min} (ksi):	474.901
		b (actual) (in):	3
		d (actual) (in):	11.25
		# of Plies (ksi):	2
		K_f (ksi):	0.6

Design Properties			
le2 (ft):	2	y sway:	No
le1 (ft):	15.556	z sway:	No
le-bend top:	Lbyy	C_D:	1
le-bend bot (ft):	15.556	R_B:	5.477
K_{y-y}:	1	C_L:	0.998
K_{z-z}:	1	C_r:	1
		C_{fu}:	1
		C_p:	0.571
		K_r:	0.6
		Max Defl Ratio:	L/1436
		Max Defl Location:	10.695
		Span:	1



Diagrams:





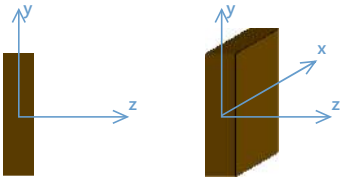
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0 ksi	0.742 ksi	-	-
Axial Tension Analysis	-0.03 ksi	0.525 ksi	-	-
Flexural Analysis, Fb1'	0.726 ksi	0.848 ksi	-	-
Flexural Analysis, Fb2'	0.001 ksi	1.02 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.857	PASS
Bending & Axial Tension Analysis	-	-	0.912	PASS
Shear Analysis	0.072 ksi	0.15 ksi	0.477	PASS

Detail Report: M106

Load Combination: LC 1: TL

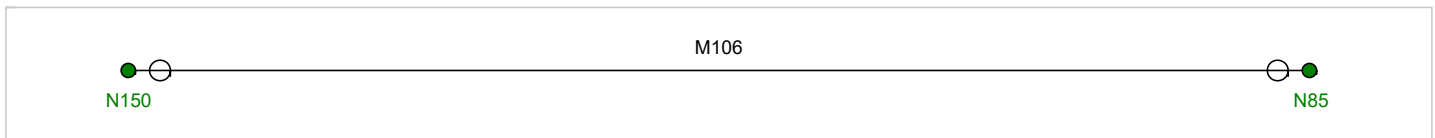
Code check: 0.774 (axial/bending)

		Input Data	
Shape:	1.75X7.25FS (nominal)	I Node:	N150
Member Type:	Beam	J Node:	N85
Length (ft):	11	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

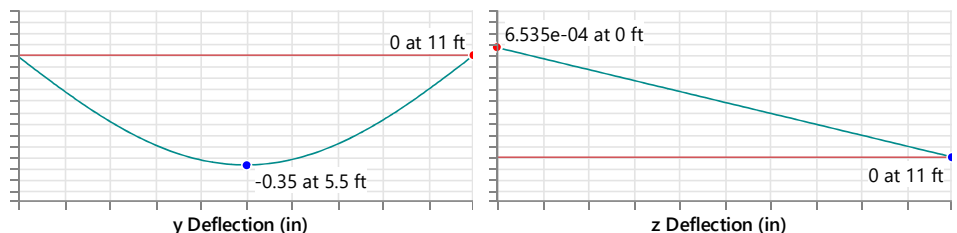
Material Properties			
Material:	HF	Grade:	No.2
Type:	Solid Sawn	Cm:	No
Database:	Visually Graded	Ci:	No
Species:	Hem-Fir	Emod:	1
		Nu:	0.3
		Alpha (1e⁵⁰ F⁻¹):	0.3
		Density (k/ft³):	0.035

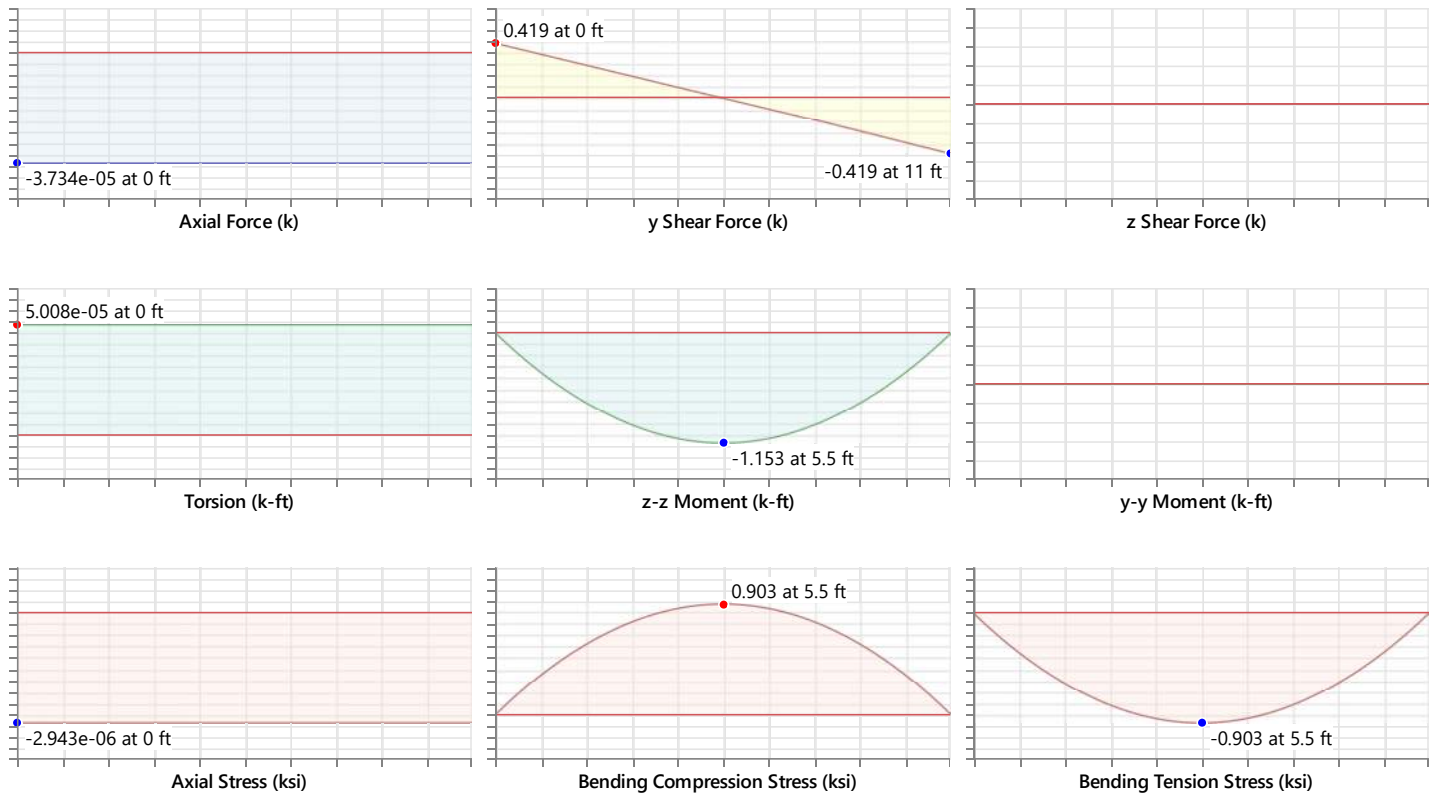
Shape Properties			
F_b (ksi):	0.85	E (ksi):	1300
F_t (ksi):	0.525	E_{mod}:	1
F_v (ksi):	0.15	COV_E (Table F1):	0.25
F_c (ksi):	1.3	E_{min} (ksi):	474.901
		b (actual) (in):	1.75
		d (actual) (in):	7.25

Design Properties			
le2 (ft):	2	y sway:	No
le1 (ft):	11	z sway:	No
le-bend top:	Lbyy	C_D:	1
le-bend bot (ft):	11	R_B:	7.538
K_{y-y}:	1	C_L:	0.993
K_{z-z}:	1	C_r:	1.15
		C_{fu}:	1
		C_p:	0.638
		Max Defl Ratio:	L/379
		Max Defl Location:	5.5
		Span:	1



Diagrams:





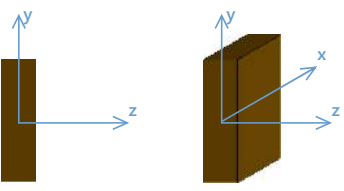
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0 ksi	0.871 ksi	-	-
Axial Tension Analysis	-2.943e-6 ksi	0.63 ksi	-	-
Flexural Analysis, Fb1'	0.903 ksi	1.165 ksi	-	-
Flexural Analysis, Fb2'	0 ksi	1.173 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.774	PASS
Bending & Axial Tension Analysis	-	-	0.769	PASS
Shear Analysis	0.05 ksi	0.15 ksi	0.331	PASS

Detail Report: M100

Load Combination: LC 1: TL

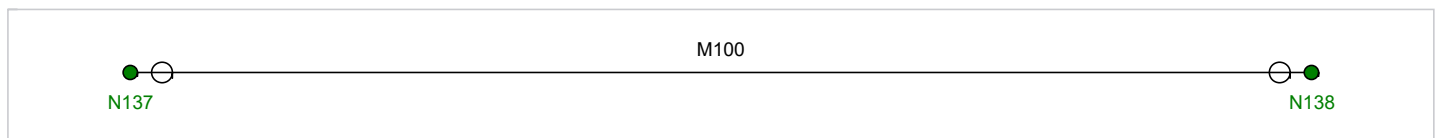
Code check: 0.586 (axial/bending)

		Input Data	
Shape:	2X6 (nominal)	I Node:	N137
Member Type:	Beam	J Node:	N138
Length (ft):	7.634	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

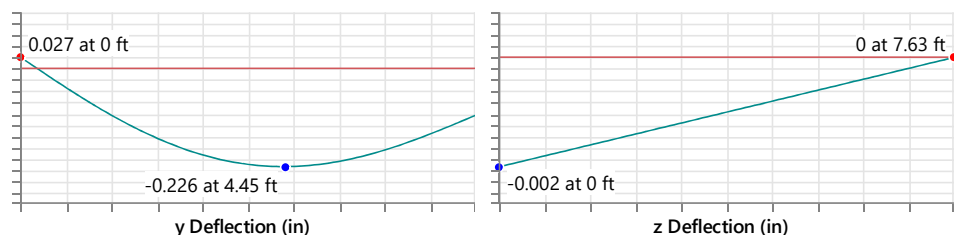
Material Properties			
Material:	HF	Grade:	No.2
Type:	Solid Sawn	Cm:	No
Database:	Visually Graded	Ci:	No
Species:	Hem-Fir	Emod:	1
		Nu:	0.3
		Alpha ($10^{-5} F^{-1}$):	0.3
		Density (k/ft^3):	0.035

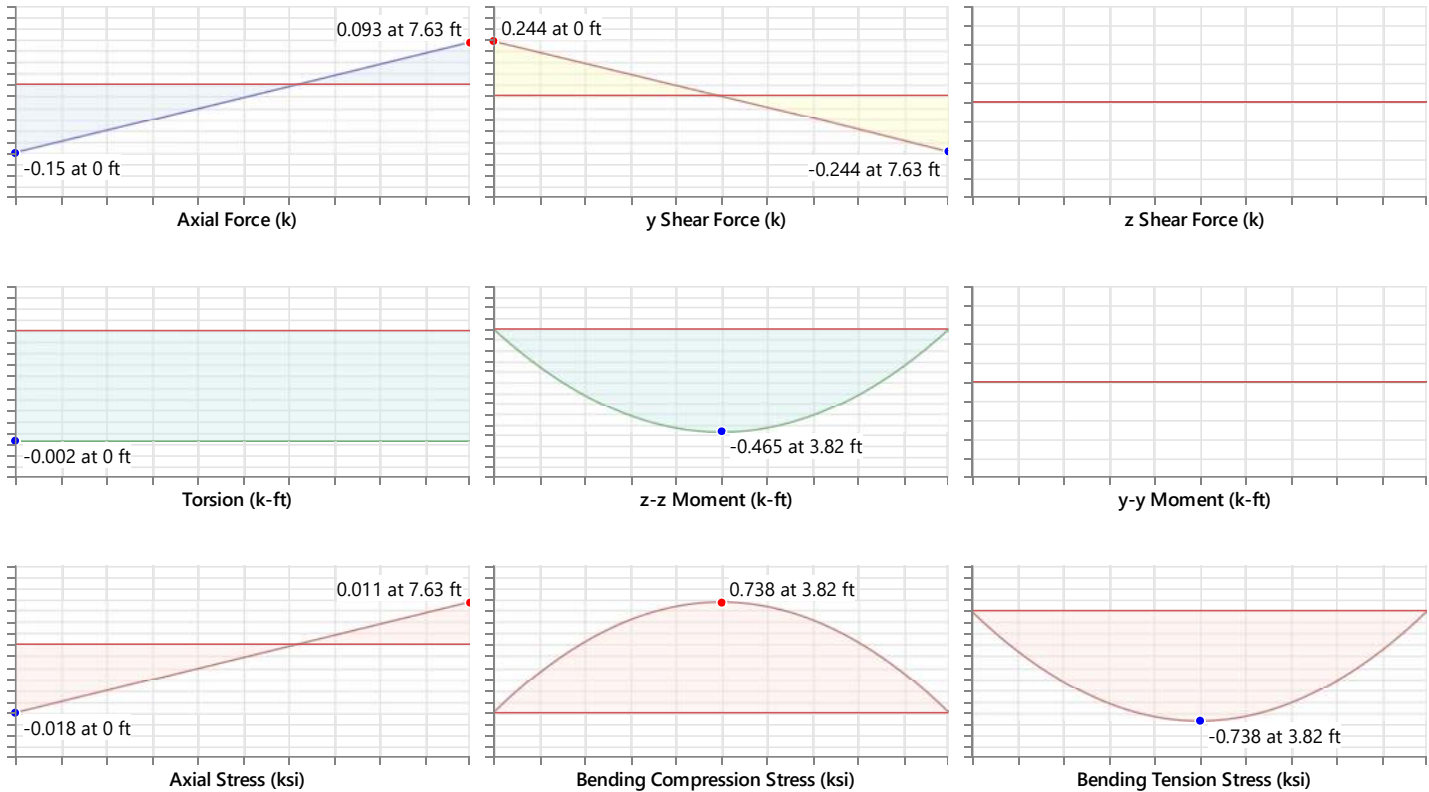
Shape Properties			
F_b (ksi):	0.85	E (ksi):	1300
F_t (ksi):	0.525	Emod:	1
F_v (ksi):	0.15	COV_E (Table F1):	0.25
F_c (ksi):	1.3	E_{min} (ksi):	474.901
		b (actual) (in):	1.5
		d (actual) (in):	5.5

Design Properties			
le2 (ft):	2	y sway:	No
le1 (ft):	7.634	z sway:	No
le-bend top:	L _{byy}	C_D:	1
le-bend bot (ft):	7.634	R_B:	7.659
K_{y-y}:	1	C_L:	0.993
K_{z-z}:	1	C_r:	1.15
		C_{fu}:	1
		C_p:	0.685
		Max Defl Ratio:	L/507
		Max Defl Location:	3.817
		Span:	1



Diagrams:





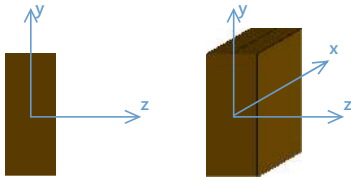
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0 ksi	0.98 ksi	-	-
Axial Tension Analysis	-0.004 ksi	0.683 ksi	-	-
Flexural Analysis, Fb1'	0.738 ksi	1.261 ksi	-	-
Flexural Analysis, Fb2'	0 ksi	1.271 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.585	PASS
Bending & Axial Tension Analysis	-	-	0.586	PASS
Shear Analysis	0.052 ksi	0.15 ksi	0.347	PASS

Detail Report: M122

Load Combination: LC 1: TL

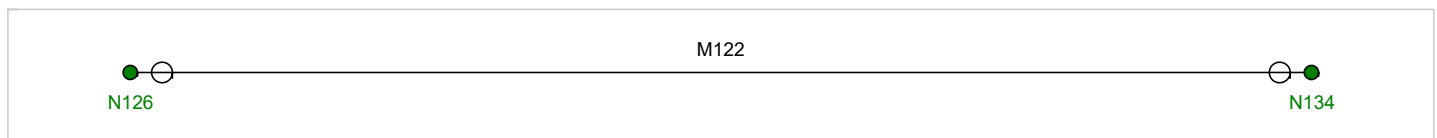
Code check: 0.727 (axial/bending)

		Input Data	
Shape:	2-2X8 (nominal)	I Node:	N126
Member Type:	Beam	J Node:	N134
Length (ft):	8	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

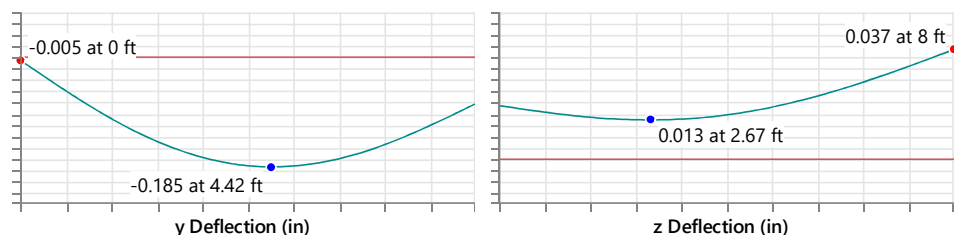
Material Properties			
Material:	HF	Grade:	No.2
Type:	Solid Sawn	Cm:	No
Database:	Visually Graded	Ci:	No
Species:	Hem-Fir	Emod:	1
		Nu:	0.3
		Alpha (1e⁵⁰ F⁻¹):	0.3
		Density (k/ft³):	0.035

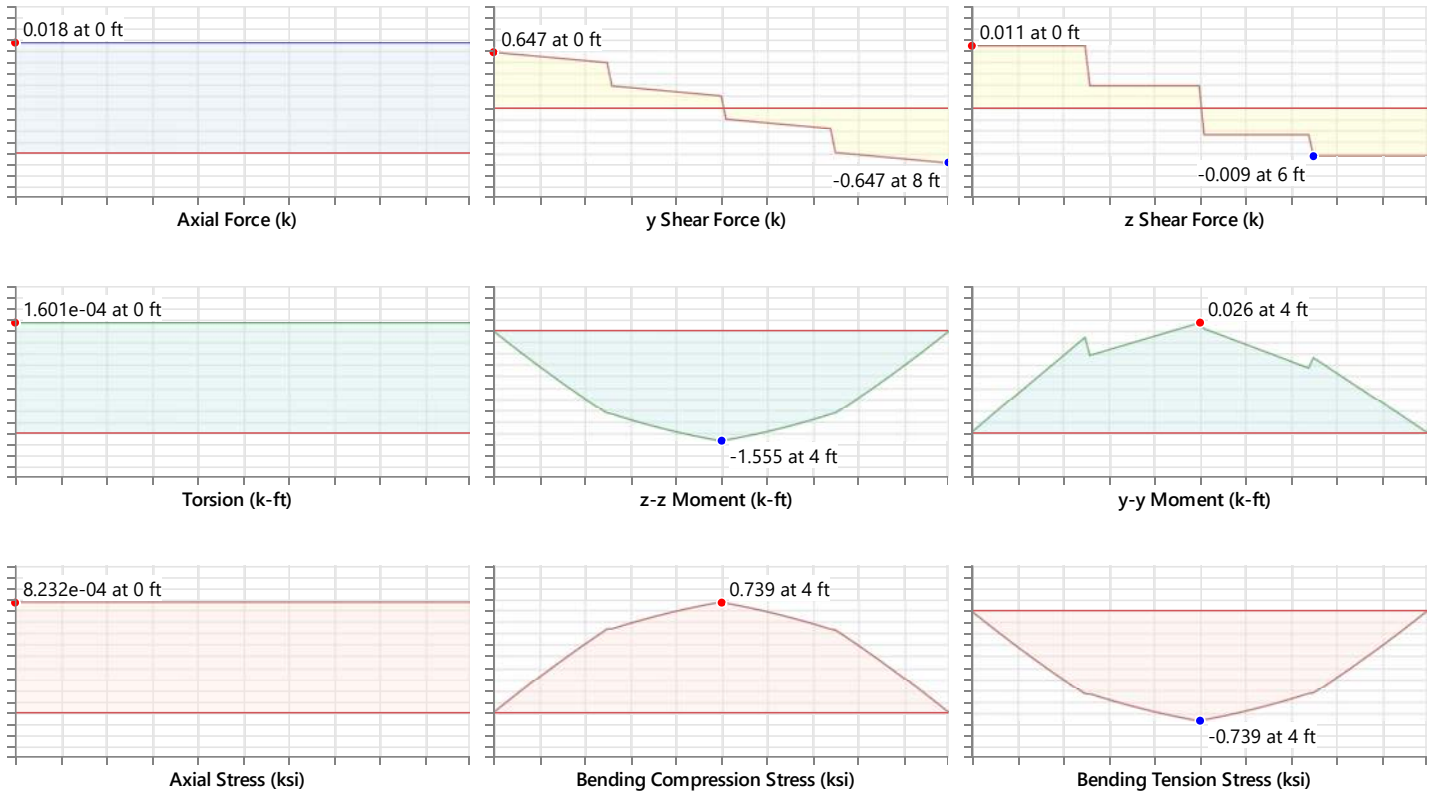
Shape Properties			
F_b (ksi):	0.85	E (ksi):	1300
F_t (ksi):	0.525	E_{mod}:	1
F_v (ksi):	0.15	COV_E (Table F1):	0.25
F_c (ksi):	1.3	E_{min} (ksi):	474.901
		b (actual) (in):	3
		d (actual) (in):	7.25
		# of Plies (ksi):	2
		K_f (ksi):	0.6

Design Properties			
le2 (ft):	8	y sway:	No
le1 (ft):	8	z sway:	No
le-bend top:	Lbyy	C_D:	1
le-bend bot (ft):	8	R_B:	8.794
K_{y-y}:	1	C_L:	0.992
K_{z-z}:	1	C_r:	1
		C_{fu}:	1.15
		C_p:	0.157
		K_r:	0.6
		Max Defl Ratio:	L/677
		Max Defl Location:	4
		Span:	1



Diagrams:





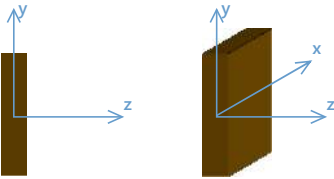
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0.0008232 ksi	0.214 ksi	-	-
Axial Tension Analysis	0 ksi	0.63 ksi	-	-
Flexural Analysis, Fb1'	0.71 ksi	1.012 ksi	-	-
Flexural Analysis, Fb2'	0.029 ksi	1.173 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.727	PASS
Bending & Axial Tension Analysis	-	-	0.726	PASS
Shear Analysis	0.045 ksi	0.15 ksi	0.298	PASS

Detail Report: M156

Load Combination: LC 1: TL

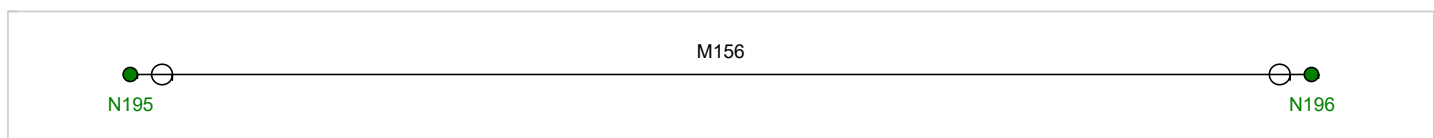
Code check: 0.148 (axial/bending)

		Input Data	
Shape:	2X8 (nominal)	I Node:	N195
Member Type:	Beam	J Node:	N196
Length (ft):	6.67	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

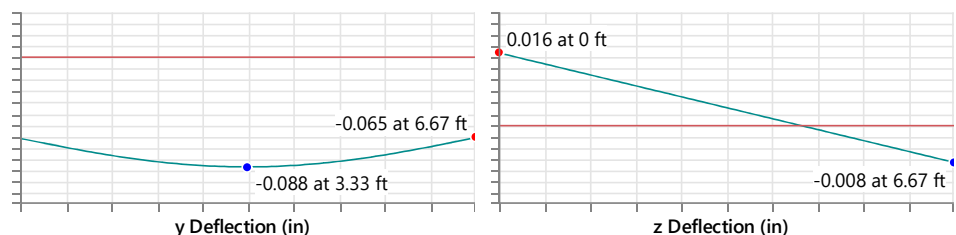
Material Properties			
Material:	DF	Grade:	No.2
Type:	Solid Sawn	Cm:	Yes
Database:	Visually Graded	Ci:	No
Species:	Douglas Fir-Larch	Emod:	1
		Nu:	0.3
		Alpha (1e⁵⁰ F⁻¹):	0.3
		Density (k/ft³):	0.035

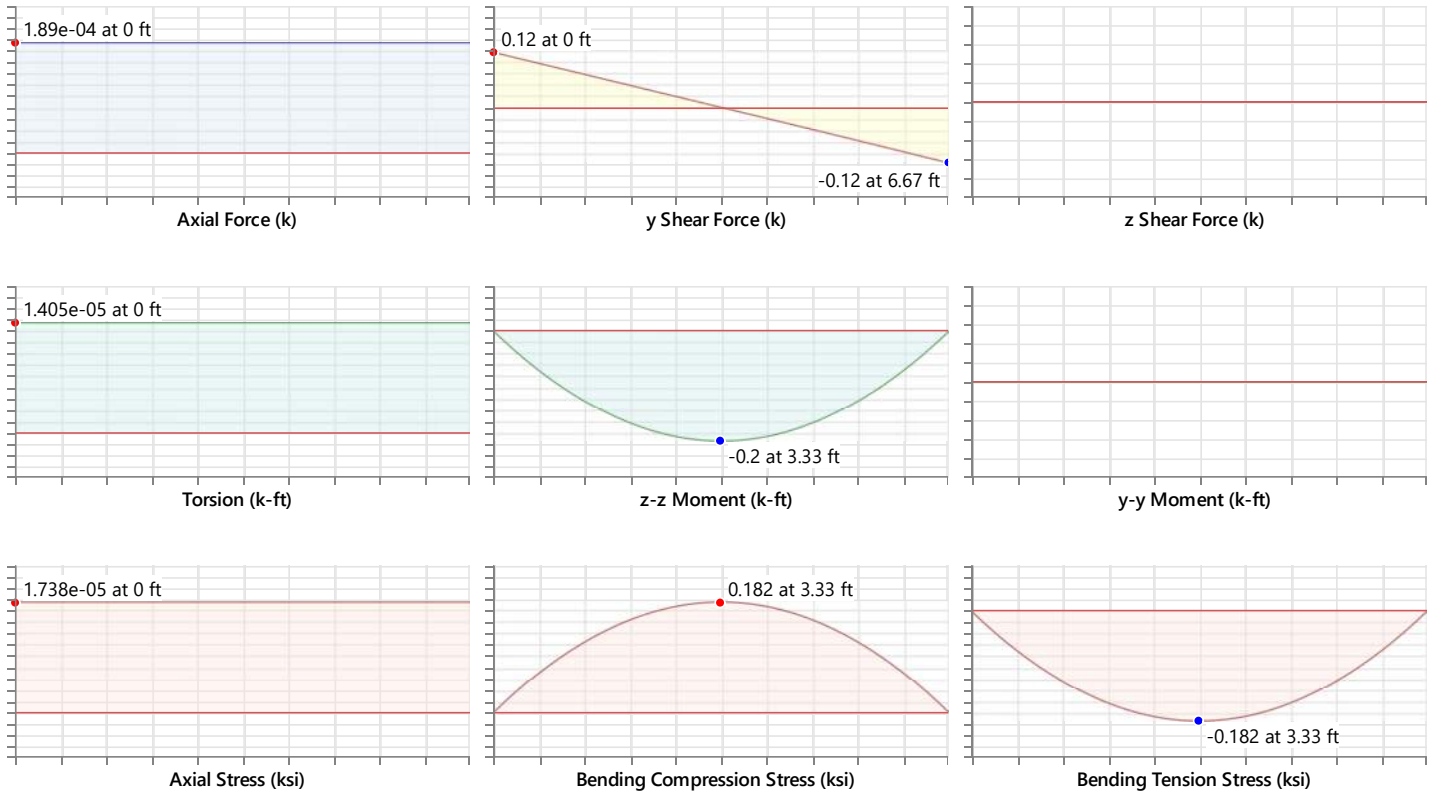
Shape Properties			
F_b (ksi):	0.9	E (ksi):	1600
F_t (ksi):	0.575	Emod:	1
F_v (ksi):	0.18	COV_E (Table F1):	0.25
F_c (ksi):	1.35	E_{min} (ksi):	584.494
		b (actual) (in):	1.5
		d (actual) (in):	7.25

Design Properties			
le2 (ft):	2	y sway:	No
le1 (ft):	6.67	z sway:	No
le-bend top:	Lbyy	C_D:	1
le-bend bot (ft):	6.67	R_B:	8.794
K_{y-y}:	1	C_L:	0.991
K_{z-z}:	1	C_r:	1.15
		C_{fu}:	1
		C_p:	0.808
		Max Defl Ratio:	L/3434
		Max Defl Location:	3.335
		Span:	1



Diagrams:





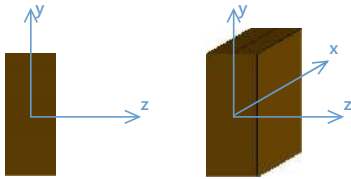
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	1.738e-5 ksi	0.917 ksi	-	-
Axial Tension Analysis	0 ksi	0.69 ksi	-	-
Flexural Analysis, Fb1'	0.182 ksi	1.231 ksi	-	-
Flexural Analysis, Fb2'	0 ksi	1.242 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.148	PASS
Bending & Axial Tension Analysis	-	-	0.148	PASS
Shear Analysis	0.017 ksi	0.175 ksi	0.095	PASS

Detail Report: M146

Load Combination: LC 1: TL

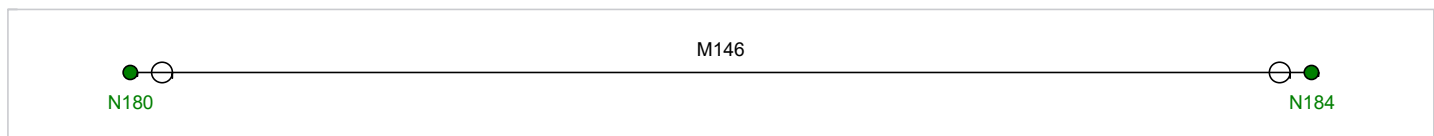
Code check: 0.454 (axial/bending)

		Input Data	
Shape:	2-2X8 (nominal)	I Node:	N180
Member Type:	Beam	J Node:	N184
Length (ft):	6.86	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

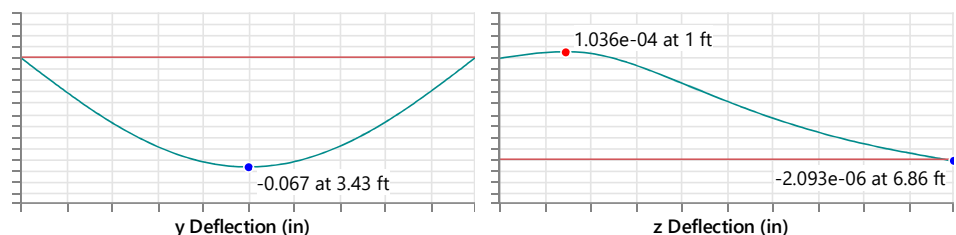
Material Properties			
Material:	DF	Grade:	No.2
Type:	Solid Sawn	Cm:	Yes
Database:	Visually Graded	Ci:	No
Species:	Douglas Fir-Larch	Emod:	1
		Nu:	0.3
		Alpha (1e⁵⁰ F⁻¹):	0.3
		Density (k/ft³):	0.035

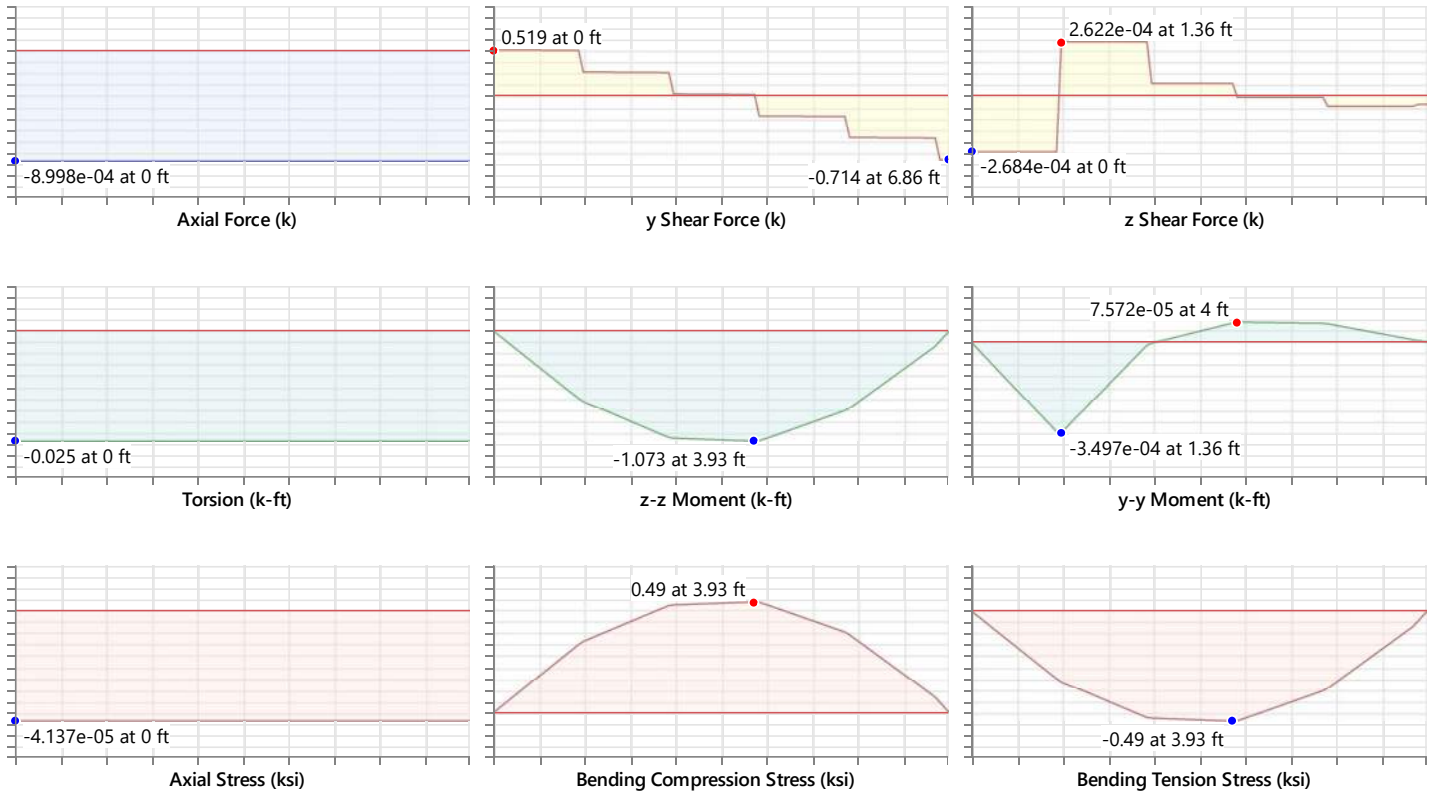
Shape Properties			
F_b (ksi):	0.9	E (ksi):	1600
F_t (ksi):	0.575	E_{mod}:	1
F_v (ksi):	0.18	COV_E (Table F1):	0.25
F_c (ksi):	1.35	E_{min} (ksi):	584.494
		b (actual) (in):	3
		d (actual) (in):	7.25
		# of Plies (ksi):	2
		K_f (ksi):	0.6

Design Properties			
le2 (ft):	2	y sway:	No
le1 (ft):	6.86	z sway:	No
le-bend top:	Lbyy	C_p:	1
le-bend bot (ft):	6.86	R_b:	4.397
K_{y-y}:	1	C_L:	0.998
K_{z-z}:	1	C_r:	1
		C_{fu}:	1
		C_p:	0.578
		K_r:	0.6
		Max Defl Ratio:	L/1221
		Max Defl Location:	3.43
		Span:	1



Diagrams:





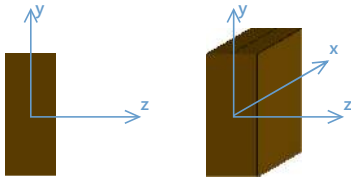
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0 ksi	0.655 ksi	-	-
Axial Tension Analysis	-4.137e-5 ksi	0.69 ksi	-	-
Flexural Analysis, Fb1'	0.49 ksi	1.078 ksi	-	-
Flexural Analysis, Fb2'	7.943e-5 ksi	1.08 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.454	PASS
Bending & Axial Tension Analysis	-	-	0.454	PASS
Shear Analysis	0.067 ksi	0.175 ksi	0.385	PASS

Detail Report: M143

Load Combination: LC 1: TL

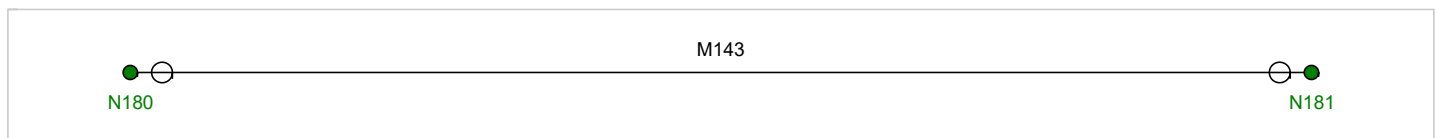
Code check: 0.840 (axial/bending)

		Input Data	
Shape:	2-2X8 (nominal)	I Node:	N180
Member Type:	Beam	J Node:	N181
Length (ft):	6.67	I Release:	BenPIN
Material Type:	Wood	J Release:	BenPIN
Design Rule:	Typical	I Offset:	N/A
Internal Sections:	97	J Offset:	N/A
Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

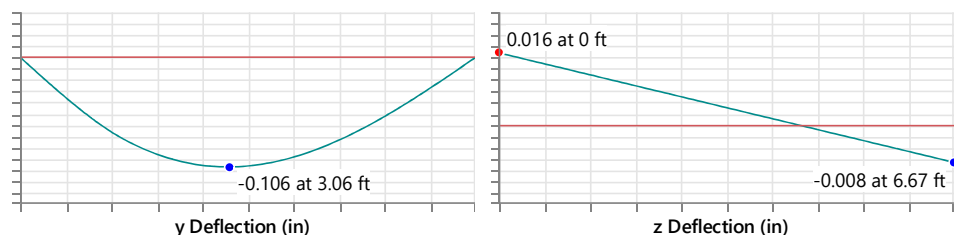
Material Properties			
Material:	DF	Grade:	No.2
Type:	Solid Sawn	Cm:	Yes
Database:	Visually Graded	Ci:	No
Species:	Douglas Fir-Larch	Emod:	1
		Nu:	0.3
		Alpha (1e⁵⁰ F⁻¹):	0.3
		Density (k/ft³):	0.035

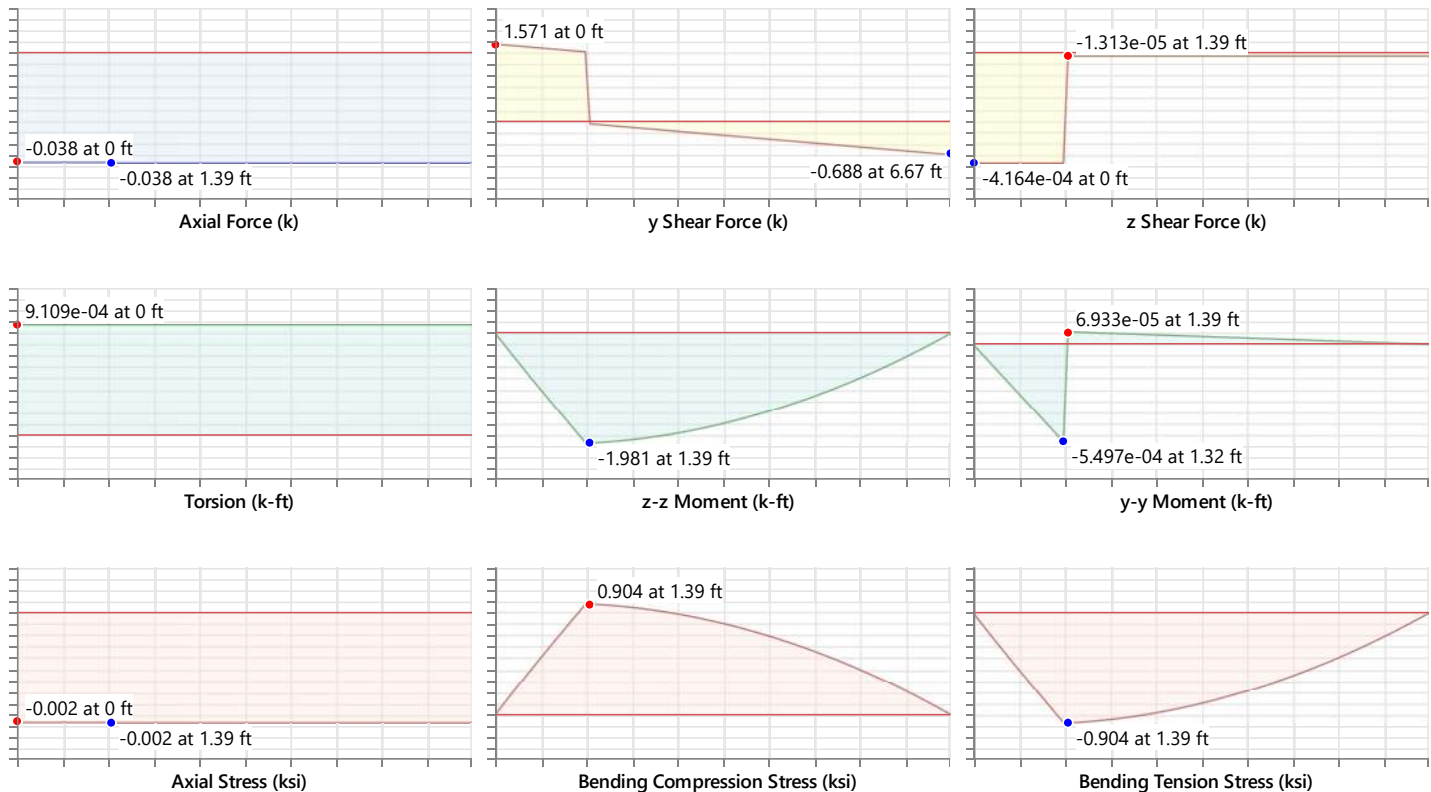
Shape Properties			
F_b (ksi):	0.9	E (ksi):	1600
F_t (ksi):	0.575	Emod:	1
F_v (ksi):	0.18	COV_E (Table F1):	0.25
F_c (ksi):	1.35	E_{min} (ksi):	584.494
		b (actual) (in):	3
		d (actual) (in):	7.25
		# of Plies (ksi):	2
		K_f (ksi):	0.6

Design Properties			
le2 (ft):	2	y sway:	No
le1 (ft):	6.67	z sway:	No
le-bend top:	Lbyy	C_D:	1
le-bend bot (ft):	6.67	R_B:	4.397
K_{y-y}:	1	C_L:	0.998
K_{z-z}:	1	C_r:	1
		C_{fu}:	1
		C_p:	0.578
		K_r:	0.6
		Max Defl Ratio:	L/1046
		Max Defl Location:	3.682
		Span:	2



Diagrams:





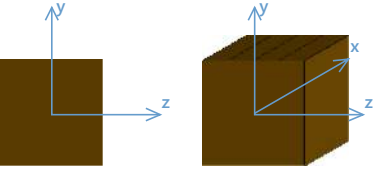
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	-	-	-	-
Applied Loading - Shear + Torsion	-	-	-	-
Axial Compression Analysis	0 ksi	0.655 ksi	-	-
Axial Tension Analysis	-0.002 ksi	0.69 ksi	-	-
Flexural Analysis, Fb1'	0.904 ksi	1.078 ksi	-	-
Flexural Analysis, Fb2'	7.65e-5 ksi	1.08 ksi	-	-
Bending & Axial Compression Analysis	-	-	0.839	PASS
Bending & Axial Tension Analysis	-	-	0.84	PASS
Shear Analysis	0.109 ksi	0.175 ksi	0.624	PASS

Detail Report: M164

Load Combination: Envelope

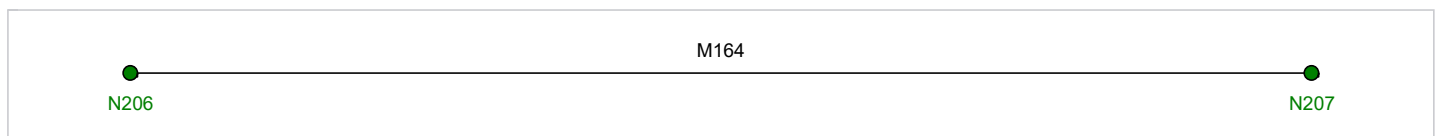
Code check: 0.884 (LC 1)

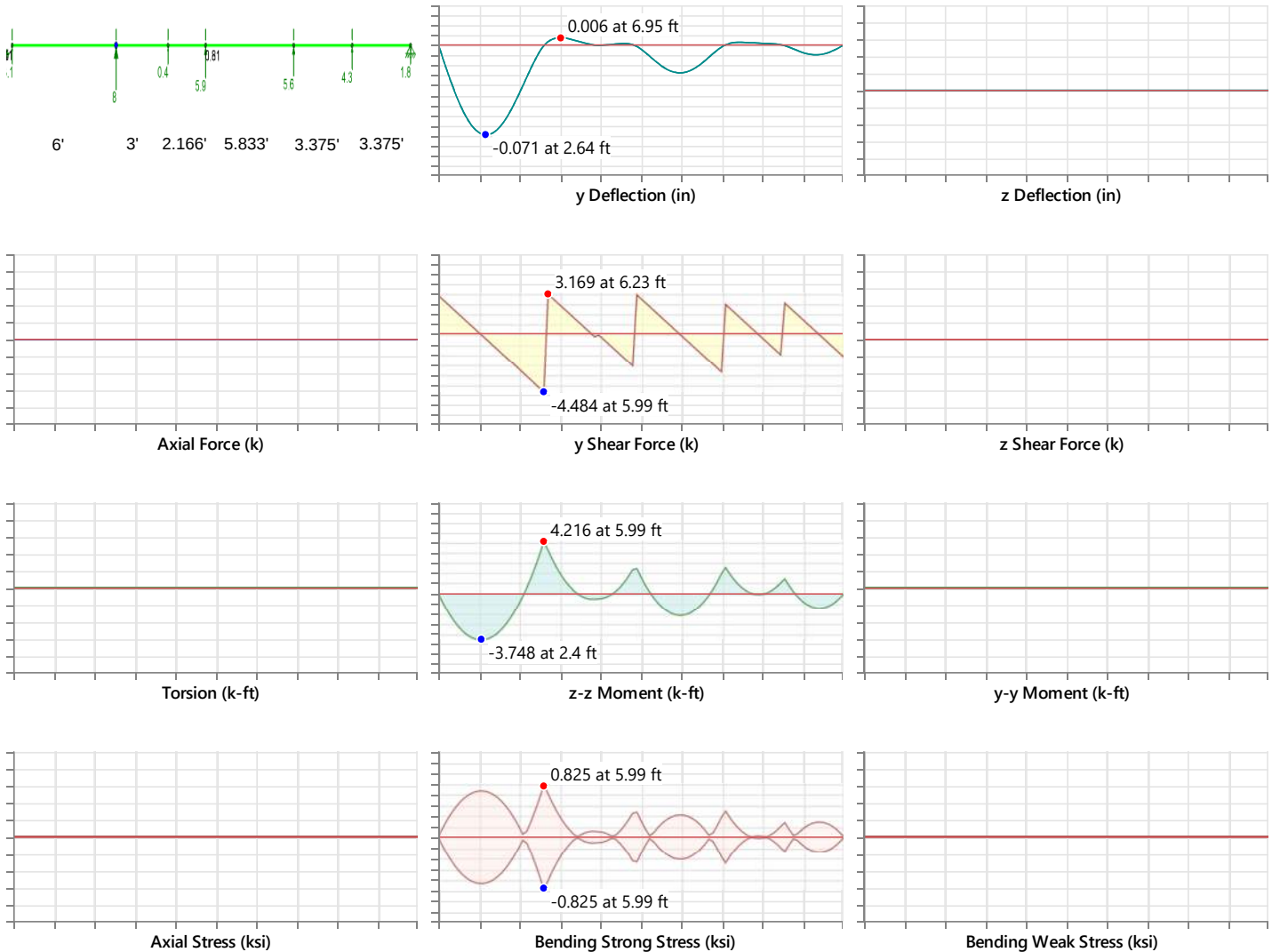
	Input Data			
	Shape:	4-1.75X7.25FS (nominal)	I Node:	N206
	Member Type:	Beam	J Node:	N207
	Length (ft):	23	I Release:	Fixed
	Material Type:	Wood	J Release:	Fixed
	Design Rule:	Typical	I Offset:	N/A
	Internal Sections:	97	J Offset:	N/A
	Design Code:	AWC NDS-18 / AWC SPDWS-21 ASD	T/C Only:	Both Way

Material Properties					
Material:	HF	Grade:	No.2	Nu:	0.3
Type:	Solid Sawn	Cm:	No	Alpha (1e ⁵⁰ F ⁻¹):	0.3
Database:	Visually Graded	Ci:	No	Density (k/ft ³):	0.035
Species:	Hem-Fir	Emod:	1		

Shape Properties					
F _b (ksi):	0.85	E (ksi):	1300	b (actual) (in):	7
F _t (ksi):	0.525	E _{mod} :	1	d (actual) (in):	7.25
F _v (ksi):	0.15	COV _E (Table F1):	0.25	# of Plies (ksi):	4
F _c (ksi):	1.3	E _{min} (ksi):	474.901	K _f (ksi):	0.6

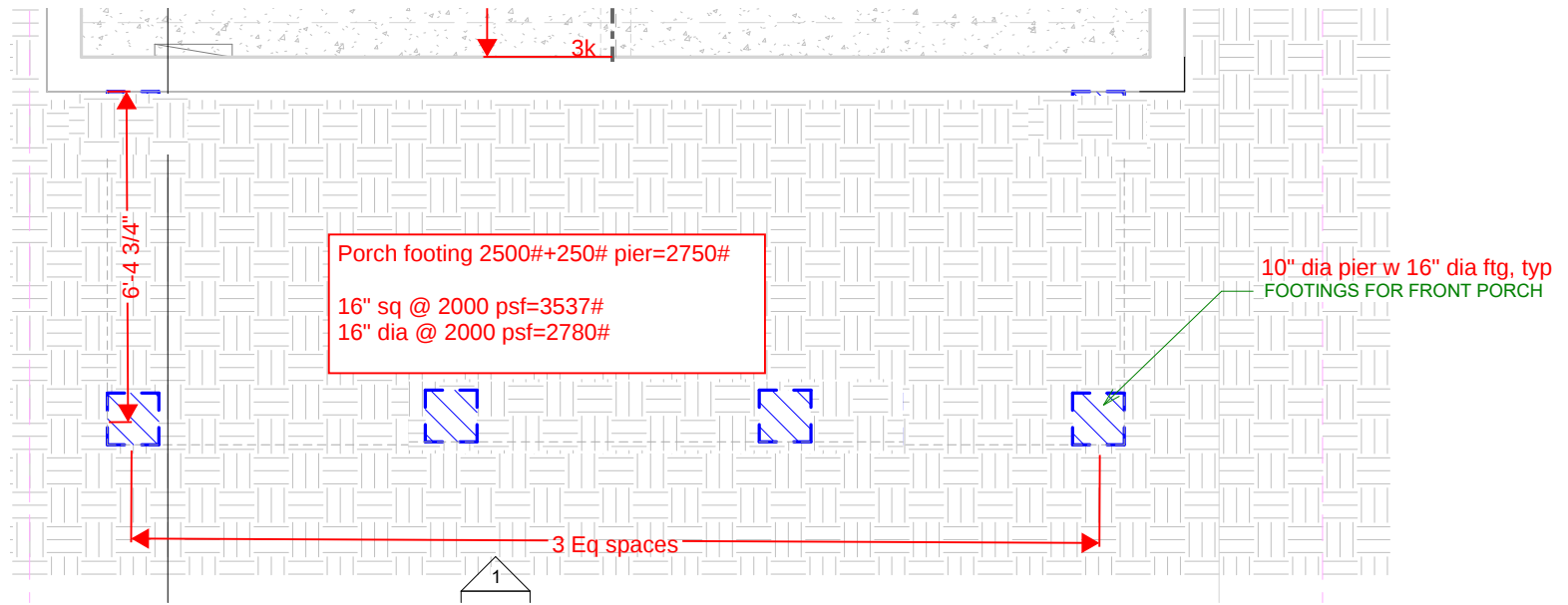
Design Properties					
le2 (ft):	23	y sway:	No	Cfu:	1
le1 (ft):	23	z sway:	No	Cp:	0.106
le-bend top:	Lbyy	CD:	1	Kf:	0.6
le-bend bot (ft):	23	RB:	6.39	Max Defl Ratio:	L/1015
Ky-y:	1	CL:	0.996	Max Defl Location:	2.635
Kz-z:	1	Cr:	1	Span:	1





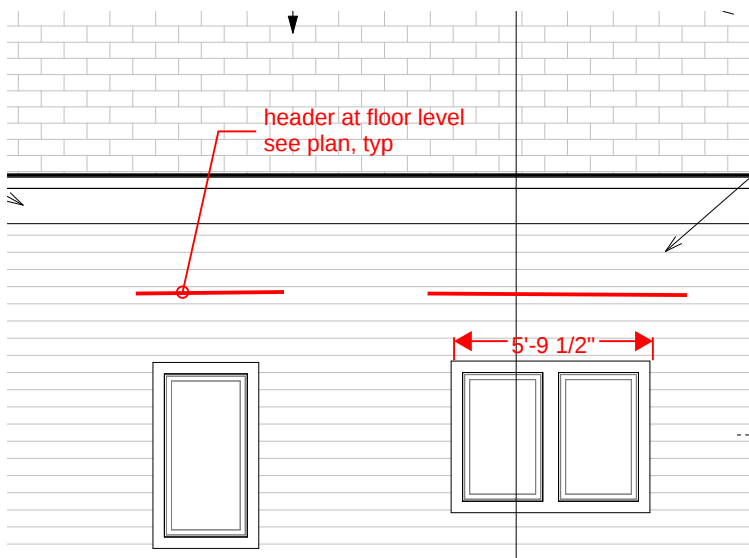
AWC NDS-18 / AWC SPDWS-21 ASD Code Check

Limit State	Gov. LC	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	1	-	-	-	-
Applied Loading - Shear + Torsion	1	-	-	-	-
Axial Compression Analysis	-	0 ksi	0.144 ksi	-	-
Axial Tension Analysis	-	0 ksi	0.63 ksi	-	-
Flexural Analysis, Fb1'	-	0.825 ksi	1.016 ksi	-	-
Flexural Analysis, Fb2'	-	0 ksi	1.02 ksi	-	-
Bending & Axial Compression Analysis	-	-	-	0.812	PASS
Bending & Axial Tension Analysis	-	-	-	0.812	PASS
Shear Analysis	-	0.133 ksi	0.15 ksi	0.884	PASS

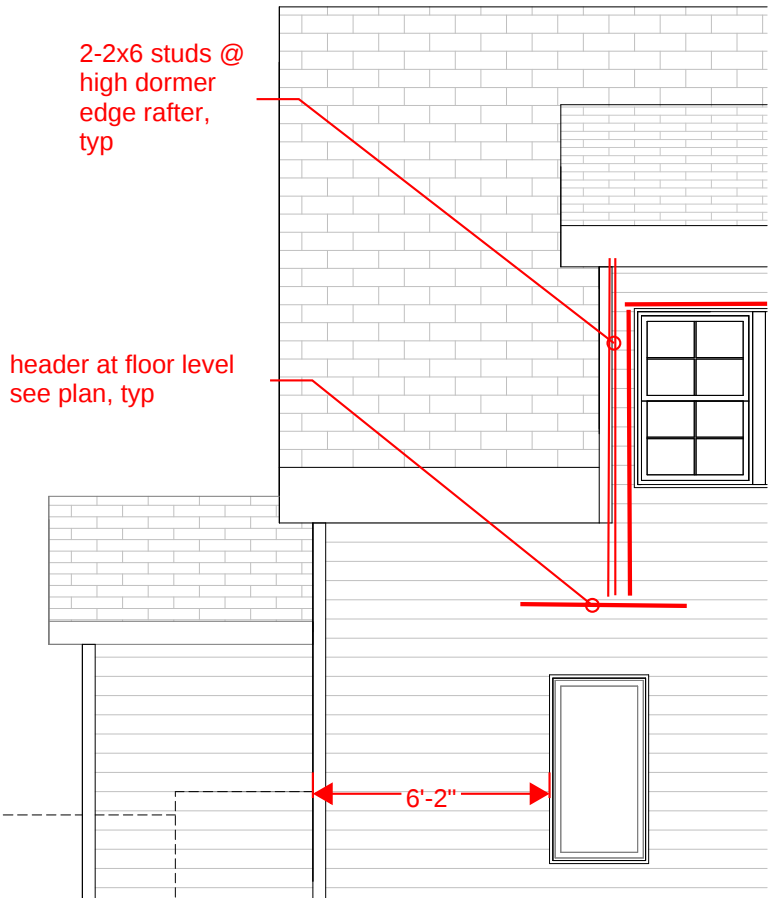


Header
 roof 35 psf (12/12 slope)*11=385#/ft
 floor 55 psf*5.5=302#/ft
 wall 500#/ft sum=1200#/ft
 3 ft M=1120ft#, R=1800 #
 2-2x8 ok
 5'9 M=4960ft#, R=3450ft# EI 115in4
 2-7.25" LVL
 3 ft w P=2400# M=2920ft#, R=3000 #
 2-7.25" LVL

2-2x8	2,234	2,175	124
2-2x12	4,482	3,375	463
2-7.25" LVL	7,115	4,821	222



west elevation windows



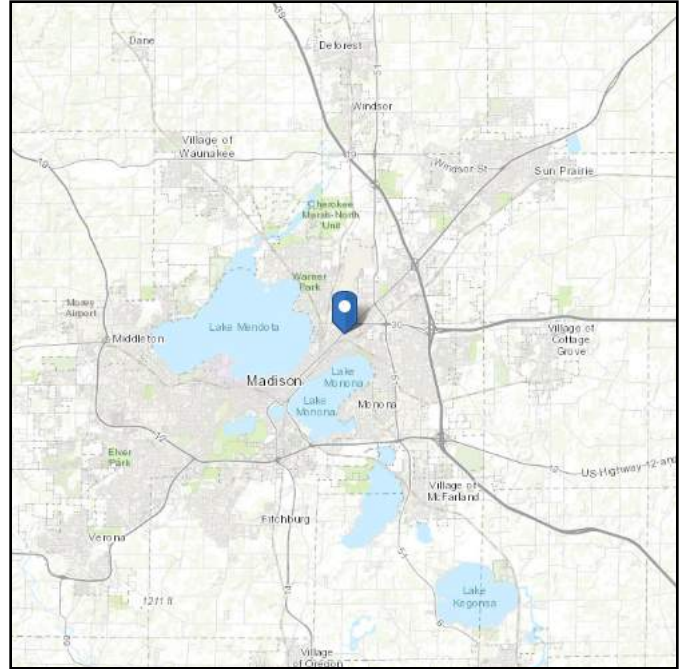
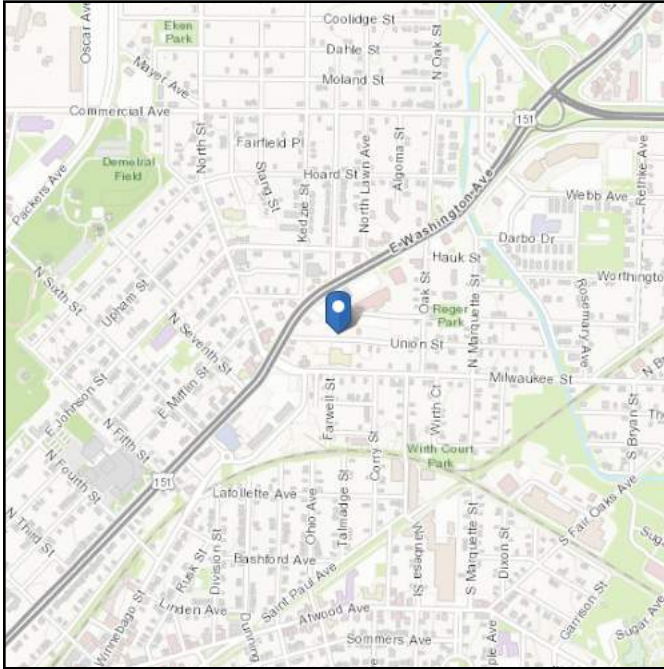
east elevation window

ASCE Hazards Report

Address:
2654 Union St
Madison, Wisconsin
53704

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see
Section 11.4.3)

Latitude: 43.101013
Longitude: -89.346366
Elevation: 856.2545850116943 ft
(NAVD 88)



Wind

Results:

Wind Speed	107 Vmph
10-year MRI	73 Vmph
25-year MRI	81 Vmph
50-year MRI	86 Vmph
100-year MRI	91 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Wed Aug 13 2025

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Results:

Ground Snow Load, p_g :	30 lb/ft ²
Mapped Elevation:	856.3 ft
Data Source:	ASCE/SEI 7-16, Table 7.2-8
Date Accessed:	Wed Aug 13 2025

Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

Snow load values are mapped to a 0.5 mile resolution. This resolution can create a mismatch between the mapped elevation and the site-specific elevation in topographically complex areas. Engineers should consult the local authority having jurisdiction in locations where the reported 'elevation' and 'mapped elevation' differ significantly from each other.

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In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE Hazard Tool.

A. Snow Drift Loading Calculations

ASCE 7-16

I. Uniform Snow Loads

					Reference:	
$P_g =$	30	psf	Uniform Ground Snow Load		Fig.7.2-1	
$C_e =$	1.0		Exposure factor	Terrain B, partial	Table 7.3-1	warn
$C_t =$	1.1		Thermal Factor		Table 7.3-2	Co
$I_s =$	1.00		Importance Factor		Table 1.5-2	Co
$p_f \min_l =$	20		Low slope minimum: monoslope < 15 deg		Section 7.3.4	
			gable < 1/2: 12, 2.38 deg or 70/W _(ft) + .5			
			curved < 10 deg eave to crown			
slope			12.0 /12	45 deg	Section 7.4	
			non-slippery	slippery or non-slippery		
$C_s =$	0.7692296		Slope factor		Figure 7.4-1	
$P_f =$	23.1	psf	Flat-roof Snow Load		Eq 7.3.1	
$P_s =$	17.8	psf	Sloped-roof Snow Load		Eq 7.4.1	

A. Snow Drift Loading Calculations

ASCE 7-05

I. Uniform Snow Loads

					Reference:	
$P_g =$	30	psf	Uniform Ground Snow Load		Fig.7.2-1	
$C_e =$	1.0		Exposure factor	Terrain B, partial	Table 7.3.1	
$C_t =$	1.1		Thermal Factor		Table 7.3.2	
$I =$	1.00		Importance Factor		Table 1.5-2	
$p_f \min_l =$	20		Low slope minimum: monoslope < 15 deg		Section 7.3.4	
			gable < 1/2: 12, 2.38 deg or 70/W _(ft) + .5			
			curved < 10 deg eave to crown			
slope			4.0 /12	18 deg	Section 7.4	
			non-slippery	slippery or non-slippery		
$C_s =$	1		Slope factor		Figure 7.4-1	
$P_f =$	23.1	psf	Flat-roof Snow Load		Eq 7.3.1	
$P_s =$	23.10	psf	Sloped-roof Snow Load		Eq 7.4.1	

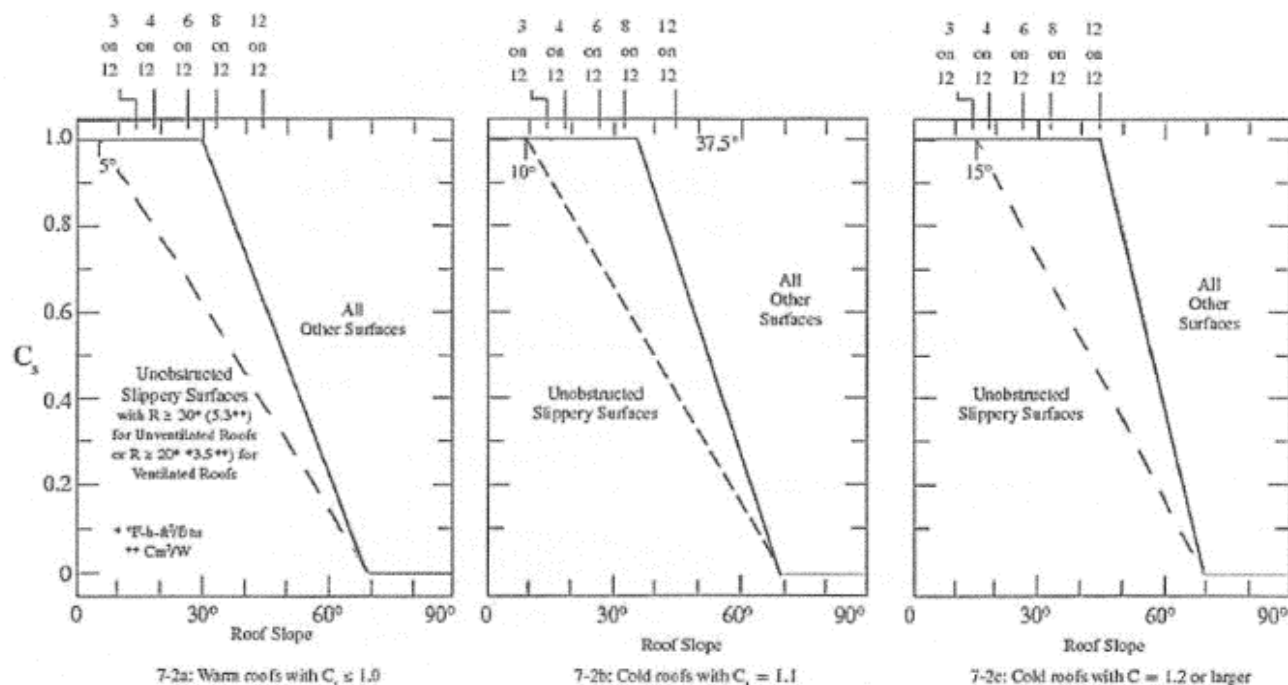


FIGURE 7.4-1 Graphs for Determining Roof Slope Factor, C_s , for Warm and Cold Roofs (See Table 7.3-2 for C_t Definitions)

Table 7.3-1 Exposure Factor, C_e

Surface Roughness Category	Exposure of Roof ^a		
	Fully Exposed	Partially Exposed	Sheltered
B (see Section 26.7)	0.9	1.0	1.2
C (see Section 26.7)	0.9	1.0	1.1
D (see Section 26.7)	0.8	0.9	1.0
Above the tree line in windswept mountainous areas	0.7	0.8	NA
In Alaska, in areas where trees do not exist within a 2-mi (3-km) radius of the site	0.7	0.8	NA

The terrain category and roof exposure condition chosen shall be representative of the anticipated conditions during the life of the structure. An exposure factor shall be determined for each roof of a structure.

^aDefinitions: Partially Exposed: All roofs except as indicated in the following text. Fully Exposed: Roofs exposed on all sides with no shelter^b afforded by terrain, higher structures, or trees. Roofs that contain several large pieces of mechanical equipment, parapets that extend above the height of the balanced snow load (h_b), or other obstructions are not in this category. Sheltered: Roofs located tight in among conifers that qualify as obstructions.

^bObstructions within a distance of $10h_o$ provide "shelter," where h_o is the height of the obstruction above the roof level. If the only obstructions are a few deciduous trees that are leafless in winter, the "fully exposed" category shall be used. Note that these are heights above the roof. Heights used to establish the Exposure Category in Section 26.7 are heights above the ground.

windward side, p_s , on the leeward side plus a rectangular surcharge with magnitude $h_d \gamma / \sqrt{S}$ and horizontal extent from the ridge $8h_d \sqrt{S} / 3$ where h_d is the drift height from Fig. 7.6-1 with l_u equal to the eave to ridge distance for the windward portion of the roof, W . For W less than 20 ft (6.1 m), use $W = l_u = 20$ ft (6.1 m) in Fig. 7.6-1. Balanced and unbalanced loading diagrams are presented in Fig. 7.6-2.

Table 7.3-2 Thermal Factor, C_t

Thermal Condition ^a	C_t
All structures except as indicated below	1.0
Structures kept just above freezing and others with cold, ventilated roofs in which the thermal resistance (R-value) between the ventilated space and the heated space exceeds $25^\circ\text{F} \times h \times \text{ft}^2/\text{Btu}$ ($4.4 \text{ K} \times \text{m}^2/\text{W}$)	1.1
Unheated and open air structures	1.2
Freezer building	1.3
Continuously heated greenhouses ^b with a roof having a thermal resistance (R-value) less than $2.0^\circ\text{F} \times h \times \text{ft}^2/\text{Btu}$ ($0.4 \text{ K} \times \text{m}^2/\text{W}$)	0.85

^aThese conditions shall be representative of the anticipated conditions during winters for the life of the structure.

^bGreenhouses with a constantly maintained interior temperature of 50°F (10°C) or more at any point 3 ft (0.9 m) above the floor level during winters and having either a maintenance attendant on duty at all times or a temperature alarm system to provide warning in the event of a heating failure.