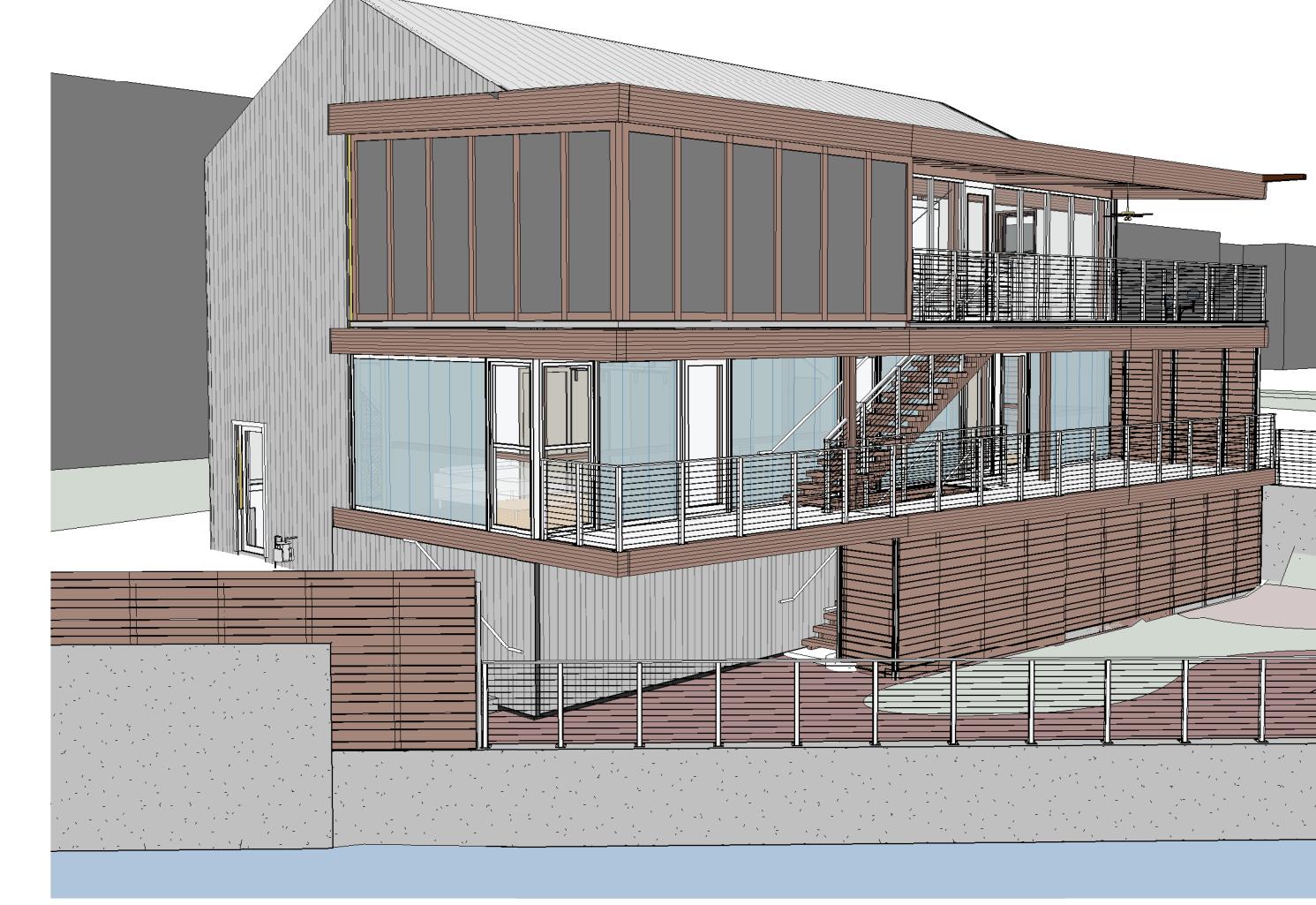


6A Perspective 1



5A Persp



4A Perspec

The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

FYF LLC.

Owner: FYF LLC.
3 S Water St E | Fort Atkinson, WI
ilovefunkys@hotmail.com

Zenteno Solutions

Plumbing Designer: Zenteno Solutions
1530 P B Lane # Z4646
WICHITA FALLS, TX, 76302
roberto@zenteno.net | 832.449.9278



#1075-B, 10th main, HAL 2nd stage,
Bengaluru -08
HVAC Designer: Desapex
shreenidhi@desapex.com

SHEET LIST			
Discipline	Sheet Number	Sheet Title	Issue for Permit
ARCH	A001	LIFE SAFETY & CODE SUMMARY	X
ARCH	A100	DEMOLITION PLANS	X
ARCH	A101	1ST & 2ND FLOOR PLANS	X
ARCH	A102	BASEMENT & ROOF FLOOR PLANS	X
ARCH	A151	1ST & 2ND REFLECTED CEILING PLANS	X
ARCH	A152	BASEMENT REFLECTED CEILING PLANS	X
ARCH	A200	EXTERIOR ELEVATIONS	X
ARCH	A300	BUILDING SECTIONS	X
ARCH	A350	WALL SECTIONS	X
ARCH	A351	WALL SECTIONS	X
ARCH	A360	STAIR SECTIONS	X
ARCH	A361	STAIR SECTIONS	X
ARCH	A400	EXTERIOR DETAILS	X
ARCH	A401	EXTERIOR DETAILS	X
ARCH	A402	EXTERIOR DETAILS	X
ARCH	A500	ADA RESTROOM & SCHEDULES	X
ARCH	S100	STRUCTURAL - NOTES	X
ARCH	S101	STRUCTURAL - FLOOR PLANS	X
ARCH	S300	STRUCTURAL - SECTIONS	X
ARCH	S400	BRACING ELEVATION	X
ARCH	S401	BRACING DETAILS	X
HVAC	M.000	HVAC Notes & Legends	X
HVAC	M.000	HVAC Basement & Roof plan	X
HVAC	M.000	HVAC 1st & 2nd Floor plan	X
PLMB	P0.00	PLUMBING SYMBOLS & ABBREVIATIONS	X
PLMB	P1.01	BASEMENT & FIRST FLOOR SANITARY PLAN	X
PLMB	P1.02	SECOND FLOOR AND ROOF PLUMING PLANS	X
PLMB	P1.03	BASEMENT & FIRST FLOOR WATER DISTRIBUTION	X
PLMB	P1.04	DETAILS	X
PLMB	P1.05	RISER DIAGRAMS	X

A circular seal for Wisconsin Architects. The outer ring contains the word "WISCONSIN" at the top and "ARCHITECT" at the bottom, separated by stars. Inside the circle, the name "RYAN P. SCHULTZ" is at the top, followed by "A-11197-5", "STOUGHTON," and "WI" on the bottom line.



openingdesign

Description

Early Start & Footing/Foundation Issue for Permit

FYF LLC.

Owner: FYF LLC,
43 S Water St E | Fort Atkinson, WI
ilovefunkys@hotmail.com

Zenteno Solutions

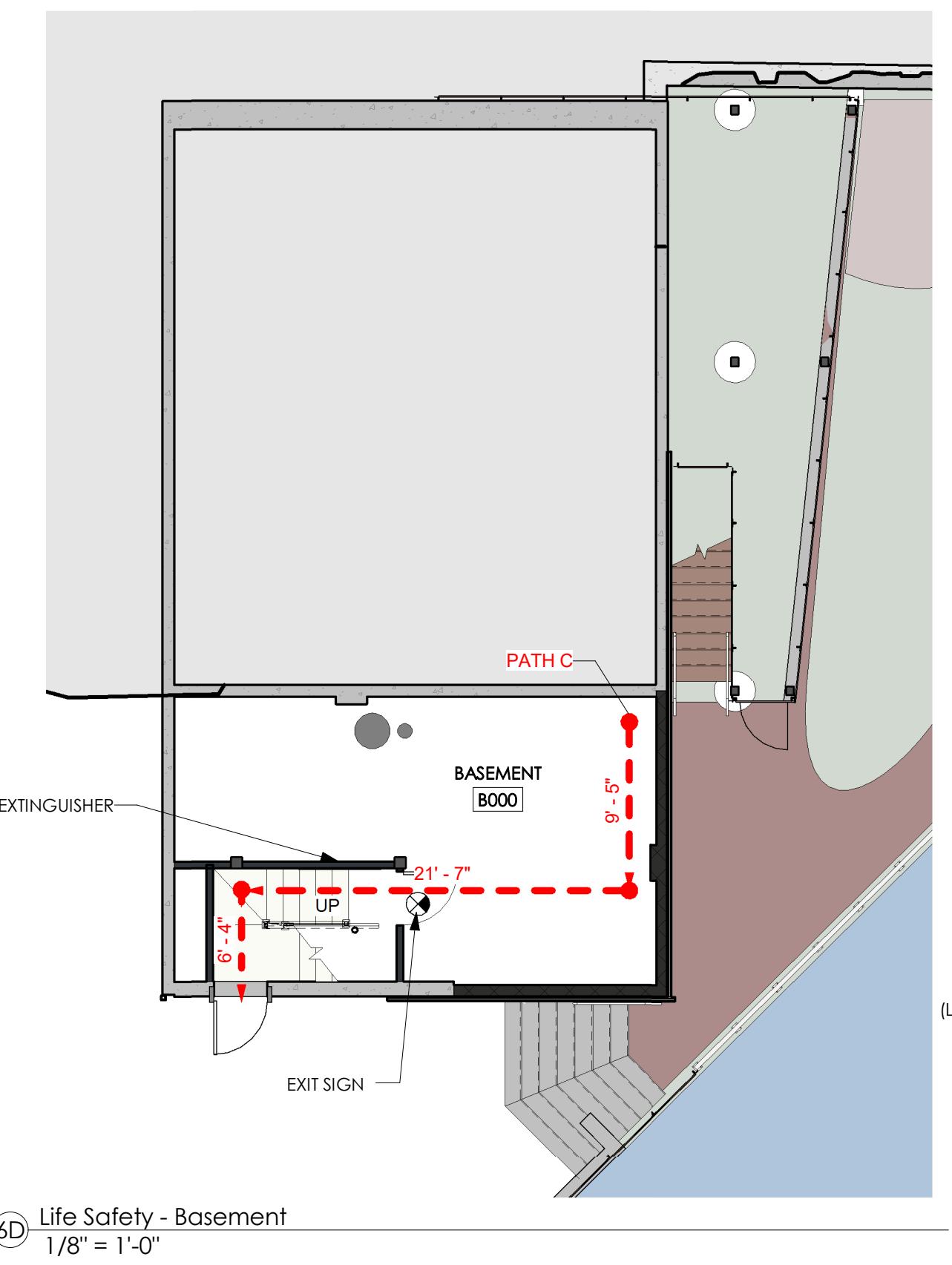
Plumbing Designer: Zenteno Solutions
1530 P B Lane # Z4646
WICHITA FALLS, TX, 76302
roberto@zenteno.net | 832.449.9278



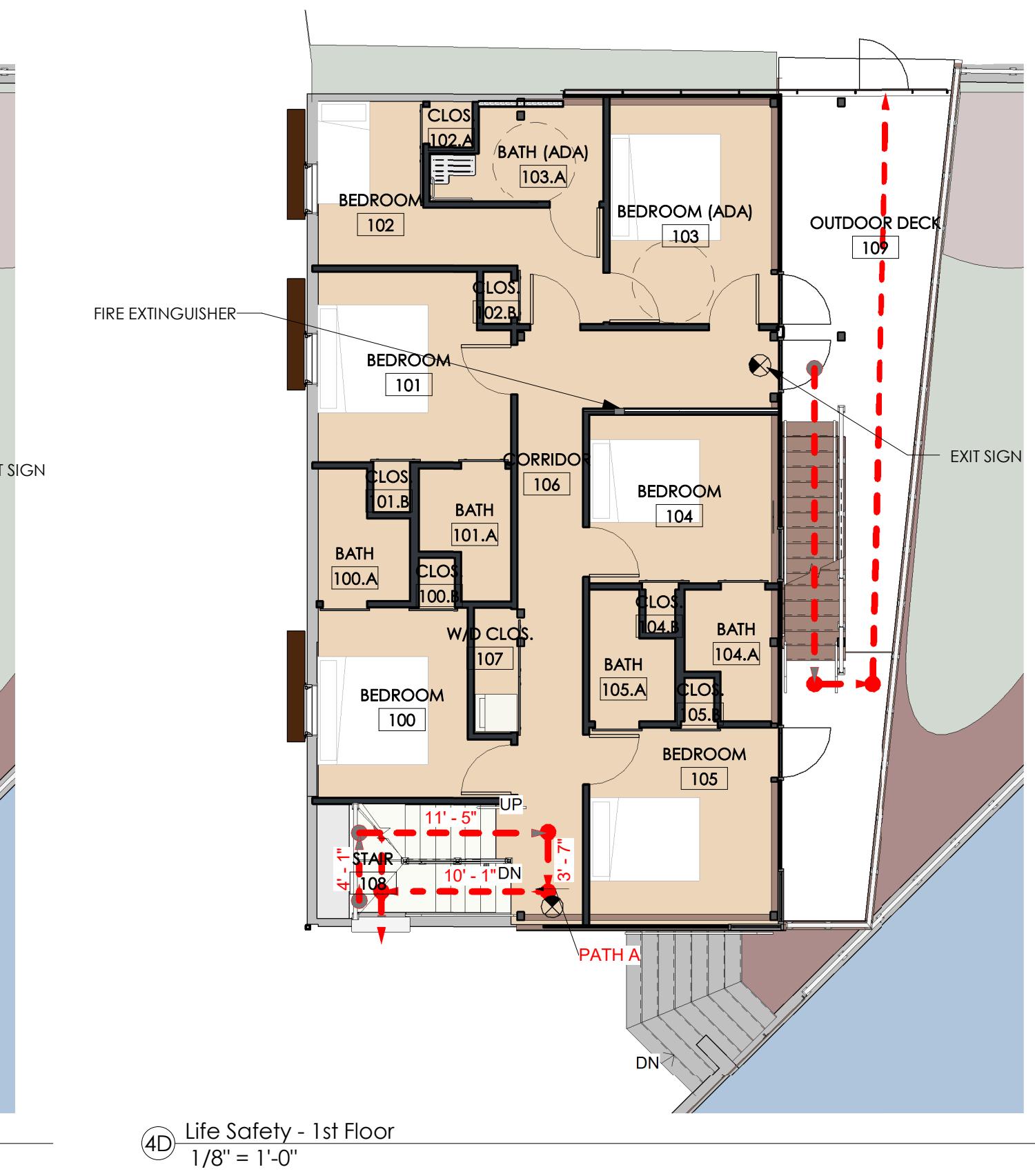
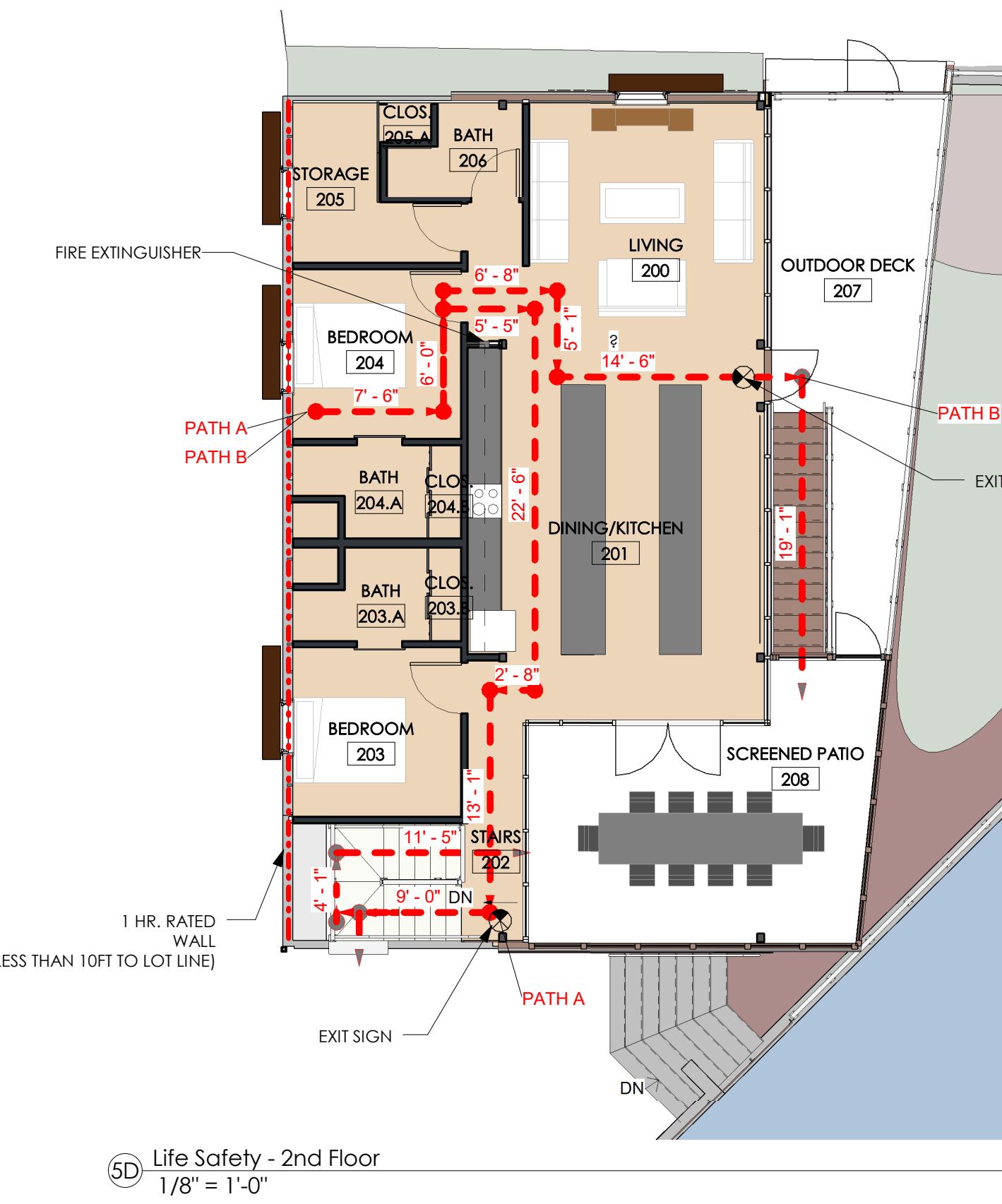
#1075-B, 10th main, HAL 2nd stage,
Bengaluru -08

HVAC Designer: Desapex

shreenidhi@desapex.com



EGRESS DATA	
EXIT ROUTE	DISTANCE
PATH A	98' - 6"
PATH B	99' - 2"
PATH C	37' - 4"



OCCUPANCY LOADS PER ROOM						
Level	ROOM #	ROOM NAME	FUNCTION OF SPACE	AREA	OCCUPANT LOAD FACTOR	CODE OCCUPANCY LOAD
Basement	B000	BASEMENT	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	347 SF	300	1.2
Basement	B001	OUTDOOR STORAGE UNDER DECK	UNOCCUPIED	253 SF	0	
Basement:				600 SF	1.2	
1st Floor	100	BEDROOM	RESIDENTIAL	114 SF	200	0.6
1st Floor	100.A	BATH	UNOCCUPIED	37 SF	0	
1st Floor	100.B	CLOS.	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	6 SF	300	0.0
1st Floor	101	BEDROOM	RESIDENTIAL	128 SF	200	0.6
1st Floor	101.A	BATH	UNOCCUPIED	37 SF	0	
1st Floor	101.B	CLOS.	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	6 SF	300	0.0
1st Floor	102	BEDROOM	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	120 SF	300	0.4
1st Floor	102.A	CLOS.	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	7 SF	300	0.0
1st Floor	102.B	CLOS.	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	5 SF	300	0.0
1st Floor	103	BEDROOM (ADA)	RESIDENTIAL	142 SF	200	0.7
1st Floor	103.A	BATH (ADA)	UNOCCUPIED	54 SF	0	
1st Floor	104	BEDROOM	RESIDENTIAL	117 SF	200	0.6
1st Floor	104.A	BATH	UNOCCUPIED	40 SF	0	
1st Floor	104.B	CLOS.	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	5 SF	300	0.0
1st Floor	105	BEDROOM	RESIDENTIAL	137 SF	200	0.7
1st Floor	105.A	BATH	UNOCCUPIED	35 SF	0	
1st Floor	105.B	CLOS.	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	5 SF	300	0.0
1st Floor	106	CORRIDOR	UNOCCUPIED	168 SF	0	
1st Floor	107	W/D CLOS.	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	17 SF	300	0.1
1st Floor	108	STAIR	UNOCCUPIED	97 SF	0	
1st Floor	109	OUTDOOR DECK	RESIDENTIAL	409 SF	200	2.0
1st Floor:	21			1687 SF	5.8	
2nd Floor	200	LIVING	RESIDENTIAL	226 SF	200	1.1
2nd Floor	201	DINING/KITCHEN	RESIDENTIAL	409 SF	200	2.0
2nd Floor	202	STAIRS	UNOCCUPIED	95 SF	0	
2nd Floor	203	BEDROOM	RESIDENTIAL	99 SF	200	0.5
2nd Floor	203.A	BATH	UNOCCUPIED	38 SF	0	
2nd Floor	203.B	CLOS.	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	7 SF	300	0.0
2nd Floor	204	BEDROOM	RESIDENTIAL	99 SF	200	0.5
2nd Floor	204.A	BATH	UNOCCUPIED	38 SF	0	
2nd Floor	204.B	CLOS.	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	7 SF	300	0.0
2nd Floor	205	STORAGE	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	65 SF	300	0.2
2nd Floor	205.A	CLOS.	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	6 SF	300	0.0
2nd Floor	206	BATH	UNOCCUPIED	37 SF	0	
2nd Floor	207	OUTDOOR DECK	UNOCCUPIED	293 SF	200	1.5
2nd Floor	208	SCREENED PATIO	RESIDENTIAL	288 SF	200	1.4
2nd Floor:	14			1706 SF	7.4	
				Grand total	3993 SF	14.3

FRANK P.
SCHULTZ
A-11107-5
STUTTGART
WI
ARCHITECT



openingdesign
Architect: OpeningDesign
312 W. Lakeside St. | Madison, WI 53715
hello@openingdesign.com | 773-425-6456

Date	Description
05.03.2017	Issue for Permit

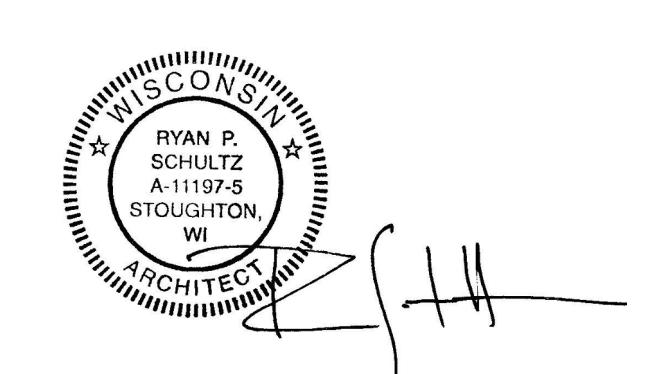
CLASSIFICATION	OCCUPANCY	DESCRIPTION	MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES				OTHER	
			WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE INTERNATIONAL PLUMBING CODE)					
			MALE	Actual Number	FEMALE	Actual Number		
Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit	4 (8 total)	<same>	4 (8 total)	1 per sleeping unit	4 (8 total)

TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)						
BUILDING ELEMENT			TYPE V			
Primary structural frame (see Section 202)			B			
			S 2			
Bearing walls						
Exterior(f,g)						
Interior						
Nonbearing walls and partitions						
Exterior						
from Table 602						
Nonbearing walls and partitions						
Interior						
Floor construction and secondary members (see Section 202)						
Roof construction and secondary members (see Section 202)						

LIFE SAFETY & CODE SUMMARY
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

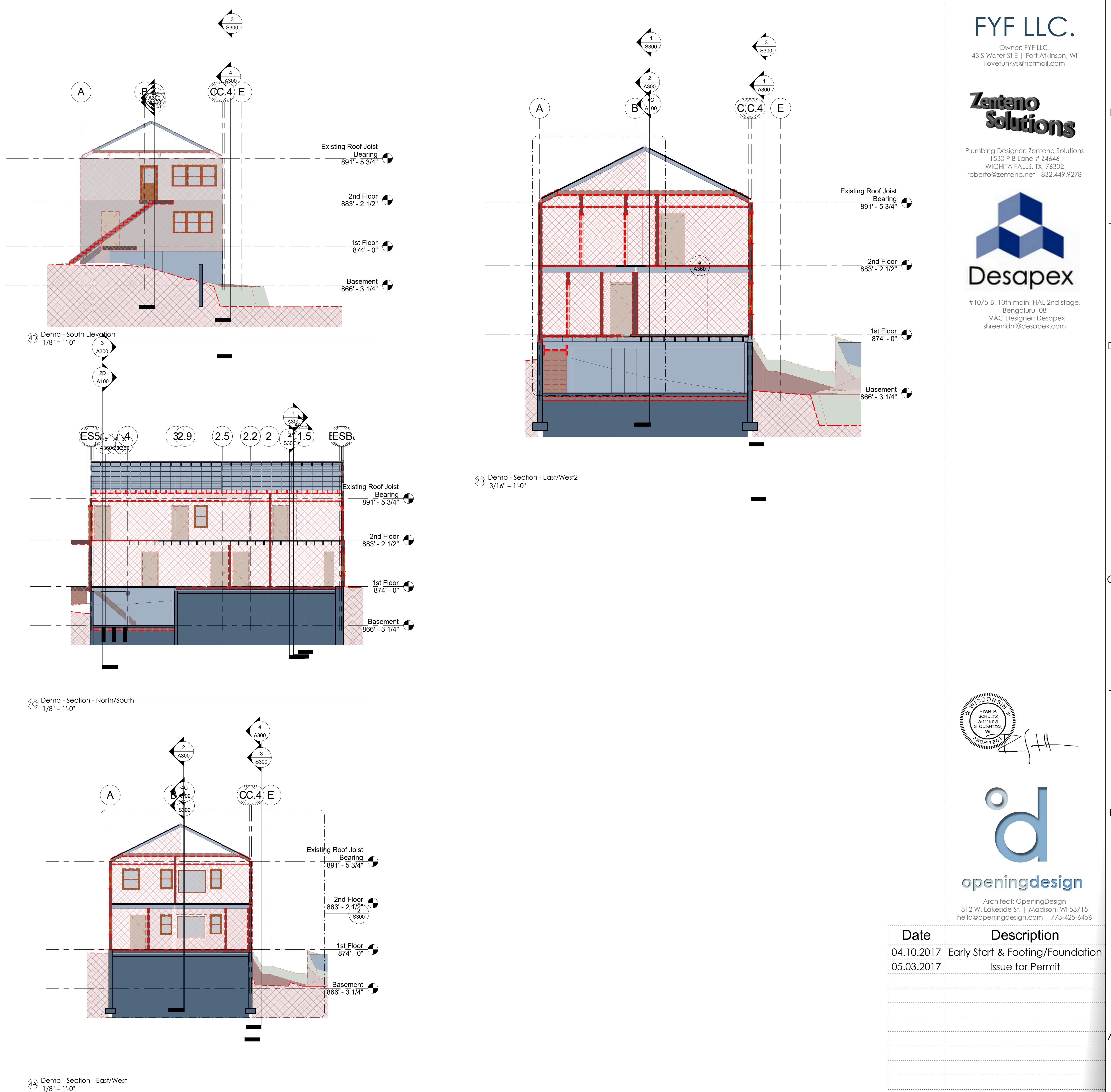
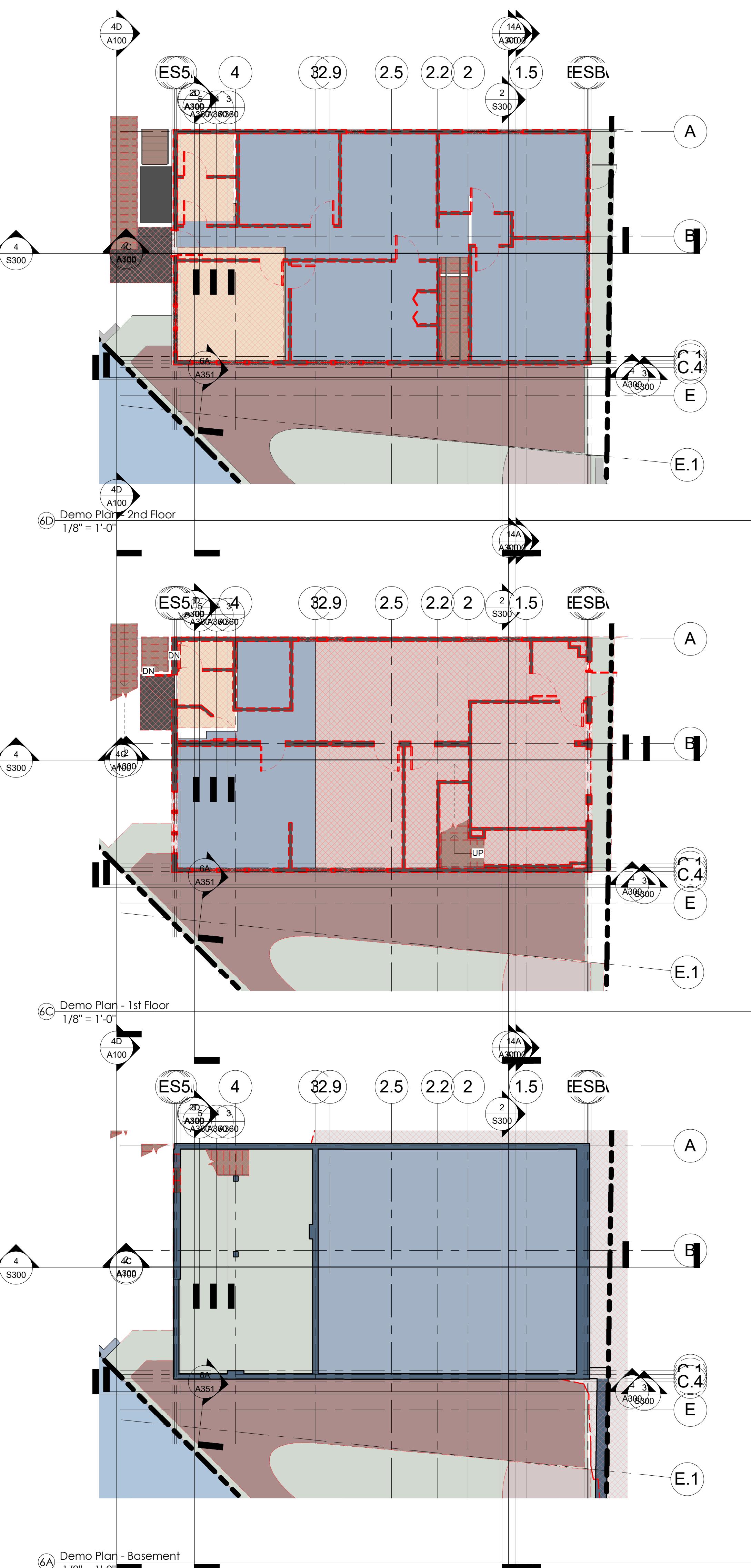
A001

5/3/2017 11:30:02 PM



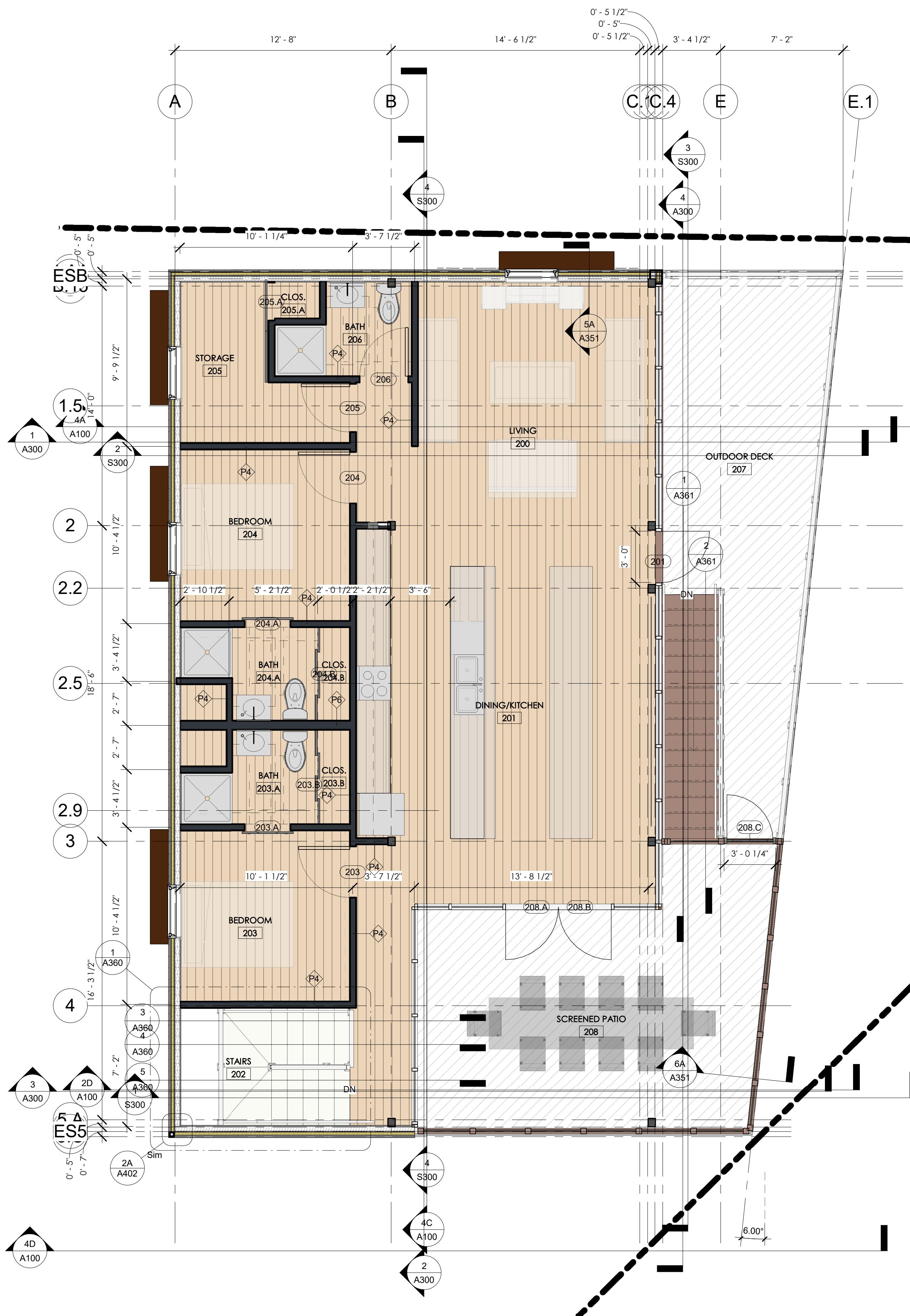
Architect: OpeningDesign
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Date	Description
04.10.2017	Early Start & Footing/Foundation
05.03.2017	Issue for Permit





(6B) Floor Plan - 1st Floor



4B Floor Plan - 2nd Fl
1/4" = 1'-0"

FYF LLC.

Owner: FYF LLC.
3 S Water St E | Fort Atkinson, WI
ilovefunkys@hotmail.com

Zenteno Solutions

mbing Designer: Zenteno Solutions
1530 P B Lane # Z4646
WICHITA FALLS, TX, 76302
berto@zenteno.net | 832.449.9278



075-B, 10th main, HAL 2nd stage,
Bengaluru -08
HVAC Designer: Desapex
shreenidhi@desapex.com

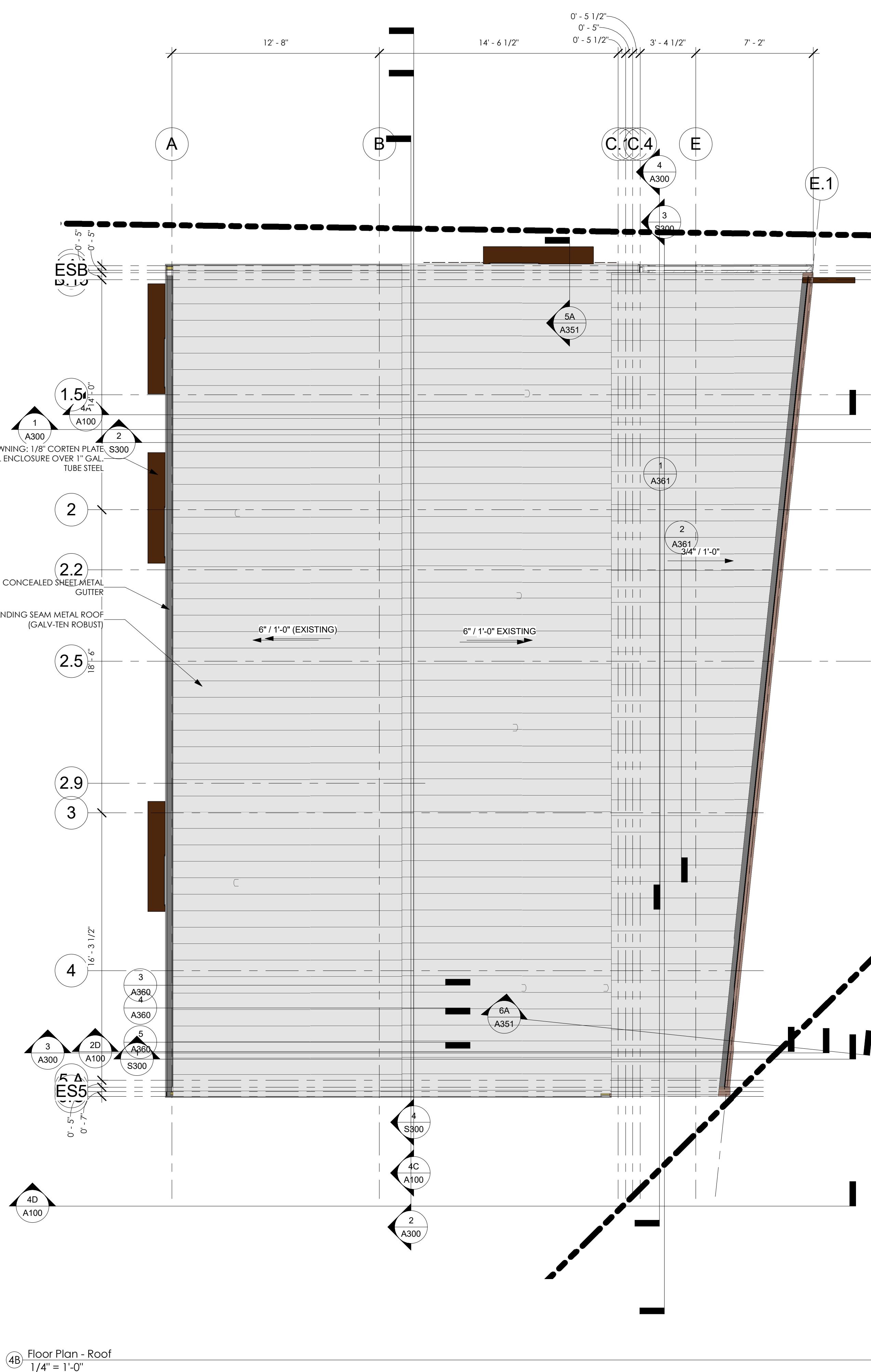
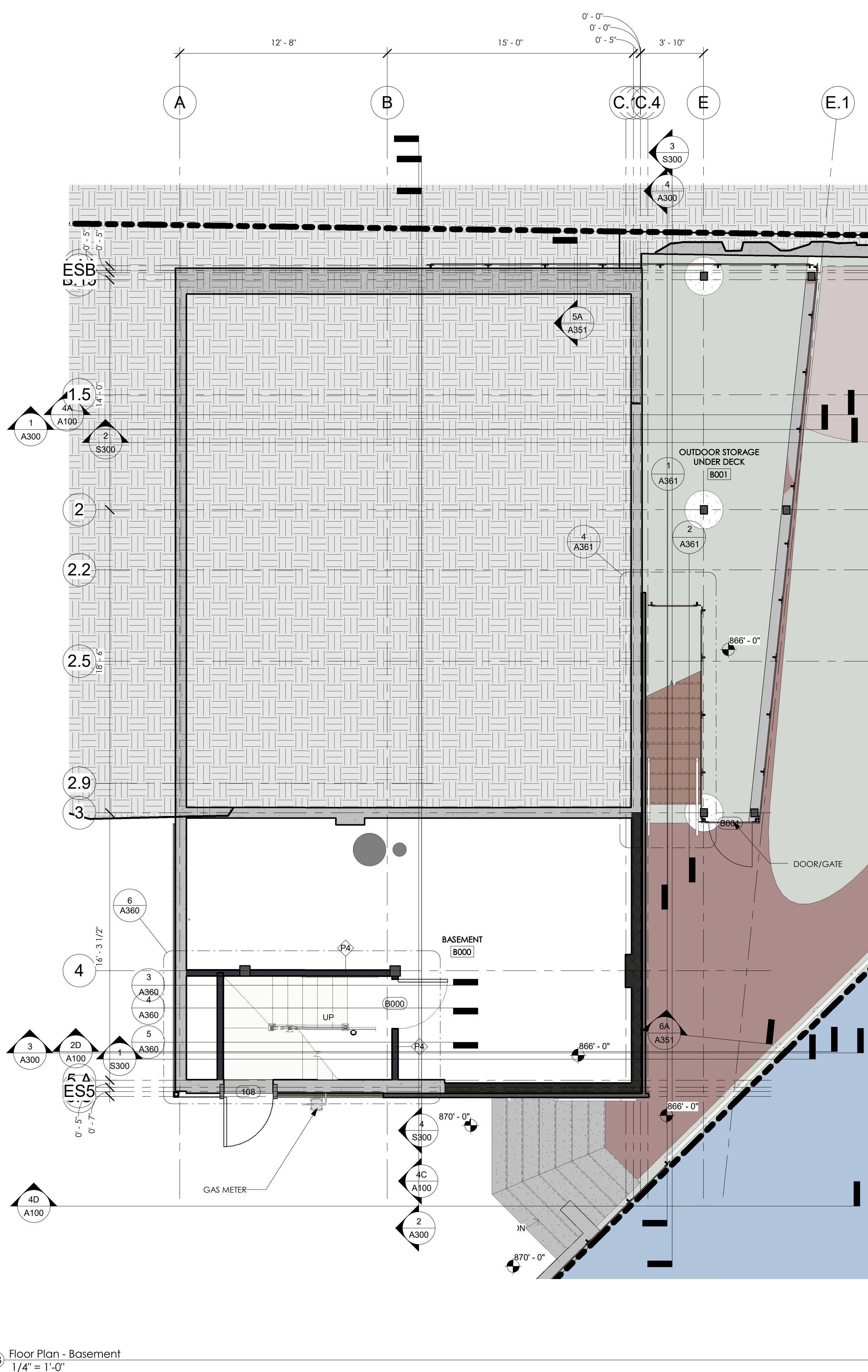
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Architect: OpeningDesign
W. Lakeside St. | Madison, WI 53715
openingdesign.com | 773-425-6456

Description

Start & Footing/Foundation Issue for Permit

The Downtowner | 640 West Main Street, Lake Geneva, WI 53147



BASEMENT & ROOF FLOOR PLANS
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

FYF LLC.
Owner: FYF LLC.
43 S Water St E | Fort Atkinson, WI
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Owner: FYF LLC.
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Zenteno Solutions

Plumbing Designer: Zenteno Solutions
1530 P B Lane # Z4646
WICHITA FALLS, TX, 76302
roberto@zenteno.net | 832.449.9278



#1075-B, 10th main, HAL 2nd stage,
Bengaluru -08
HVAC Designer: Desapex
shreenidhi@desapex.com

A circular seal for Wisconsin Architects. The outer ring contains the word "WISCONSIN" at the top and "ARCHITECT" at the bottom, separated by stars. The inner circle contains the name "RYAN P. SCHULTZ", the identification number "A-11197-5", and the location "STOUGHTON, WI".

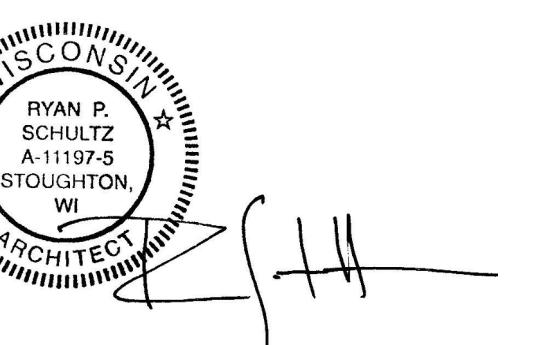


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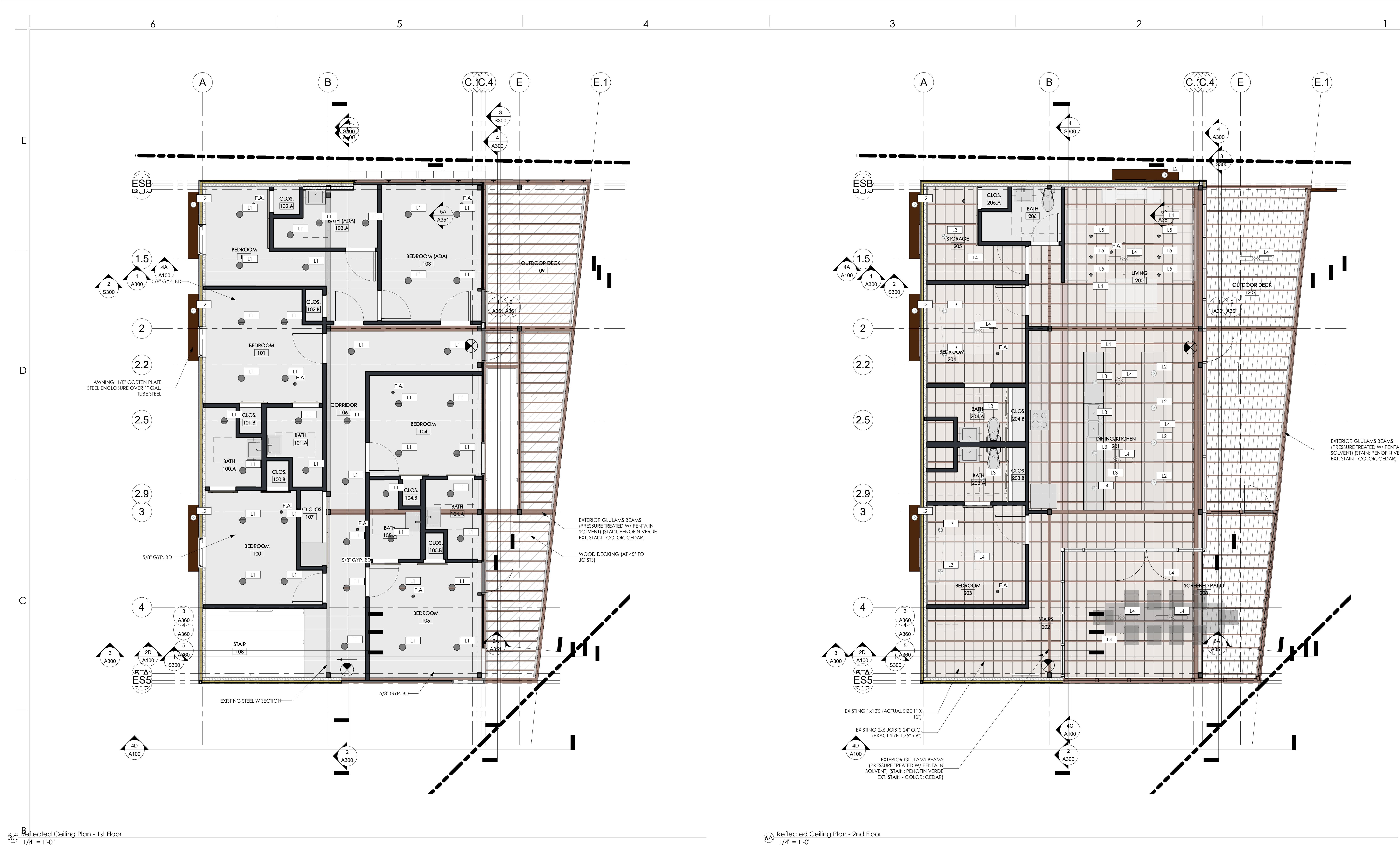
Description

Early Start & Footing/Foundation Issue for Permit

A102



Date	Description
04.10.2017	Early Start & Footing/Foundation
05.03.2017	Issue for Permit



6A Reflected Ceiling Plan - 2nd Floor
1/4" = 1'-0"

FYF LLC.

Owner: FYF LLC.
3 S Water St E | Fort Atkinson, WI
ilovefunkys@hotmail.com

This architectural cross-section diagram illustrates the construction of a building, likely a garage or workshop, showing multiple levels and detailed structural components. The diagram includes the following key features and labels:

- Vertical Levels:** The diagram shows several horizontal levels: ESB (Exterior Surface), 1.5, 2, 2.2, 2.5, 2.9, 3, 4, and 5A.
- Structural Components:**
 - Column Labels:** A, B, C.1C.4, E, and E.1 are positioned along the vertical axis.
 - Beams:** Glulam beams are shown at level 4, with labels 3 A360, 4 A360, and 5 A360.
 - Joists:** Treated wood floor joists are depicted at levels 2.9 and 3.
 - Decking:** An outdoor storage deck is located at level 2.2, supported by A361 and A361 beams.
 - Basement:** A basement level (B000) is shown at the bottom, supported by A100 and S300 beams.
- Materials:**
 - Treated wood floor joists deck (exterior stain: Penofin Verde Ext. Stain - Color: Cedar).
 - Exterior glulams beams (pressure treated w/ Penta I solvent) (stain: Penofin Verde Ext. Stain - Color: Cedar).
 - Existing plank floor layer (3 layers 3/4" thick).
- Annotations:**
 - ESB (Exterior Surface) is labeled near the top left.
 - 5A A351 is labeled near the top right.
 - OUTDOOR STORAGE UNDER DECK is labeled in the middle right.
 - BASEMENT B000 is labeled in the lower center.
 - EXISTING PLANK FLOOR LAYER (3 LAYERS 3/4" THICK) is labeled near the bottom center.
 - Annotations 4D A100 and 2 A300 are located at the bottom.

6B Reflected Ceiling Plan - Basement
1/4" = 1'-0"

BASEMENT REFLECTED CEILING PLANS
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

A152

Zenteno Solutions



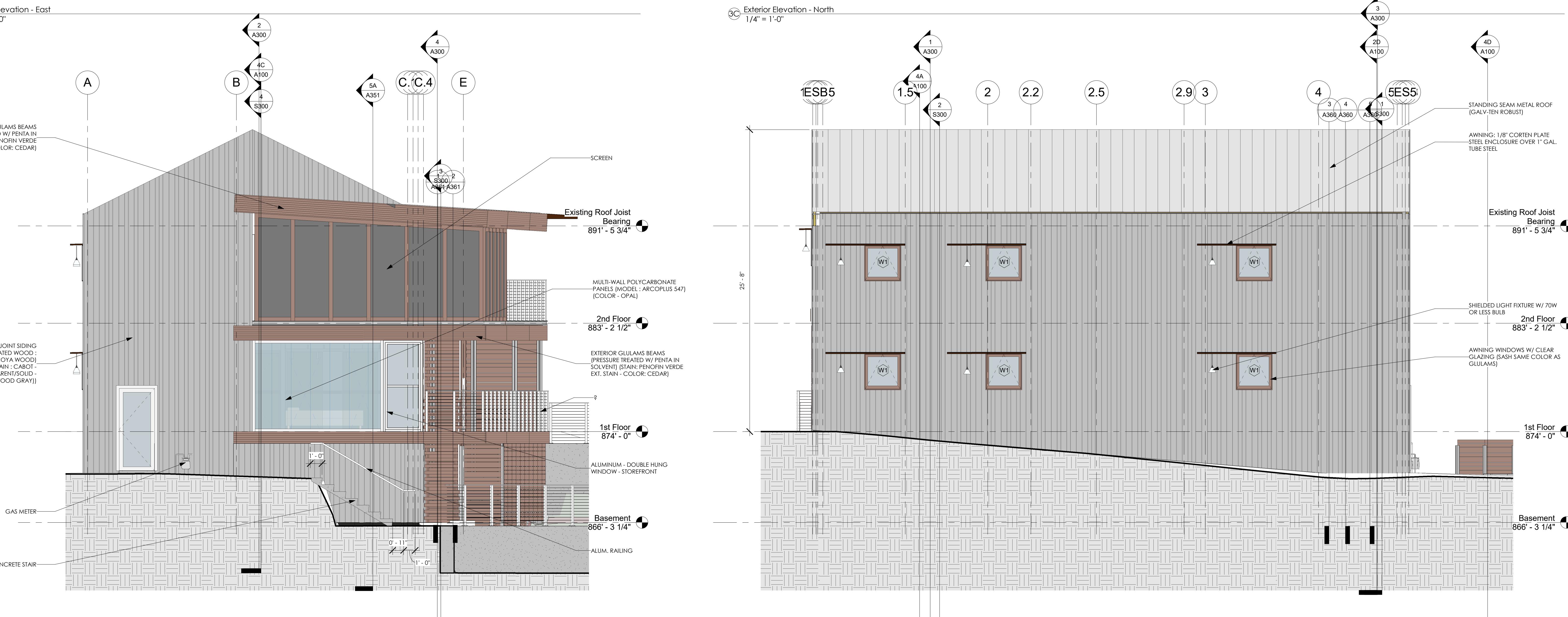
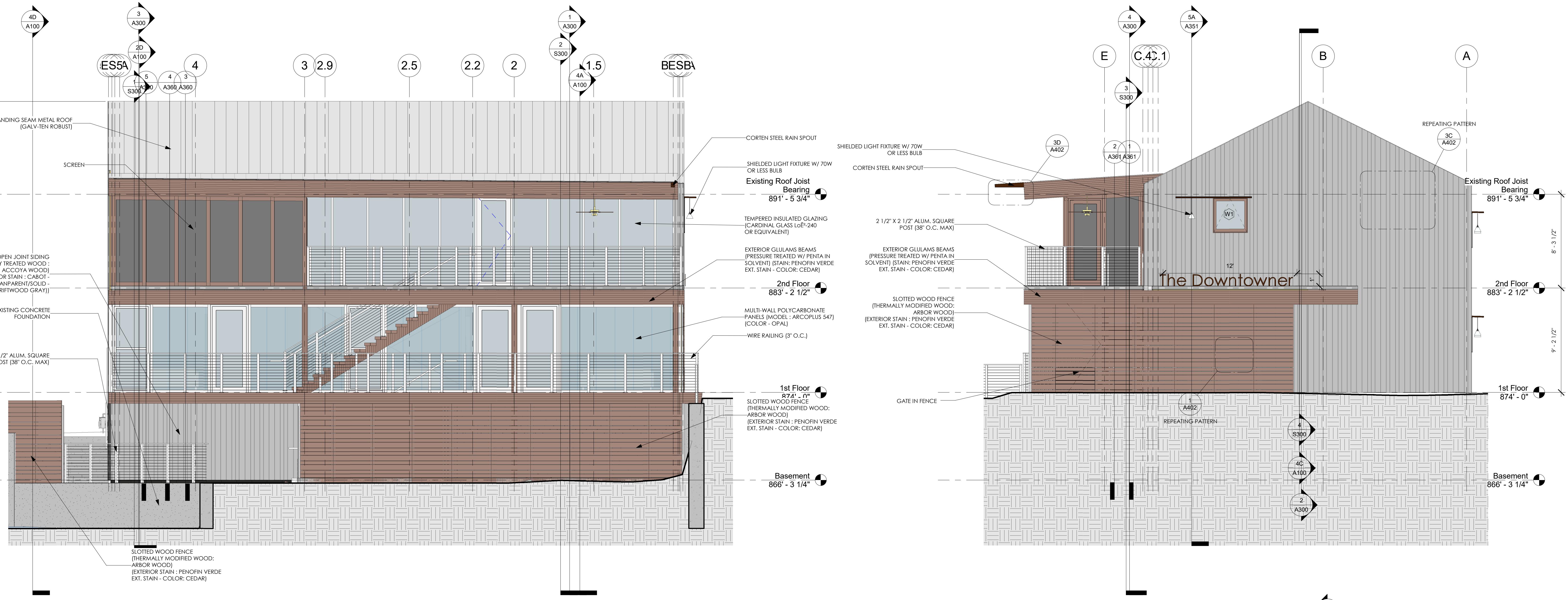
Desapex

The seal is circular with a hatched outer border. The word "WISCONSIN" is at the top, "ARCHITECT" is at the bottom, and "A-11197-5" is in the center. Inside the circle, the name "RYAN P. SCHULTZ" is written above a five-pointed star, with "STOUGHTON, WI" below it. A large, stylized signature "SCHULZ" is written across the bottom of the seal.



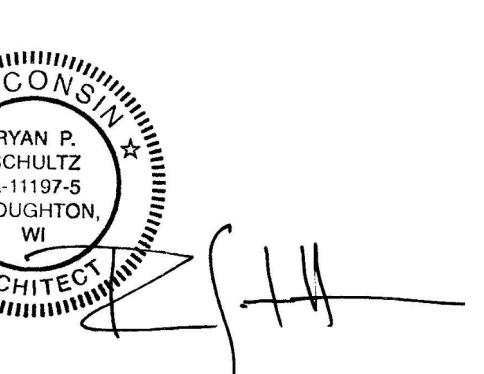
openingdesign

Architect: OpeningDesign
2 W. Lakeside St. | Madison, WI 53715
s@openingdesign.com | 773-425-6456



EXTERIOR ELEVATIONS
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

A200

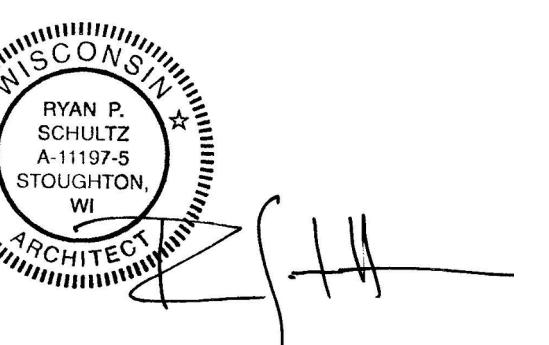


Architect: openingDesign
312 W. Lakeside St. | Madison, WI 53715
hello@openingdesign.com | 773-425-6456

Date	Description
04.10.2017	Early Start & Footing/Foundation
05.03.2017	Issue for Permit



#1075-B, 10th main, HAL 2nd stage,
Bengaluru -08
HVAC Designer: Desapex
shreenidhi@desapex.com



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WALL SECTIONS

NOVEMBER 2017

WALL SECTIONS
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

A350

This architectural cross-section diagram illustrates the vertical structure of a building across six levels: Basement, 1st Floor, 2nd Floor, Existing Roof Joist Bearing, and 2nd Floor. The diagram shows the following key features and dimensions:

- Floor Levels:** Basement (866' - 3 1/4"), 1st Floor (874' - 0"), 2nd Floor (883' - 2 1/2"), Existing Roof Joist Bearing (891' - 5 3/4"), and 2nd Floor (883' - 2 1/2").
- Walls:** The structure includes exterior walls (e.g., A, B, C) and interior walls. Wall A is labeled "EXISTING 1x12'S (ACTUAL SIZE 1" X 12")". Wall B is labeled "B, ESBA". Wall C is labeled "C.1, C.2, C.4".
- Structural Components:** The diagram shows various columns and beams, including:
 - Column A: Labeled "4C A100", "2 A300", and "4 S300".
 - Column B: Labeled "4C A400".
 - Column C: Labeled "2B A400", "2A A400", and "2D A400".
 - Column D: Labeled "2D A400".
 - Column E: Labeled "6C A401", "Sim", "6B A401", "3A A401", "6A A401", and "3B A401".
 - Column F: Labeled "5ES5.A", "1 S300", "2E A401", and "3D A401".
 - Column G: Labeled "2E A401".
- Foundations:** The Basement level is supported by an "EXISTING CONCRETE FOUNDATION".
- Roofing:** The roof is supported by "Existing Roof Joist Bearing" at the 2nd Floor level.
- Annotations:** Labels like "Sim" indicate specific assembly or connection points.

1 Wall Section - West Wall - Looking North
1/2" = 1'-0"

2 Wall Section - Mid Span - Looking North

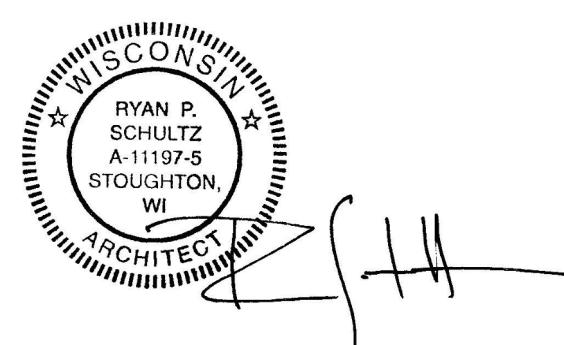
(3) Wall Section - East Wall - Looking North
1/2" = 1'-0"

(4) Wall Section - East Deck - Looking North
1/2" = 1'-0"

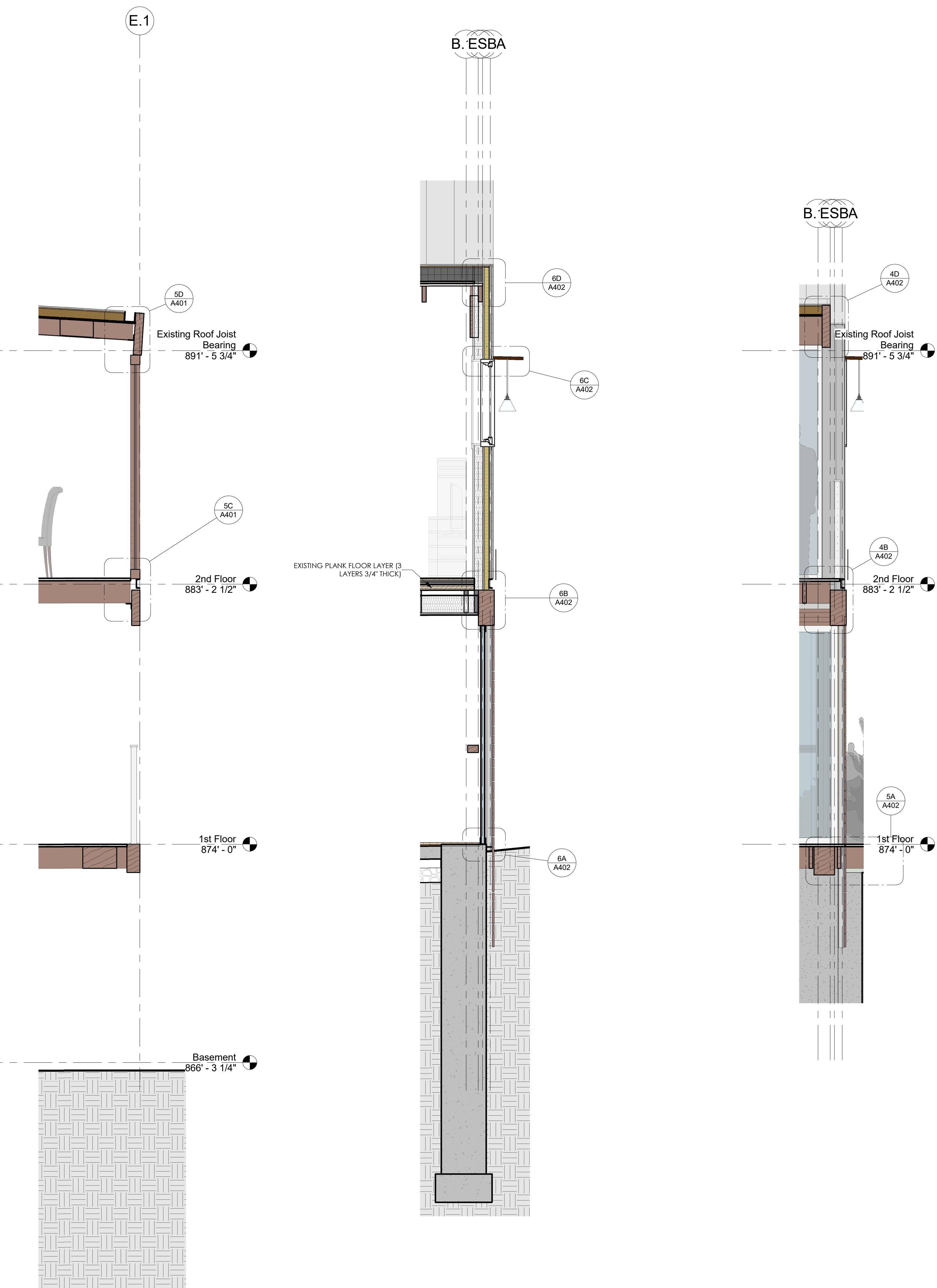
5 Wall Section - South Wall - Looking
 $1/2" = 1'-0"$

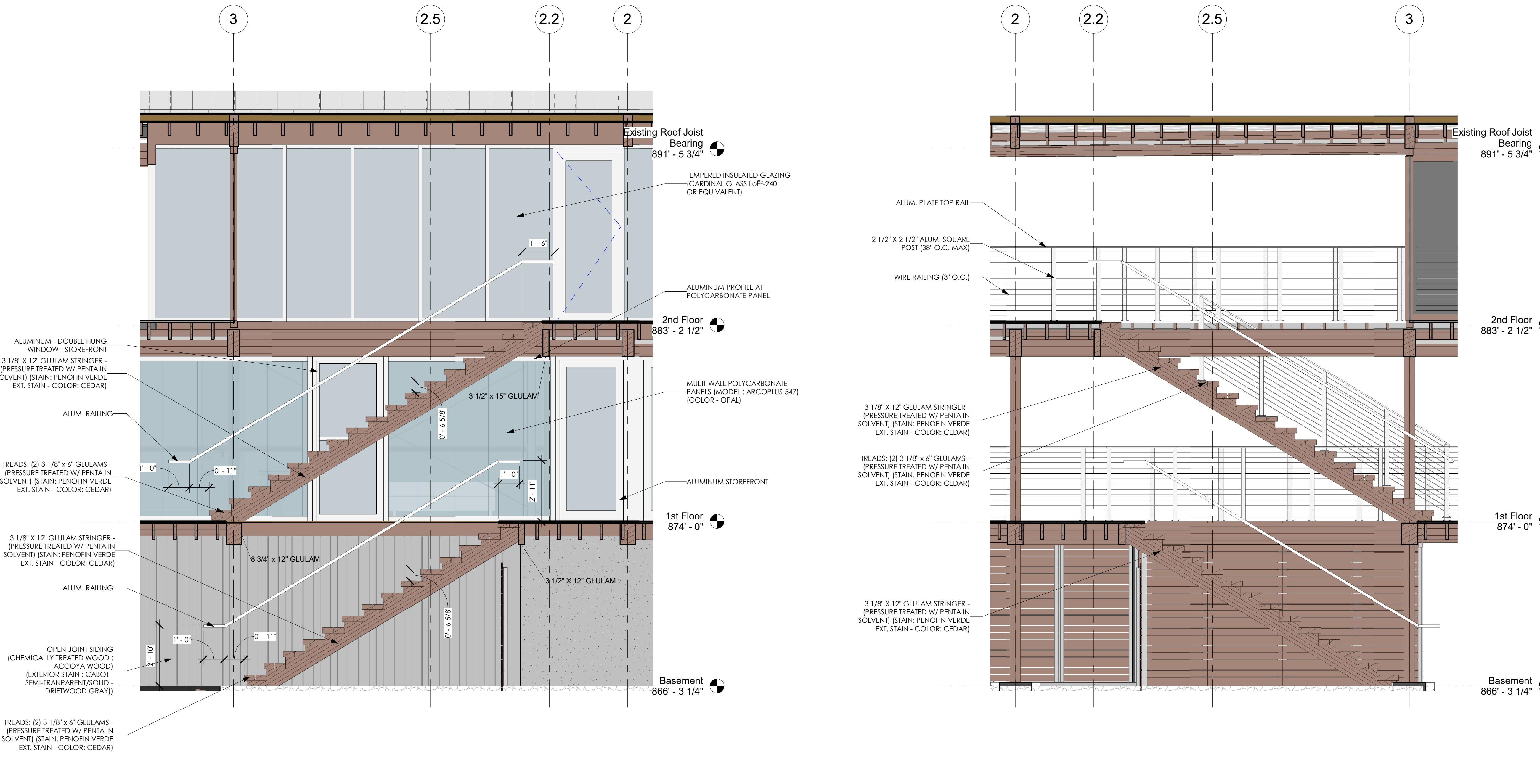
6 Wall Section - Mid Span - Looking
 $1/2" = 1'-0"$

(7) Wall Section - North Wall - Looking West
1/2" = 1'-0"



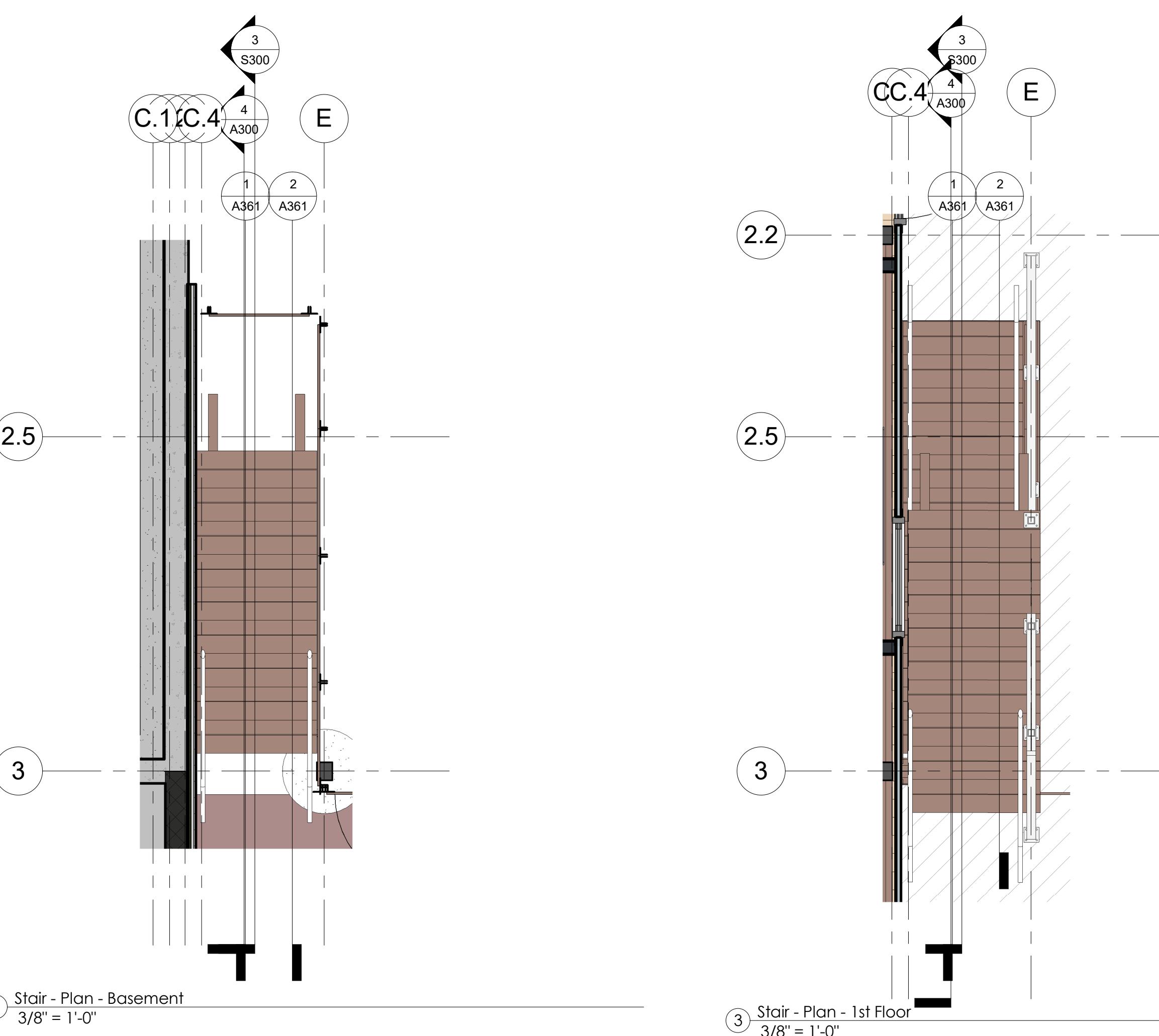
Date	Description
04.10.2017	Early Start & Footing/Foundation
05.03.2017	Issue for Permit





① Detail 13

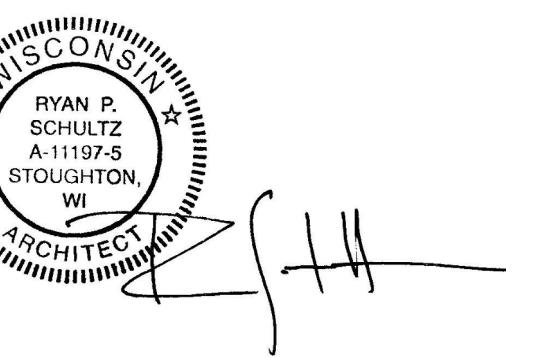
3/8" = 1'-0"



② Detail 12

3/8" = 1'-0"

STAIR SECTIONS
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

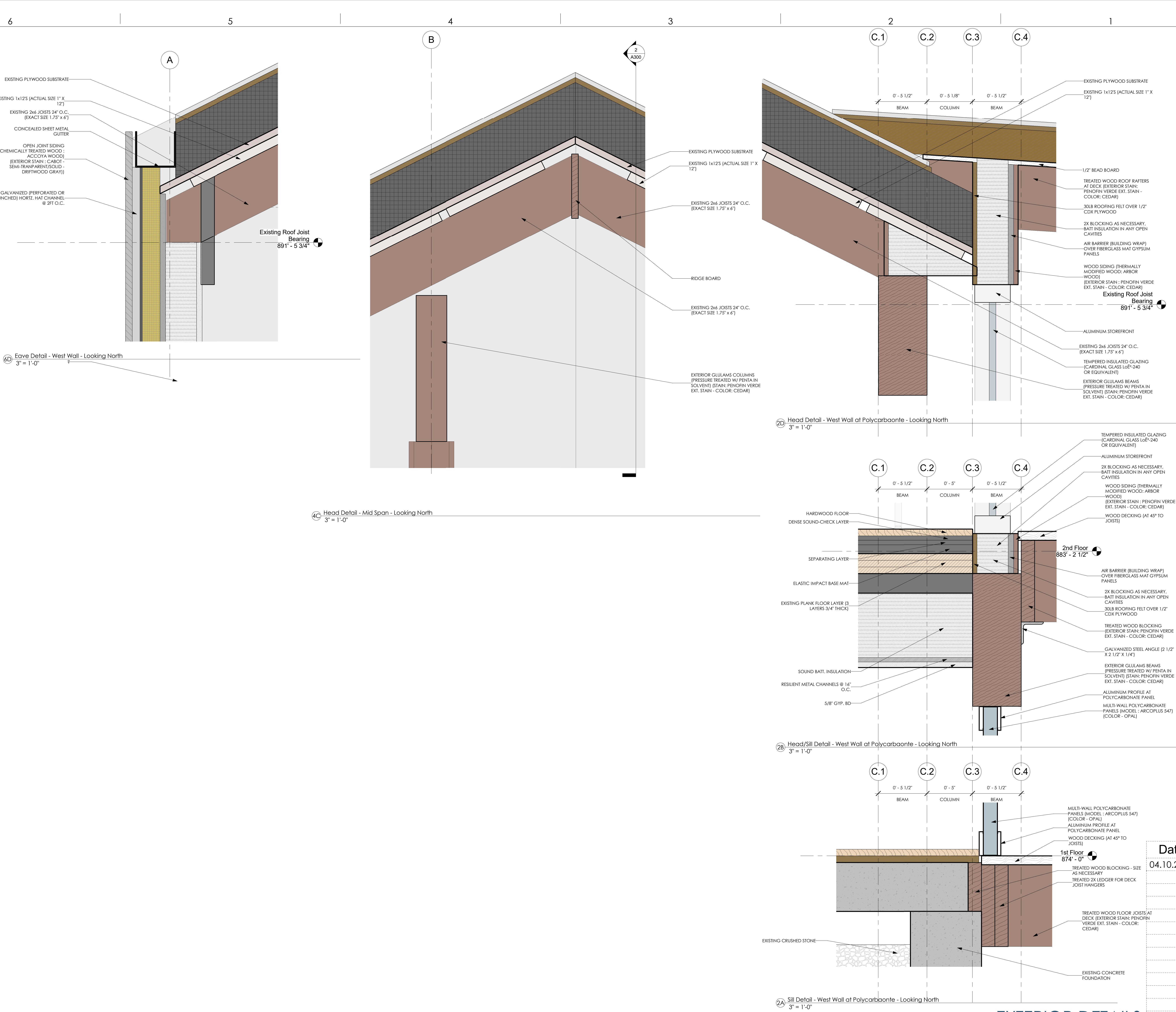


Architect: OpeningDesign
312 W. Lakeside St. | Madison, WI 53715
hello@openingdesign.com | 773-425-6456

Date	Description
05.03.2017	Issue for Permit

A361

5/3/2017 11:30:54 PM



EXTERIOR DETAILS
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

FYF LLC.

Owner: FYF LLC.
43 S Water St E | Fort Atkinson, WI
ilovefunkys@hotmail.com

Zenteno Solutions

Plumbing Designer: Zenteno Solutions
1530 P B Lane # Z4646
WICHITA FALLS, TX, 76302
roberto@zenteno.net | 832.449.9278



Desapex
#1075-B, 10th main, HAL 2nd stage,
Bengaluru -08
HVAC Designer: Desapex
shreenidhi@desapex.com

A circular seal for Wisconsin Architects. The outer ring contains the word "WISCONSIN" at the top and "ARCHITECT" at the bottom, separated by a wavy line. The inner circle contains the name "RYAN P. SCHULTZ", the license number "A-11197-5", and the city "STOUGHTON, WI".



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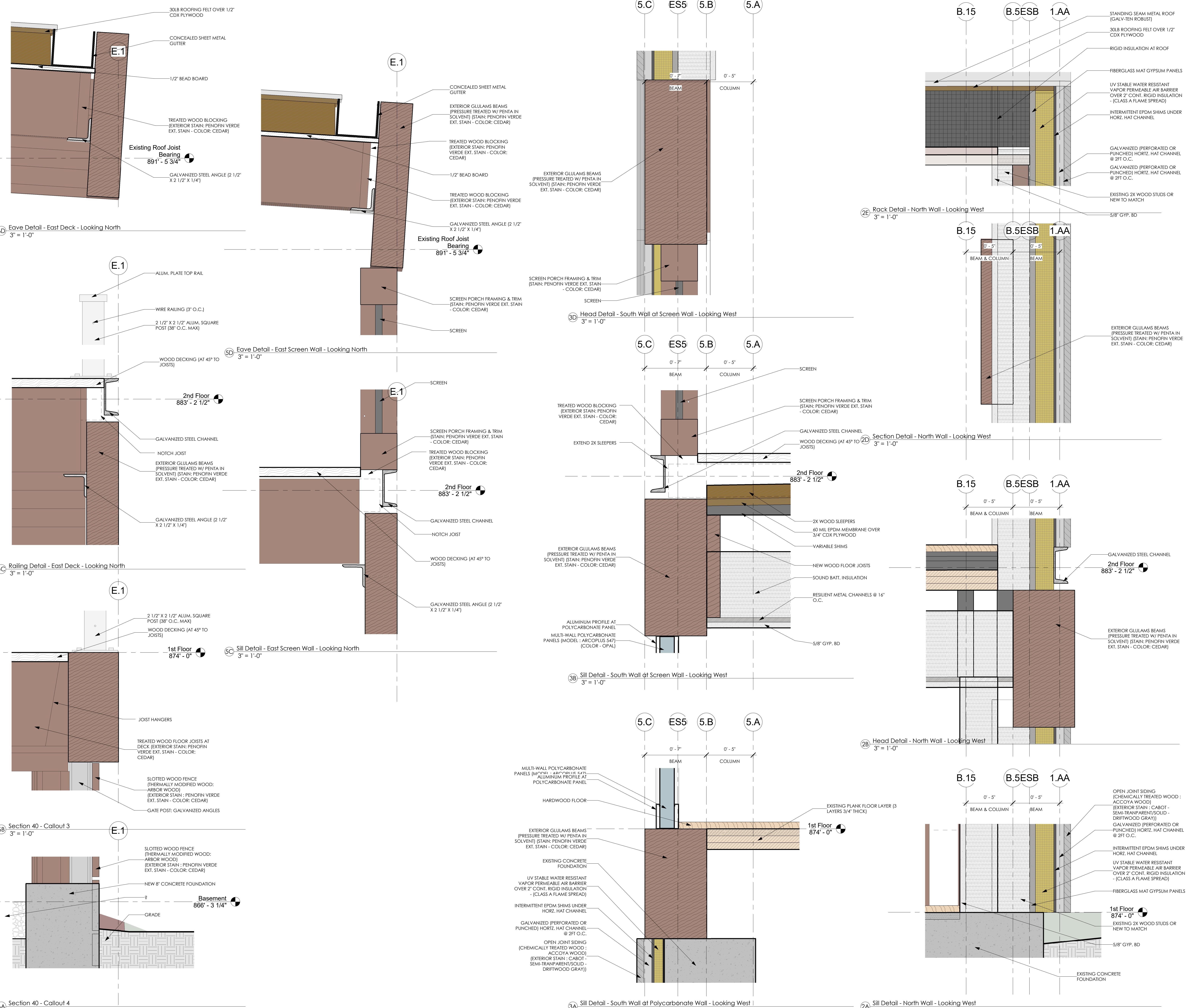
Description



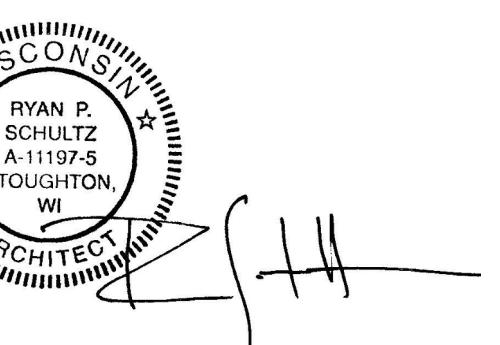
PETER P. SCHULTZ
A-111075
STUDIO 101
ARCHITECT
[Handwritten signature]



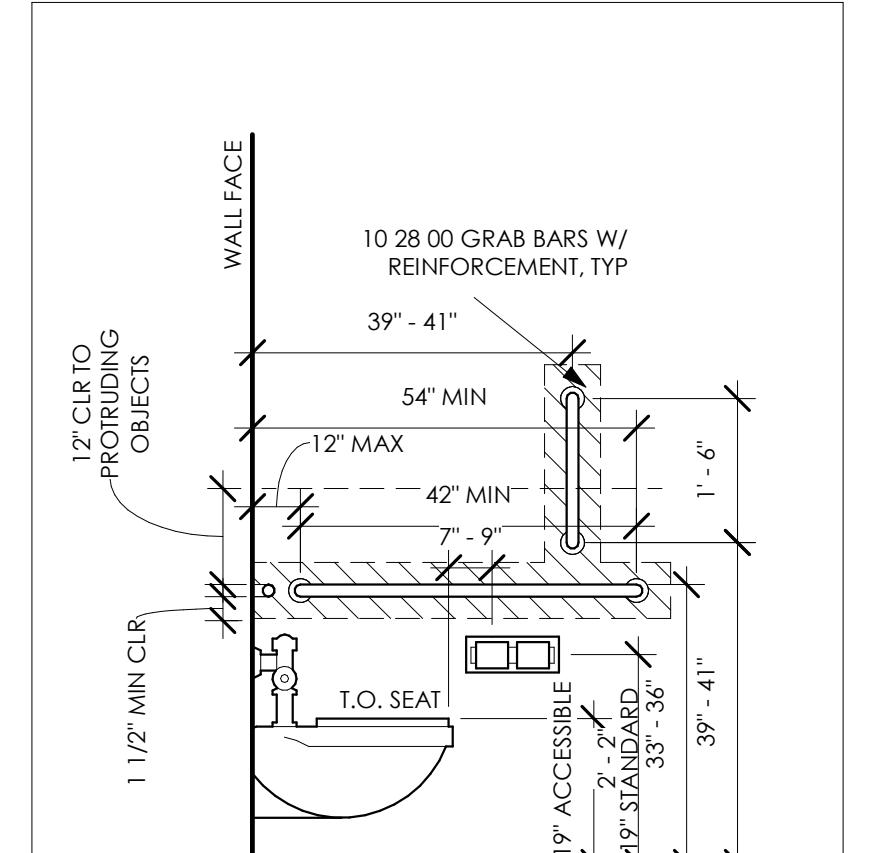
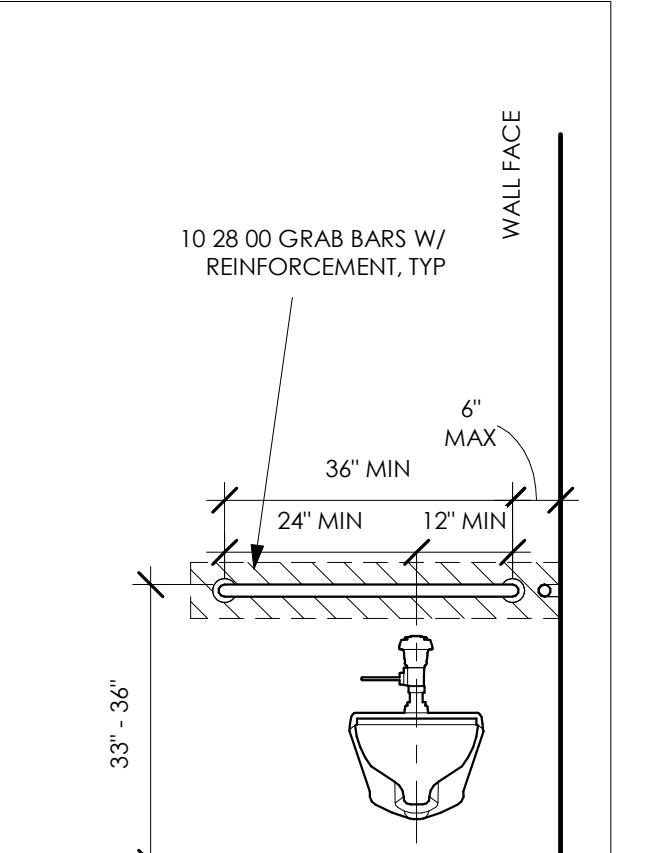
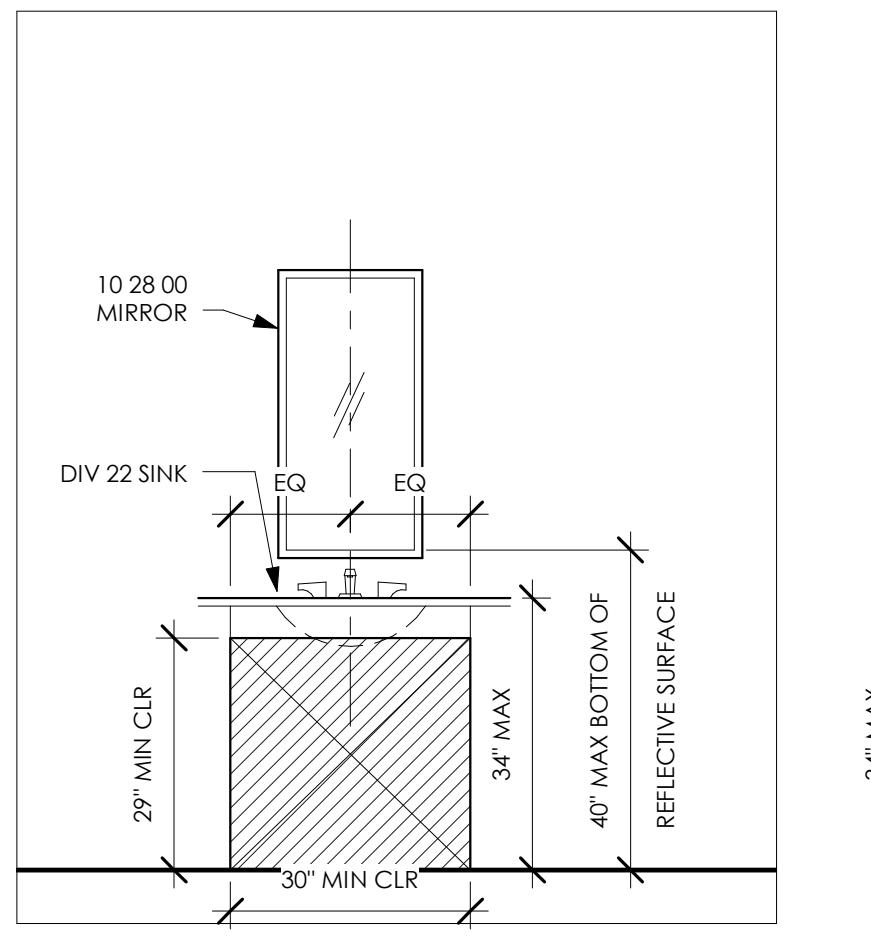
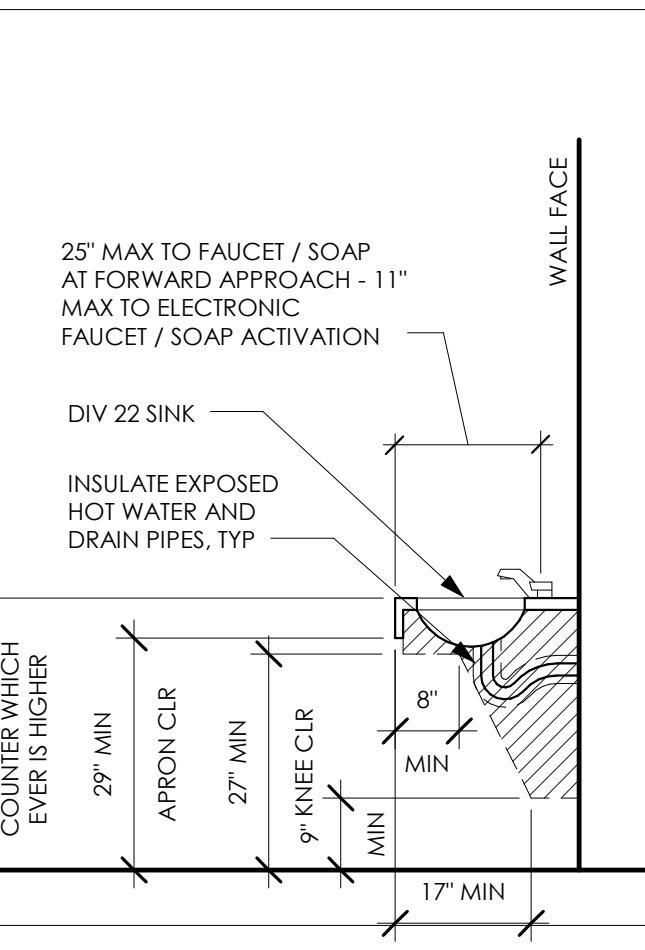
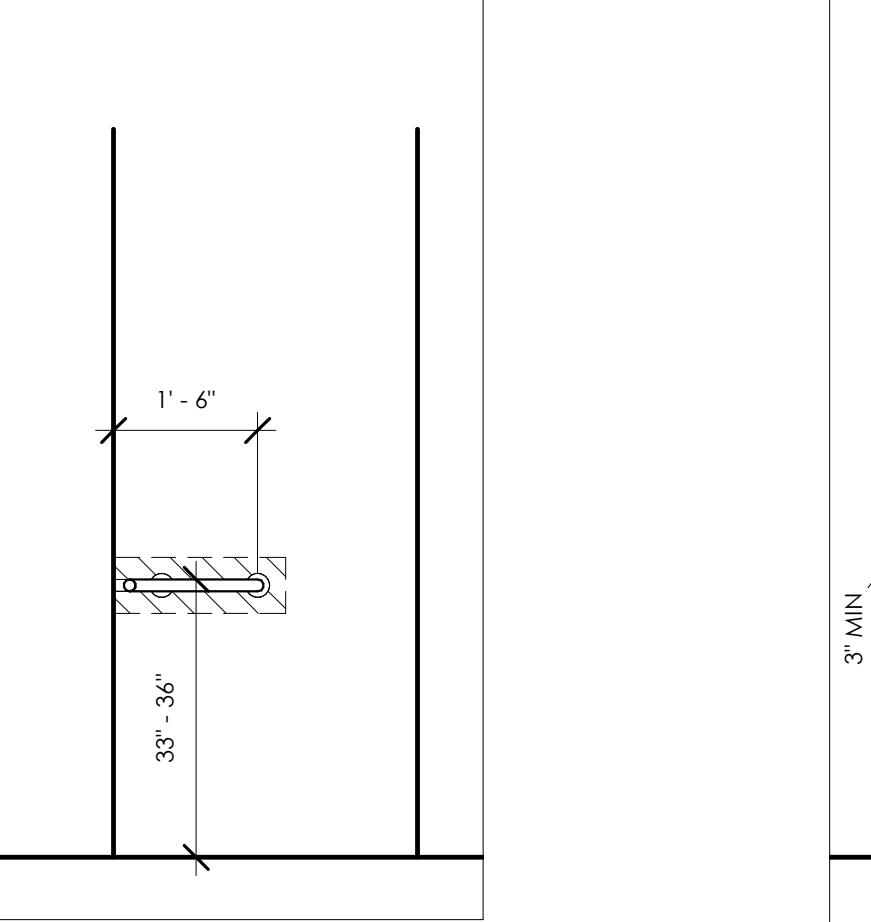
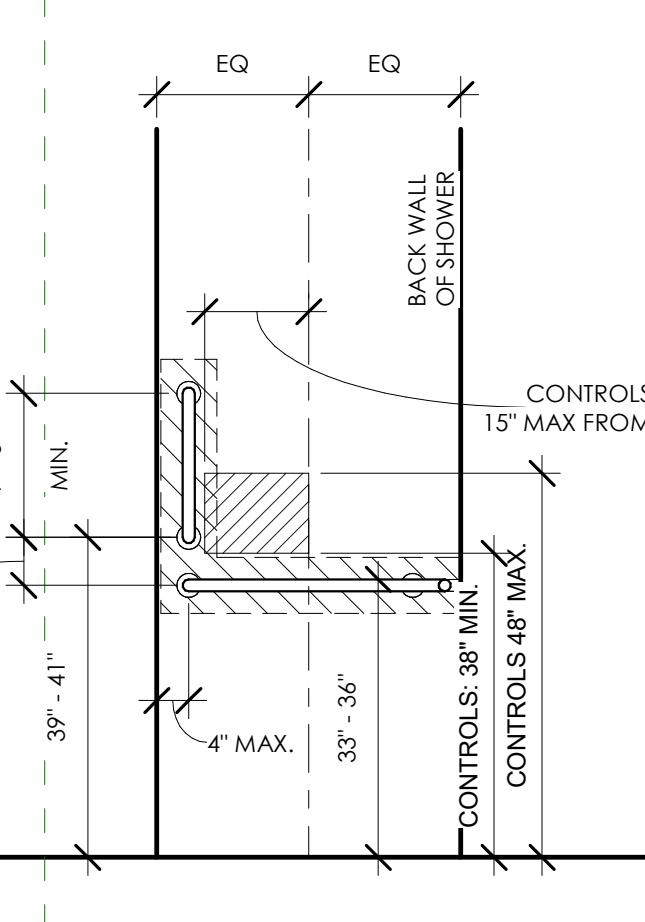
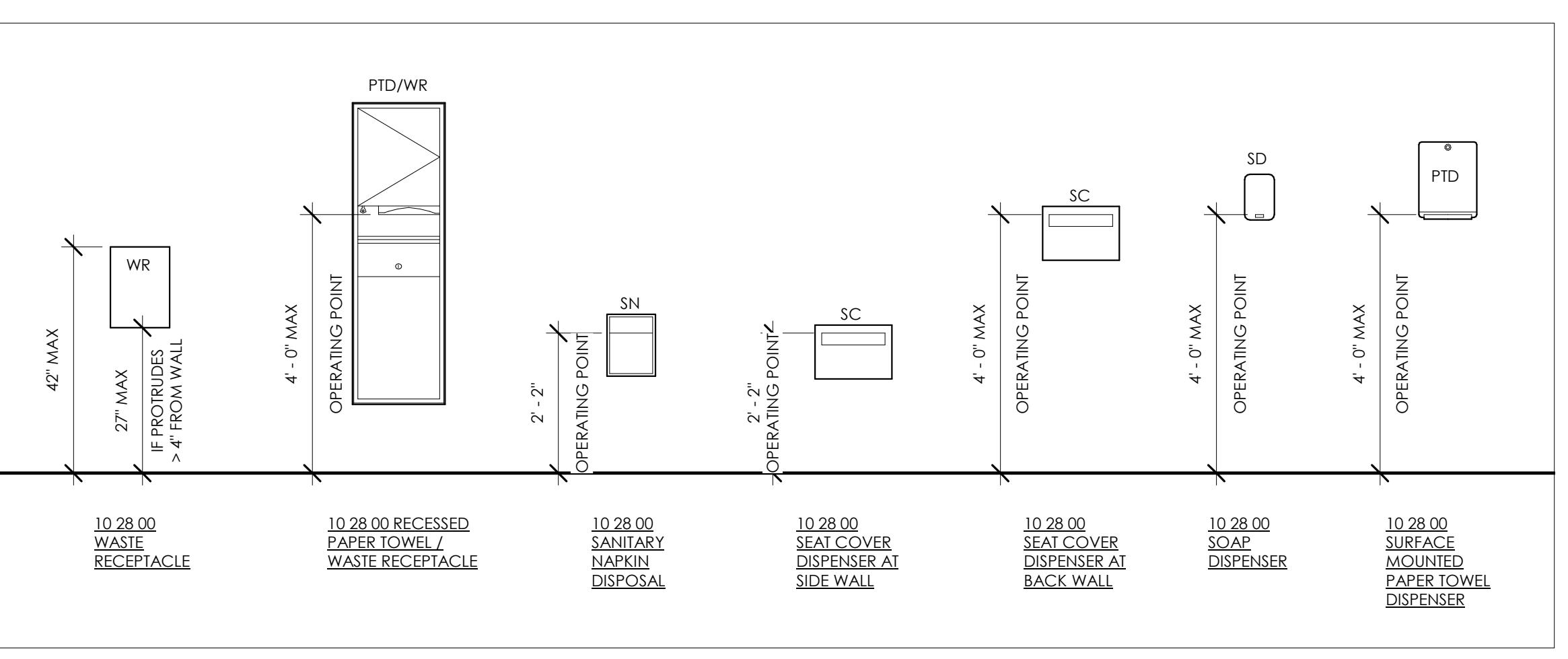
Date 04.10.2017 Description Early Start & Footing/Foundation



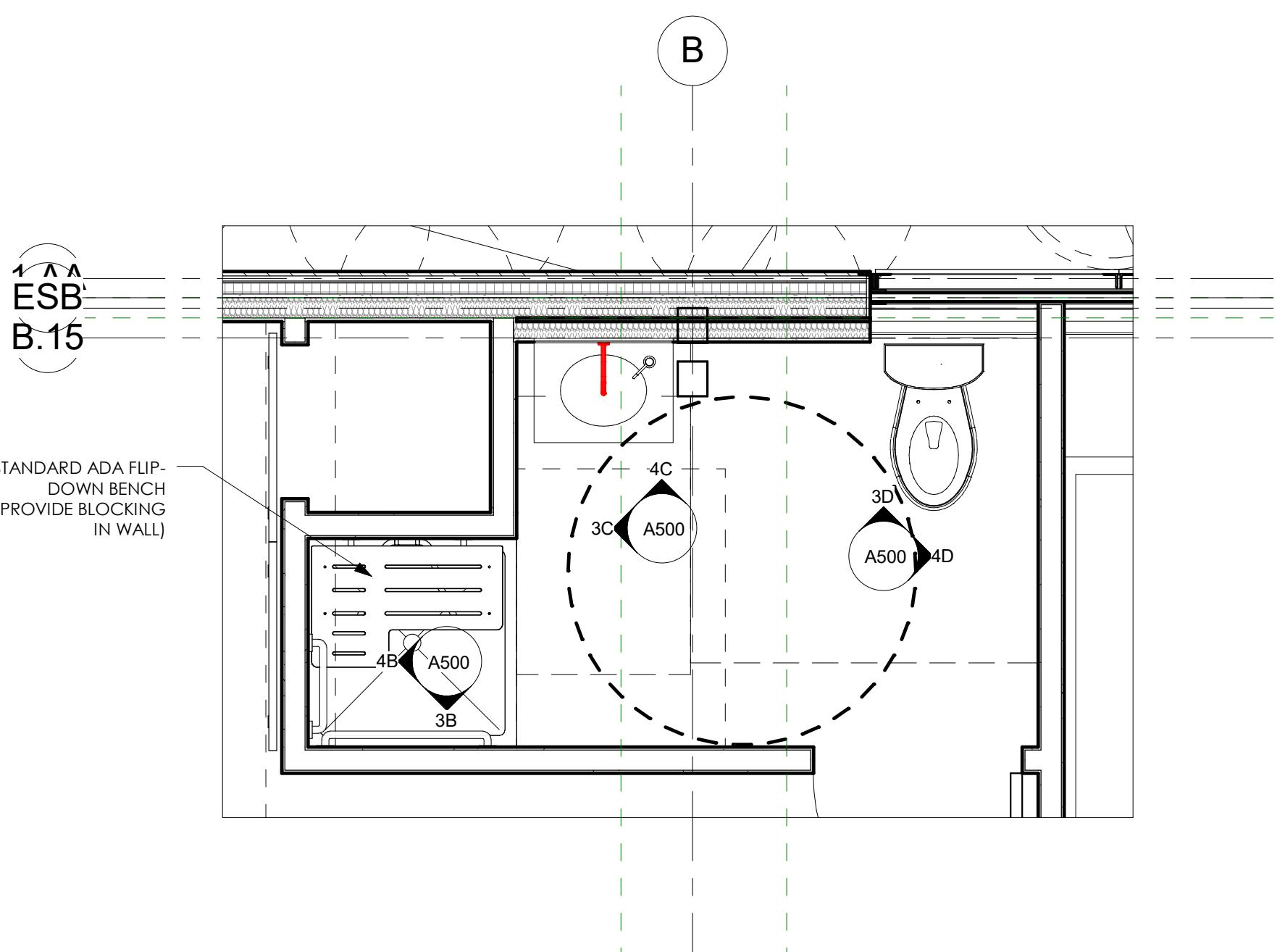
EXTERIOR DETAILS
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147



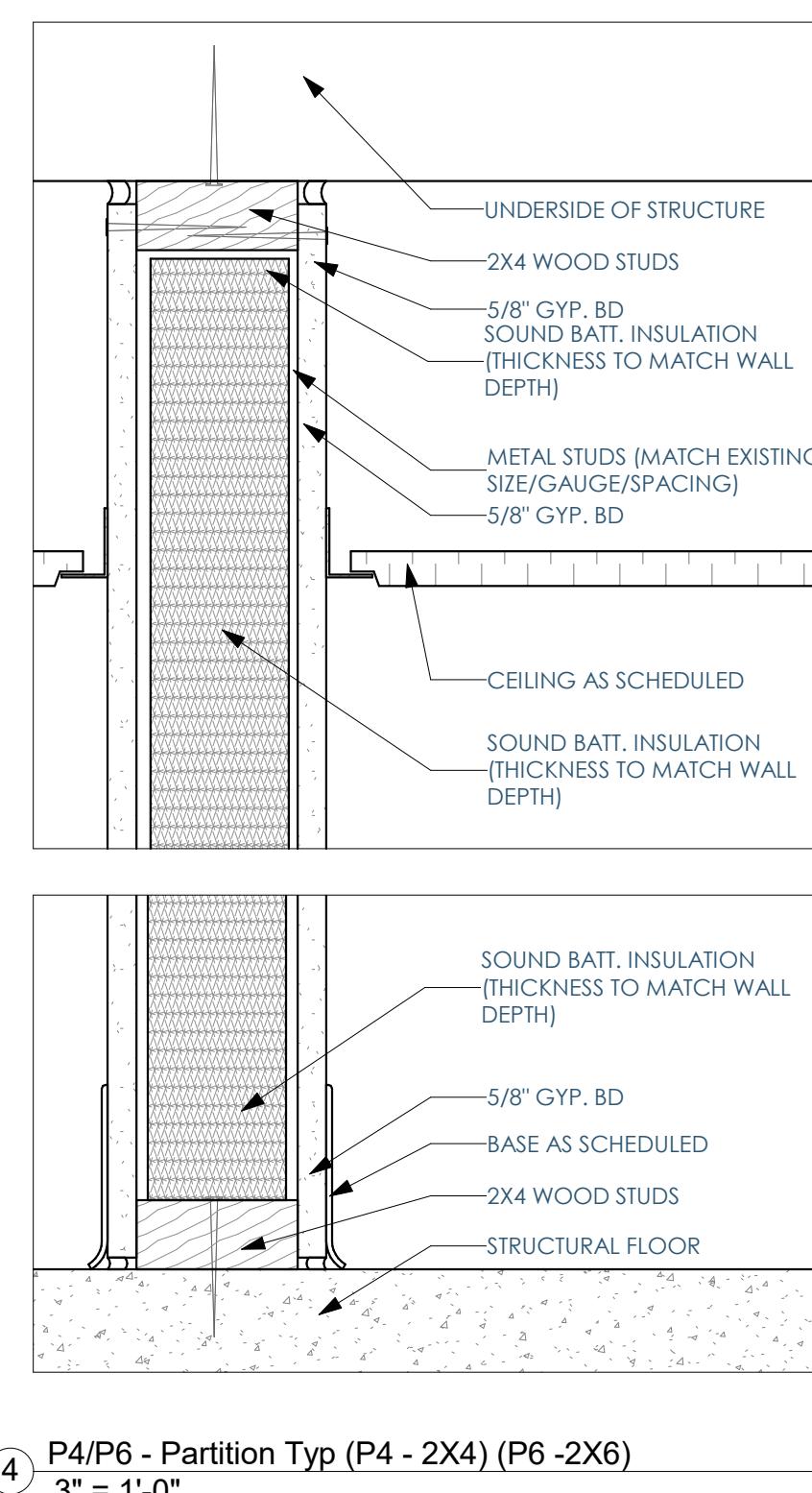
Date	05.03.2017
Description	Issue for Permit

4D Toilet - Side Elevation
1/2" = 1'-0"3D Toilet - Front Elevation
1/2" = 1'-0"4C Lavatory - Front Elevation
1/2" = 1'-0"3C Lavatory - Side Elevation
1/2" = 1'-0"4B Shower - Back Elevation
1/2" = 1'-0"3B Shower - Side Elevation
1/2" = 1'-0"(3) ADA COMPLIANT HEIGHTS
1/2" = 1'-0"

DOOR SCHEDULE					DOOR SCHEDULE	
Door Number	Room Name	Room Number	Door Width	Height	OD_DS_Door_Type	Notes
8000	BASEMENT	B000	3'-0"	6'-8"	SWING	T.B.D.
203.A	BATH	203.A	2'-8"	6'-4"	SIDER	T.B.D.
204.A	BATH	204.A	2'-8"	6'-4"	SIDER	T.B.D.
203.B	BATH	203.B	5'-6"	6'-5 3/8"	SIDER	T.B.D.
204.B	BATH	204.B	2'-10"	6'-5 3/8"	SWING	T.B.D.
100.A	BATH	100.A	2'-8"	6'-4"	SIDER	T.B.D.
101.A	BATH	101.A	2'-8"	6'-4"	SIDER	T.B.D.
104.A	BATH	104.A	2'-8"	6'-4"	SIDER	T.B.D.
105.A	BATH	105.A	2'-8"	6'-4"	SIDER	T.B.D.
103.A	BATH (ADA)	103.A	3'-0"	6'-8"	SWING	T.B.D.
104.B	BEDROOM	104	3'-0"	6'-8"	SWING	T.B.D.
101	BEDROOM	101	3'-0"	6'-8"	SWING	T.B.D.
102	BEDROOM	102	3'-0"	6'-8"	SWING	T.B.D.
105.A	BEDROOM	105	3'-0"	6'-8"	SWING	T.B.D.
203	BEDROOM	203	3'-0"	6'-8"	SWING	T.B.D.
204	BEDROOM	204	3'-0"	6'-8"	SWING	T.B.D.
105.D	BEDROOM	105	3'-4"	7'-9"	DOUBLE HUNG WINDOW - STOREFRONT	ALUM./GLAZIN G
104.C	BEDROOM	104	3'-4"	7'-9"	DOUBLE HUNG WINDOW - STOREFRONT	ALUM./GLAZIN G
105.C	BEDROOM	105	3'-4"	7'-9"	STOREFRONT	ALUM./GLAZIN G
105.E	BEDROOM	105	3'-4"	7'-9"	DOUBLE HUNG WINDOW - STOREFRONT	ALUM./GLAZIN G
103.A	BEDROOM (ADA)	103	3'-0"	6'-8"	SWING	T.B.D.
103.B	BEDROOM (ADA)	103	3'-0"	6'-8"	SWING	T.B.D.
103.C	BEDROOM (ADA)	103	3'-0"	7'-9"	STOREFRONT	ALUM./GLAZIN G
101.B	CLOSET	101.B	2'-2"	6'-4"	SIDER	T.B.D.
100.B	CLOSET	100.B	2'-2"	6'-4"	SIDER	T.B.D.
104.B	CLOSET	104.B	2'-2"	6'-4"	SIDER	T.B.D.
105.B	CLOSET	105.B	2'-2"	6'-4"	SIDER	T.B.D.
102.A	CLOSET	102.A	2'-2"	6'-4"	SIDER	T.B.D.
205.A	CLOSET	205.A	2'-2"	6'-4"	SIDER	T.B.D.
102.B	CLOSET	102.B	2'-2"	6'-4"	SIDER	T.B.D.
100	CORRIDOR	106	3'-0"	6'-8"	SWING	T.B.D.
106.B	CORRIDOR	106	7'-6"	6'-5 3/8"	SIDER	T.B.D.
106	CORRIDOR	106	3'-4"	7'-9"	STOREFRONT	ALUM./GLAZIN G
201	DINING/KITCHEN	201	3'-0"	7'-11 1/2"	STOREFRONT	ALUM./GLAZIN G
109	OUTDOOR DECK	109	3'-0 1/2"	1'-11	GATE DOOR	WOOD
8001	OUTDOOR STOPOVER UNDER DECK	8001	2'-8"	1'-11 1/2"	GATE DOOR	WOOD
208.A	SCREENED PATIO	208	3'-1"	7'-0"	STOREFRONT	ALUM./GLAZIN G
208.B	SCREENED PATIO	208	3'-0"	7'-0"	STOREFRONT	ALUM./GLAZIN G
208.C	SCREENED PATIO	208	3'-0"	7'-6"	SWING	WOOD - SCREEN
108	STAIR	108	3'-0"	7'-0"	STOREFRONT	ALUM./GLAZIN G
205	STORAGE	205	2'-10"	6'-8"	SWING	T.B.D.

(1) ADA (TYPE A) RESTROOM PLAN
1/2" = 1'-0"

Window Schedule			
Type Mark	Width	Height	Type Comments
W1	3'-1"	3'-1"	Fiberglass and Fibrex clad wood awning window
W1	3'-1"	3'-1"	Fiberglass and Fibrex clad wood awning window
W1	3'-1"	3'-1"	Fiberglass and Fibrex clad wood awning window
W1	3'-1"	3'-1"	Fiberglass and Fibrex clad wood awning window
W1	3'-1"	3'-1"	Fiberglass and Fibrex clad wood awning window
W1	3'-1"	3'-1"	Fiberglass and Fibrex clad wood awning window
W1	3'-1"	3'-1"	Fiberglass and Fibrex clad wood awning window

(4) P4/P6 - Partition Typ (P4 - 2X4) (P6 - 2X6)
3" = 1'-0"

WIND LOAD INFORMATION:

BASIC WIND SPEED	90 MPH
BUILDING OCCUPANCY CATEGORY	II
WIND LOAD IMPORTANCE FACTOR (Iw)	1.00
WIND EXPOSURE	B
INTERNAL PRESSURE COEFFICIENTS	±.18
COMPONENTS AND CLADDING (GROSS WIND PRESSURES): (FOR ZONE DEFINITIONS & DIAGRAMS SEE DESIGN GUIDE ASCE/SEI 7 SECTION 6) WIDTH OF PRESSURE COEFFICIENT ZONE (a)	4 ft
TRIBUTARY WIND LOAD AREAS: 10 ft ² 50 ft ² 100 ft ²	
ROOF (GABLE/HIP/MONOSLOPE):	
NEGATIVE ZONE 1	-18.4 psf -17.2 psf -16.7 psf
NEGATIVE ZONE 2	-32.1 psf -26.1 psf -23.5 psf
NEGATIVE ZONE 3	-47.4 psf -40.3 psf -37.2 psf
POSITIVE PRESSURE ALL ZONES	11.6 psf 10.0 psf 10.0 psf
WALLS:	
ZONE 4	-21.8 psf -20.2 psf -18.8 psf
ZONE 5	-27.0 psf -23.6 psf -20.9 psf
OVERHANGS/CANOPIES:	
ZONE 1,2	-37.5 psf -37.5 psf -37.5 psf
ZONE 3	-63.1 psf -48.8 psf -45.2 psf

SEISMIC LOAD INFORMATION:

SEISMIC USE GROUP / OCCUPANCY CATEGORY	II
SEISMIC LOAD IMPORTANCE FACTOR (Ie)	1.00
SEISMIC SITE CLASS	D
MAPPED SPECTRAL RESPONSE ACCELERATION (Ss)	10.40
MAPPED SPECTRAL RESPONSE ACCELERATION (S1)	4.40
SPECTRAL RESPONSE COEFFICIENT (Sds)	0.111
SPECTRAL RESPONSE COEFFICIENT (Sd1)	0.070
SEISMIC DESIGN CATEGORY	A
BASIC SEISMIC FORCE RESISTING SYSTEM	LIGHT FRAME SHEAR WALLS
RESPONSE MODIFICATION FACTOR	2.5
SEISMIC RESPONSE COEFFICIENT (Cs)	0.044
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE

SNOW LOAD INFORMATION:

GROUND SNOW LOAD (Pg)	30 psf
SNOW EXPOSURE FACTOR (Ce)	1.00
SNOW LOAD IMPORTANCE FACTOR (Is)	1.00
THERMAL FACTOR (Ct)	1.10
1.20 AT OVERHANGS	
DESIGN/BALANCED SNOW LOAD (Ps)	30 psf

SOIL LOAD INFORMATION:

COEFFICIENT OF SLIDING FRICTION (μ)	0.40
LATERAL EARTH PRESSURE:	
ACTIVE	35 pcf
AT-REST	55 pcf
PASSIVE	200 pcf
ALLOWABLE NET SOIL BEARING PRESSURE (PRESUMED)	$Q_a = 1750 \text{ psf}$
MODULUS OF SUB-GRADE REACTION	$k = 125 \text{ pci}$
FROST DEPTH	42"

LIVE LOADS:

FLOOR UNLESS NOTED	40 psf + 1 psf PARTITION
PATIO/BALCONIES	75 psf
ROOF	SEE SNOW LOAD INFO

MATERIAL DESIGN PROPERTIES

CIP CONCRETE STRENGTHS:	
FOOTINGS	$f'_c = 3000 \text{ psi}$
CONCRETE WALLS / PIERS / COLUMNS	$f'_c = 3500 \text{ psi}$
SLAB ON GRADE	$f'_c = 3500 \text{ psi}$
EXTERIOR SLAB ON GRADE	$f'_c = 4000 \text{ psi}$
REINFORCING STEEL STRENGTHS:	
BARS (ASTM A 615, grade 60)	$F_y = 60,000 \text{ psi}$
WWF (ASTM A 185)	$F_y = 65,000 \text{ psi}$
STRUCTURAL STEEL STRENGTHS:	
WF SHAPES (ASTM A992)	$F_y = 50,000 \text{ psi}$
ANGLES, CHANNELS, PLATES, & BARS (ASTM A36)	$F_y = 36,000 \text{ psi}$
SQUARE & RECTANGULAR TS OR HSS SECTIONS (ASTM A500, grade B)	$F_y = 46,000 \text{ psi}$
ROUND HSS SECTIONS (ASTM A500, grade B)	$F_y = 42,000 \text{ psi}$
STEEL PIPE (ASTM A53, grade B)	$F_y = 35,000 \text{ psi}$
HIGH STRENGTH BOLTS (ASTM A325)	$F_y = 36,000 \text{ psi}$
ANCHOR BOLTS (ASTM F1554)	
WELD ELECTRODES	E70 XX
HEADED WELDED STUDS (ASTM A108)	$F_u = 55,000 \text{ psi}$
WOOD STRENGTHS:	
DIMENSIONAL LUMBER (SEE PLANS & WOOD FRAMING NOTES)	
LAMINATED VENEER LUMBER:	$E = 1,900 \text{ ksi}$ $F_b = 2,600 \text{ psi}$ $F_v = 285 \text{ psi}$ $F_c(\text{perp}) = 750 \text{ psi}$ $F_c(\text{para}) = 2,510 \text{ psi}$
PARALLEL STRAND LUMBER:	$E = 2,000 \text{ ksi}$ $F_b = 2,900 \text{ psi}$ $F_v = 290 \text{ psi}$ $F_c(\text{perp}) = 750 \text{ psi}$ $F_c(\text{para}) = 2,900 \text{ psi}$
GLULAMINATED LUMBER	WESTERN SPECIES BALANCED CONDITION 24F-1.8E WS
LAMINATED STRAND LUMBER:	$E = 1,500 \text{ ksi}$ $F_b = 2,250 \text{ psi}$ $F_v = 400 \text{ psi}$ $F_c(\text{perp}) = 750 \text{ psi}$ $F_c(\text{para}) = 1,950 \text{ psi}$

EARTHWORK NOTES

- AN ALLOWABLE SOIL BEARING PRESSURE OF 1750 psf HAS BEEN PRESUMED. CONTRACTOR TO FIELD VERIFY ALLOWABLE SOIL BEARING PRESSURE AT THE TIME OF EXCAVATION BY ENGAGING THE SERVICES OF A GEOTECHNICAL ENGINEER. CONTACT A/E FOR EVALUATION IF A LOWER SOIL BEARING PRESSURE IS ENCOUNTERED.
- ALL TOPSOIL, DEBRIS, SILTS, AND ORGANIC MATERIAL SHALL BE STRIPPED AND REMOVED FROM LIMITS OF EXCAVATIONS AND EXISTING SUBGRADE SHALL BE COMPAKTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY PRIOR TO PLACEMENT OF FILL MATERIAL.
- FILL MATERIAL SHALL BE PLACED AND COMPAKTED IN LIFTS NO THICKER THAN 8". EACH LIFT SHALL MEET COMPAKTION REQUIREMENTS PRIOR TO PLACEMENT AND COMPAKTION OF ADDITIONAL LIFTS.
- FILL MATERIAL SHALL BE PLACED AND COMPAKTED AT +1% TO -4% OPTIMUM MOISTURE CONTENT TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY, UNLESS RECOMMENDED OTHERWISE BY A QUALIFIED SOILS ENGINEER.
- UNSATISFACTORY SOILS LOCATED BELOW FOUNDATIONS SHALL BE REMOVED AND

GENERAL FOUNDATION NOTES

- PROTECT IN-PLACE FOUNDATIONS AND SLABS ON GRADE FROM FROST PENETRATION UNTIL PROJECT COMPLETION

CAST-IN-PLACE CONCRETE NOTES

- DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST PROVISIONS OF ACI 318/318R.
- CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AT LEAST 48 HOURS PRIOR TO PLACING CONCRETE TO FACILITATE ON SITE OBSERVATION OF REBAR.
- ARRANGEMENT AND BENDING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL (ACI SP-66), LATEST EDITION.
- WHEN THE AVERAGE TEMPERATURE FROM MIDNIGHT TO MIDNIGHT IS EXPECTED TO DROP BELOW 40 DEGREES FAHRENHEIT FOR THREE SUCCESSIVE DAYS, COLD WEATHER CONCRETING REQUIREMENTS MUST BE FOLLOWED.
- WHEN AMBIENT AIR OR CONCRETE TEMPERATURES EXCEED 90 DEGREES FAHRENHEIT, STEEL REINFORCING AND/OR FORMING SURFACES ARE ABOVE 120 DEGREES, OR WHEN WIND VELOCITY, HUMIDITY, OR SOLAR RADIATION CREATE CONDITIONS OF ACCELERATED MOISTURE LOSS AND INCREASED RATE OF HYDRATION, HOT WEATHER CONCRETING REQUIREMENTS SHALL BE FOLLOWED.
- ALL HOOKS IN STEEL REINFORCING SHALL BE ACI STANDARD HOOKS, UNLESS NOTED OTHERWISE IN CONSTRUCTION DOCUMENTS.
- ALL CONCRETE SURFACES SHALL BE FORMED, UNLESS OTHERWISE NOTED.
- CONTROL JOINTS SHALL BE PLACED IN SLAB ON GRADE AND SLAB ON METAL DECK CONSTRUCTION WITHIN 24 HOURS OF INITIAL POUR.
- WIRE SPACERS, CHAIRS, TIES, ETC., FOR SUPPORT OF STEEL REINFORCING SHALL BE PROVIDED BY THE CONTRACTOR TO ENSURE REINFORCING IS PLACED IN THE PROPER POSITION DURING CONCRETE PLACEMENT.
- STEEL REINFORCING SPLICES OF ADJACENT BARS SHALL BE STAGGERED SUCH THAT SPLICES ARE 4 FEET APART, MINIMUM.
- WELDED WIRE REINFORCING SHALL BE IN FLAT SHEETS ONLY, AND LAPPED A MINIMUM OF 6 INCHES.
- WELDING OF STEEL REINFORCING IS NOT PERMITTED.
- SLEEVES, CONDUITS, OR PIPES THROUGH SLABS AND WALLS SHALL BE PLACED AT THREE DIAMETERS ON CENTER, OR 4 INCHES MINIMUM.
- ALUMINUM CONDUIT OR PIPING SHALL NOT BE CAST IN CONCRETE.
- PROVIDE A 3/4" CHAMFER ON EXPOSED CORNERS OF CONCRETE UNO. TOP EDGES OF WALLS SHALL BE TOOLED UNO.

CAST-IN-PLACE CONCRETE TOLERANCES

CONCRETE COVER MEASURED PERPENDICULAR FROM THE SURFACE IN DIRECTION OF TOLERANCES:

MEMBERS 12" OR LESS $\pm 3/8"$ MEMBERS OVER 12" $\pm 1/2"$

STEEL REINFORCEMENT SPACING SHALL BE WITHIN THE FOLLOWING TOLERANCES:

1/4" SPACING DISTANCE, NOT TO EXCEED 1"

PLACEMENT OF EMBEDDED ITEMS SHALL BE WITHIN THE FOLLOWING TOLERANCES:

VERTICAL ALIGNMENT $\pm 1"$ LATERAL ALIGNMENT $\pm 1"$ LEVEL ALIGNMENT $\pm 1"$

PLACEMENT OF FOOTINGS SHALL BE WITHIN THE FOLLOWING TOLERANCES:

FORMED FOOTINGS $\pm 2"$ TO -1/2"EARTHCAST FOOTINGS: $\pm 3"$ TO -1/2"GREATER THAN 2' BUT LESS THAN 6' $\pm 6"$ TO -1/2"GREATER THAN 6' $\pm 12"$ TO -1/2"FOOTING THICKNESS $\pm 5%$

TOP OF FOOTING SLOPE 1" IN 10"

MILD STEEL PROTECTION

FOOTINGS - BOTTOM & SIDES	3"
FOOTING - TOP	2"
PERIMETER WALLS - #5 & SMALLER	1 1/2"
PERIMETER WALLS - #6 & LARGER	2"
INTERIOR WALLS	3/4"
BEAMS, PIERS, & COLUMNS	1 1/2"
SLABS - BOTTOM & SIDES	1"
SLABS - TOP	3/4"

LAMINATED WOOD STORAGE / ERECTION NOTES:

- JOB-SITE STORAGE SHALL BE PROVIDED IN A LEVEL AREA TO PREVENT WARPAGE. MEMBERS SHALL BE SUPPORTED WITH BLOCKING SPACED TO PROVIDE UNIFORM AND ADEQUATE SUPPORT.
- MATERIAL SHALL BE BLOCKED WELL OFF THE GROUND AND SEPARATED WITH STRIPPING TO ALLOW AIR CIRCULATION AROUND ALL FOUR SIDES OF EACH MEMBER.
- INDIVIDUAL MEMBER WRAPPINGS SHALL BE SLIT OR PUNCTURED ON THE LOWER SIDE TO ALLOW DRAINAGE OF WATER.
- MATERIAL SHALL BE STORED BENEATH AN OPAQUE, MOISTURE-RESISTANT COVERING UNTIL ERECTED.
- PADDED OR NOMMARRING SLINGS SHALL BE USED FOR ERECTION, AND CORNERS SHALL BE PROTECTED WITH WOOD BLOCKING.
- PROVIDE ADEQUATE TEMPORARY BRACING UNTIL THE ROOF STRUCTURE IS SHEATHED.
- MODERATE USE OF DRIFT PINS, MODERATE REAMING, AND SLIGHT CUTTING ARE ACCEPTABLE MEANS OF CORRECTION FOR PROPER ASSEMBLY AND FITTING. CONTACT PIERCE ENGINEERS FOR METHOD OF CORRECTION IF ERROR OR MATERIAL DEFECTS DO NOT ALLOW PROPER ASSEMBLY.
- HEAT SHOULD NOT BE FULLY TURNED ON AS SOON AS THE STRUCTURE IS ENCLOSED. EXCESSIVE CHECKING MAY OCCUR DUE TO RAPID LOWERING OF THE RELATIVE HUMIDITY IN THE BUILDING. A GRADUAL SEASONING PERIOD AT MODERATE TEMPERATURE SHOULD BE PROVIDED.

FYF LLC.
Owner: FYF LLC,
43 S Water St E | Fort Atkinson, WI
ilovefunkys@hotmail.com

Zenteno Solutions
Plumbing Designer: Zenteno Solutions
1530 P B Lane # Z4646
WICHITA FALLS, TX 76302
roberto@zentenos.net | 832.449.9278

Desapex
#1075-B, 10th main, HAL 2nd stage,
Bengaluru -08
HVAC Designer: Desapex
shreenidhi@desapex.com

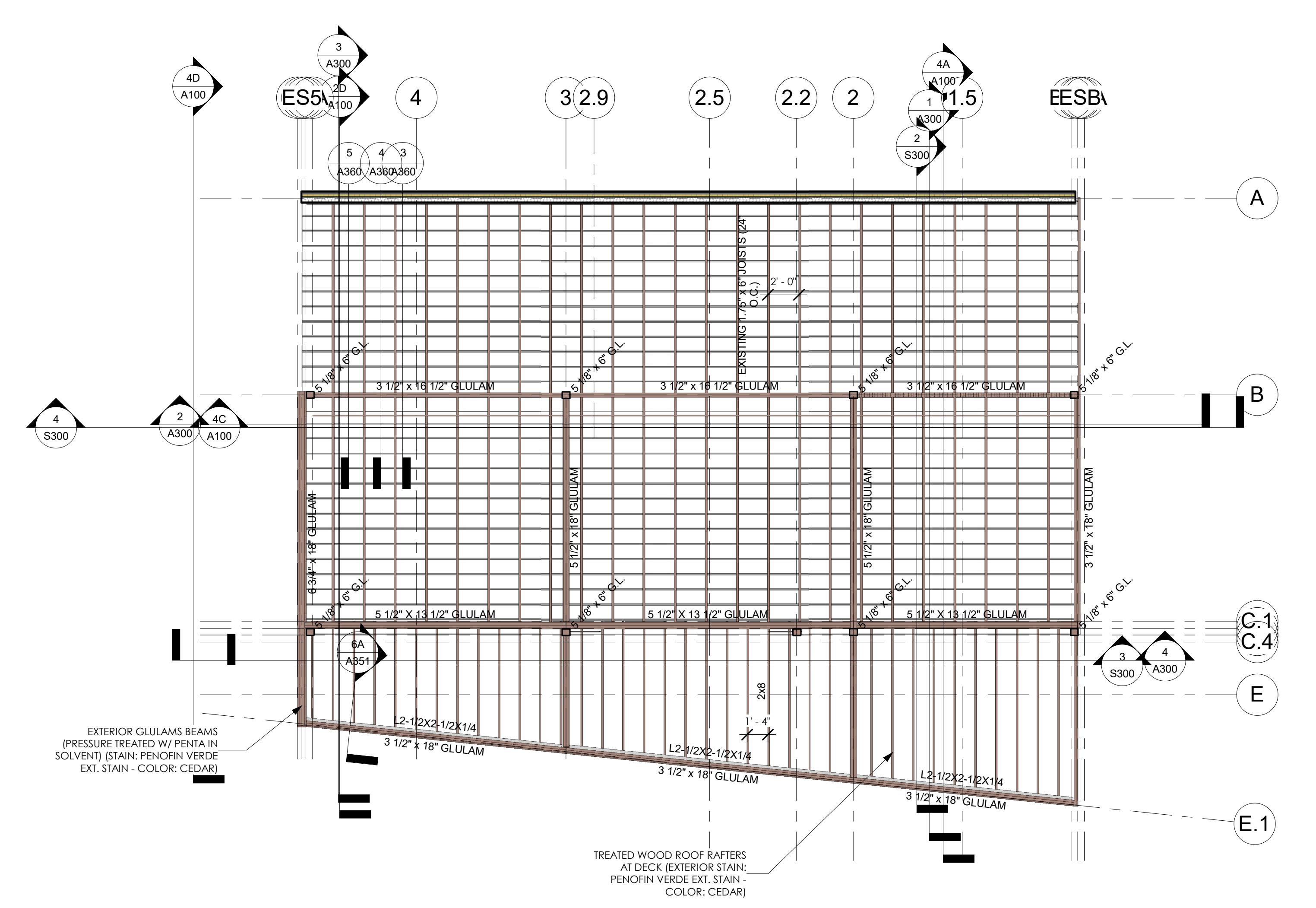
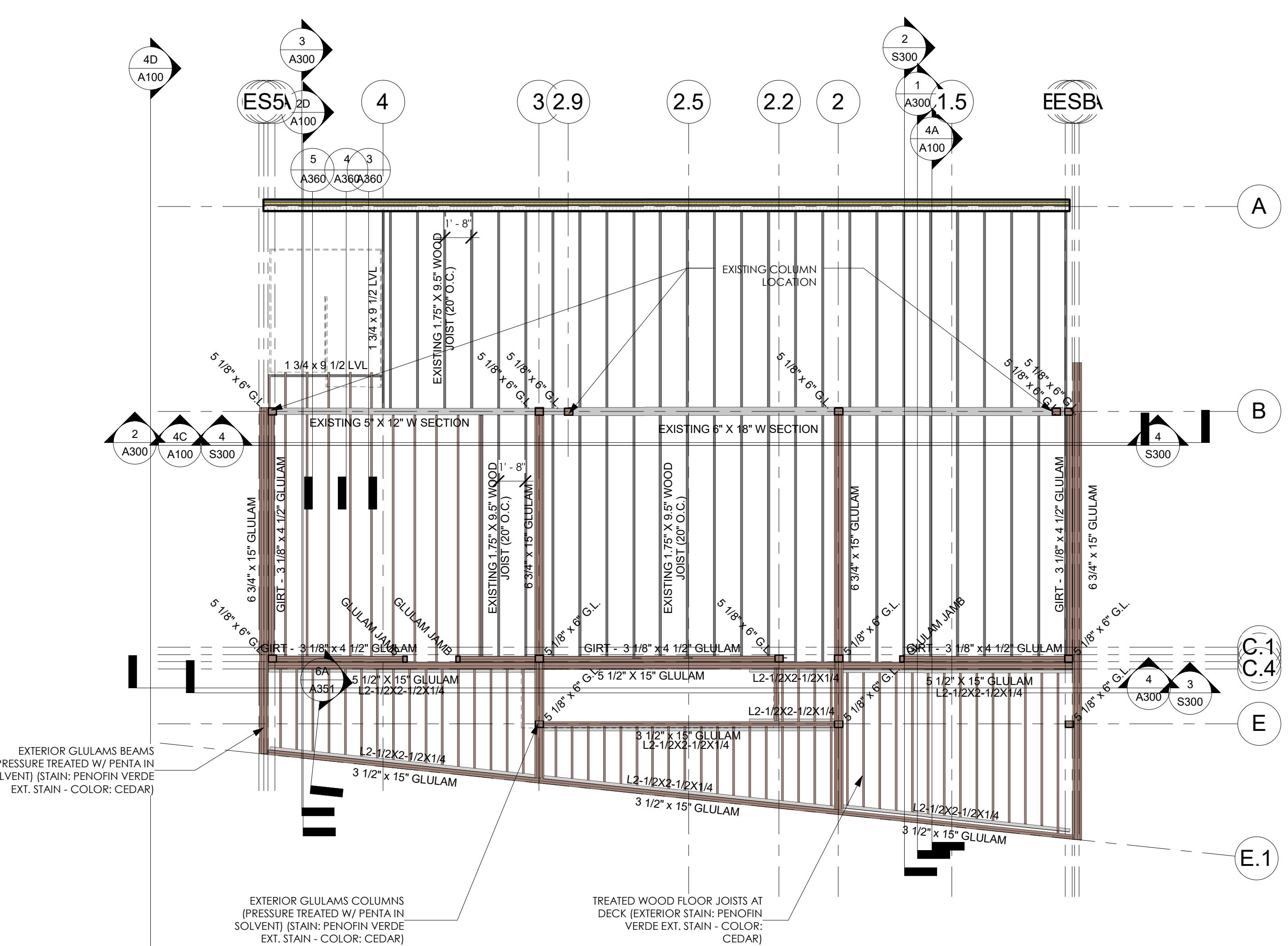
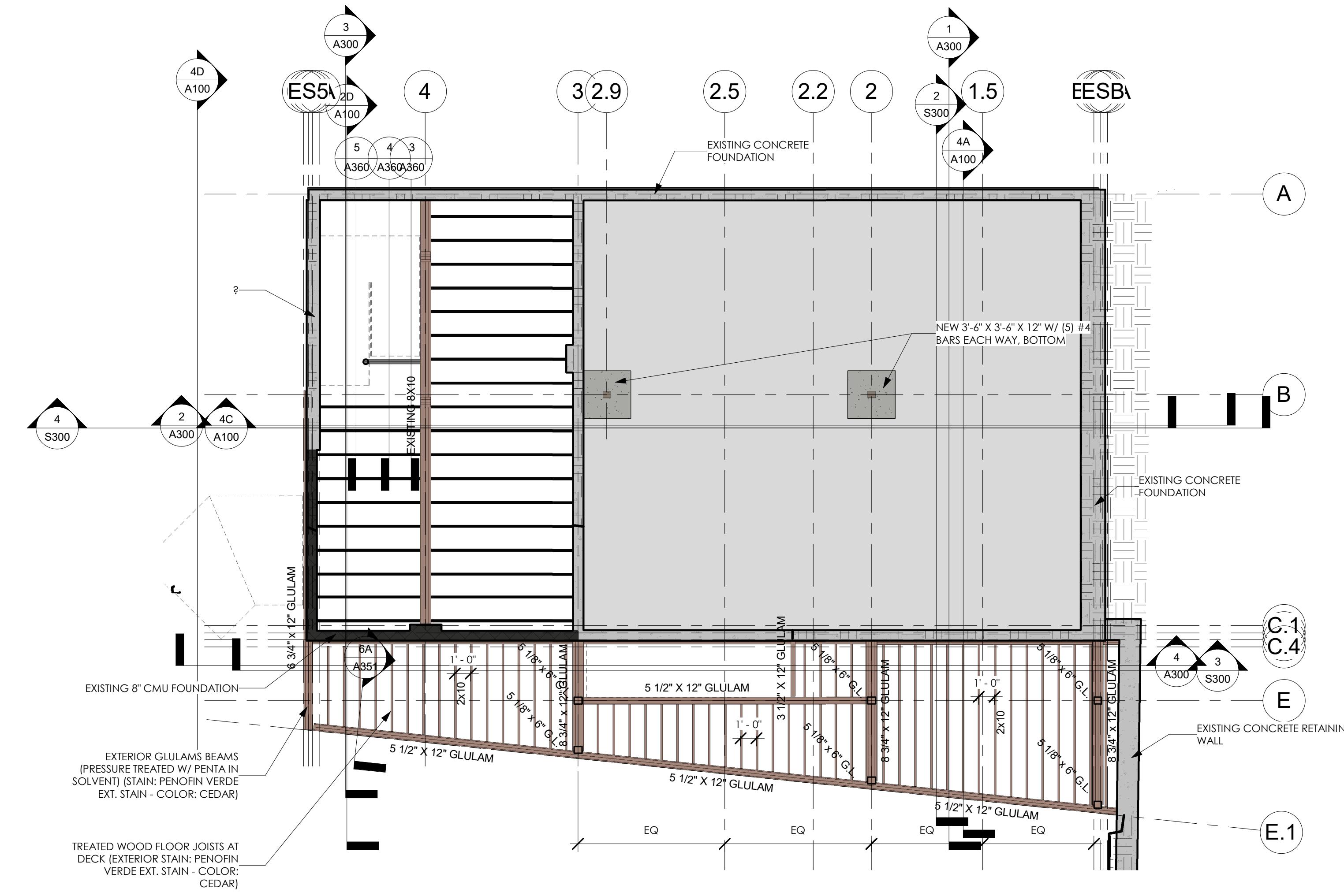
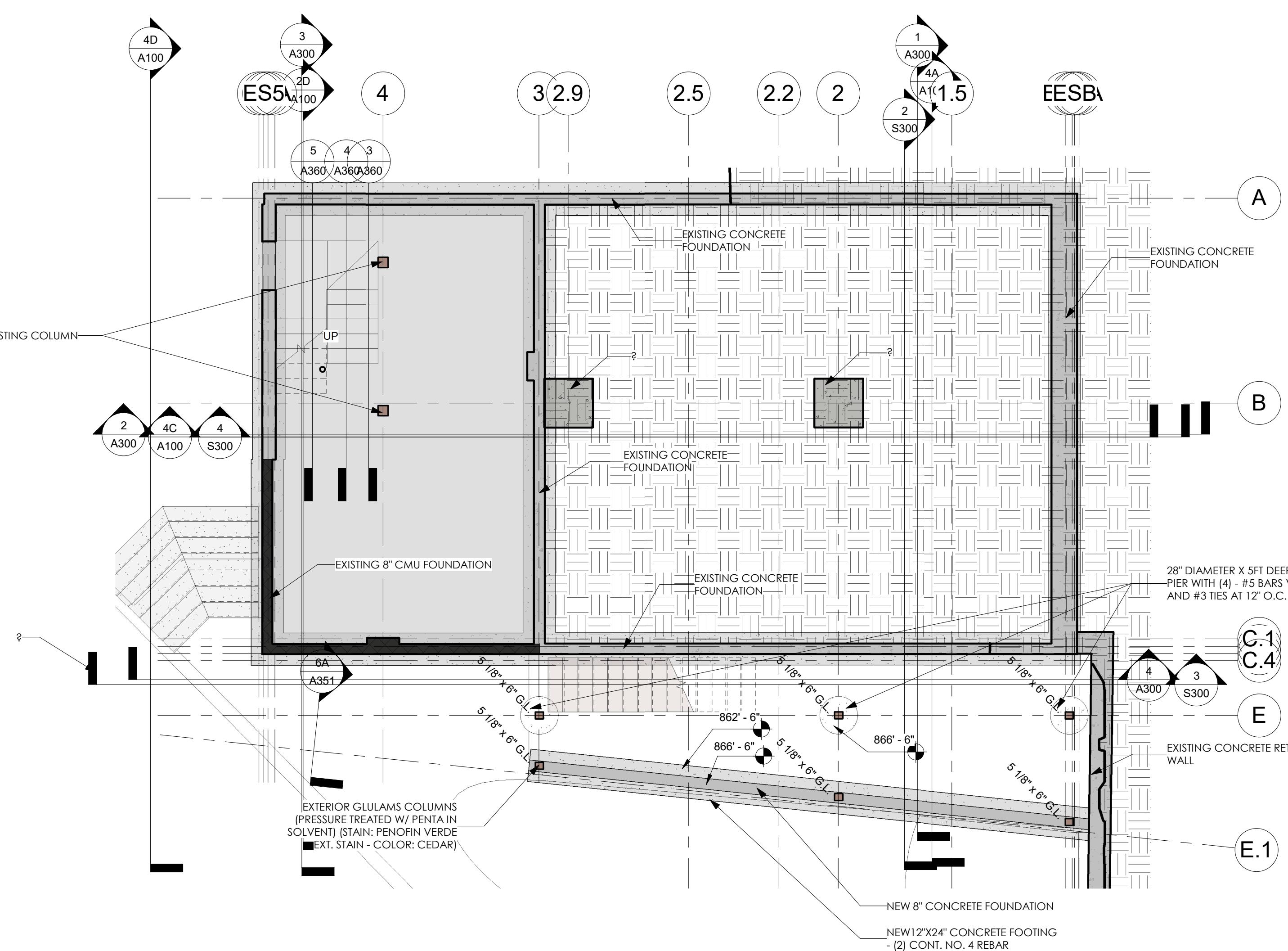
openingdesign
Architect: OpeningDesign
312 W. Lakeside St. | Madison, WI 53715
hello@openingdesign.com | 773-425-6456

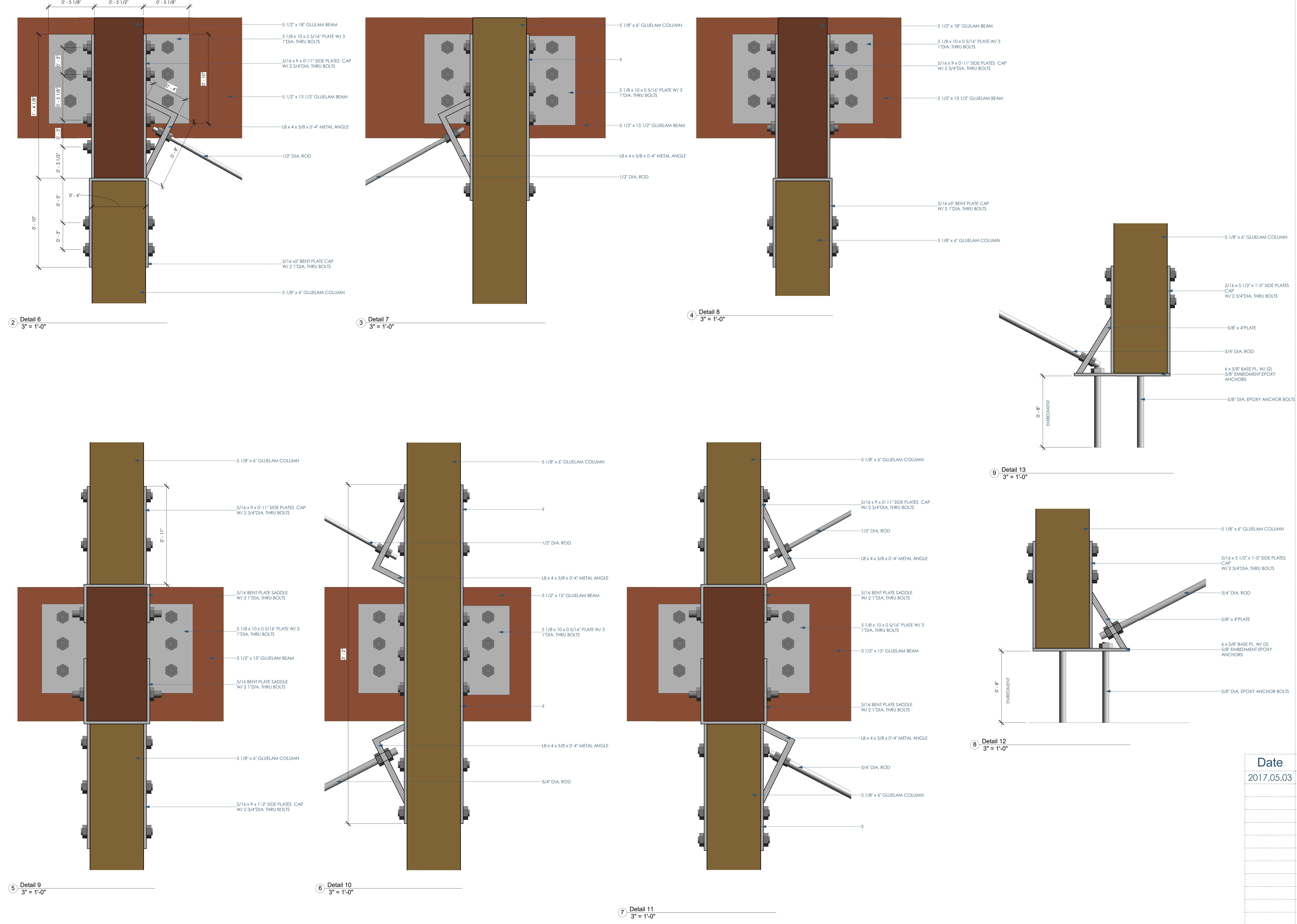
LAMINATED WOOD STRESS COMBINATIONS:

BEAMS 24F-1.8E(SIMPLE SPAN, 3500' RADIUS)
COLUMNS COMB 2

LAMINATED WOOD CONNECTION / HARDWARE NOTES:

- ALL CONNECTION PLATES SHALL BE FAB







HVAC Notes

HEATING VENTILATING AND AIR CONDITIONING SPECIFICATION

Provide all labour, material, equipment, and contractor's services necessary for complete installation of all work indicated in drawings or spelled out in the contract documents, in full conformity with requirements of Wisconsin building code and of all authorities having jurisdiction.

Secure permits, licenses, and certificates. Pay all fees and charges for all work installed certifying compliance with local codes and governing authorities. Deliver certificates to building owner prior to the commencement of work.

Contractor bidding this job shall visit and inspect the job site prior to submitting his bid. Contractor shall coordinate the site visit with building owner/architect. Contractor shall ask Architect/owner any questions he may have pertaining to building standards and existing conditions that may prohibit the proper installation of his work as per plan and specifications.

The removal and relocation of certain existing work may be necessary for performance of the general work. Contractor surveying the site shall provide all necessary changes required based on existing conditions for proper installation of new work and include all the materials and required labor to do so. No allowance will be made for failure to do so. Coordinate timetable for all construction operations with building owner.

Materials and workmanship, unless otherwise noted, shall be in accordance with building standards. All materials and equipment shall be new unless otherwise noted.

All duct work and piping is shown as design intent and does not show all offsets, drops and rises of runs. Contractor shall allow in his bid price for drops and rises of duct work and piping to avoid obstructions.

Install all work to be readily accessible for operation, maintenance and repair. Minor deviations from the drawings may be made to accomplish this, but changes which involve extra cost shall not be made without approval.

The contractor shall keep all equipment and materials and all parts of the building, exterior spaces and adjacent street, sidewalks and pavements, free from materials and debris resulting from the execution of this work. Excess materials and debris will not be permitted to accumulate either on the interior or the exterior. Provide for legal removal and disposal of all dirt and debris from the building and site. Seal openings around ducts and piping through partitions, walls, floors and slabs (not in shafts) with mineral wool or other non-combustible materials and finish as determined by architect or existing building standards.

Provide all necessary flashing and counter flashing to maintain the waterproofing integrity of this building as required by the installation or removal of pipes, ducts, conduits, and equipment. Provide sleeves for duct and piping and provide escutcheons.

Contractor to follow manufacturer's recommendations and building standards for proper installation of equipment.

Contractor to coordinate all floor, wall, and slab penetrations, and exact location support all ceiling-mounted equipment, ductwork and piping. To ensure fire safety, fire rating of the ceiling must be maintained. Existing overhead construction does not permit fastening of supports and equipment, please contact steel manager. For room-mounted equipment, provide appropriate pipe supports.

Contractor shall furnish and install all equipment, ductwork, interconnecting piping, and fittings; insulation, interlock and controls.

Equipment shall be handled and installed by the contractor. Contractor shall provide and install all interconnecting piping, refrigerant charge and control wiring as required for a complete and operable installation. This contractor is to assume complete responsibility for handling, installation and all piping connections as required.

This contractor shall provide and assume complete responsibility for start-up and 24-hour/day service with a response time not to exceed 4 hours. Provide a quote for maintenance on a quarterly basis (4 maintenance inspections a year) for a period of one year for all HVAC equipment including pre-purchased equipment as if said pre-purchased equipment were purchased by this contractor.

Contractor to provide a pressure relief valve on high pressure side of the system and update list of any new valves. All pressure relief valves, devices, and connections from air stream; install refrigeration piping of type "K" copper and to braze all connections and devices. Equipment exposed to natural elements shall be of welded or soldered construction and shall receive one (1) coat of primer and two (2) coats of paint.

This one year maintenance contract shall include, but is not limited to the following work:

1. Check lines for leakage of refrigerant/water.
2. Replace lines if necessary.
3. Lubricate compressors.
4. Check operation of thermostats.
5. Replace return air filters.
6. Clean condenser coils.
7. Check for loose electrical connections.
8. Check controls.
9. Check for noise and vibration.
10. Check for any damage during operation.
11. Check current (ampere) draw of all motors.
12. Check operation on condensate drain system.
13. Check and adjust fan belt tension (If applicable).
14. Check air temperature across evaporator.

A maintenance report shall be forwarded to the owner's facilities operation manager/team/company.

Guarantee:
Contractor shall furnish a written guarantee to replace or repair promptly, and assume full responsibility of all expenses incurred for any workmanship and/or equipment in which defects occur within one year from date of acceptance by owner.

Provide 2-color engraved nameplates (fastened with epoxy cement) on all major equipment items indicating unit number.

Submittal:
Submit coordinated shop drawings and equipment cuts for all equipment, diffusers/registers, automatic control diagrams, ductwork layout, piping layout, and sheet metal construction standards for review and approval prior to purchase, fabrication and installation.

All ductwork and equipment layout shall be submitted on a scale 1/4"=1'-0" drawings, and shall be coordinated and signed by all trades.

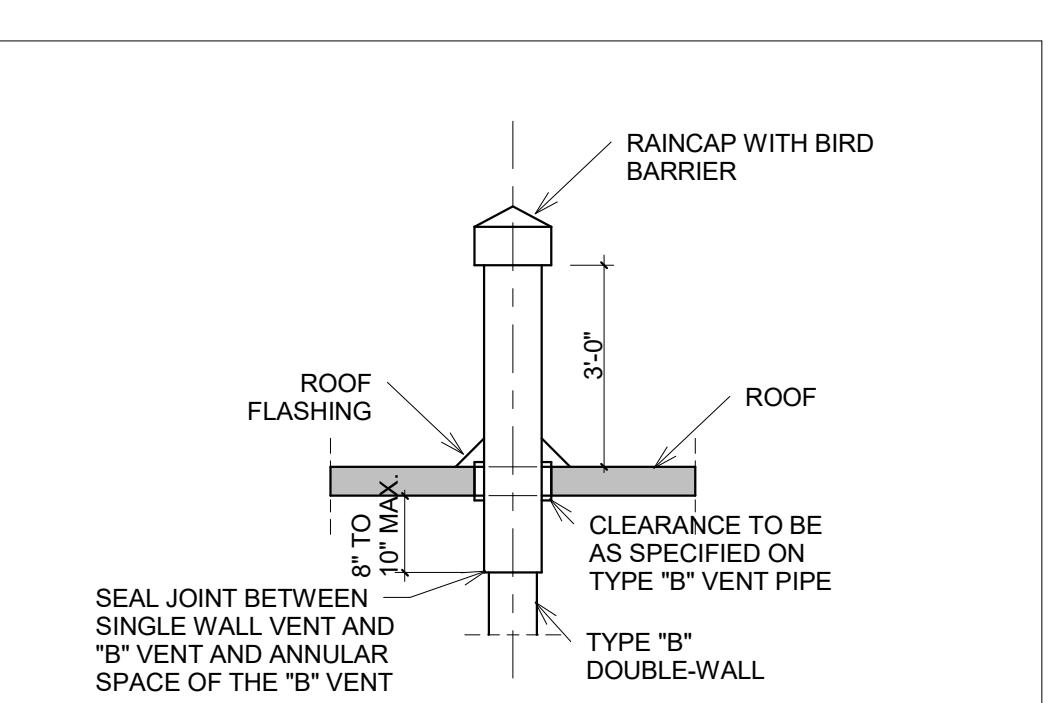
Show ductwork section of all existing and new equipment, existing work and new work.

Submit reproducible "as-built" record drawings for building files at completion of the project, to include ductwork, piping, and equipment drawings. Scale 1/4"=1'-0".

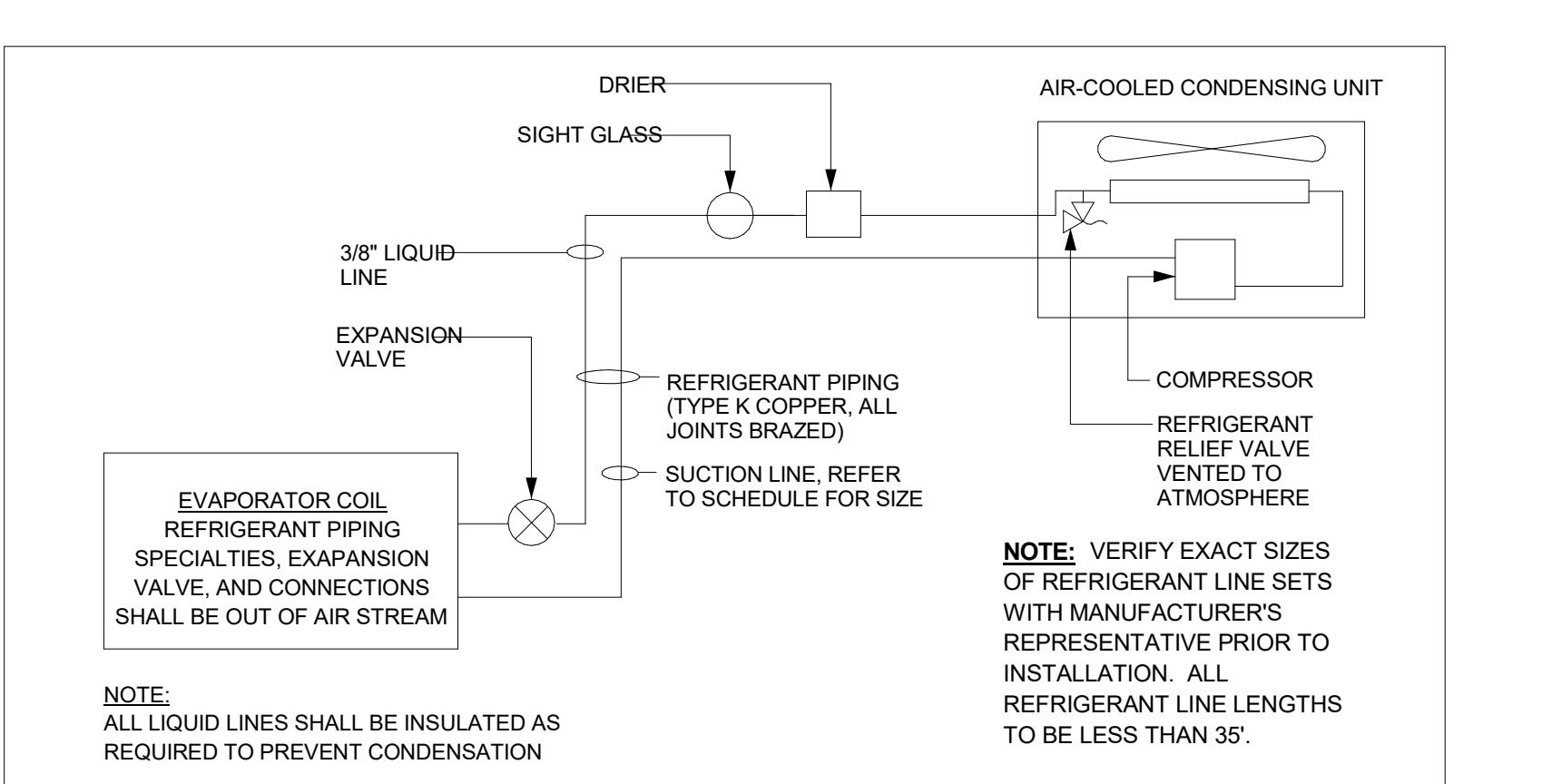
HVAC Notes

12" = 1'-0"

Ventilation & Air distribution schedule												
Level	Number	Name	Area	Max occupancy	Ventilation Air	Specified Lighting Load per area	Specified Power Load per area	Heating Supply Air	Cooling Supply Air	Heating Return Air	Cooling Return Air	Exhaust Air
1st Floor	100	BEDROOM	114 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	180 CFM	110 CFM	180 CFM	110 CFM	
1st Floor	101	BEDROOM	128 SF	2	0 CFM	1.00 W/ft ²	0.75 W/ft ²	110 CFM	110 CFM	110 CFM	110 CFM	
1st Floor	103.A	BATH (ADA)	54 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM	0 CFM	0 CFM	0 CFM	50 CFM
1st Floor	103	BEDROOM (ADA)	142 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	140 CFM	120 CFM	140 CFM	120 CFM	
1st Floor	106	CORRIDOR	168 SF	0	0 CFM	1.00 W/ft ²	0.00 W/ft ²	130 CFM	110 CFM	130 CFM	110 CFM	
1st Floor	104	BEDROOM	117 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	140 CFM	100 CFM	140 CFM	100 CFM	
1st Floor	105	BEDROOM	137 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	220 CFM	130 CFM	220 CFM	130 CFM	
1st Floor	100.A	BATH	37 SF	0	0 CFM	1.00 W/ft ²	0.00 W/ft ²	0 CFM	0 CFM	0 CFM	0 CFM	
1st Floor	101.A	BATH	37 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM	0 CFM	0 CFM	0 CFM	
1st Floor	104.A	BATH	40 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM	0 CFM	0 CFM	0 CFM	
1st Floor	105.A	BATH	35 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM	0 CFM	0 CFM	0 CFM	
1st Floor	202	STAIR	113 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM	0 CFM	0 CFM	0 CFM	
1st Floor	102	BEDROOM	120 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	90 CFM	90 CFM	90 CFM	110 CFM	
2nd Floor	203	BEDROOM	99 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	120 CFM	110 CFM	120 CFM	110 CFM	
2nd Floor	204	BEDROOM	99 SF	2	15 CFM	1.00 W/ft ²	0.75 W/ft ²	100 CFM	110 CFM	100 CFM	110 CFM	
2nd Floor	204.A	BATH	38 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM	0 CFM	0 CFM	0 CFM	
2nd Floor	205	STORAGE	65 SF	0	0 CFM	1.00 W/ft ²	0.75 W/ft ²	100 CFM	170 CFM	100 CFM	170 CFM	
2nd Floor	200	LIVING	227 SF	8	60 CFM	1.00 W/ft ²	0.75 W/ft ²	270 CFM	280 CFM	270 CFM	280 CFM	
2nd Floor	201	DINING/KITCHEN	410 SF	18	135 CFM	1.00 W/ft ²	0.75 W/ft ²	240 CFM	530 CFM	240 CFM	350 CFM	
2nd Floor	206	BATH	37 SF	0	0 CFM	0.00 W/ft ²	0.00 W/ft ²	0 CFM	0 CFM	0 CFM	50 CFM	
												Grand total: 21



④ Flue Termination
NTS



⑤ Refrigeration Detail
NTS

Equipment												
1. The equipment listed in schedule is to be used as a guide. Equipment of equal performance, construction, suitability of use, guarantees, warranties, etc. may be substituted upon approval of the general contractor and engineer.												
2. All equipment shall be galvanized sheet steel unless otherwise noted.												
3. RAD-Cool Air duct												
4. FAD-Fresh Air duct												
5. DPD-Exhaust Air duct												
6. FLAP-Variable Air pipe												
7. CFM - ft ³ /min												
8. SAG-Supply Air Grille												
9. RGD-Radiator												
10. OBD-Opposed blade damper												
11. GF-Gas furnace												

6 | 5 | 4 | 3 | 2 | 1

FYF LLC.
Owner: FYF LLC,
43 S Water St E | Fort Atkinson, WI
ilovefunkys@hotmail.com

Zenteno
Solutions

Plumbing Designer: Zenteno Solutions
1530 P B Lane # Z4646
WICHITA FALLS, TX, 76302
roberto@zenteno.net | 832.449.9278



Desapex

#1075-B, 10th main, HAL 2nd stage,
Bengaluru -08
HVAC Designer: Desapex
shreenidhi@desapex.com

WISCONSIN
RHM P.
SCHULTZ
A-11107-9
STUTTGART
WI
ARCHITECT
[Signature]

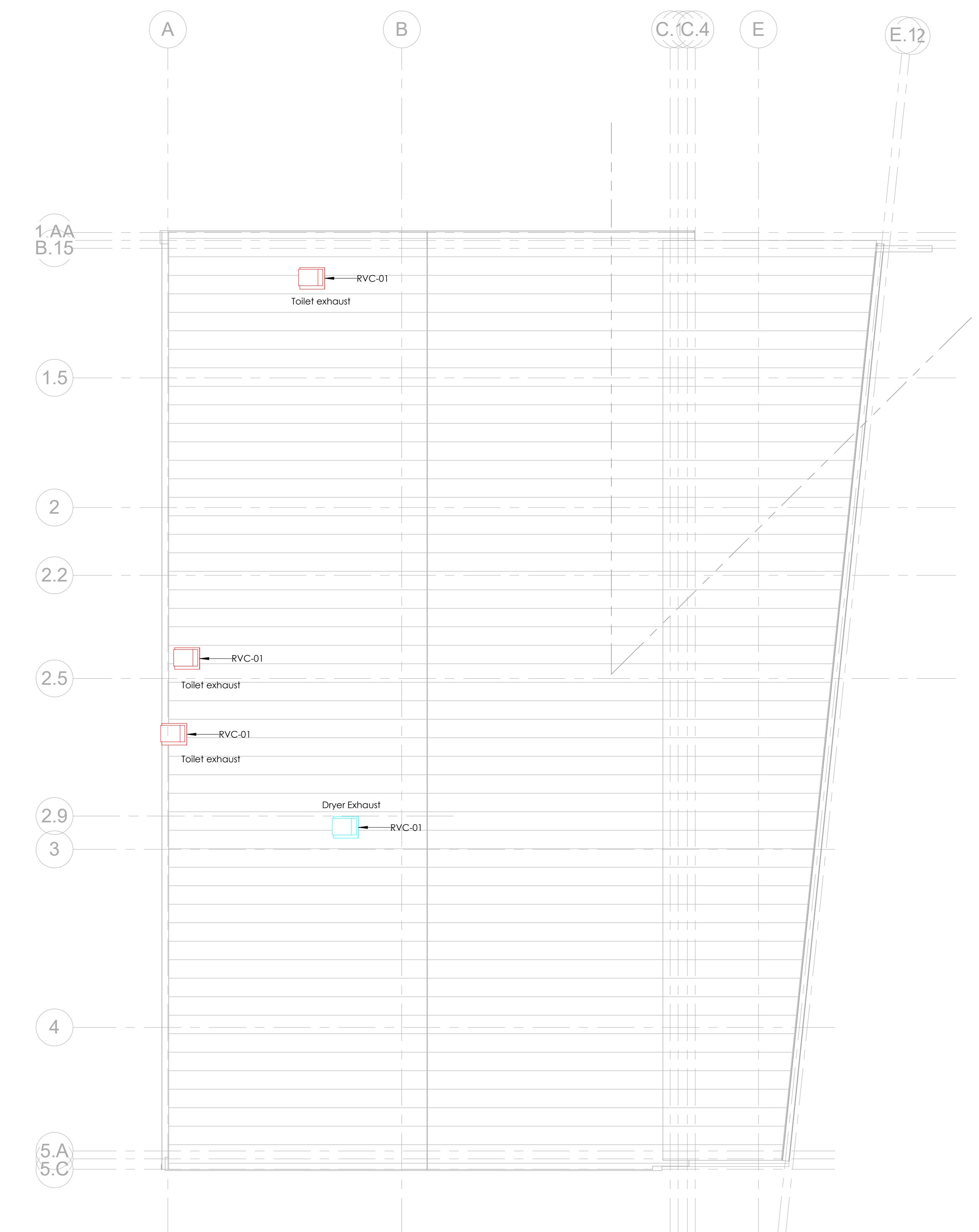
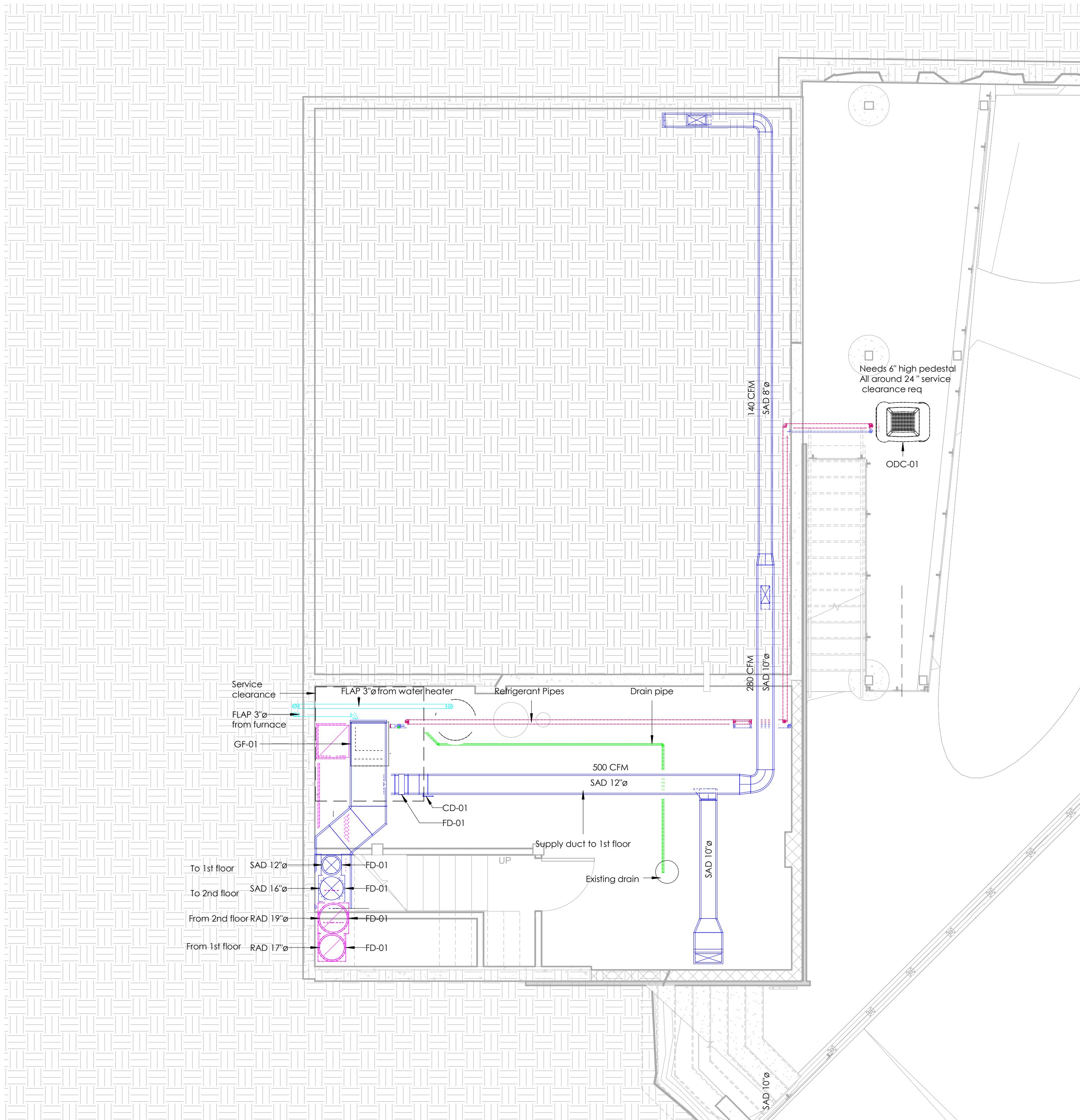


openingdesign
Architect: OpeningDesign
312 W. Lakeside St. | Madison, WI 53715
hello@openingdesign.com | 773-425-6456

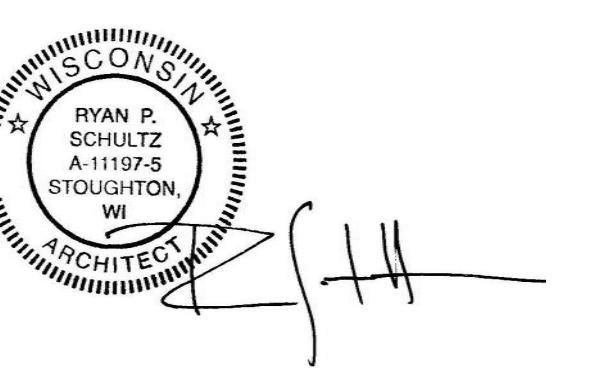
Date	Description
05.03.2017	Issue for Permit

M.001

04-05-2017 19:44:09

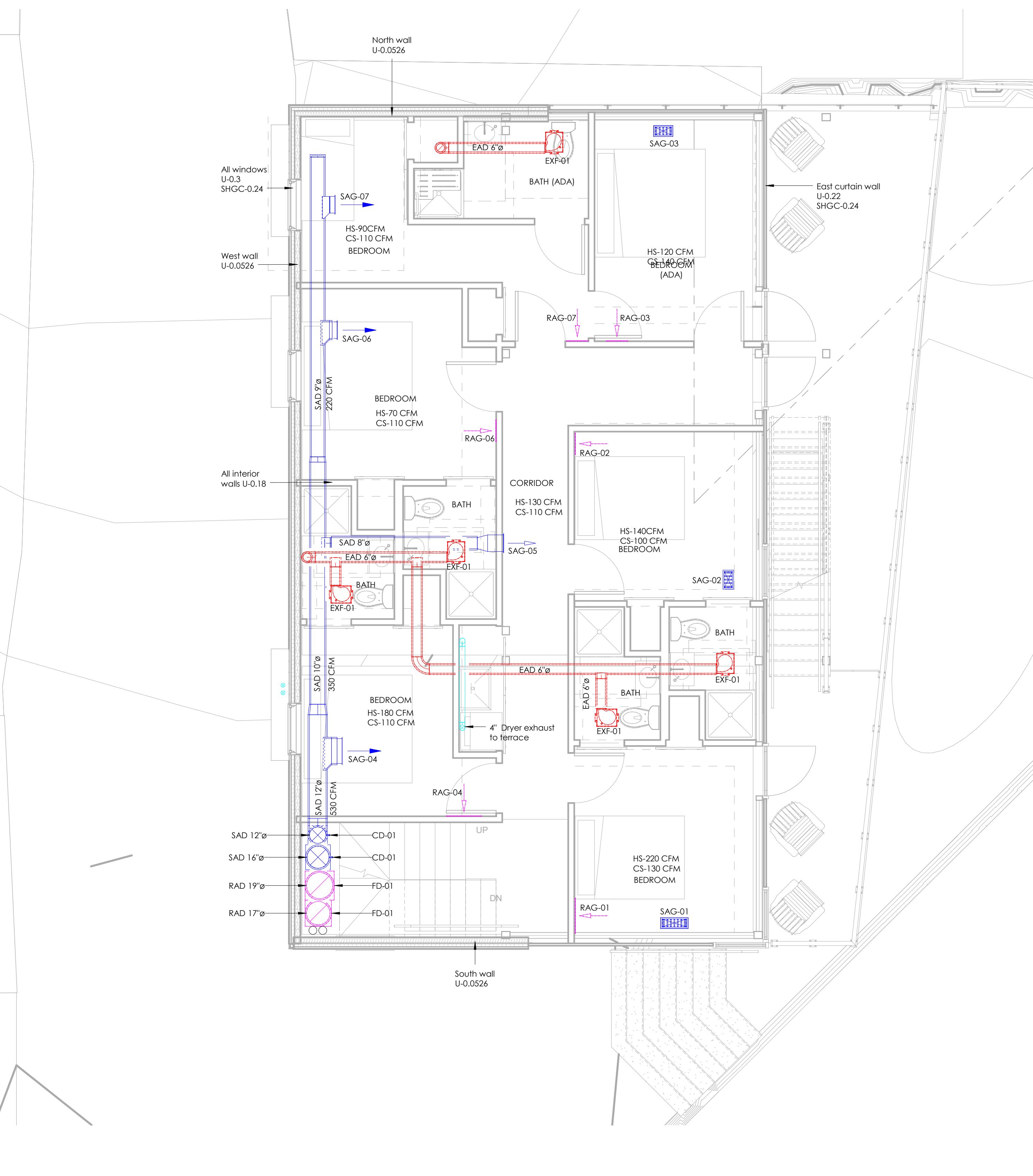


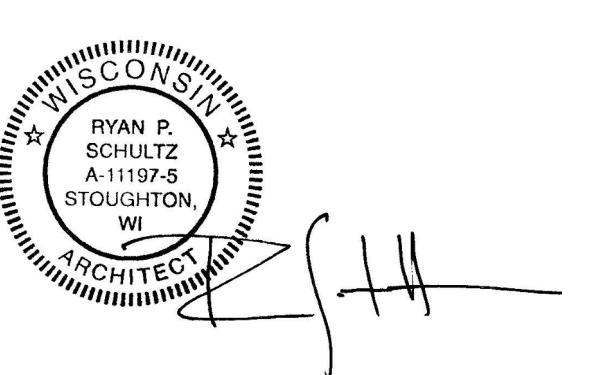
HVAC Basement & Roof plan
Lake Geneva | Enter address here



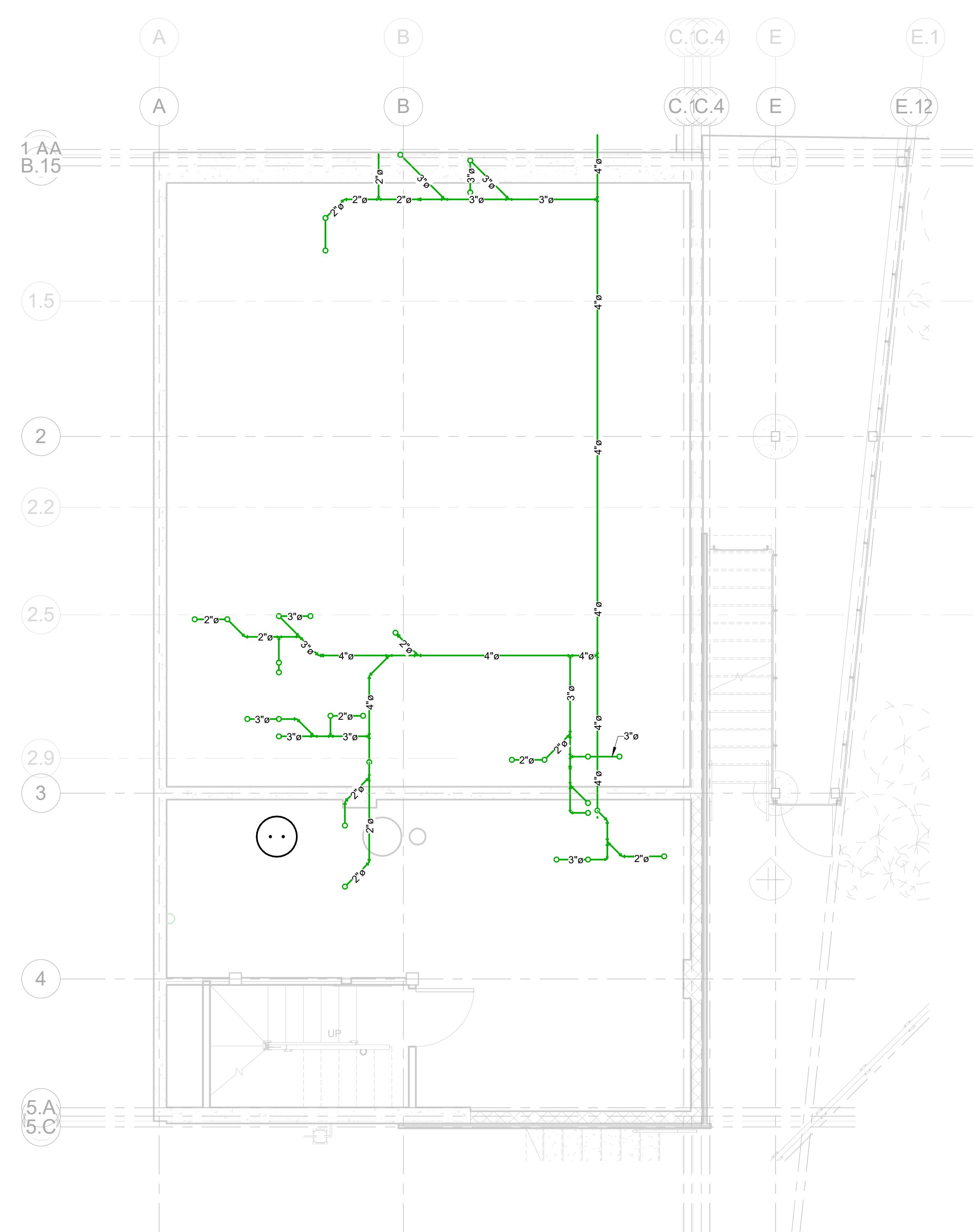
Architect: OpeningDesign
312 W. Lakeside St. | Madison, WI 53715
hello@openingdesign.com | 773-425-6456

Date	Description
05.03.2017	Issue for Permit

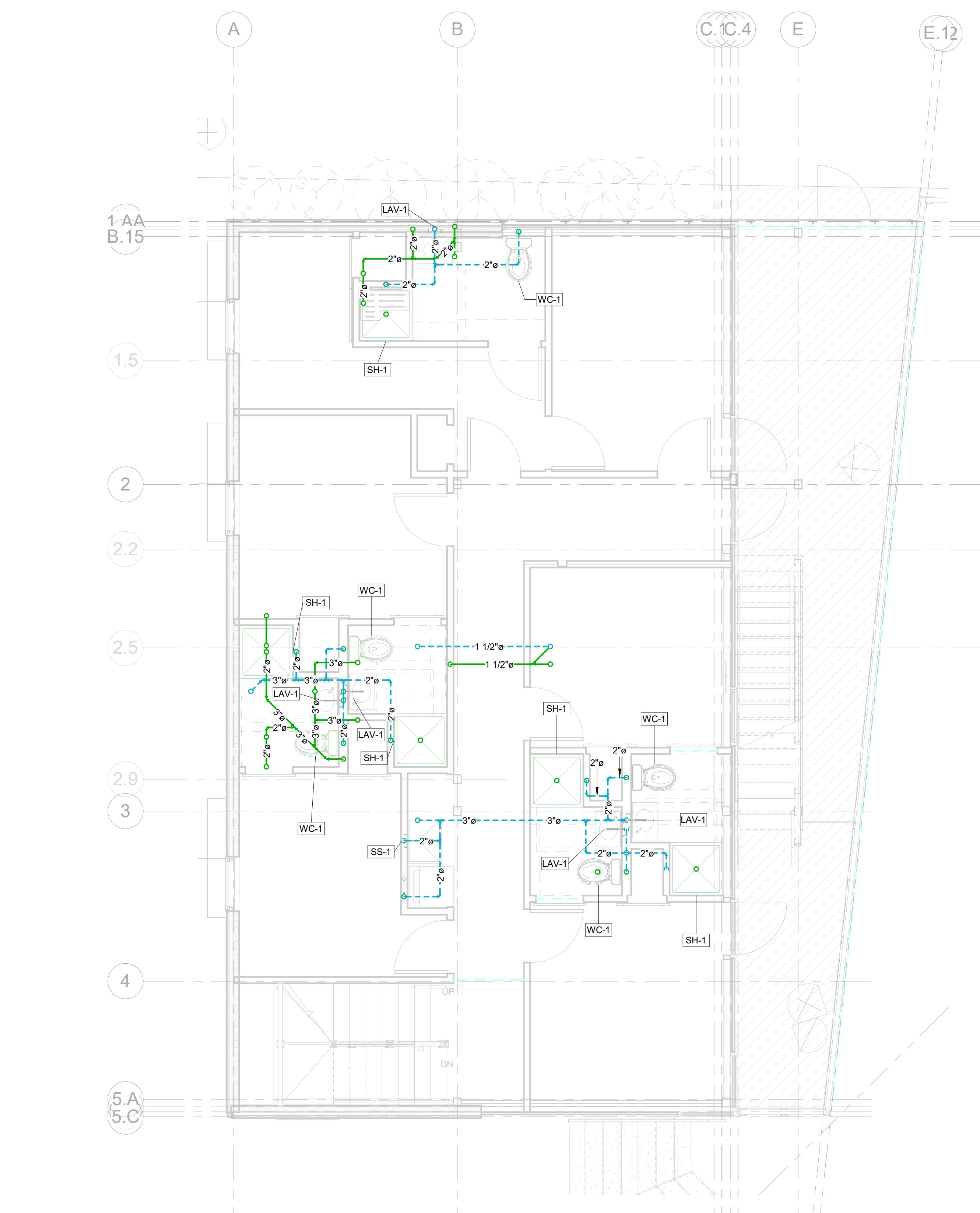




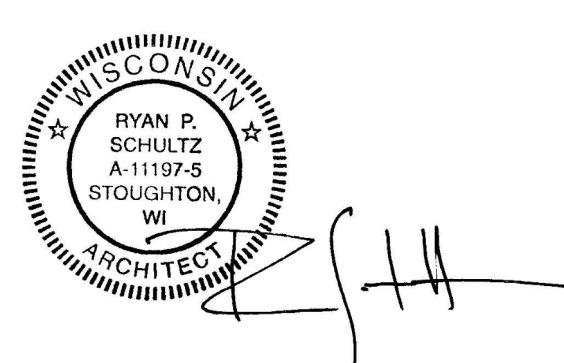
Date	Description
05.03.2017	Issue for Permit



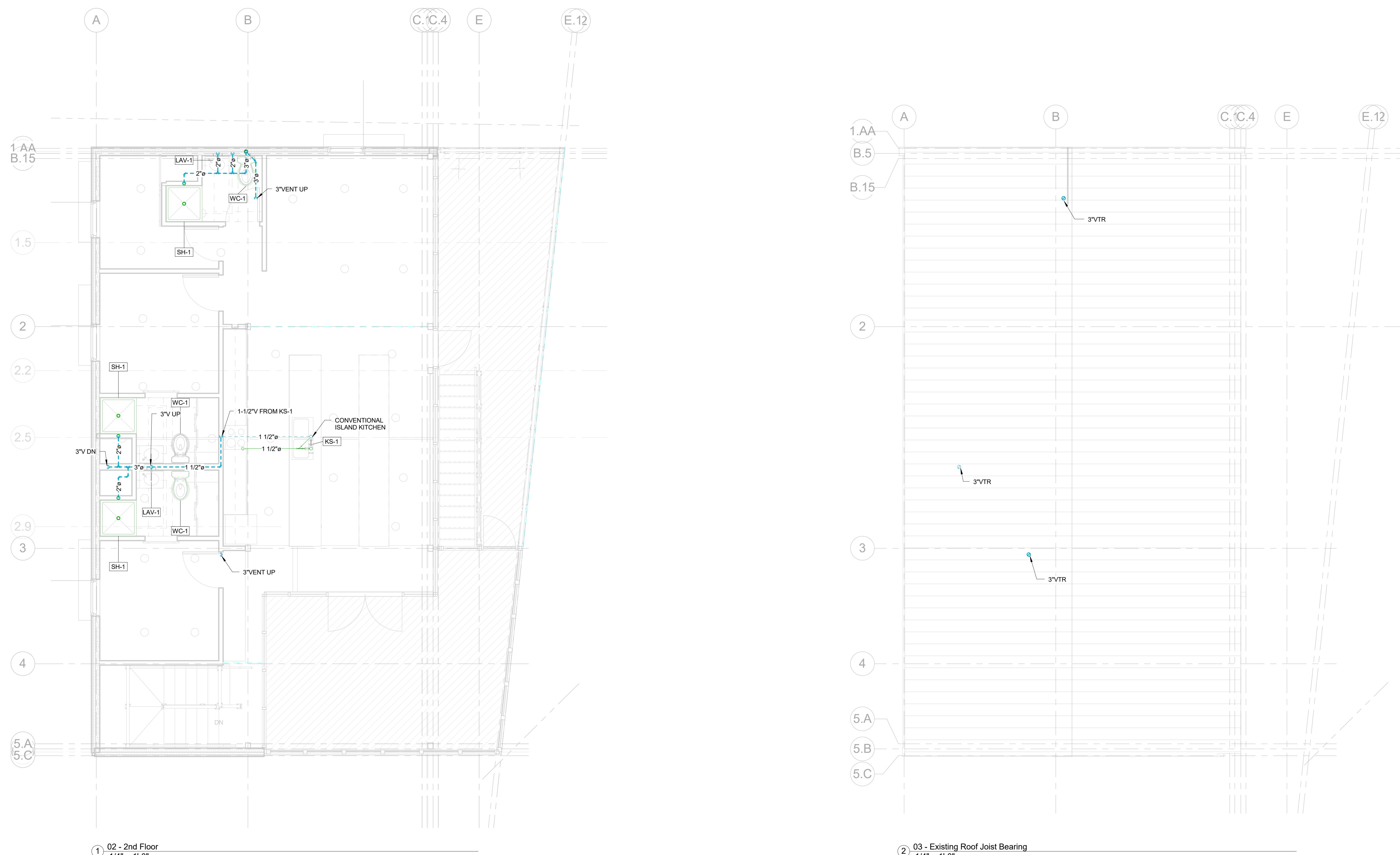
① 00 - Basement
1/4" = 1'-0"



② 01 - 1st Floor
1/4" = 1'-0"



Date	Description
05.03.2017	Issue for Permit



FYF LLC.

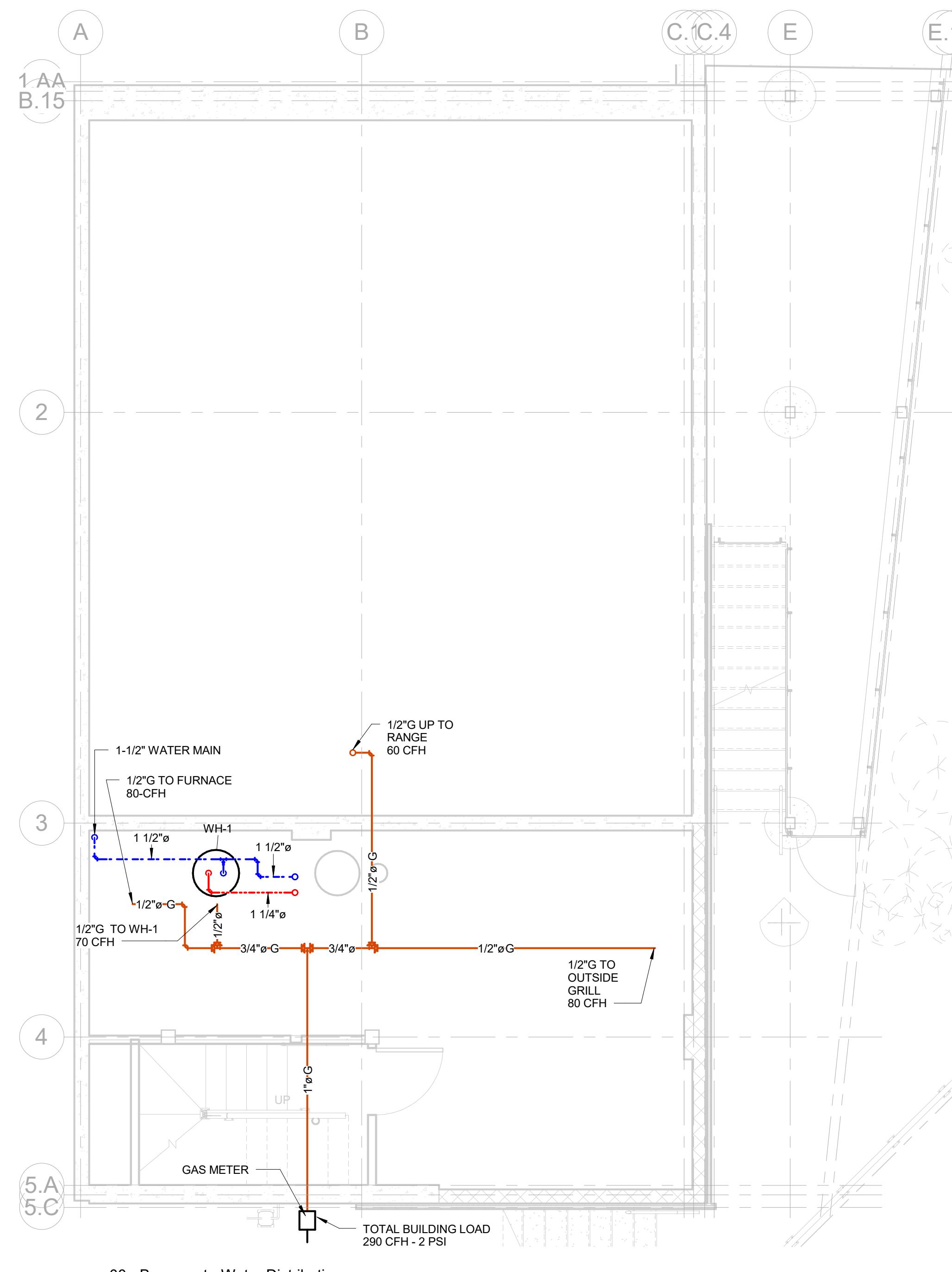
Owner: FYF LLC.
3 S Water St E | Fort Atkinson, WI
ilovefunkys@hotmail.com

Zenteno Solutions

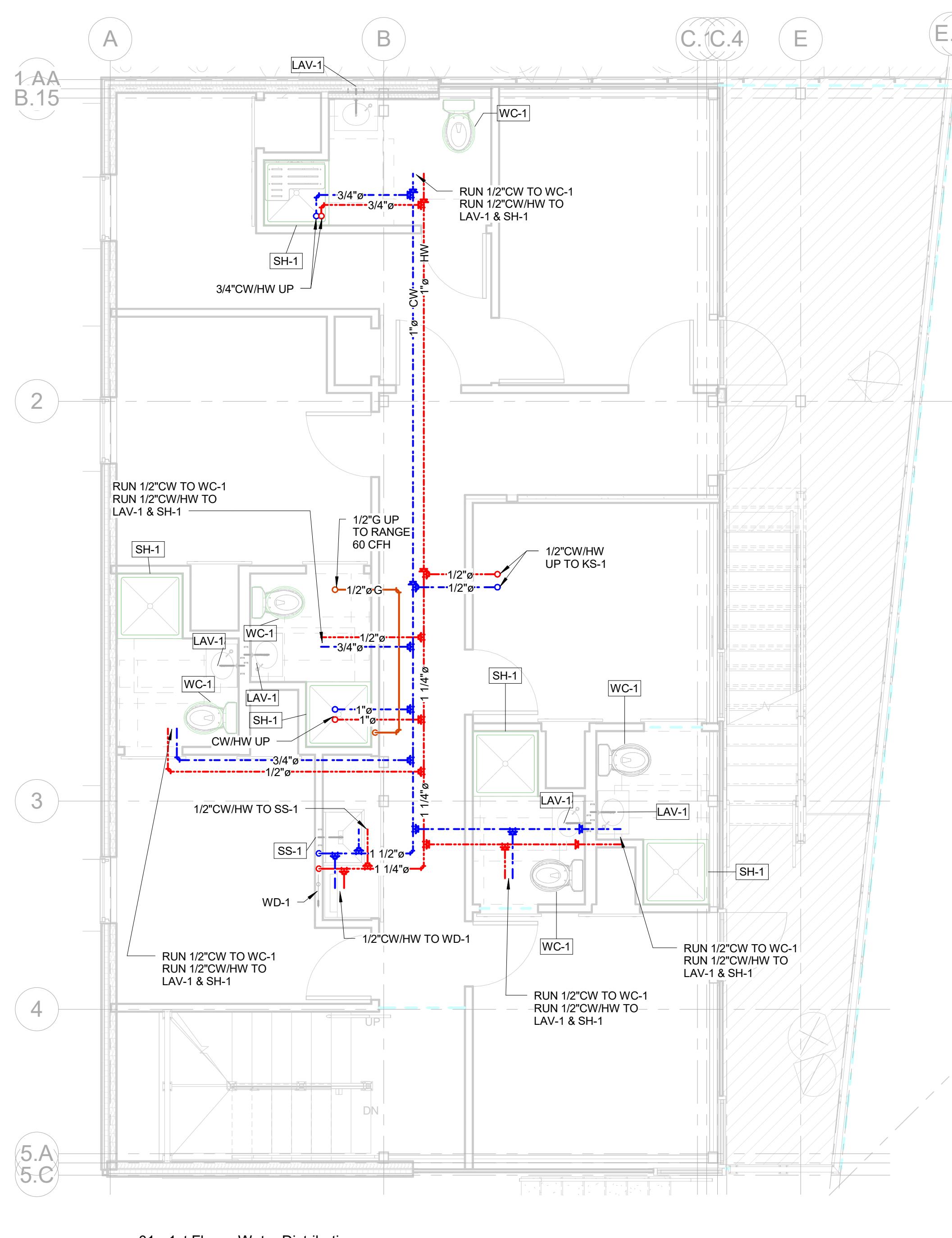
Plumbing Designer: Zenteno Solutions
1530 P B Lane # Z4646
WICHITA FALLS, TX, 76302
roberto@zenteno.net | 832.449.9278



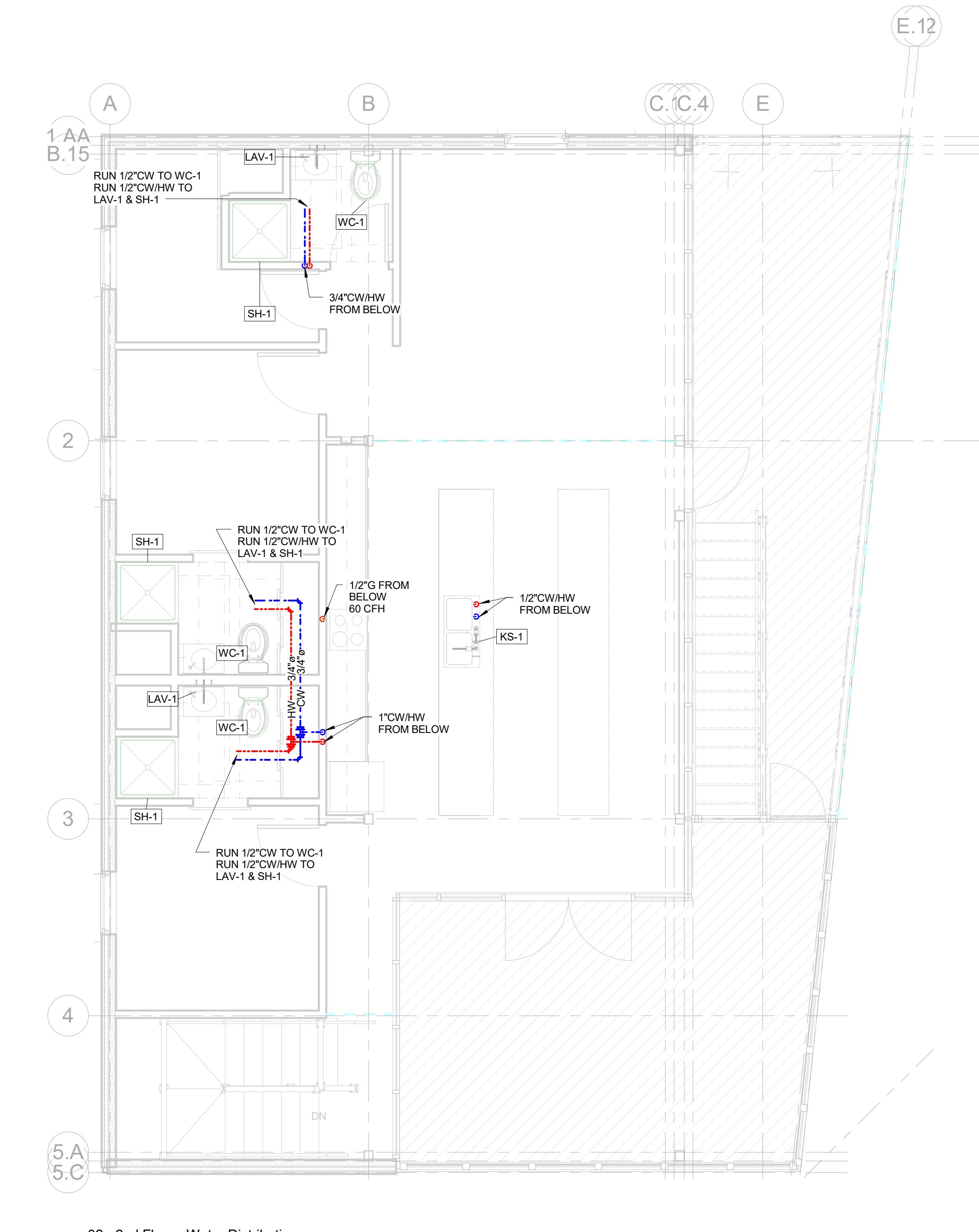
Desapex



1 00 - Basement - Water Distribution
1/4" = 1'-0"



2 01 - 1st Floor - Water Distribution
1/4" = 1'-0"



3 02 - 2nd Floor - Water Distribution
1/4" = 1'-0"

A circular seal for Wisconsin Architects. The outer ring contains the word "WISCONSIN" at the top and "ARCHITECT" at the bottom, separated by stars. The inner circle contains the name "RYAN P. SCHULTZ", the license number "A-11197-5", and the city "STOUGHTON, WI". To the right of the seal is a handwritten signature and a large, stylized "H" or checkmark.



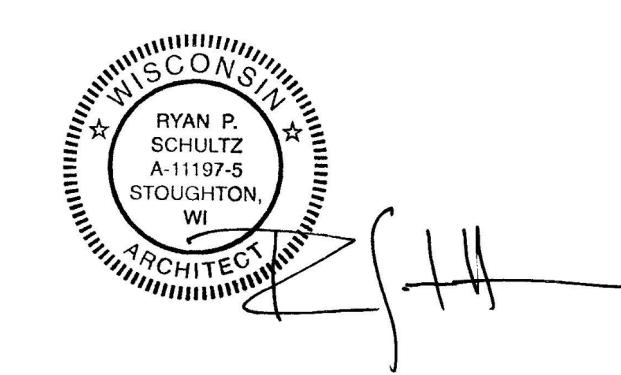
openingdesign

Description

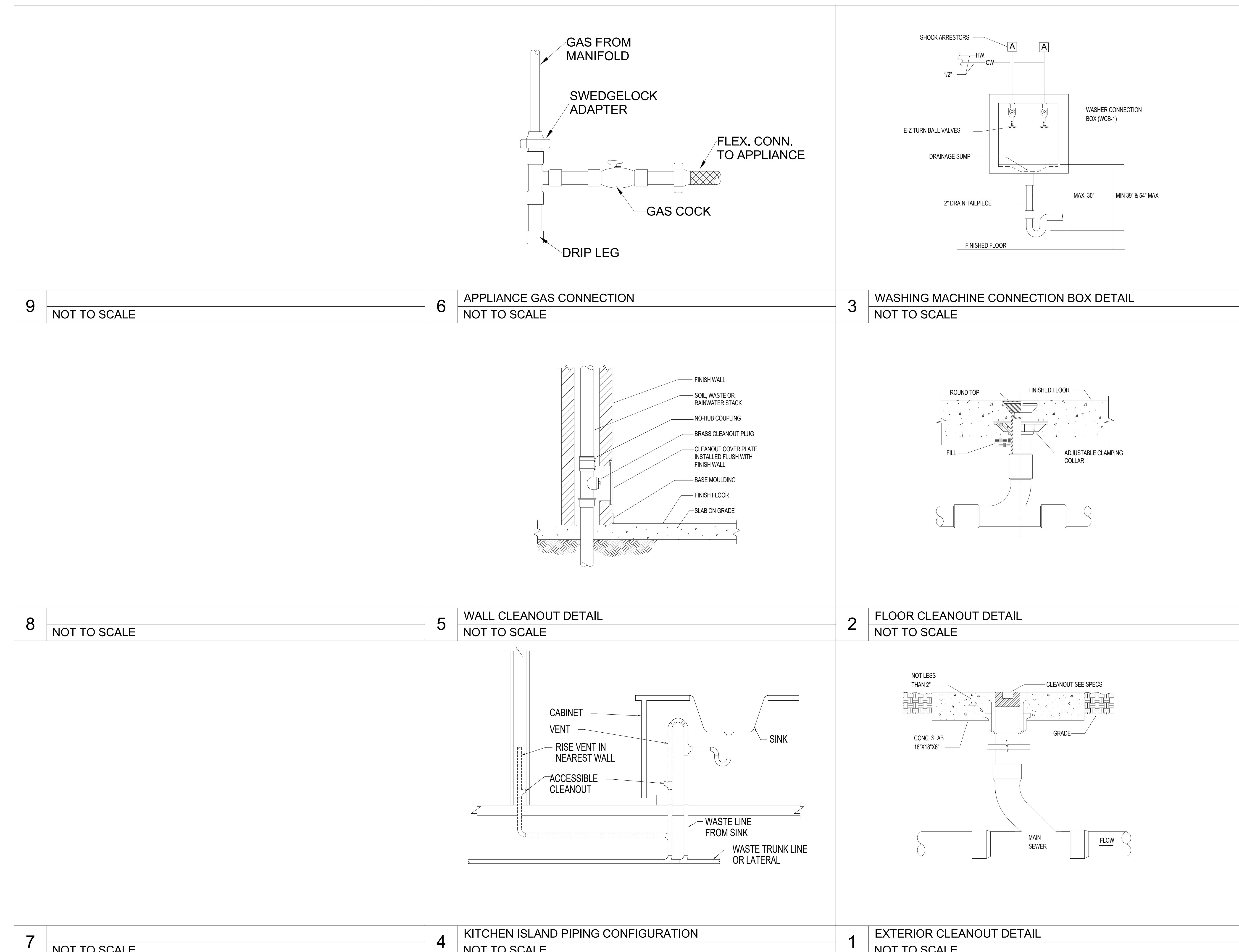
BASEMENT & FIRST FLOOR WATER DISTRIBUTION

640 West Main Street, Lake Geneva, WI 53147

P1.03



Date	Description
05.03.2017	Issue for Permit



WATER CALCULATION WORKSHEET FOR: The Downtowner, Lake Geneva, WI, 53147

Date Designer

BUILDING INFORMATION

1. Demand of building in gallons per minute (65 SFU). 33 gpm
2. Size of the water meter. (Proposed size for hydraulic calcs, subject to Water Utility review.) 1.50 inch
3. Low pressure at building entrance. 35.0 psi

CALCULATE PRESSURE AVAILABLE AFTER BUILDING CONTROL VALVE

4. Low pressure at building entrance. 40.0 psi
5. Pressure loss due to water meter. 2.0 psi
6. Available pressure after building water meter. (Line 6 - 7a - 7b - 8) 38.0 psi

CALCULATE PRESSURE AVAILABLE FOR UNIFORM LOSS (VALUE OF "A")

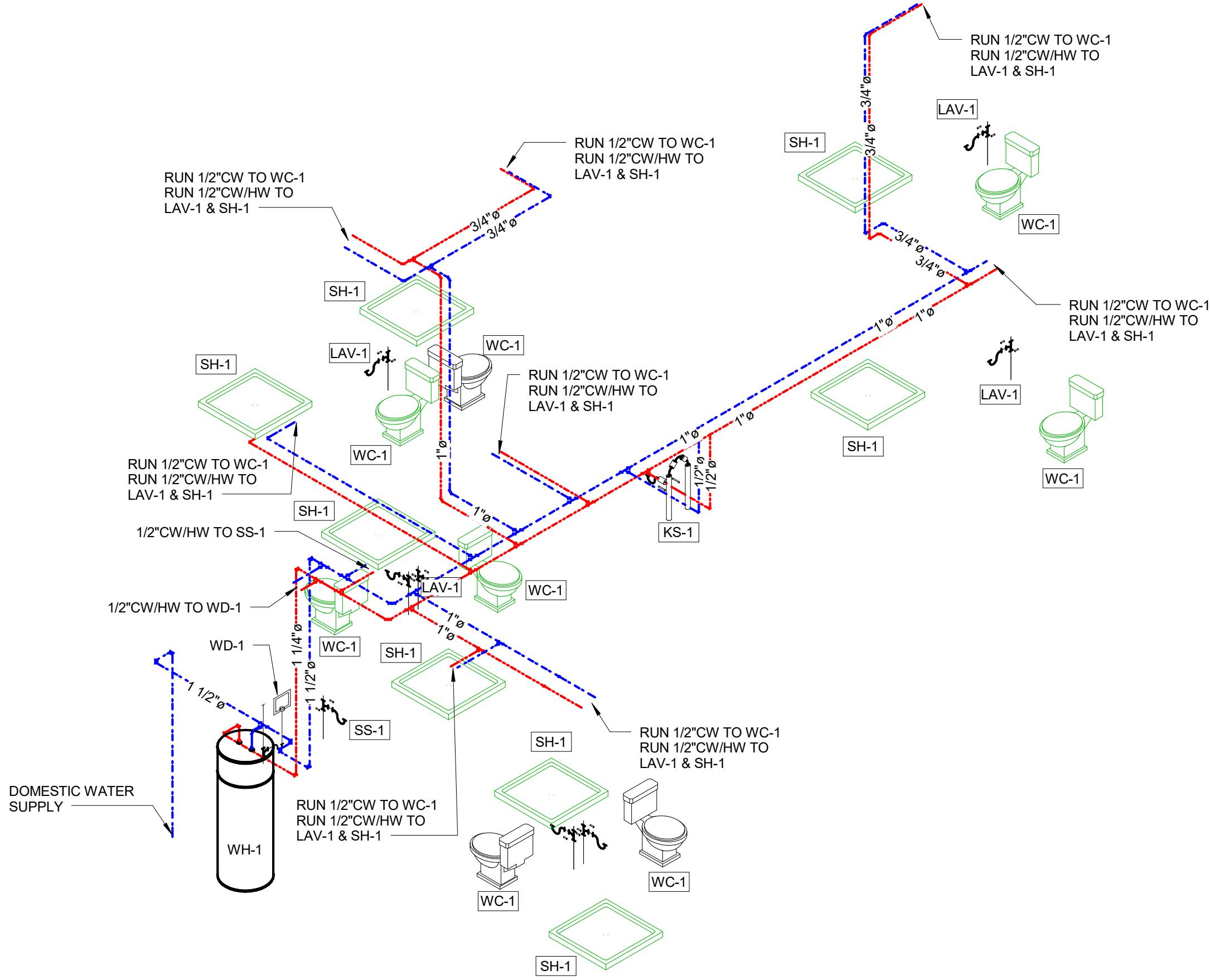
- B. Available distribution pressure. (Line 9 + B1 - B2) 38.0 psi
- D. Pressure required at controlling fixture. (Shower in second floor bathroom.) 20.0 psi
- E. Head loss from the building control valve to the controlling fixture.
(Elevation change, multiply by 0.434 psi/ft.)
- | | | |
|---------------------|--|--|
| Elevation change ft | 25 | 10.9 psi |
| Subtotal | | 18.0 psi |
- F. Pressure loss due to water treatment devices, instantaneous water heaters, backflow preventers, and other accessories which serve the controlling fixture.
N/A 0.0 psi
- G. Actual pipe length from building control valve to controlling fixture ft 80
Developed length. (Actual length, multiply by fitting/loss factor.) fitting/loss factor 1.5 120.0 feet
- Pressure available for uniform loss. (Total Available Pressure / Developed Length.) 0.060 psi/ft
- Pressure available for uniform loss per 100 ft. (Multiply by 100 / 100.) 6.0 psi/100 ft
- A. Pressure available for uniform loss per 100 ft. (Value rounded up to next integer.) "A" = 6.0 psi/100 ft

Building Information: Vacation Rental

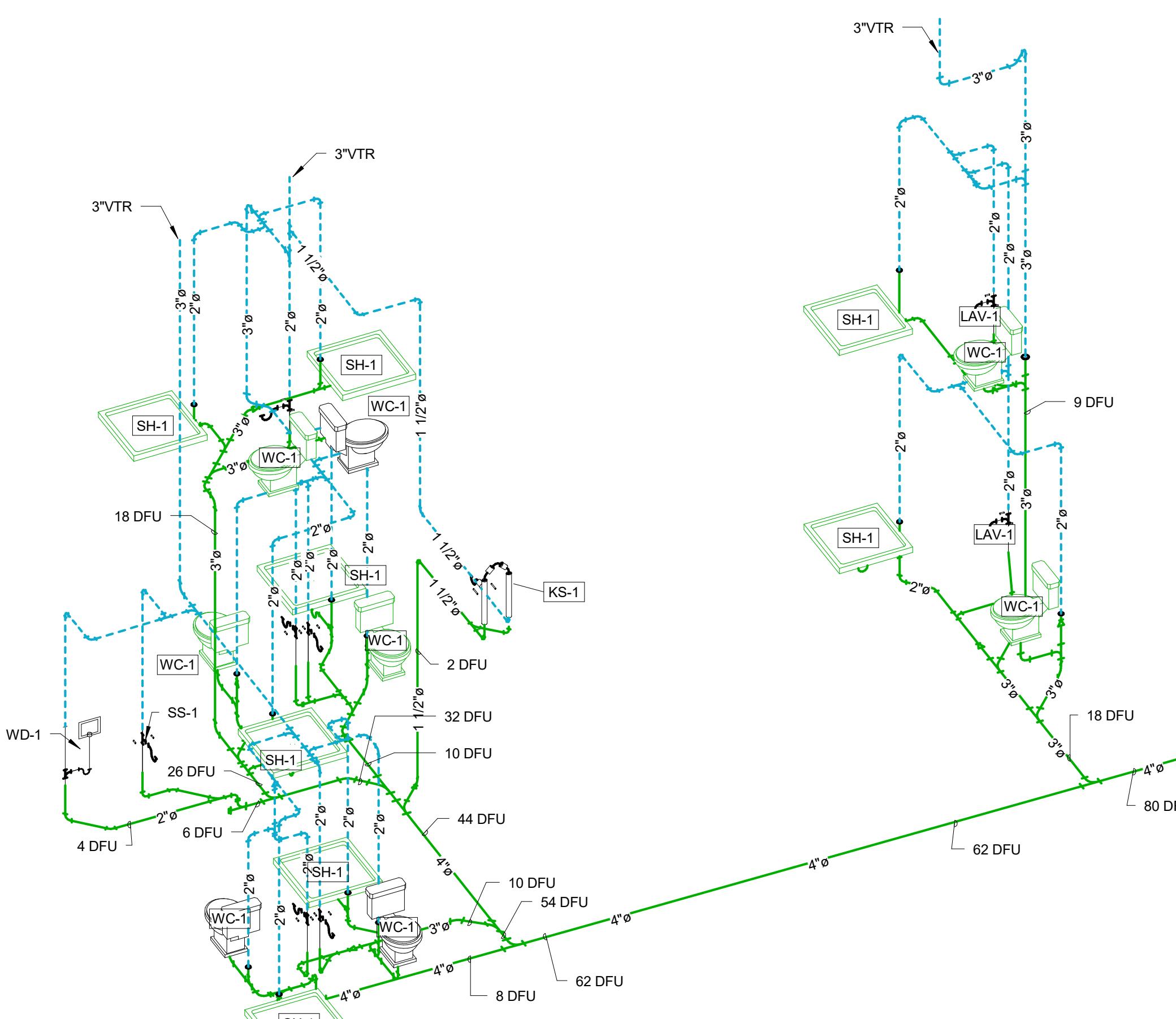
Drain fixture Unit Calculations

Fixture	DFU/Unit	# of Units	Total DFU
Shower	2	8	16
Lavatory	1	8	8
Water Closet	6	8	48
Washing Machine	4	1	4
Service Sink	2	1	2
Kitchen sink	2	1	2
Total DFU's			80

Item	Fixture	DRAINAGE		WATER	
		Waste	Vent	Hot	Cold
KS-1	KITCHEN SINK	1-1/2"	1-1/2"	1/2"	1/2"
LAV-1	LAVATORY	2"	2"	1/2"	1/2"
SH-1	SHOWER	2"	2"	1/2"	1/2"
SS-1	SERVICE SINK	2"	2"	1/2"	1/2"
WC-1	WATER CLOSET	3"	2"	-	1/2"
WD-1	WASHER BOX	2"	2"	1/2"	1/2"



(2) WATER RISER DIAGRAM



(1) SANITARY RISER DIAGRAM

Date	Description
05.03.2017	Issue for Permit

FYF LLC.
 Owner: FYF LLC,
 43 S Water St E | Fort Atkinson, WI
 ilovefunkys@hotmail.com

Zenteno Solutions
 Plumbing Designer: Zenteno Solutions
 1530 P B Lane # Z4646
 WICHITA FALLS, TX, 76302
 roberto@zenteno.net | 832.449.9278

Desapex
 #1075-B, 10th main, HAL 2nd stage,
 Bengaluru -08
 HVAC Designer: Desapex
 shreenidhi@desapex.com

 STATE OF WISCONSIN
 JAMES P. SCHULTZ
 A-111075
 ST. CLOUD, WI
 ARCHITECT

 openingdesign
 Architect: OpeningDesign
 312 W. Lakeside St. | Madison, WI 53715
 hello@openingdesign.com | 773-425-6456

STRUCTURAL CALCULATIONS

For

**640 West Main Street
Lake Geneva, Wisconsin**

by



Date: May 2, 2017

Index

DESIGN DATA	DD
ROOF FRAMING	RF
FLOOR FRAMING	FF
WOOD COLUMNS	WC
LATERAL DESIGN	LD

Address _____

City, State _____

Phone _____

JOB NO. _____

SHEET NO. _____

CALCULATED BY _____

DATE _____

CHECKED BY _____

DATE _____

Code Search

Code: International Building Code 2009**Occupancy:**

Occupancy Group = R Residential

Occupancy Category & Importance Factors:

Occupancy Category = II

Wind factor = 1.00

Snow factor = 1.00

Seismic factor = 1.00

Type of Construction:

Fire Rating:

Roof = 0.0 hr

Floor = 0.0 hr

Building Geometry:Roof angle (θ) 6.00 / 12 26.6 deg

Building length (L) 50.0 ft

Least width (B) 40.0 ft

Mean Roof Ht (h) 28.0 ft

Parapet ht above grd 0.0 ft

Minimum parapet ht 0.0 ft

Live Loads:**Roof** 0 to 200 sf: 18 psf

200 to 600 sf: 21.6 - 0.018Area, but not less than 12 psf

over 600 sf: 12 psf

Floor:

Typical Floor 40 psf

Partitions 15 psf

Public rooms & corridors serving the 100 psf

Corridors above first floor 80 psf

Balconies (exterior) - same as occup 40 psf

Storage warehouses: Light 125 psf

Address
City, State
Phone

JOB NO. _____ SHEET NO. _____
CALCULATED BY _____ DATE _____
CHECKED BY _____ DATE _____

Wind Loads : ASCE 7 - 05

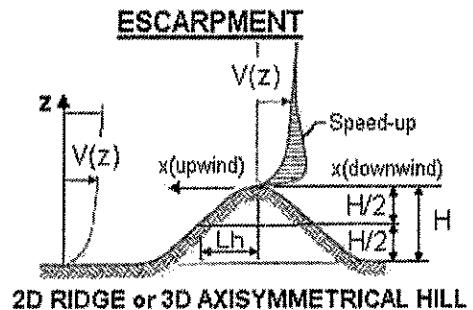
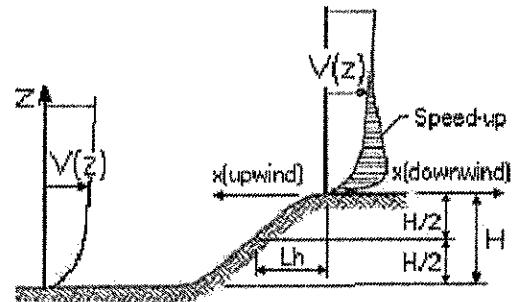
Basic Wind Speed	90 mph
Importance Factor	1.00
Occupancy Category	II
Exposure Category	C
Enclosure Classif.	Enclosed Building
Internal pressure	+/-0.18
Directionality (Kd)	0.85
Kh case 1	0.968
Kh case 2	0.968
Type of roof	Gable

Topographic Factor (Kzt)

Topography	Flat
Hill Height (H)	80.0 ft
Half Hill Length (Lh)	100.0 ft
Actual H/Lh	= 0.80
Use H/Lh	= 0.50
Modified Lh	= 160.0 ft
From top of crest: x =	50.0 ft
Bldg up/down wind?	downwind
H/Lh = 0.50	K ₁ = 0.000
x/Lh = 0.31	K ₂ = 0.792
z/Lh = 0.18	K ₃ = 1.000

At Mean Roof Ht:

$$K_{zt} = (1+K_1 K_2 K_3)^2 = 1.00$$



2D RIDGE or 3D AXISYMMETRICAL HILL

Gust Effect Factor

h =	28.0 ft
B =	40.0 ft
/z (0.6h) =	16.8 ft

Flexible structure if natural frequency < 1 Hz ($T > 1$ second).

However, if building h/B < 4 then probably rigid structure (rule of thumb).

$$h/B = 0.70 \quad \text{Rigid structure}$$

$$G = 0.85 \quad \text{Using rigid structure default}$$

Rigid Structure	
$\bar{\epsilon}$ =	0.20
ℓ =	500 ft
Z_{min} =	15 ft
c =	0.20
g_Q, g_V =	3.4
L_z =	436.8 ft
Q =	0.91
I_z =	0.22
G =	0.88 use G = 0.85

Flexible or Dynamically Sensitive Structure

Natural Frequency (η_1) =	0.0 Hz		
Damping ratio (β) =	0		
$/b$ =	0.65		
$/\alpha$ =	0.15		
Vz =	77.3		
N_1 =	0.00		
R_n =	0.000		
R_h =	28.282	η =	0.000
R_B =	28.282	η =	0.000
R_L =	28.282	η =	0.000
g_R =	0.000		
R =	0.000		
G =	0.000		

Address _____

City, State _____

Phone _____

JOB NO. _____

SHEET NO. _____

CALCULATED BY _____

DATE _____

CHECKED BY _____

DATE _____

Enclosure Classification**Test for Enclosed Building:** A building that does not qualify as open or partially enclosed.**Test for Open Building:** All walls are at least 80% open.
 $Ao \geq 0.8Ag$ **Test for Partially Enclosed Building:**

Input	Test
Ao <input type="text" value="1000000.0"/> sf	$Ao \geq 1.1Aoi$ <input checked="" type="checkbox" value="YES"/>
Ag <input type="text" value="0.0"/> sf	$Ag > 4'$ or $0.01Ag$ <input checked="" type="checkbox" value="YES"/>
Aoi <input type="text" value="0.0"/> sf	$Aoi / Agi \leq 0.20$ <input checked="" type="checkbox" value="NO"/>
Ag_i <input type="text" value="0.0"/> sf	

Building is NOT
Partially Enclosed

ERROR: Ag must be greater than Ao

Conditions to qualify as Partially Enclosed Building. Must satisfy all of the following:

$$\begin{aligned} Ao &\geq 1.1Aoi \\ Ao &> \text{smaller of } 4' \text{ or } 0.01 Ag \\ Aoi / Agi &\leq 0.20 \end{aligned}$$

Where:

Ao = the total area of openings in a wall that receives positive external pressure.

Ag = the gross area of that wall in which Ao is identified.

Aoi = the sum of the areas of openings in the building envelope (walls and roof) not including Ao.

Ag_i = the sum of the gross surface areas of the building envelope (walls and roof) not including Ag.**Reduction Factor for large volume partially enclosed buildings (Ri) :**

If the partially enclosed building contains a single room that is unpartitioned , the internal pressure coefficient may be multiplied by the reduction factor Ri.

Total area of all wall & roof openings (Aog):	0 sf
Unpartitioned internal volume (Vi):	0 cf
	Ri = 1.00

Altitude adjustment to constant 0.00256 (caution - see code) :

Altitude =	0 feet	Average Air Density = 0.0765 lbm/ft ³
Constant =	0.00256	

Address

City, State

Phone

JOB NO. _____

SHEET NO. _____

CALCULATED BY _____

DATE _____

CHECKED BY _____

DATE _____

Wind Loads - MWFRS h≤60' (Low-rise Buildings) Enclosed/partially enclosed only

$K_z = K_h$ (case 1) = 0.97
 Base pressure (q_h) = 17.1 psf
 GC_{pi} = +/-0.18

Edge Strip (a) = 4.0 ft
 End Zone (2a) = 8.0 ft
 Zone 2 length = 20.0 ft

Wind Pressure Coefficients

Surface	Transverse Direction			Longitudinal Direction				
	Perpendicular $\theta = 26.6$ deg			Parallel $\theta = 0.0$				
	GC_{pf}	w/- GC_{pi}	w/+ GC_{pi}	GC_{pf}	w/- GC_{pi}	w/+ GC_{pi}		
1	0.55	0.73	0.37	0.40	0.58	0.22		
2	-0.10	0.08	-0.28	-0.69	-0.51	-0.87		
3	-0.45	-0.27	-0.63	-0.37	-0.19	-0.55		
4	-0.39	-0.21	-0.57	-0.29	-0.11	-0.47		
5	-0.45	-0.27	-0.63	-0.45	-0.27	-0.63		
6	-0.45	-0.27	-0.63	-0.45	-0.27	-0.63		
1E	0.73	0.91	0.55	0.61	0.79	0.43		
2E	-0.19	-0.01	-0.37	-1.07	-0.89	-1.25		
3E	-0.58	-0.40	-0.76	-0.53	-0.35	-0.71		
4E	-0.53	-0.35	-0.71	-0.43	-0.25	-0.61		

Nominal Wind Surface Pressures (psf)

1	12.5	6.3	9.9	3.8	
2	1.4	-4.8	-8.7	-14.8	
3	-4.6	-10.7	-3.2	-9.4	
4	-3.6	-9.7	-1.9	-8.0	
5	-4.6	-10.7	-4.6	-10.7	
6	-4.6	-10.7	-4.6	-10.7	
1E	15.5	9.3	13.5	7.3	
2E	-0.2	-6.3	-15.2	-21.3	
3E	-6.9	-13.1	-6.0	-12.1	
4E	-6.1	-12.2	-4.3	-10.4	

Parapet

Windward parapet = 0.0 psf ($GC_{pn} = +1.5$)
 Leeward parapet = 0.0 psf ($GC_{pn} = -1.0$)

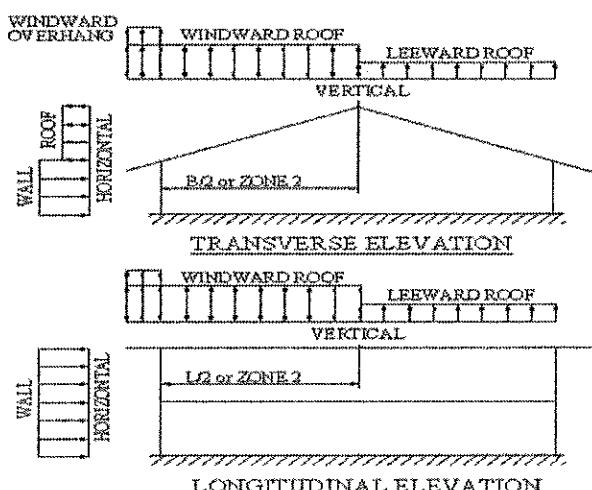
Windward roof overhangs = 11.6 psf (upward) add to windward roof pressure

Horizontal MWFRS Simple Diaphragm Pressures (psf)**Transverse direction (normal to L)**

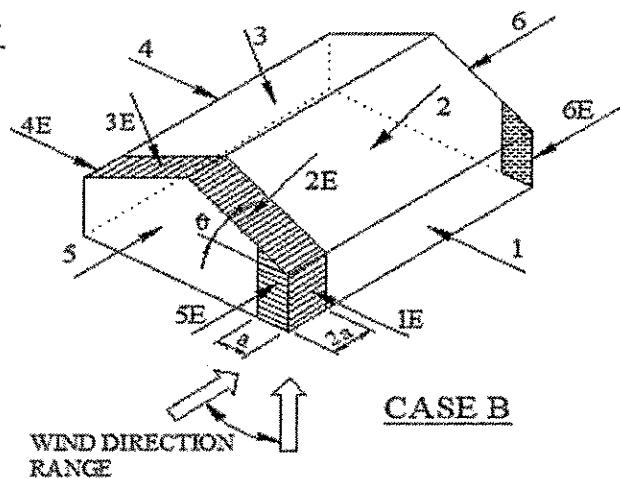
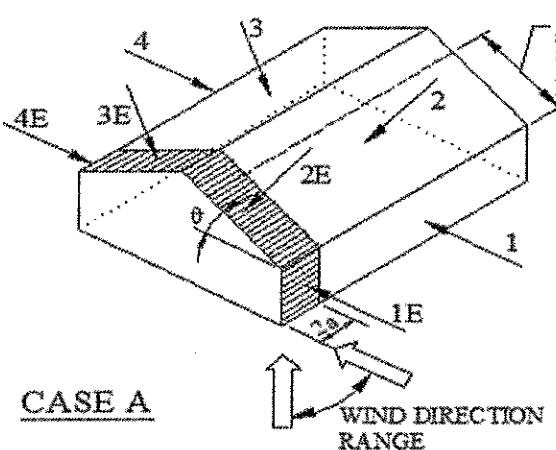
Interior Zone: Wall	16.0 psf
Roof	5.9 psf
End Zone: Wall	21.5 psf
Roof	6.7 psf

Longitudinal direction (parallel to L)

Interior Zone: Wall	11.8 psf
End Zone: Wall	17.7 psf

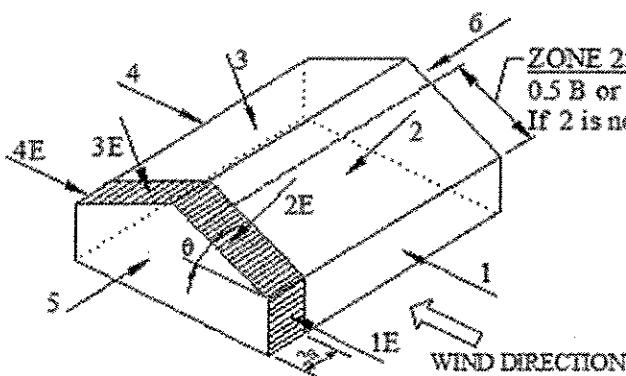


Location of MWFRS Wind Pressure Zones

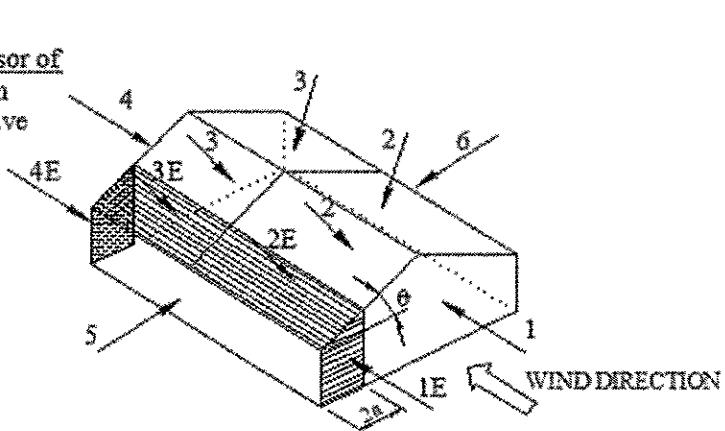


NOTE: Torsional loads are 25% of zones 1 - 6. See code for loading diagram.

ASCE 7-99 and ASCE 7-10 (& later)



Transverse Direction



Longitudinal Direction

NOTE: Torsional loads are 25% of zones 1 - 4. See code for loading diagram.

ASCE 7-02 and ASCE 7-05

Address _____

JOB TITLE Lake Geneva - Vaction Rental

City, State _____

Phone _____

JOB NO. _____

SHEET NO. _____

CALCULATED BY _____

DATE _____

CHECKED BY _____

DATE _____

Nominal Wind Pressures

Wind Loads - Components & Cladding : h <= 60'

Kh (case 1) = 0.97 h = 28.0 ft
 Base pressure (qh) = 17.1 psf a = 4.0 ft
 Minimum parapet ht = 0.0 ft GCpi = +/-0.18
 Roof Angle (θ) = 26.6 deg
 Type of roof = Gable

Roof	GCp +/- GCpi			Surface Pressure (psf)			User input	
	Area	10 sf	50 sf	100 sf	10 sf	50 sf	100 sf	75 sf
Negative Zone 1	-1.08	-1.01	-0.98	-18.4	-17.2	-16.7	-16.9	-16.7
Negative Zone 2	-1.88	-1.53	-1.38	-32.1	-26.1	-23.5	-24.6	-23.5
Negative Zone 3	-2.78	-2.36	-2.18	-47.4	-40.3	-37.2	-38.5	-37.2
Positive All Zones	0.68	0.54	0.48	11.6	10.0	10.0	10.0	10.0
Overhang Zone 2	-2.20	-2.20	-2.20	-37.5	-37.5	-37.5	-37.5	-37.5
Overhang Zone 3	-3.70	-2.86	-2.50	-63.1	-48.8	-42.7	-45.2	-42.7

Overhang pressures in the table above assume an internal pressure coefficient (Gcp) of 0.0

Parapet

qp = 0.0 psf

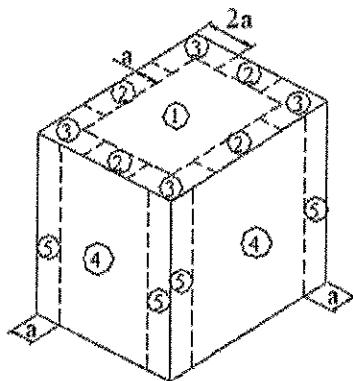
CASE A = pressure towards building (pos)
CASE B = pressure away from bldg (neg)

Solid Parapet Pressure	Surface Pressure (psf)			User input
	10 sf	100 sf	500 sf	40 sf
CASE A : Interior zone:	0.0	0.0	0.0	0.0
Corner zone:	0.0	0.0	0.0	0.0
CASE B : Interior zone:	0.0	0.0	0.0	0.0
Corner zone:	0.0	0.0	0.0	0.0

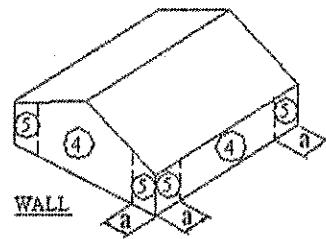
Walls

Walls	GCp +/- GCpi			Surface Pressure (psf)			User input	
	Area	10 sf	100 sf	500 sf	10 sf	100 sf	500 sf	25 sf
Negative Zone 4	-1.28	-1.10	-0.98	-21.8	-18.8	-16.7	-20.6	-17.9
Negative Zone 5	-1.58	-1.23	-0.98	-27.0	-20.9	-16.7	-24.6	-19.1
Positive Zone 4 & 5	1.18	1.00	0.88	20.1	17.1	15.0	18.9	16.2

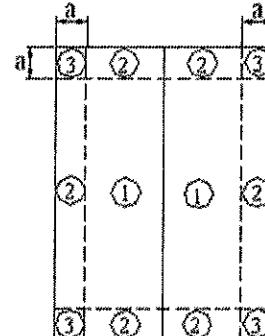
Nominal Wind Pressures

Location of C&C Wind Pressure Zones

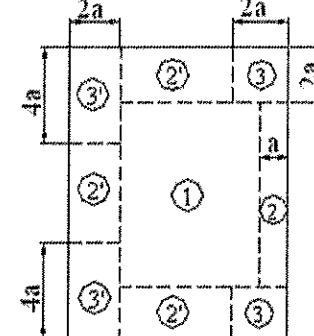
Roofs w/ $\theta \leq 10^\circ$
and all walls
 $h > 60'$



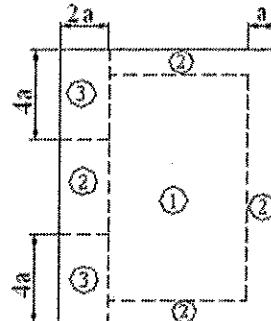
Walls $h \leq 60'$
& alt design $h < 90'$



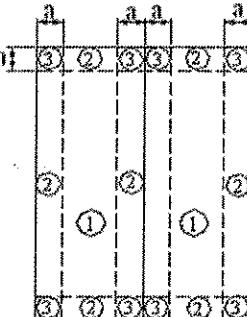
Gable, Sawtooth and
Multispan Gable $\theta \leq 7$ degrees &
Monoslope ≤ 3 degrees
 $h \leq 60'$ & alt design $h < 90'$



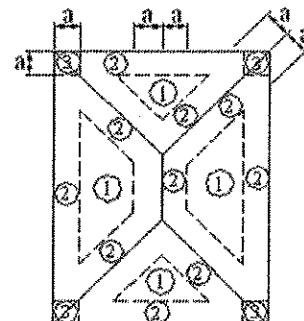
Monoslope roofs
 $3^\circ < \theta \leq 10^\circ$
 $h \leq 60'$ & alt design $h < 90'$



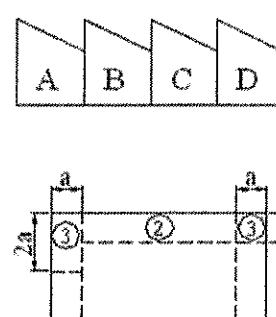
Monoslope roofs
 $10^\circ < \theta \leq 30^\circ$
 $h \leq 60'$ & alt design $h < 90'$



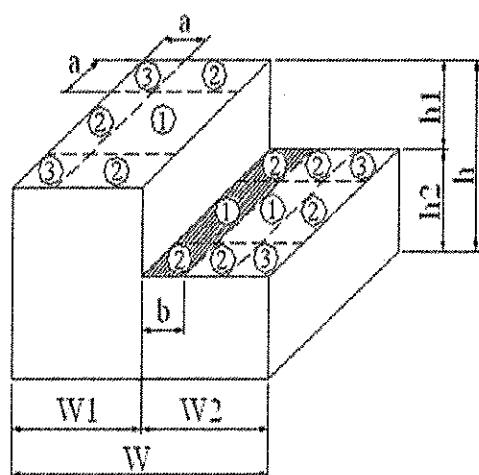
Multispan Gable &
Gable $7^\circ < \theta \leq 45^\circ$



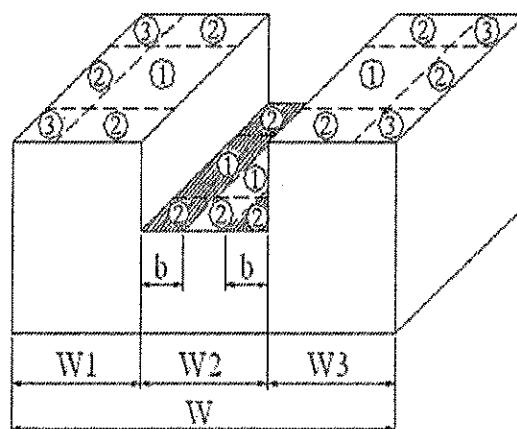
Hip $7^\circ < \theta \leq 27^\circ$



Sawtooth $10^\circ < \theta \leq 45^\circ$
 $h \leq 60'$ & alt design $h < 90'$



Stepped roofs $\theta \leq 3^\circ$
 $h \leq 60'$ & alt design $h < 90'$



Address
City, State
Phone

JOB NO. _____
CALCULATED BY _____
CHECKED BY _____

SHEET NO. _____
DATE _____
DATE _____

Snow Loads : ASCE 7-05

Nominal Snow Forces

Roof slope = 26.6 deg
Horiz. eave to ridge dist (W) = 20.0 ft
Roof length parallel to ridge (L) = 50.0 ft

Type of Roof	Hip and gable w/ trussed systems
Ground Snow Load	Pg = 30.0 psf
Occupancy Category	= II
Importance Factor	I = 1.0
Thermal Factor	Ct = 1.10
Exposure Factor	Ce = 1.0
$Pf = 0.7 * Ce * Ct * I * Pg$	= 23.1 psf
Unobstructed Slippery Surface	no
Sloped-roof Factor	Cs = 1.00
Balanced Snow Load	Ps = 23.1 psf
Rain on Snow Surcharge Angle	0.40 deg
Code Maximum Rain Surcharge	5.0 psf
Rain on Snow Surcharge	= 0.0 psf
Ps plus rain surcharge	= 23.1 psf
Minimum Snow Load	Pfmin = 0.0 psf
Uniform Roof Design Snow Load	= 23.1 psf

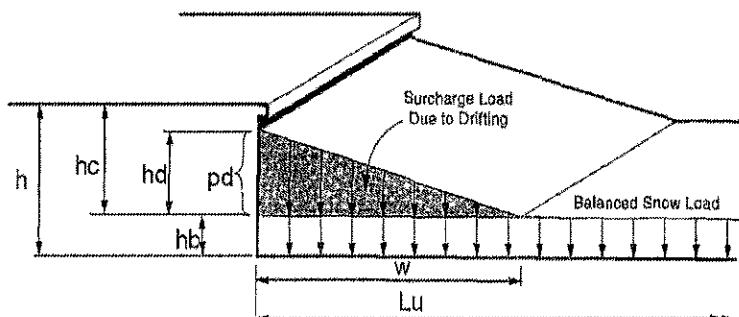
NOTE: Alternate spans of continuous beams and other areas shall be loaded with half the design roof snow load so as to produce the greatest possible effect - see code.

Unbalanced Snow Loads - for Hip & Gable roofs only

Required if slope is between 70.00 deg and larger of 2.38 degrees or $70/W + 0.5$ = 4.00 deg **Unbalanced snow loads must be applied**
Windward snow load = 6.9 psf = 0.3Ps
Leeward snow load from ridge to 6.27' = 44.1 psf = hdy / $\sqrt{S} + Ps$
Leeward snow load from 6.27' to the eave = 23.1 psf. = Ps

Windward Snow Drifts 1 - Against walls, parapets, etc more than 15' long

Upwind fetch	lu = 10.0 ft
Projection height	h = 12.0 ft
Snow density	g = 17.9 pcf
Balanced snow height	hb = 1.29 ft
	hd = 1.25 ft
	hc = 10.71 ft
hc/hb > 0.2 = 8.3	Therefore, design for drift
Drift height (hd)	= 1.25 ft
Drift width	w = 4.99 ft
Surcharge load:	pd = $\gamma * hd = 22.3 \text{ psf}$
Balanced Snow load:	= 23.1 psf
	45.4 psf

**Windward Snow Drifts 2 - Against walls, parapets, etc > 15'**

Upwind fetch	lu = 0.0 ft
Projection height	h = 0.0 ft
Snow density	g = 17.9 pcf
Balanced snow height	hb = 1.29 ft
	hd = 1.25 ft
	hc = -1.29 ft
hc/hb < 0.2 = -1.0	Therefore, no drift
Drift height (hc)	= 0.00 ft
Drift width	w = -10.32 ft
Surcharge load:	pd = $\gamma * hd = 0.0 \text{ psf}$
Balanced Snow load:	= 23.1 psf
	23.1 psf



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DESIGN DATA SUMMARY

GRAVITY LOADS

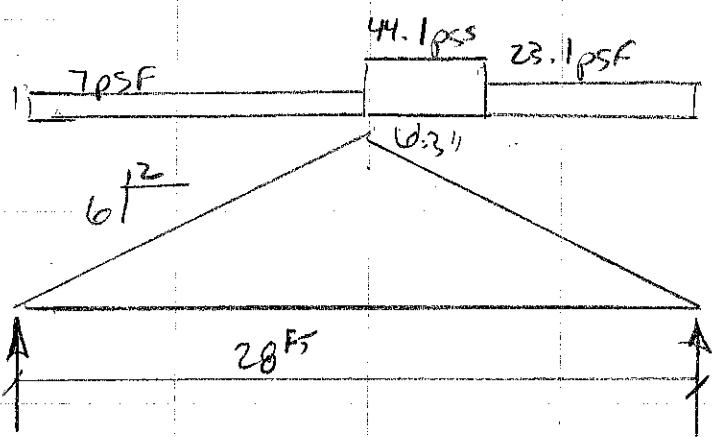
ROOF

SNOW = 30 psf

+ DRIFT AND/OR
UNBALANCE LOAD

DEAD = 20 psf

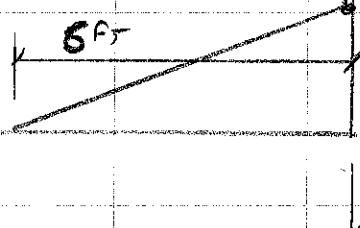
UNBALANCE SNOW



NOTE: uniform
SNOW OF 30 psf
GOVERNS OVER UNBALANCE

SNOW DRIFT & FLAT AREA

SNOW DRIFT = 23 psf



FLOOR

LIVE LOAD = 40 psf

DEAD LOAD = 15 psf

PARTITION = 15 psf

PATIO / DECKS

LIVE LOAD = 75 psf

DEAD LOAD = 15 psf

WIND

MWFRLS = 17.2 psf

CdC = 22 psf (ZONE 4)
= 27 psf (ZONE 5)

FOUNDATION DESIGN

EARTH PRESSURES

ACTIVE = 35 psf/ft

AT REST = 55 psf/ft

ASSUMED ALLOWABLE SOIL B.R.L = 2000 psf

SERVICEABILITY

DEFLECTION LIMITS

ROOF

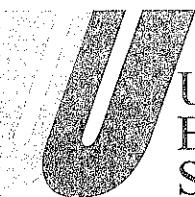
SNOW: $\Delta \leq \frac{l}{360}$

TOTAL $\Delta \leq \frac{l}{240}$

FLOOR

LIVE LOAD = $\Delta \leq \frac{l}{480}$

TOTAL LOAD = $\Delta \leq \frac{l}{240}$



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PROJECT LAKE GENEVA - VACATION RENTAL

DESCR. _____ PROJ. NO. _____

CALCULATED BY KSP DATE _____

CHECKED BY _____ DATE _____

SCALE _____ SHEET NO. _____

NEW ROOF JOISTS

CRITICAL SPAN = 10' 6"

SPACING = 24" O.C.

10' 0"

4' 6"

W_{SN} DRAFT
= 23(24/12)
= 46

$$W_{SN} = 30 \text{ psf} (24/12) = 60 \text{ lb/ft}$$

$$W_{DL} = 20 \text{ psf} (24/12) = 40 \text{ lb/ft}$$

10' 0"

$$R_{ASN} = 392$$

$$R_{ADL} = 226$$

$$R_{BSN} = 477$$

$$R_{BDL} = 227$$

USE 2x10's @ 24"

EXISTING ROOF RAFTERS

$$(SPAN, NL = 10' 0" C)$$

$$W_{SN} = 30 (10/12) = 40 \text{ lb/ft}$$

$$W_{DL} = 20 (10/12) = 27 \text{ lb/ft}$$

14FT

$$R_{AL} = 280 \text{ lb/ft}$$

$$R_{DL} = 189 \text{ lb/ft}$$

EXIST. ROOF JOIST - NEW CANTILEVER COND.

$$P_{LL} = 280 \text{ lb}$$

$$P_{DL} = 189 \text{ lb}$$

$$W_{SN} = 40 \text{ lb/ft}$$

$$W_{DL} = 27 \text{ lb/ft}$$

10'

12FT

2FT

$$R_{AL} = 187$$

$$R_{ADL} = 127 \text{ lb}$$

$$R_{BSN} = 653 \text{ lb}$$

$$R_{BDL} = 447 \text{ lb}$$

DESCR. _____ PROJ. NO. _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____ SHEET NO. _____



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NEW RIDGE BEAM (GRD LINE B)

$$W_{SN} = 6032(12/16) = 490$$

$$W_{DL} = 441(12/16) = 331$$

18'-0"

R_{ASN} = 4533R_{ADL} = 3662

USE 5'2" x 5' GLULAM
 DOUG FIR 24F. 1.8E
 BALANCED

NEW Beam @ EXISTING WALL (LINE C2)

$$W_{SN} = 277/2 + 187(12/16) = 379$$

$$W_{DL} = 227/2 + 127(12/16) = 209$$

18'-0"

R_{ASN} = 3500R_{ADL} = 193.1

USE 5 1/2 x 13 1/2 GLULAM
 DOUG FIR 24F. 1.8E
 BALANCED

NEW RIM BEAM - LINE E2

$$W_{SN} = 30(5) = 150$$

$$W_{DL} = 20(5) = 100$$

18'-0"

R_{ASN} = 1388R_{ADL} = 925NEW CANTILEVER ROOF BEAM

$$P_{SN} = 2(1388) = 2776$$

$$P_{DL} = 825(2) = 1650$$

$W_{SN} = 60$	$W_{DL} = 20$
$W_{DL} = 40$	$W_{DL} = 20$

10

15

R_{ASN} = 5427R_{ASN} = -2051R_{ADL} = 4092R_{ADL} = 95

 WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:26	New Roof Joists over Deck Area

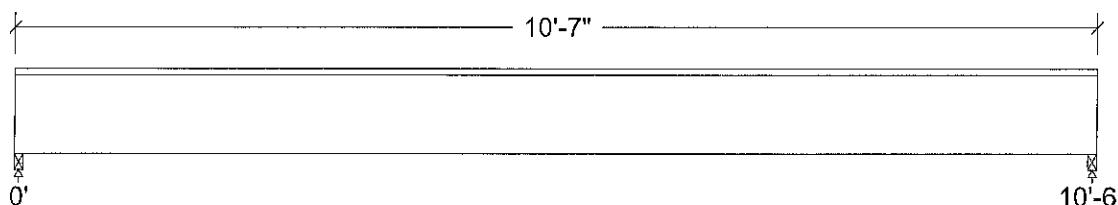
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start	End	
Load1	Snow	Full UDL			69.0	plf
Load2	Dead	Full UDL			40.0	plf
Load3	Snow	Triangular		4.53	10.53	0.0 46.0 plf
Self-weight	Dead	Full UDL			2.8	plf

Load magnitude does not include Normal Importance factor from Table 4.2.3.2, which is applied during analysis.

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :

Unfactored:			
Dead	226		227
Snow	392		477
Factored:			
Total	618		703
Bearing:			
Capacity			
Joist	618		703
Support	1136		1293
Anal/Des			
Joist	1.00		1.00
Support	0.54		0.54
Load comb	#2		#2
Length	0.97		1.10
Min req'd	0.97		1.10
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.25		1.25
Fcp sup	625		625

Lake Geneva - Vacation Rental - New Roof Joists**Lumber-soft, S-P-F, No.1/No.2, 2x10 (1-1/2"x9-1/4")**

Supports: All - Timber-soft Beam, D.Fir-L No.2

Roof joist spaced at 16.0" c/c; Total length: 10'-7.0"; volume = 1.0 cu.ft.;

Lateral support: top= full, bottom= at supports; Repetitive factor: applied where permitted (refer to online help);

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 62$	$F_{v'} = 155$	psi	$f_v/F_{v'} = 0.40$
Bending (+)	$f_b = 943$	$F_{b'} = 1273$	psi	$f_b/F_{b'} = 0.74$
Live Defl'n	$0.16 = L/802$	$0.53 = L/240$	in	0.30
Total Defl'n	$0.28 = L/443$	$0.70 = L/180$	in	0.41

WoodWorks® Sizer**SOFTWARE FOR WOOD DESIGN**

New Roof Joists over Deck Area

WoodWorks® Sizer 10.4

Page 2

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	Cn	LC#
Fv'	135	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	875	1.15	1.00	1.00	1.000	1.100	1.00	1.15	1.00	1.00	-	2
Fcp'	425	-	1.00	1.00	-	-	-	-	1.00	1.00	-	-
E'	1.4 million	1.00	1.00	-	-	-	-	-	1.00	1.00	-	2
Emin'	0.51 million	1.00	1.00	-	-	-	-	-	1.00	1.00	-	2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+S, V = 698, V design = 574 lbs

Bending(+) : LC #2 = D+S, M = 1682 lbs-ft

Deflection: LC #2 = D+S (live)

LC #2 = D+S (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 139e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.
4. FIRE RATING: Joists, wall studs, and multi-ply members are not rated for fire endurance.



May 1, 2017 03:26

New Ridge Beam - Grid Line B

Design Check Calculation Sheet

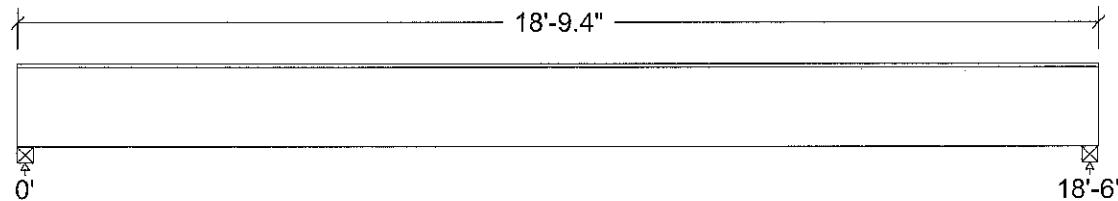
WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat- tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Snow	Full UDL				490.0		plf
Load2	Dead	Full UDL				331.0		plf
Self-weight	Dead	Full UDL				13.3		plf

Load magnitude does not include Normal Importance factor from Table 4.2.3.2, which is applied during analysis.

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	3232		3232
Snow	4603		4603
Factored:			
Total	7835		7835
Bearing:			
Capacity			
Beam	7835		7835
Support	8341		8341
Anal/Des			
Beam	1.00		1.00
Support	0.94		0.94
Load comb	#2		#2
Length	3.44		3.44
Min req'd	3.44		3.44
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.11		1.11
Fcp sup	625		625

Lake Geneva - Vacation Rental - New Roof Joists Glulam-Bal., West Species, 24F-1.8E WS, 3-1/2"x16-1/2"

11 laminations, 3-1/2" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 18'-9.4"; volume = 7.5 cu.ft.;

Lateral support: top= full, bottom= at supports;

New Ridge Beam - Grid Line B

WoodWorks® Sizer 10.4

Page 2

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 168$	$F_{v'} = 305$	psi	$f_v/F_{v'} = 0.55$
Bending(+)	$f_b = 2697$	$F_{b'} = 2760$	psi	$f_b/F_{b'} = 0.98$
Live Defl'n	$0.55 = L/405$	$0.62 = L/360$	in	0.89
Total Defl'n	$1.12 = L/197$	$1.23 = L/180$	in	0.91

Additional Data:

FACTORS:	F/E(psi)CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
$F_{v'}$	265	1.15	1.00	1.00	-	-	-	1.00	1.00	1.00	2
$F_{b'}+$	2400	1.15	1.00	1.00	1.000	1.000	1.00	1.00	1.00	-	2
$F_{cp'}$	650	-	1.00	1.00	-	-	-	1.00	-	-	-
E'	1.8 million	1.00	1.00	-	-	-	-	1.00	-	-	2
$E_{miny'}$	0.85 million	1.00	1.00	-	-	-	-	1.00	-	-	2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+S, V = 7717, V design = 6450 lbs

Bending(+) : LC #2 = D+S, M = 35692 lbs-ft

Deflection: LC #2 = D+S (live)

LC #2 = D+S (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 2358e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



COMPANY	PROJECT
	May 1, 2017 03:25 New Beam @ Existing Wall - Grid Line C2

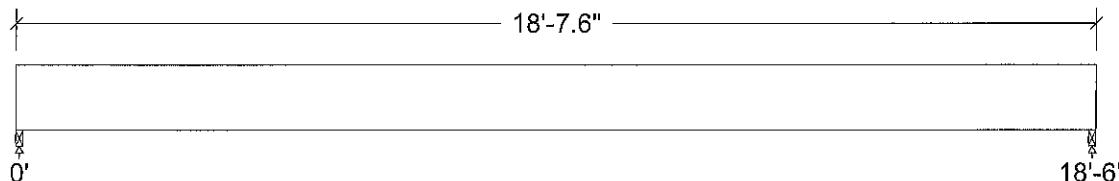
Design Check Calculation Sheet
WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat- tern	Location [ft]	Magnitude	Unit
				Start	End	
Load1	Snow	Full UDL			379.0	plf
Load2	Dead	Full UDL			209.0	plf
Self-weight	Dead	Full UDL			17.1	plf

Load magnitude does not include Normal Importance factor from Table 4.2.3.2, which is applied during analysis.

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	2105		2105
Snow	3531		3531
Factored:			
Total	5636		5636
Bearing:			
Capacity			
Beam	5636		5636
Support	5788		5788
Anal/Des			
Beam	1.00		1.00
Support	0.97		0.97
Load comb	#2		#2
Length	1.58		1.58
Min req'd	1.58		1.58
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.07		1.07
Fcp sup	625		625

Lake Geneva - Vacation Rental - New Beam @ Existing Wall (Line C2)

Glulam-Bal., West Species, 24F-1.8E WS, 5-1/2"x13-1/2"

9 laminations, 5-1/2" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 18'-7.6"; volume = 9.6 cu.ft.;

Lateral support: top= at supports, bottom= at supports;

WoodWorks® Sizer**SOFTWARE FOR WOOD DESIGN**

New Beam @ Existing Wall - Grid Line C2 WoodWorks® Sizer 10.4

Page 2

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 99$	$F_{v'} = 305$	psi	$f_v/F_{v'} = 0.32$
Bending (+)	$f_b = 1859$	$F_{b'} = 2642$	psi	$f_b/F_{b'} = 0.70$
Live Defl'n	$0.49 = L/451$	$0.62 = L/360$	in	0.80
Total Defl'n	$0.93 = L/238$	$1.23 = L/180$	in	0.76

Additional Data:

FACTORS:	F/E(psi)CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
$F_{v'}$	265	1.15	1.00	1.00	-	-	-	1.00	1.00	1.00	2
$F_{b'}+$	2400	1.15	1.00	1.00	0.957	0.994	1.00	1.00	1.00	1.00	-
$F_{cp'}$	650	-	1.00	1.00	-	-	-	1.00	-	-	-
E'	1.8 million	1.00	1.00	-	-	-	-	1.00	-	-	2
$E_{miny'}$	0.85 million	1.00	1.00	-	-	-	-	1.00	-	-	2

Only the lesser of CL and CV is applied, as per NDS 5.3.6

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+S, V = 5597, V design = 4877 lbs

Bending (+): LC #2 = D+S, M = 25887 lbs-ft

Deflection: LC #2 = D+S (live)
LC #2 = D+S (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 2030e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Lateral stability (+): Lu = 18'-6.00" Le = 34'-0.50" RB = 13.50

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



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SOFTWARE FOR WOOD DESIGN

COMPANY

PROJECT

May 1, 2017 03:25

New Cantilever Roof Beam

Design Check Calculation Sheet

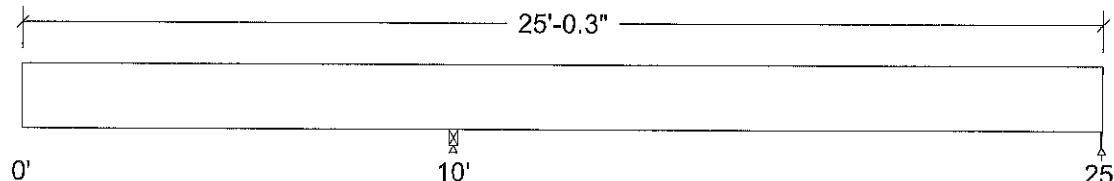
WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start	End	
Load1	Snow	Point	Yes	0.00	2776	lbs
Load2	Dead	Point	No	0.00	1850	lbs
Load3	Dead	Partial UDL	No	0.00	10.00	40.0 40.0 plf
Load4	Snow	Partial UDL	Yes	0.00	10.00	60.0 60.0 plf
Self-weight	Dead	Full UDL	No		22.8	plf

Load magnitude does not include Normal Importance factor from Table 4.2.3.2, which is applied during analysis.

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:		4092		95
Dead		5427		-2051
Snow				
Factored:				
Uplift				3322
Total		9518		95
Bearing:				
Capacity		10608		1787
Beam		9518		1836
Support				
Anal/Des				
Beam		0.90		0.05
Support		1.00		0.05
Load comb		#2		#1
Length		2.59		0.50*
Min req'd		2.59**		0.50*
Cb		1.14		1.00
Cb min		1.14		1.00
Cb support		1.07		1.07
Fcp sup		625		625

*Minimum bearing length setting used: 1/2" for end supports

**Minimum bearing length governed by the required width of the supporting member.

Maximum reaction on at least one support is from a different load combination than the critical one for bearing design, shown here, due to Kd factor. See Analysis results for reaction from critical load combination.

Lake Geneva - Vacation Rental - New Cantilever Roof Beam

Glulam-Bal., West Species, 24F-1.8E WS, 5-1/2"x18"

12 laminations, 5-1/2" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 25'-0.3"; volume = 17.2 cu.ft.;

Lateral support: top= at supports, bottom= at supports;

New Cantilever Roof Beam

WoodWorks® Sizer 10.4

Page 2

This section FAILS the design check

WARNING: This section violates the following design criteria: Deflection

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 86$	$F_{v'} = 305$	psi	$f_v/F_{v'} = 0.28$
Bending (-)	$f_b = 2117$	$F_{b'} = 2586$	psi	$f_b/F_{b'} = 0.82$
Deflection:				
Interior Live	$-0.16 = <L/999$	$0.50 = L/360$	in	0.32
Total	$-0.32 = L/562$	$1.00 = L/180$	in	0.32
Cantil. Live	$0.91 = L/131$	$0.67 = L/180$	in	1.37
Total	$1.85 = L/64$	$1.33 = L/90$	in	1.39

Additional Data:

FACTORS:	F/E(psi)CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
F_v'	265	1.15	1.00	1.00	-	-	-	1.00	1.00	1.00	2
$F_{b'}$	2400	1.15	1.00	1.00	0.974	0.937	1.00	1.00	1.00	1.00	2
$F_{cp'}$	650	-	1.00	1.00	-	-	-	1.00	-	-	-
E'	1.8 million	1.00	1.00	-	-	-	-	1.00	-	-	2
$E_{miny'}$	0.85 million	1.00	1.00	-	-	-	-	1.00	-	-	2

Only the lesser of CL and CV is applied, as per NDS 5.3.6

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+S, V = 5854, V design = 5669 lbs

Bending (-): LC #2 = D+S, M = 52400 lbs-ft

Deflection: LC #2 = D+S (live)

LC #2 = D+S (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load Patterns: s=S/2, X=L+S or L+Lr, _=no pattern load in this span

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 4811e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Lateral stability (-): Lu = 10' Le = 18'-8.38" RB = 11.56

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. Grades with equal bending capacity in the top and bottom edges of the beam cross-section are recommended for continuous beams.
5. GLULAM: bxd = actual breadth x actual depth.
6. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
7. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



COMPANY

PROJECT

May 1, 2017 03:26

New Rim Beam - Line E.2

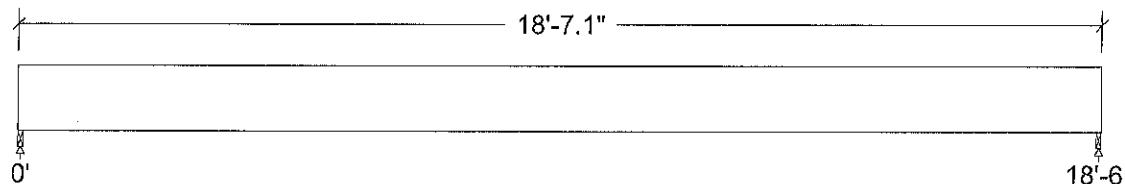
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start End	Start End	
Load1	Snow	Full UDL			150.0	plf
Load2	Dead	Full UDL			100.0	plf
Self-weight	Dead	Full UDL			10.9	plf

Load magnitude does not include Normal Importance factor from Table 4.2.3.2, which is applied during analysis.

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :

Unfactored:			
Dead	1030		1030
Snow	1394		1394
Factored:			
Total	2424		2424
Bearing:			
Capacity			
Beam	2424		2424
Support	2581		2581
Anal/Des			
Beam	1.00		1.00
Support	0.94		0.94
Load comb	#2		#2
Length	1.07		1.07
Min req'd	1.07		1.07
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.11		1.11
Fcp sup	.625		.625

Lake Geneva - Vacation Rental - New Beam @ Existing Wall (Line C2)**Glulam-Bal., West Species, 24F-1.8E WS, 3-1/2"x13-1/2"**

9 laminations, 3-1/2" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 18'-7.1"; volume = 6.1 cu.ft.;

Lateral support: top= at supports, bottom= at supports;

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 67$	$F_{v'} = 305$	psi	$f_v/F_{v'} = 0.22$
Bending (+)	$f_b = 1260$	$F_{b'} = 2002$	psi	$f_b/F_{b'} = 0.63$
Live Defl'n	$0.31 = L/725$	$0.62 = L/360$	in	0.50
Total Defl'n	$0.65 = L/343$	$1.23 = L/180$	in	0.52

WoodWorks® Sizer**SOFTWARE FOR WOOD DESIGN**

New Rim Beam - Line E.2

WoodWorks® Sizer 10.4

Page 2

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
Fv'	265	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb' +	2400	1.15	1.00	1.00	0.725	1.000	1.00	1.00	1.00	1.00	-	2
Fcp'	650	-	1.00	1.00	-	-	-	-	1.00	-	-	-
E'	1.8 million	1.00	1.00	-	-	-	-	-	1.00	-	-	2
Eminy'	0.85 million	1.00	1.00	-	-	-	-	-	1.00	-	-	2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+S, V = 2413, V design = 2108 lbs

Bending (+): LC #2 = D+S, M = 11161 lbs-ft

Deflection: LC #2 = D+S (live)

LC #2 = D+S (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 1292e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Lateral stability (+): Lu = 18'-6.00" Le = 34'-0.50" RB = 21.22

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



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PROJECT _____
 DESCR. _____ PROJ. NO. _____
 CALCULATED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 SCALE _____ SHEET NO. _____

2ND & 1ST FLOOR JOIST REACTIONS

$$\text{SPAN} = 141.0''$$

$$W_{LL} = 40 \text{ psf} + 15 = 55 \text{ psf}$$

$$W_{DL} = 10 \text{ psf} =$$

14 FT

$$W_{LL} = 385 \text{ lb/ft}$$

$$W_{DL} = 70 \text{ lb/ft}$$

BEAM - LINE C.2

$$W_{LL} = 385 \text{ lb/ft}$$

$$W_{DL} = 70 \text{ lb/ft}$$

18 FT

use $5\frac{1}{2} \times 13\frac{1}{2}$ "
GLULAM

NEW FLOOR JOISTS (SCREEN PATIO)

$$(\text{SPACING} = 10'0")$$

$$W_{LL} = (40 + 5) 10\frac{1}{2} = 74$$

$$W_{DL} = 15(16\frac{1}{2}) = 201 \text{ lb/psf}$$

15'0"

$$P_{ALL} = 555$$

$$P_{ADL} = 150$$

use $2 \times 12's \} \text{N.G.}$
 $\ominus 16^4$

SPACE $12'' \text{ o.c.}$

BEAM - LINE C.2 (SCREEN PATIO)

$$W_{LL} = 55 \text{ psf} (7.5 + 3.5) = 605$$

$$W_{DL} = 15 \text{ psf} (7.5 + 3.5) = 165$$

16'6"

$5\frac{1}{2} \times 13\frac{1}{2}$ GLULAM

NEW GLULAM - LINE B

$$W_{LL} = 55(7.5 + 6.5) = 770$$

$$W_{DL} = 15(7.5 + 6.5) = 210$$

18 FT

$5\frac{1}{2} \times 16\frac{1}{2}$ GLULAM



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SECOND FLOOR FRAMING

NEW DECK JOISTS

(SPACING = 16" O.C.)

$$WLL = 75(16/12) = 100 \text{ psf}$$

$$WDL = 15(16/12) = 20 \text{ psf}$$

10FT

$$P_{AL} = 500 \text{ lb}$$

$$P_{DL} = 100 \text{ psf}$$

TREATED 2x10's
@ 16"

NEW DECK RIM BEAM

$$WLL = 75(5) = 375 \text{ psf}$$

$$WDL = 15(5) = 75 \text{ psf}$$

14.66"

$$P_{AL} = 27.19$$

$$P_{DL} = 544 \text{ lb}$$

3 1/2 + 3 1/2 GULUM

BEAM ALONG STAIR

$$P_{AL} = 920 \text{ lb}$$

$$P_{DL} = 245$$

15'

↓ 3.66" 319

$$WLL = 75 + 2.5 = 78.8$$

$$WDL = 20 + 2.5 = 50$$

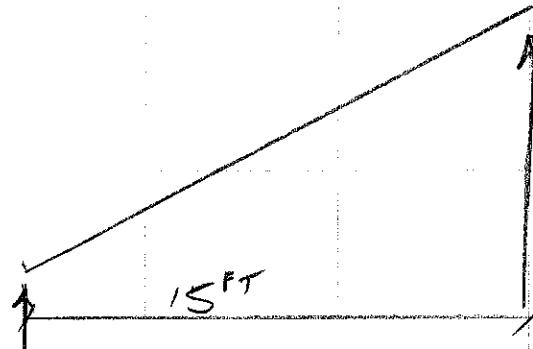
18.66"

3 1/2 x 15" GULUM

NEIN DECK STAIR SPANNING

$$WLL = 75(2) = 150$$

$$WDL = 20(2) = 40$$



3 1/8 x 12" GL4 LUM

CANTILEVERED BM-LINE 2

$$P_{AL} = 1350 + 2500$$

$$P_{DL} = 270 + 500$$

$$P_{AL} = 1350$$

$$P_{DL} = 270 \text{ lb}$$

3' 6" ↓ 5' 6"

$$WLL = 40(16/12)$$

$$WDL = 15(16/12)$$



8 3/4 x 19 1/2

LIN 3 8 3/4 + 10 1/2

LIN 2 9 3/4 + 19 1/2

LIN 1 7 3/4 + 5 1/2 + 16 1/2



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PROJECT

May 1, 2017 03:28

New Deck Joists

Design Check Calculation Sheet

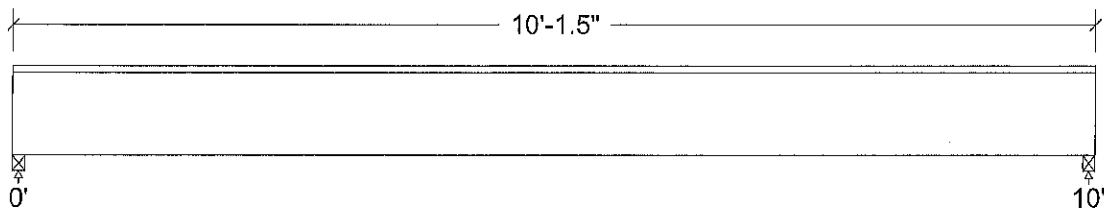
WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat- tern	Location [ft]	Magnitude	Unit
				Start	End	
Load3	Dead	Full UDL			20.0	plf
Load4	Snow	Full UDL			100.0	plf
Self-weight	Dead	Full UDL			2.8	plf

Load magnitude does not include Normal Importance factor from Table 4.2.3.2, which is applied during analysis.

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	115		115
Snow	506		506
Factored:			
Total	621		621
Bearing:			
Capacity			
Joist	621		621
Support	1142		1142
Anal/Des			
Joist	1.00		1.00
Support	0.54		0.54
Load comb	#2		#2
Length	1.45		1.45
Min req'd	1.45		1.45
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.25		1.25
Fcp sup	625		625

Lake Geneva - Vacation Rental - New Deck Joists

Lumber-soft, S-P-F, No.1/No.2, 2x10 (1-1/2"x9-1/4")

Supports: All - Timber-soft Beam, D.Fir-L No.2

Floor joist spaced at 16.0" c/c; Total length: 10'-1.5"; volume = 1.0 cu.ft.;

Service: wet; Lateral support: top= full, bottom= at supports; Repetitive factor: applied where permitted (refer to online help);

New Deck Joists

WoodWorks® Sizer 10.4

Page 2

Analysis vs. Allowable Stress and Deflection using NDS 2012:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 55$	$F_{v'} = 151$	psi	$f_v/F_{v'} = 0.37$
Bending (+)	$f_b = 861$	$F_{b'} = 1273$	psi	$f_b/F_{b'} = 0.68$
Live Defl'n	$0.18 = L/664$	$0.33 = L/360$	in	0.54
Total Defl'n	$0.26 = L/456$	$0.50 = L/240$	in	0.53

Additional Data:

FACTORS:	F/E(psi)CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	Cn	LC#
$F_{v'}$	135	1.15	0.97	1.00	-	-	-	1.00	1.00	1.00	2
$F_{b'}+$	875	1.15	1.00	1.00	1.000	1.100	1.00	1.15	1.00	1.00	-
$F_{cp'}$	425	-	0.67	1.00	-	-	-	-	1.00	1.00	-
E'	1.4 million	0.90	1.00	-	-	-	-	-	1.00	1.00	-
$E_{min'}$	0.51 million	0.90	1.00	-	-	-	-	-	1.00	1.00	2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+S, V = 614, V design = 512 lbs

Bending (+): LC #2 = D+S, M = 1535 lbs-ft

Deflection: LC #2 = D+S (live)

LC #2 = D+S (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 139e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 2.00(Dead Load Deflection) + Live Load Deflection.

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.
4. FIRE RATING: Joists, wall studs, and multi-ply members are not rated for fire endurance.



COMPANY

PROJECT

2nd floor

May 1, 2017 03:29

New Deck Rim Beam

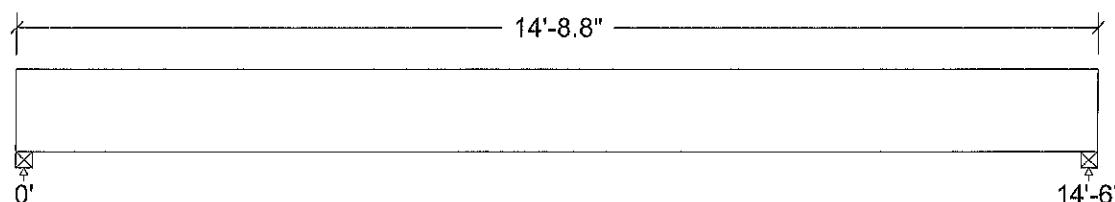
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start End	Start End	
Load3	Dead	Full UDL			75.0	plf
Load4	Live	Full UDL			375.0	plf
Self-weight	Dead	Full UDL			10.9	plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	631		631
Live	2763		2763
Factored:			
Total	3394		3394
Bearing:			
Capacity			
Beam	3394		3394
Support	4568		4568
Anal/Des			
Beam	1.00		1.00
Support	0.74		0.74
Load comb	#2		#2
Length	2.82		2.82
Min req'd	2.82		2.82
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.11		1.11
Fcp sup	625		625

Lake Geneva - Vacation Rental - New Deck Rim Beam

Glulam-Bal., West Species, 24F-1.8E WS, 3-1/2"x13-1/2"

9 laminations, 3-1/2" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 14'-8.8"; volume = 4.8 cu.ft.;

Service: wet; Lateral support: top= at supports, bottom= at supports;

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 88$	$F_{v'} = 232$	psi	$f_v/F_{v'} = 0.38$
Bending (+)	$f_b = 1367$	$F_{b'} = 1705$	psi	$f_b/F_{b'} = 0.80$
Live Defl'n	$0.35 = L/501$	$0.48 = L/360$	in	0.72
Total Defl'n	$0.51 = L/344$	$0.72 = L/240$	in	0.70

WoodWorks® Sizer**SOFTWARE FOR WOOD DESIGN**

New Deck Rim Beam

WoodWorks® Sizer 10.4**Page 2****Additional Data:**

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
Fv'	265	1.00	0.88	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	2400	1.00	0.80	1.00	0.888	1.000	1.00	1.00	1.00	1.00	-	2
Fcp'	650	-	0.53	1.00	-	-	-	-	1.00	-	-	-
E'	1.8 million	0.83	1.00	-	-	-	-	-	1.00	-	-	2
Eminy'	0.85 million	0.83	1.00	-	-	-	-	-	1.00	-	-	2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+L, V = 3341, V design = 2769 lbs

Bending (+): LC #2 = D+L, M = 12112 lbs-ft

Deflection: LC #2 = D+L (live)

LC #2 = D+L (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 1292e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 2.00(Dead Load Deflection) + Live Load Deflection.

Lateral stability (+): Lu = 14'-6.00" Le = 27'-0.13" RB = 18.90

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



COMPANY

PROJECT

2ND FLOOR

May 1, 2017 03:28

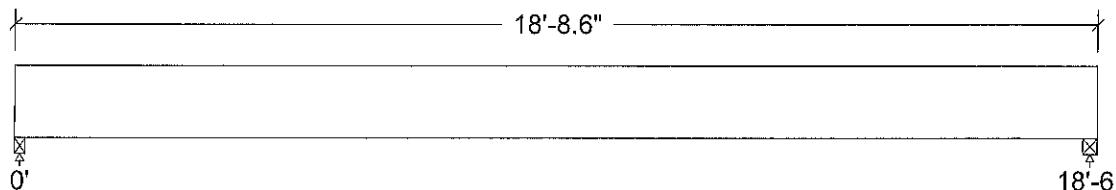
New Beam Along Stair

Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start	End	
Load3	Live	Partial UDL		0.00	15.00	188.0 plf
Load4	Dead	Partial UDL		0.00	15.00	50.0 50.0 plf
Load5	Live	Partial UDL		15.00	18.50	319.0 319.0 plf
Load6	Dead	Partial UDL		15.00	18.50	64.0 64.0 plf
Load7	Dead	Point		15.00		245 lbs
Load8	Live	Point		15.00		920 lbs
Self-weight	Dead	Full UDL				12.1 plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :

Unfactored:			
Dead	631		811
Live	1980		2876
Factored:			
Total	2612		3687
Bearing:			
Capacity			
Beam	2612		3687
Support	3515		4962
Anal/Des			
Beam	1.00		1.00
Support	0.74		0.74
Load comb	#2		#2
Length	2.17		3.06
Min req'd	2.17		3.06
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.11		1.11
Fcp sup	625		625

**Lake Geneva - Vacation Rental - New Deck Rim Beam
Glulam-Bal., West Species, 24F-1.8E WS, 3-1/2"x15"**

10 laminations, 3-1/2" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 18'-8.6"; volume = 6.8 cu.ft.;

Service: wet; Lateral support: top= at supports, bottom= at supports;

New Beam Along Stair

WoodWorks® Sizer 10.4

Page 2

Analysis vs. Allowable Stress and Deflection using NDS 2012:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 91$	$F_{v'} = 232$	psi	$f_v/F_{v'} = 0.39$
Bending (+)	$f_b = 1226$	$F_{b'} = 1464$	psi	$f_b/F_{b'} = 0.84$
Live Defl'n	$0.43 = L/510$	$0.62 = L/360$	in	0.71
Total Defl'n	$0.70 = L/315$	$0.93 = L/240$	in	0.76

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
F _{v'}	265	1.00	0.88	1.00	-	-	-	-	1.00	1.00	1.00	2
F _{b'+}	2400	1.00	0.80	1.00	0.762	1.000	1.00	1.00	1.00	1.00	-	2
F _{cp'}	650	-	0.53	1.00	-	-	-	-	1.00	-	-	-
E'	1.8 million	0.83	1.00	-	-	-	-	-	1.00	-	-	2
E _{miny'}	0.85 million	0.83	1.00	-	-	-	-	-	1.00	-	-	2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+L, V = 3687, V design = 3186 lbs

Bending (+): LC #2 = D+L, M = 13410 lbs-ft

Deflection: LC #2 = D+L (live)

LC #2 = D+L (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 1772e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 2.00(Dead Load Deflection) + Live Load Deflection.

Lateral stability (+): Lu = 18'-6.00" Le = 34'-0.50" RB = 22.36

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



COMPANY

PROJECT

May 1, 2017 03:28

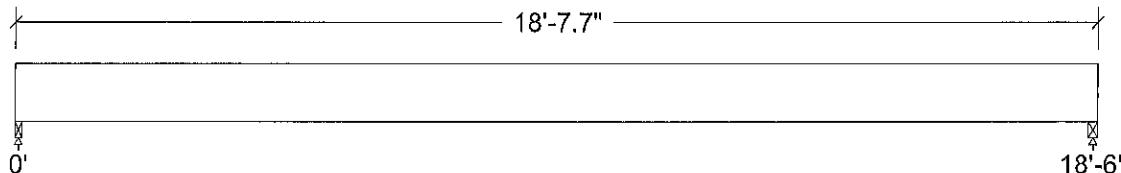
New Beam Along Stair-1st Floor

Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start	End	
Load3	Live	Partial UDL		0.00	15.00	188.0
Load4	Dead	Partial UDL		0.00	15.00	50.0
Load5	Live	Partial UDL		15.00	18.50	319.0
Load6	Dead	Partial UDL		15.00	18.50	64.0
Load7	Dead	Point		15.00		245
Load8	Live	Point		15.00		920
Self-weight	Dead	Full UDL				15.2

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :

Unfactored:			
Dead	658		842
Live	1972		2885
Factored:			
Total	2630		3727
Bearing:			
Capacity			
Beam	2630		3727
Support	3415		4839
Anal/Des			
Beam	1.00		1.00
Support	0.77		0.77
Load comb	#2		#2
Length	1.39		1.97
Min req'd	1.39		1.97
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.07		1.07
Fcp sup	625		625

Lake Geneva - Vacation Rental - New Deck Rim Beam-1st Floor**Glulam-Bal., West Species, 24F-1.8E WS, 5-1/2"x12"**

8 laminations, 5-1/2" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 18'-7.7"; volume = 8.5 cu.ft.;

Service: wet; Lateral support: top= at supports, bottom= at supports;

WoodWorks® Sizer**SOFTWARE FOR WOOD DESIGN**

New Beam Along Stair-1st Floor

WoodWorks® Sizer 10.4

Page 2

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 76$	$F_{v'} = 232$	psi	$f_v/F_{v'} = 0.33$
Bending (+)	$f_b = 1228$	$F_{b'} = 1868$	psi	$f_b/F_{b'} = 0.66$
Live Defl'n	$0.54 = L/411$	$0.62 = L/360$	in	0.87
Total Defl'n	$0.89 = L/250$	$0.93 = L/240$	in	0.96

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
$F_{v'}$	265	1.00	0.88	1.00	-	-	-	-	1.00	1.00	1.00	2
$F_{b'}+$	2400	1.00	0.80	1.00	0.973	1.000	1.00	1.00	1.00	1.00	-	2
$F_{cp'}$	650	-	0.53	1.00	-	-	-	-	1.00	-	-	-
E'	1.8 million	0.83	1.00	-	-	-	-	-	1.00	-	-	2
$E_{miny'}$	0.85 million	0.83	1.00	-	-	-	-	-	1.00	-	-	2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+L, V = 3727, V design = 3323 lbs

Bending (+): LC #2 = D+L, M = 13510 lbs-ft

Deflection: LC #2 = D+L (live)

LC #2 = D+L (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 1426e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 2.00(Dead Load Deflection) + Live Load Deflection.

Lateral stability (+): Lu = 18'-6.00" Le = 34'-0.50" RB = 12.73

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



WoodWorks®
SOFTWARE FOR WOOD DESIGN

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PROJECT

May 1, 2017 03:29

New Deck Rim Beam-1st Floor

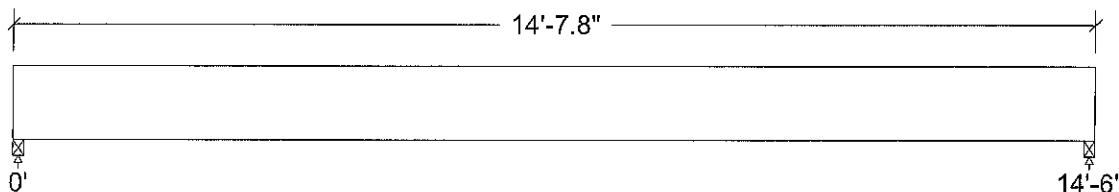
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat- tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load3	Dead	Full UDL				75.0		plf
Load4	Live	Full UDL				375.0		plf
Self-weight	Dead	Full UDL				15.2		plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:				
Dead	660			660
Live	2747			2747
Factored:				
Total	3406			3406
Bearing:				
Capacity				
Beam	3406			3406
Support	4423			4423
Anal/Des				
Beam	1.00			1.00
Support	0.77			0.77
Load comb	#2			#2
Length	1.80			1.80
Min req'd	1.80			1.80
Cb	1.00			1.00
Cb min	1.00			1.00
Cb support	1.07			1.07
Fcp sup	625			625

**Lake Geneva - Vacation Rental - New Deck Rim Beam-1st Floor
Glulam-Bal., West Species, 24F-1.8E WS, 5-1/2"x12"**

8 laminations, 5-1/2" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 14'-7.8"; volume = 6.7 cu.ft.;

Service: wet; Lateral support: top= at supports, bottom= at supports;

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 65$	$F_{v'} = 232$	psi	$f_v/F_{v'} = 0.28$
Bending (+)	$f_b = 1111$	$F_{b'} = 1883$	psi	$f_b/F_{b'} = 0.59$
Live Defl'n	$0.31 = L/553$	$0.48 = L/360$	in	0.65
Total Defl'n	$0.47 = L/374$	$0.72 = L/240$	in	0.64

WoodWorks® Sizer**SOFTWARE FOR WOOD DESIGN**

New Deck Rim Beam-1st Floor

WoodWorks® Sizer 10.4**Page 2****Additional Data:**

FACTORS:	F/E(psi)CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
Fv'	265	1.00	0.88	1.00	-	-	-	1.00	1.00	1.00	2
Fb'+	2400	1.00	0.80	1.00	0.981	1.000	1.00	1.00	1.00	-	2
Fcp'	650	-	0.53	1.00	-	-	-	1.00	-	-	-
E'	1.8 million	0.83	1.00	-	-	-	-	1.00	-	-	2
Eminy'	0.85 million	0.83	1.00	-	-	-	-	1.00	-	-	2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+L, V = 3373, V design = 2873 lbs

Bending (+): LC #2 = D+L, M = 12226 lbs-ft

Deflection: LC #2 = D+L (live)

LC #2 = D+L (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 1426e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 2.00(Dead Load Deflection) + Live Load Deflection.

Lateral stability (+): Lu = 14'-6.00" Le = 26'-8.19" RB = 11.27

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



COMPANY

PROJECT

May 1, 2017 03:29

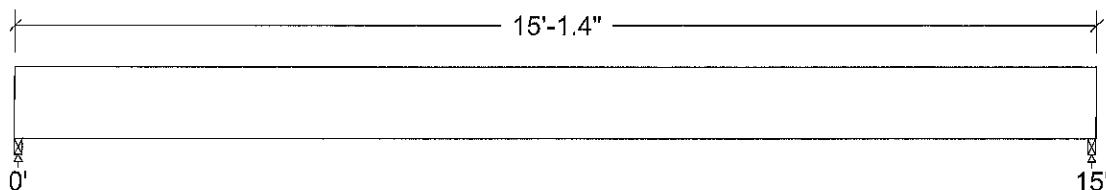
New Deck Stair Stringer Beam

Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start End	Start End	
Load1	Live	Full UDL			150.0	plf
Load2	Dead	Full UDL			40.0	plf
Self-weight	Dead	Full UDL			8.6	plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :

Unfactored:				
Dead	367			367
Live	1134			1134
Factored:				
Total	1501			1501
Bearing:				
Capacity				
Beam	1501			1501
Support	2043			2043
Anal/Des				
Beam	1.00			1.00
Support	0.73			0.73
Load comb	#2			#2
Length	1.39			1.39
Min req'd	1.39			1.39
Cb	1.00			1.00
Cb min	1.00			1.00
Cb support	1.12			1.12
Fcp sup	625			625

**Lake Geneva - Vacation Rental - New Deck Stair Stringer
Glulam-Bal., West Species, 24F-1.8E WS, 3-1/8"x12"**

8 laminations, 3-1/8" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 15'-1.4"; volume = 3.9 cu.ft.;

Service: wet; Lateral support: top= at supports, bottom= at supports;

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 51$	$F_{v'} = 232$	psi	$f_v/F_{v'} = 0.22$
Bending (+)	$f_b = 894$	$F_{b'} = 1630$	psi	$f_b/F_{b'} = 0.55$
Live Defl'n	$0.25 = L/710$	$0.50 = L/360$	in	0.51
Total Defl'n	$0.42 = L/431$	$0.75 = L/240$	in	0.56

WoodWorks® Sizer**SOFTWARE FOR WOOD DESIGN**

New Deck Stair Stringer Beam

WoodWorks® Sizer 10.4**Page 2****Additional Data:**

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
Fv'	265	1.00	0.88	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	2400	1.00	0.80	1.00	0.849	1.000	1.00	1.00	1.00	1.00	-	2
Fcp'	650	-	0.53	1.00	-	-	-	-	1.00	-	-	-
E'	1.8 million	0.83	1.00	-	-	-	-	-	1.00	-	-	2
Eminy'	0.85 million	0.83	1.00	-	-	-	-	-	1.00	-	-	2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+L, V = 1490, V design = 1280 lbs

Bending (+): LC #2 = D+L, M = 5587 lbs-ft

Deflection: LC #2 = D+L (live)

LC #2 = D+L (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 810e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 2.00(Dead Load Deflection) + Live Load Deflection.

Lateral stability (+): Lu = 15' Le = 27'-7.19" RB = 20.17

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



COMPANY	PROJECT
May 1, 2017 03:30	New Floor Beam Line B

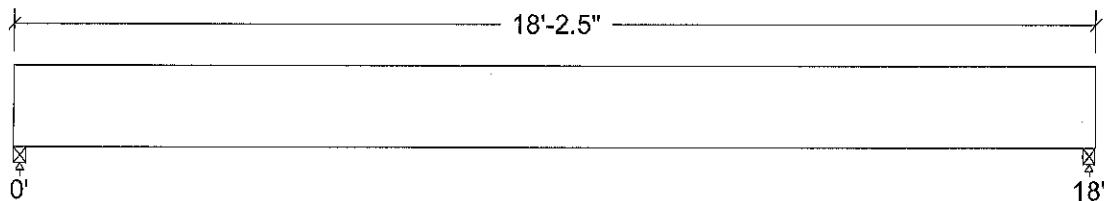
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start	End	
Load1	Live	Full UDL			770.0	plf
Load2	Dead	Full UDL			210.0	plf
Self-weight	Dead	Full UDL			20.9	plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	2100		2100
Live	7012		7012
Factored:			
Total	9112		9112
Bearing:			
Capacity			
Beam	9112		9112
Support	9359		9359
Anal/Des			
Beam	1.00		1.00
Support	0.97		0.97
Load comb	#2		#2
Length	2.55		2.55
Min req'd	2.55		2.55
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.07		1.07
Fcp sup	625		625

Lake Geneva - Vacation Rental - New Beam Line B Glulam-Bal., West Species, 24F-1.8E WS, 5-1/2"x16-1/2"

11 laminations, 5-1/2" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 18'-2.5"; volume = 11.5 cu.ft.;

Lateral support: top= at supports, bottom= at supports;

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 124$	$F_v' = 265$	psi	$f_v/F_v' = 0.47$
Bending (+)	$f_b = 1949$	$F_b' = 2289$	psi	$f_b/F_b' = 0.85$
Live Defl'n	$0.49 = L/440$	$0.60 = L/360$	in	0.82
Total Defl'n	$0.71 = L/303$	$0.90 = L/240$	in	0.79

WoodWorks® Sizer**SOFTWARE FOR WOOD DESIGN**

New Floor Beam Line B

WoodWorks® Sizer 10.4

Page 2

Additional Data:

FACTORS:	F/E (psi)	CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
Fv'	265	1.00	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb' +	2400	1.00	1.00	1.00	0.954	0.977	1.00	1.00	1.00	1.00	-	2
Fcp'	650	-	1.00	1.00	-	-	-	-	1.00	-	-	-
E'	1.8 million	1.00	1.00	-	-	-	-	-	1.00	-	-	2
Eminy'	0.85 million	1.00	1.00	-	-	-	-	-	1.00	-	-	2

Only the lesser of CL and CV is applied, as per NDS 5.3.6

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+L, V = 9008, V design = 7526 lbs

Bending (+): LC #2 = D+L, M = 40536 lbs-ft

Deflection: LC #2 = D+L (live)

LC #2 = D+L (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 3706e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Lateral stability (+): Lu = 18' Le = 33'-5.56" RB = 14.80

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



COMPANY	PROJECT
	May 1, 2017 03:30 New Floor Beam - Line C.2

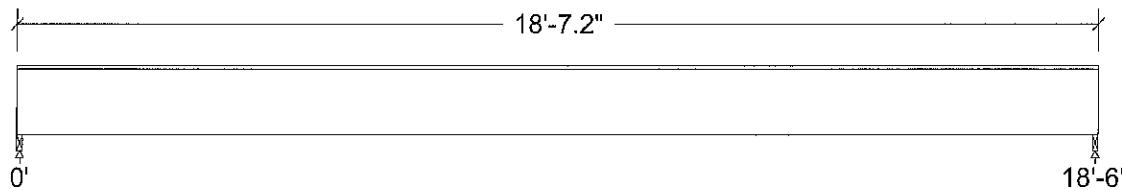
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start	End	
Load1	Live	Full UDL			385.0	plf
Load2	Dead	Full UDL			70.0	plf
Self-weight	Dead	Full UDL			17.1	plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	809		809
Live	3581		3581
Factored:			
Total	4390		4390
Bearing:			
Capacity			
Beam	4390		4390
Support	4509		4509
Anal/Des			
Beam	1.00		1.00
Support	0.97		0.97
Load comb	#2		#2
Length	1.23		1.23
Min req'd	1.23		1.23
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.07		1.07
Fcp sup	625		625

Lake Geneva - Vacation Rental - New Floor Beam - Line C.2

Glulam-Bal., West Species, 24F-1.8E WS, 5-1/2"x13-1/2"

9 laminations, 5-1/2" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 18'-7.2"; volume = 9.6 cu.ft.;

Lateral support: top= full, bottom= at supports;

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	f _v = 77	F _{v'} = 265	psi	f _v /F _{v'} = 0.29
Bending (+)	f _b = 1451	F _{b'} = 2385	psi	f _b /F _{b'} = 0.61
Live Defl'n	0.50 = L/444	0.62 = L/360	in	0.81
Total Defl'n	0.67 = L/331	0.93 = L/240	in	0.72

WoodWorks® Sizer**SOFTWARE FOR WOOD DESIGN**

New Floor Beam - Line C.2

WoodWorks® Sizer 10.4**Page 2****Additional Data:**

FACTORS:	F/E (psi)	CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
Fv'	265	1.00	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb' +	2400	1.00	1.00	1.00	1.000	0.994	1.00	1.00	1.00	1.00	-	2
Fcp'	650	-	1.00	1.00	-	-	-	-	1.00	-	-	-
E'	1.8 million	1.00	1.00	-	-	-	-	-	1.00	-	-	2
Eminy'	0.85 million	1.00	1.00	-	-	-	-	-	1.00	-	-	2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+L, V = 4367, V design = 3812 lbs

Bending (+) : LC #2 = D+L, M = 20197 lbs-ft

Deflection: LC #2 = D+L (live)

LC #2 = D+L (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 2030e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



COMPANY	PROJECT
	May 1, 2017 03:30 New Floor Joists Screen Patio (12 inches o.c.)

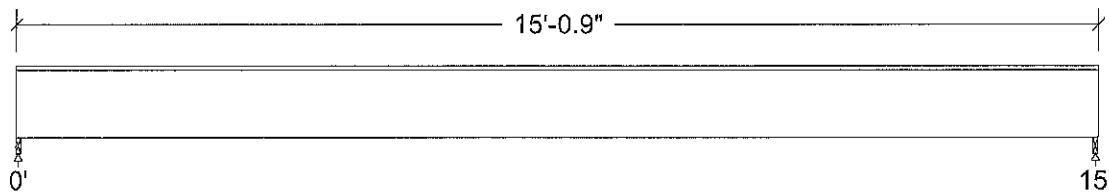
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start	End	
Load1	Live	Full UDL			55.0	plf
Load2	Dead	Full UDL			15.0	plf
Self-weight	Dead	Full UDL			3.4	plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:				
Dead	139			139
Live	414			414
Factored:				
Total	553			553
Bearing:				
Capacity				
Joist	553			553
Support	1017			1017
Anal/Des				
Joist	1.00			1.00
Support	0.54			0.54
Load comb	#2			#2
Length	0.87			0.87
Min req'd	0.87			0.87
Cb	1.00			1.00
Cb min	1.00			1.00
Cb support	1.25			1.25
Fcp sup	625			625

Lake Geneva - Vacation Rental - New Floor Joists Screen Patio

Lumber-soft, S-P-F, No.1/No.2, 2x12 (1-1/2"x11-1/4")

Supports: All - Timber-soft Beam, D.Fir-L No.2

Floor joist spaced at 12.0" c/c; Total length: 15'-0.9"; volume = 1.8 cu.ft.;

Lateral support: top= full, bottom= at supports; Repetitive factor: applied where permitted (refer to online help);

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 43$	$F_{v'} = 135$	psi	$f_v/F_{v'} = 0.32$
Bending (+)	$f_b = 783$	$F_{b'} = 1006$	psi	$f_b/F_{b'} = 0.78$
Live Defl'n	$0.25 = L/715$	$0.50 = L/360$	in	0.50
Total Defl'n	$0.38 = L/476$	$0.75 = L/240$	in	0.50

WoodWorks® Sizer**SOFTWARE FOR WOOD DESIGN**

New Floor Joists Screen Patio (12 inches o.c.) WoodWorks® Sizer 10.4

Page 2

Additional Data:

FACTORS:	F/E (psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	Cn	LC#
Fv'	135	1.00	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb' +	875	1.00	1.00	1.00	1.000	1.000	1.00	1.15	1.00	1.00	-	2
Fcp'	425	-	1.00	1.00	-	-	-	-	1.00	1.00	-	-
E'	1.4 million	1.00	1.00	-	-	-	-	-	1.00	1.00	-	2
Emin'	0.51 million	1.00	1.00	-	-	-	-	-	1.00	1.00	-	2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+L, V = 551, V design = 479 lbs

Bending (+) : LC #2 = D+L, M = 2065 lbs-ft

Deflection: LC #2 = D+L (live)

LC #2 = D+L (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 249e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.
4. FIRE RATING: Joists, wall studs, and multi-ply members are not rated for fire endurance.



COMPANY	PROJECT
	May 1, 2017 03:30 New Floor Beam Line C.2 @ Screen Patio

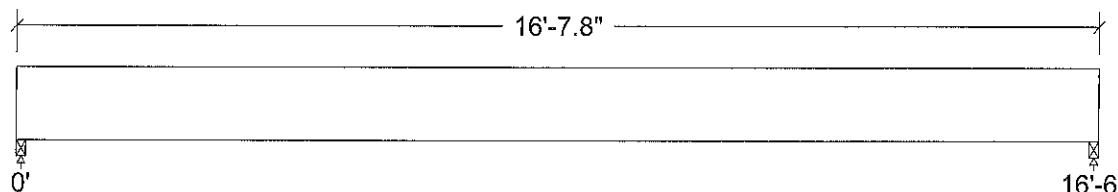
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start	End	
Load1	Live	Full UDL			605.0	plf
Load2	Dead	Full UDL			165.0	plf
Self-weight	Dead	Full UDL			17.1	plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	1515		1515
Live	5037		5037
Factored:			
Total	6552		6552
Bearing:			
Capacity			
Beam	6552		6552
Support	6730		6730
Anal/Des			
Beam	1.00		1.00
Support	0.97		0.97
Load comb	#2		#2
Length	1.83		1.83
Min req'd	1.83		1.83
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.07		1.07
Fcp sup	625		625

Lake Geneva - Vacation Rental - New Beam Line B Glulam-Bal., West Species, 24F-1.8E WS, 5-1/2"x13-1/2"

9 laminations, 5-1/2" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 16'-7.8"; volume = 8.6 cu.ft.;

Lateral support: top= at supports, bottom= at supports;

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 112$	$F_v' = 265$	psi	$f_v/F_v' = 0.42$
Bending (+)	$f_b = 1924$	$F_b' = 2331$	psi	$f_b/F_b' = 0.83$
Live Defl'n	$0.50 = L/398$	$0.55 = L/360$	in	0.90
Total Defl'n	$0.72 = L/274$	$0.82 = L/240$	in	0.87

WoodWorks® Sizer**SOFTWARE FOR WOOD DESIGN**

New Floor Beam Line C.2 @ Screen Patio WoodWorks® Sizer 10.4

Page 2

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
Fv'	265	1.00	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb' +	2400	1.00	1.00	1.00	0.971	1.000	1.00	1.00	1.00	1.00	-	2
Fcp'	650	-	1.00	1.00	-	-	-	-	1.00	-	-	-
E'	1.8 million	1.00	1.00	-	-	-	-	-	1.00	-	-	2
Eminy'	0.85 million	1.00	1.00	-	-	-	-	-	1.00	-	-	2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+L, V = 6494, V design = 5548 lbs

Bending (+): LC #2 = D+L, M = 26786 lbs-ft

Deflection: LC #2 = D+L (live)

LC #2 = D+L (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 2030e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 1.50(Dead Load Deflection) + Live Load Deflection.

Lateral stability (+): Lu = 16'-6.00" Le = 30'-4.31" RB = 12.75

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.
5. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
6. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



COMPANY

PROJECT

May 1, 2017 03:27

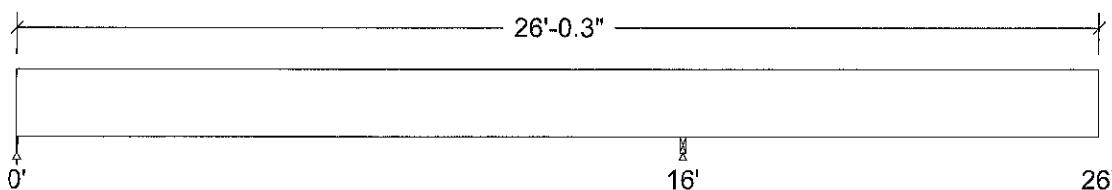
Cantilever Beam - Line 1

Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat- tern	Location [ft]	Magnitude	Unit
				Start	End	
Load3	Dead	Partial UDL	No	16.00	23.00	10.0
Load5	Live	Partial UDL	Yes	16.00	26.00	50.0
Load7	Live	Point	No	26.00		2531
Load8	Dead	Point	No	26.00		506
Self-weight	Dead	Full UDL	No			39.3

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :

Unfactored: Dead	192		1737		
Live	-1734		4765		
Factored: Uplift	1873				
Total	192		6502		
Bearing: Capacity			6502		
Beam	1507		6529		
Support	1832				
Anal/Des					
Beam	0.13		1.00		
Support	0.10		1.00		
Load comb	#1		#2		
Length	0.50*		1.78		
Min req'd	0.50*		1.78		
Cb	1.00		1.21		
Cb min	1.00		1.21		
Cb support	1.00		1.00		
Fcp sup	625		625		

*Minimum bearing length setting used: 1/2" for end supports

Maximum reaction on at least one support is from a different load combination than the critical one for bearing design, shown here, due to Kd factor. See Analysis results for reaction from critical load combination.

**Lake Geneva - Vacation Rental - Cantievered Beam Line 1
Glulam-Bal., West Species, 24F-1.8E WS, 8-3/4"x19-1/2"**

13 laminations, 8-3/4" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 26'-0.3"; volume = 30.8 cu.ft.;

Service: wet; Lateral support: top= at supports, bottom= at supports;

Cantilever Beam - Line 1

WoodWorks® Sizer 10.4

Page 2

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 34$	$F_{v'} = 232$	psi	$f_v/F_{v'} = 0.15$
Bending (-)	$f_b = 757$	$F_{b'} = 1697$	psi	$f_b/F_{b'} = 0.45$
Deflection:				
Interior Live	$-0.10 = <L/999$	$0.53 = L/360$	in	0.18
Total	$-0.13 = <L/999$	$0.80 = L/240$	in	0.17
Cantil. Live	$0.51 = L/236$	$0.67 = L/180$	in	0.76
Total	$0.74 = L/162$	$1.00 = L/120$	in	0.74

Additional Data:

FACTORS:	F/E(psi)CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
$F_{v'}$	265	1.00	0.88	1.00	-	-	-	1.00	1.00	1.00	2
$F_{b'}^-$	2400	1.00	0.80	1.00	0.988	0.884	1.00	1.00	1.00	1.00	2
$F_{cp'}$	650	-	0.53	1.00	-	-	-	1.00	-	-	-
E'	1.8 million	0.83	1.00	-	-	-	-	1.00	-	-	2
$E_{miny'}$	0.85 million	0.83	1.00	-	-	-	-	1.00	-	-	2

Only the lesser of CL and CV is applied, as per NDS 5.3.6

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+L, V = 3999, V design = 3839 lbs

Bending (-): LC #2 = D+L, M = 34995 lbs-ft

Deflection: LC #2 = D+L (live)

LC #2 = D+L (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load Patterns: s=S/2, X=L+S or L+Lr, _=no pattern load in this span

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 9732e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 2.00(Dead Load Deflection) + Live Load Deflection.

Lateral stability (-): Lu = 16' Le = 27'-11.00" RB = 9.24

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. Grades with equal bending capacity in the top and bottom edges of the beam cross-section are recommended for continuous beams.
5. GLULAM: bxd = actual breadth x actual depth.
6. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
7. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



COMPANY

PROJECT

May 1, 2017 03:27

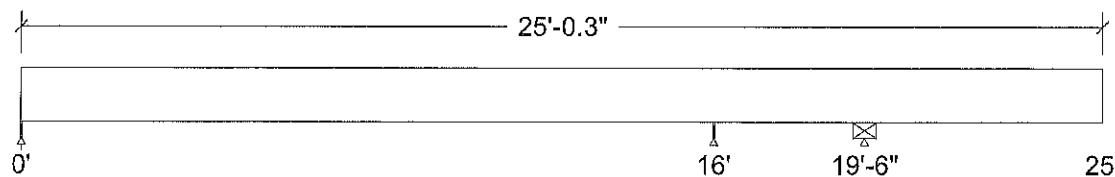
Cantilever Beam - Line 2- with added column

Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start	End	
Load3	Dead	Partial UDL	No	16.02	25.02	20.0 plf
Load5	Live	Partial UDL	Yes	16.02	25.02	75.0 plf
Load4	Dead	Point	No	19.52		270 lbs
Load6	Live	Point	Yes	19.52		1350 lbs
Load7	Live	Point	No	25.02		3850 lbs
Load8	Dead	Point	No	25.02		770 lbs
Self-weight	Dead	Full UDL	No			23.3 plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :

Unfactored:						
Dead	175			331	2698	
Live	125			-7071	12684	
Factored:						
Uplift				8142		
Total	300			331	15382	
Bearing:						
Capacity						
Beam	1163			2035	15382	
Support	1413			1413	18698	
Anal/Des						
Beam	0.26			0.16	1.00	
Support	0.21			0.23	0.82	
Load comb	#6			#1	#2	
Length	0.50*			0.50*	6.62	
Min req'd	0.50*			0.50*	6.62	
Cb	1.00			1.75	1.00	
Cb min	1.00			1.75	1.00	
Cb support	1.00			1.00	1.00	
Fcp sup	625			625	625	

*Minimum bearing length setting used: 1/2" for end supports and 1/2" for interior supports

Maximum reaction on at least one support is from a different load combination than the critical one for bearing design, shown here, due to Kd factor. See Analysis results for reaction from critical load combination.

Lake Geneva - Vacation Rental - Cantievered Beam Line 2**Glulam-Bal., West Species, 24F-1.8E WS, 6-3/4"x15"**

10 laminations, 6-3/4" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 25'-0.3"; volume = 17.6 cu.ft.;

Service: wet; Lateral support: top= at supports, bottom= at supports;

Cantilever Beam - Line 2- with added column WoodWorks® Sizer 10.4

Page 2

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 125$	$F_{v'} = 232$	psi	$f_v/F_{v'} = 0.54$
Bending(+)	$f_b = 92$	$F_{b'} = 1874$	psi	$f_b/F_{b'} = 0.05$
Bending(-)	$f_b = 1289$	$F_{b'} = 1910$	psi	$f_b/F_{b'} = 0.67$
Deflection:				
Interior Live	$-0.01 = <L/999$	$0.12 = L/360$	in	0.08
Total	$-0.01 = <L/999$	$0.17 = L/240$	in	0.08
Cantil. Live	$0.22 = L/302$	$0.37 = L/180$	in	0.59
Total	$0.31 = L/210$	$0.55 = L/120$	in	0.57

Additional Data:

FACTORS:	F/E(psi)CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
$F_{v'}$	265	1.00	0.88	1.00	-	-	-	1.00	1.00	1.00	2
$F_{b'}+$	2400	1.00	0.80	1.00	0.985	0.976	1.00	1.00	1.00	1.00	2
$F_{b'}-$	2400	1.00	0.80	1.00	0.995	1.000	1.00	1.00	1.00	1.00	2
$F_{cp'}$	650	-	0.53	1.00	-	-	-	1.00	-	-	-
E'	1.8 million	0.83	1.00	-	-	-	-	1.00	-	-	6
$E_{miny'}$	0.85 million	0.83	1.00	-	-	-	-	1.00	-	-	6

Only the lesser of CL and CV is applied, as per NDS 5.3.6

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+L, V = 8492, V design = 8414 lbs

Bending(+) : LC #2 = D+L, M = 1940 lbs-ft

Bending(-) : LC #2 = D+L, M = 27199 lbs-ft

Deflection: LC #6 = (live)
LC #6 = (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load Patterns: s=S/2, X=L+S or L+Lr, =no pattern load in this span

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 3417e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 2.00(Dead Load Deflection) + Live Load Deflection.

Lateral stability (+): Lu = 16'. Le = 26'-9.50" RB = 10.29

Lateral stability (-): Lu = 5'-6.00" Le = 10'-3.44" RB = 6.37

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.

2. Please verify that the default deflection limits are appropriate for your application.

3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007

4. Grades with equal bending capacity in the top and bottom edges of the beam cross-section are recommended for continuous beams.

5. GLULAM: bxd = actual breadth x actual depth.

6. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.

7. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



WoodWorks®
SOFTWARE FOR WOOD DESIGN

COMPANY

PROJECT

May 1, 2017 03:27

Cantilever Beam - Line 3

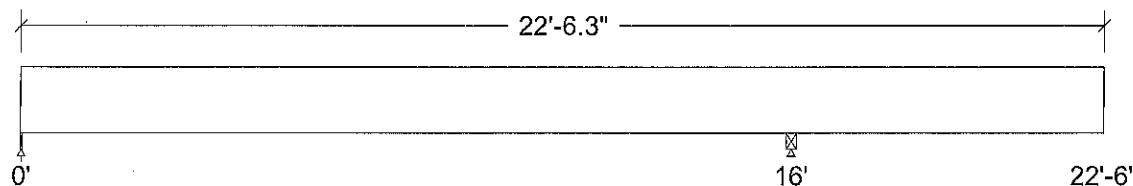
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]	Magnitude	Unit
				Start	End	
Load3	Dead	Partial UDL	No	16.00	22.52	20.0
Load5	Live	Partial UDL	Yes	16.00	22.52	75.0
Load4	Dead	Point	No	19.50		270
Load6	Live	Point	Yes	19.50		1350
Load7	Live	Point	No	22.52		3263
Load8	Dead	Point	No	22.52		770
Self-weight	Dead	Full UDL	No			33.2

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:					
Dead	222			2094	
Live	-1718			6820	
Factored:					
Uplift	1894			8914	
Total	222				
Bearing:					
Capacity					
Beam	1507			8914	
Support	1832			9462	
Anal/Des					
Beam	0.15			1.00	
Support	0.12			0.94	
Load comb	#1			#2	
Length	0.50*			2.58	
Min req'd	0.50*			2.58	
Cb	1.00			1.15	
Cb min	1.00			1.15	
Cb support	1.00			1.00	
Fcp sup	625			625	

*Minimum bearing length setting used: 1/2" for end supports

Maximum reaction on at least one support is from a different load combination than the critical one for bearing design, shown here, due to Kd factor. See Analysis results for reaction from critical load combination.

**Lake Geneva - Vacation Rental - Cantievered Beam Line 3
Glulam-Bal., West Species, 24F-1.8E WS, 8-3/4"x16-1/2"**

11 laminations, 8-3/4" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 22'-6.3"; volume = 22.6 cu.ft.;

Service: wet; Lateral support: top= at supports, bottom= at supports;

Cantilever Beam - Line 3

WoodWorks® Sizer 10.4

Page 2

This section FAILS the design check

WARNING: This section violates the following design criteria: Deflection

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 66$	$F_{v'} = 232$	psi	$f_v/F_{v'} = 0.28$
Bending (-)	$f_b = 1044$	$F_{b'} = 1751$	psi	$f_b/F_{b'} = 0.60$
Deflection:				
Interior Live	$-0.16 = <L/999$	$0.53 = L/360$	in	0.30
Total	$-0.22 = L/868$	$0.80 = L/240$	in	0.28
Cantil. Live	$0.46 = L/168$	$0.43 = L/180$	in	1.07
Total	$0.67 = L/116$	$0.65 = L/120$	in	1.03

Additional Data:

FACTORS:	F/E(psi)CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
F_v'	265	1.00	0.88	1.00	-	-	-	1.00	1.00	1.00	2
$F_{b'}$	2400	1.00	0.80	1.00	0.991	0.912	1.00	1.00	1.00	1.00	2
$F_{cp'}$	650	-	0.53	1.00	-	-	-	1.00	-	-	-
E'	1.8 million	0.83	1.00	-	-	-	-	1.00	-	-	2
$E_{miny'}$	0.85 million	0.83	1.00	-	-	-	-	1.00	-	-	2

Only the lesser of CL and CV is applied, as per NDS 5.3.6

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = D+L, V = 6487, V design = 6312 lbs

Bending (-): LC #2 = D+L, M = 34553 lbs-ft

Deflection: LC #2 = D+L (live)

LC #2 = D+L (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load Patterns: s=S/2, X=L+S or L+Lr, _=no pattern load in this span

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: EI = 5896e06 lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 2.00(Dead Load Deflection) + Live Load Deflection.

Lateral stability (-): Lu = 16' Le = 27'-2.00" RB = 8.38

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.

2. Please verify that the default deflection limits are appropriate for your application.

3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007

4. Grades with equal bending capacity in the top and bottom edges of the beam cross-section are recommended for continuous beams.

5. GLULAM: bxd = actual breadth x actual depth.

6. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.

7. GLULAM: bearing length based on smaller of Fcp(tension), Fcp(comp'n).



COMPANY

PROJECT

May 1, 2017 03:28

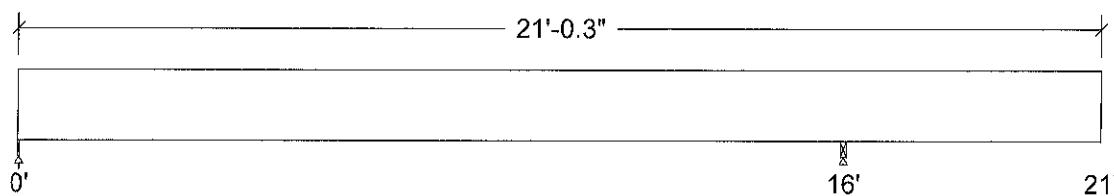
Cantilever Beam - Line 5

Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load3	Dead	Partial UDL	No	16.00 21.00	10.0 10.0	plf
Load5	Live	Point	Yes	21.00	1913	lbs
Load4	Dead	Point	No	21.00	383	lbs
Load6	Live	Partial UDL	Yes	16.00 21.00	50.0 50.0	plf
Self-weight	Dead	Full UDL	No		20.9	plf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :

Unfactored:					
Dead	151			848	
Live	0			2797	
Factored:					
Uplift	610				
Total	151			3645	
Bearing:					
Capacity				3645	
Beam	947			3810	
Support	1230				
Anal/Des					
Beam	0.16			1.00	
Support	0.12			0.96	
Load comb	#1			#2	
Length	0.50*			1.55	
Min req'd	0.50*			1.55	
Cb	1.00			1.24	
Cb min	1.00			1.24	
Cb support	1.07			1.07	
Fcp sup	625			625	

*Minimum bearing length setting used: 1/2" for end supports

Maximum reaction on at least one support is from a different load combination than the critical one for bearing design, shown here, due to Kd factor. See Analysis results for reaction from critical load combination.

**Lake Geneva - Vacation Rental - Cantievered Beam Line 1
Glulam-Bal., West Species, 24F-1.8E WS, 5-1/2"x16-1/2"**

11 laminations, 5-1/2" maximum width,

Supports: All - Timber-soft Beam, D.Fir-L No.2

Total length: 21'-0.3"; volume = 13.2 cu.ft.;

Service: wet; Lateral support: top= at supports, bottom= at supports;

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Cantilever Beam - Line 5

WoodWorks® Sizer 10.4

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Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 43$	$F_{v'} = 232$	psi	$f_v/F_{v'} = 0.18$
Bending (-)	$f_b = 598$	$F_{b'} = 1847$	psi	$f_b/F_{b'} = 0.32$
Deflection:				
Interior Live	$-0.09 = <L/999$	$0.53 = L/360$	in	0.17
Total	$-0.12 = <L/999$	$0.80 = L/240$	in	0.15
Cantil. Live	$0.20 = L/303$	$0.33 = L/180$	in	0.59
Total	$0.27 = L/224$	$0.50 = L/120$	in	0.53

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CV	Cfu	Cr	Cfrt	Notes	Cn*Cvr	LC#
$F_{v'}$	265	1.00	0.88	1.00	-	-	-	-	1.00	1.00	1.00	2
$F_{b'}^-$	2400	1.00	0.80	1.00	0.969	0.962	1.00	1.00	1.00	1.00	-	2
$F_{cp'}$	650	-	0.53	1.00	-	-	-	-	1.00	-	-	-
E'	1.8 million	0.83	1.00	-	-	-	-	-	1.00	-	-	2
$E_{miny'}$	0.85 million	0.83	1.00	-	-	-	-	-	1.00	-	-	2

Only the lesser of CL and CV is applied, as per NDS 5.3.6

CRITICAL LOAD COMBINATIONS:Shear : LC #2 = D+L, $V = 2699$, V design = 2595 lbsBending (-): LC #2 = D+L, $M = 12433$ lbs-ftDeflection: LC #2 = D+L (live)
LC #2 = D+L (total)

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load Patterns: $s=S/2$, $X=L+S$ or $L+Lr$, -no pattern load in this span

Load combinations: ASCE 7-10 / IBC 2012

CALCULATIONS:Deflection: $EI = 3706e06$ lb-in²

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Total Deflection = 2.00(Dead Load Deflection) + Live Load Deflection.

Lateral stability (-): $Lu = 16'$ $Le = 27'-2.00"$ RB = 13.33**Design Notes:**

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. Grades with equal bending capacity in the top and bottom edges of the beam cross-section are recommended for continuous beams.
5. GLULAM: $b \times d$ = actual breadth x actual depth.
6. Glulam Beams shall be laterally supported according to the provisions of NDS Clause 3.3.3.
7. GLULAM: bearing length based on smaller of $F_{cp}(tension)$, $F_{cp}(compression)$.



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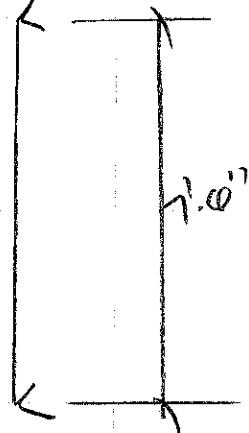
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NEW POST - LINE C2

$$P_{sw} = 2(5427) + 2(3506) \\ = 17866$$

$$P_{sl} = 2(4092) + 2(1931) \\ = 12046$$

IGNORE
UP LIFT
SNOW
LOAD



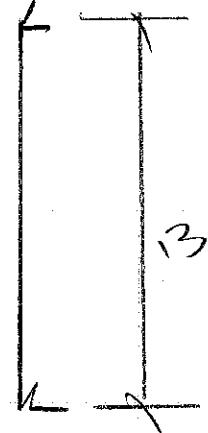
use 5 1/8 x 6"

DouG Fir L2

NEW Post - Bridge Beam

$$P_{sw} = 2(4533) = 9066$$

$$P_{sl} = 2(3062) = 6124$$





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New Post - Line C2

Design Check Calculation Sheet

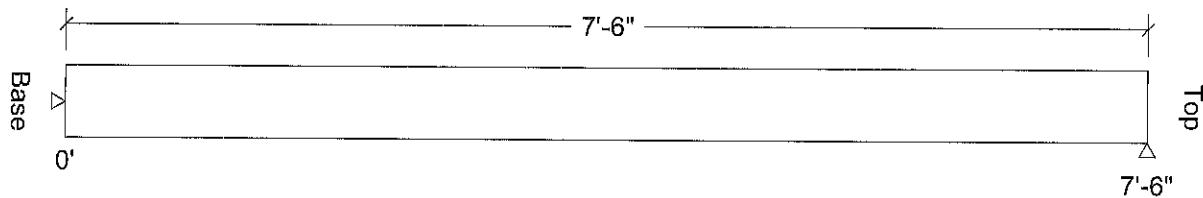
WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat- tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Dead	Axial		(Ecc. = 0.00")		12046		lbs
Load2	Snow	Axial		(Ecc. = 0.00")		17866		lbs
Self-weight	Dead	Axial				53		lbs

Load magnitude does not include Normal Importance factor from Table 4.2.3.2, which is applied during analysis.

Lateral Reactions (lbs):



New Post - Line C2
Glulam-Axial, West Species, 2 (DF L2), 5-1/8"x6"

4 laminations, 5-1/8" maximum width,

Support: Non-wood

Total length: 7'-6.0"; volume = 1.6 cu.ft.;

Pinned base; Load face = width(b); Ke x Lb: 1.0 x 7.5 = 7.5 [ft]; Ke x Ld: 1.0 x 7.5 = 7.5 [ft];

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Axial	fc = 974	Fc' = 1712	psi	fc/Fc' = 0.57
Axial Bearing	fc = 974	Fc* = 2242	psi	fc/Fc* = 0.43

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL/CP	CV	Cfu	Cr	Cfrt	Notes	LC#
Fc'	1950	1.15	1.00	1.00	0.764	-	-	-	1.00	-	2
Fc*	1950	1.15	1.00	1.00	-	-	-	-	1.00	-	2

CRITICAL LOAD COMBINATIONS:

Axial : LC #2 = D+S, P = 29965 lbs

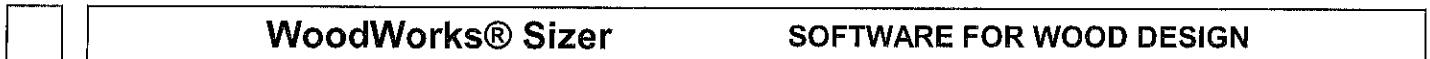
D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.



New Post - Line C2

WoodWorks® Sizer 10.4

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New Post @ Ridge Beam Line B

Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Axial		(Ecc. = 0.00")	6124	lbs
Load2	Snow	Axial		(Ecc. = 0.00")	9066	lbs
Self-weight	Dead	Axial			92	lbs

Load magnitude does not include Normal Importance factor from Table 4.2.3.2, which is applied during analysis.

Lateral Reactions (lbs):



New Post - Ridge Beam
Glulam-Axial, West Species, 2 (DF L2), 5-1/8"x6"

4 laminations, 5-1/8" maximum width,

Support: Non-wood

Total length: 13'; volume = 2.8 cu.ft.;

Pinned base; Load face = width(b); Ke x Lb: 1.0 x 13.0 = 13.0 [ft]; Ke x Ld: 1.0 x 13.0 = 13.0 [ft];

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Axial	fc = 497	F _{c'} = 720	psi	f _c /F _{c'} = 0.69
Axial Bearing	fc = 497	F _{c*} = 2242	psi	f _c /F _{c*} = 0.22

Additional Data:

FACTORS:	F/E (psi)	CD	CM	Ct	CL/CP	CV	Cfu	Cr	Cfrt	Notes	LC#
F _{c'}	1950	1.15	1.00	1.00	0.321	-	-	-	1.00	-	2
F _{c*}	1950	1.15	1.00	1.00	-	-	-	-	1.00	-	2

CRITICAL LOAD COMBINATIONS:

Axial : LC #2 = D+S, P = 15282 lbs

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake

All LC's are listed in the Analysis output

Load combinations: ASCE 7-10 / IBC 2012

Design Notes:

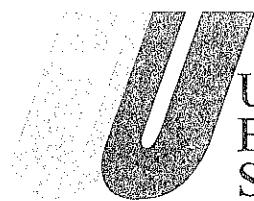
1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials conforming to ANSI 117-2010 and manufactured in accordance with ANSI A190.1-2007
4. GLULAM: bxd = actual breadth x actual depth.



New Post @ Ridge Beam Line B

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LATERAL BRACING

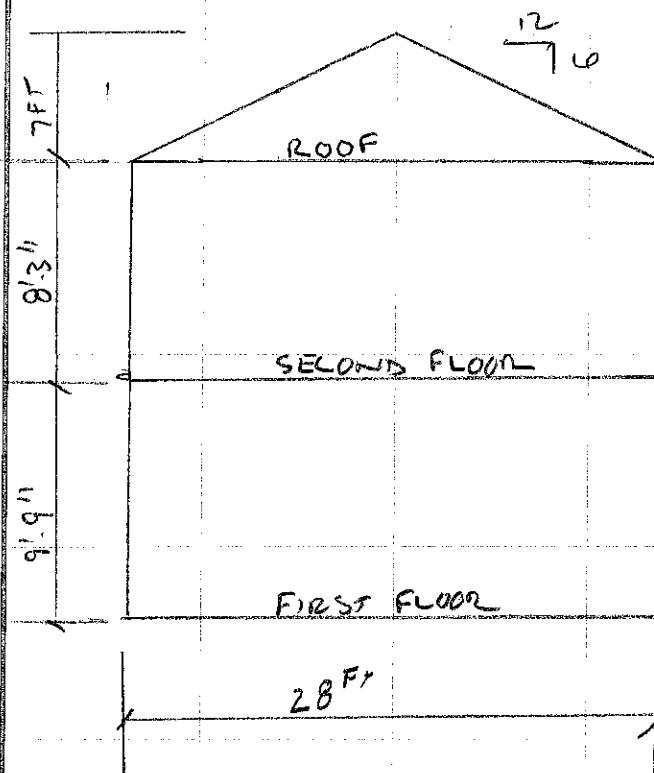
NEW WALL BRACING @ LINE C

MWFRS BASE PRESSURE = 17.1 psf

END WALL WIND PRESSURE

GABLE END ROOF

$$\text{PROJECTION AREA} = \frac{1}{2}(28\text{ft} \times 7\text{ft}) \\ = 98\text{ft}^2$$



END WALL WIND LOAD

ROOF LEVEL

$$P_{W_R} = \frac{17.1 \text{ psf} (98\text{ft}^2) + 17.1 \text{ psf} (8.25/2)(28\text{ft})}{2}$$

$$P_{W_R} = 1825^b$$

USE 2000^b

SECOND FLOOR

$$P_{W_{2nd}} = \frac{17.1 \text{ psf} (8.25/2 + 9.75/2) 28\text{ft}}{2}$$

$$P_{W_{2nd}} = 2155 \text{ psf}$$

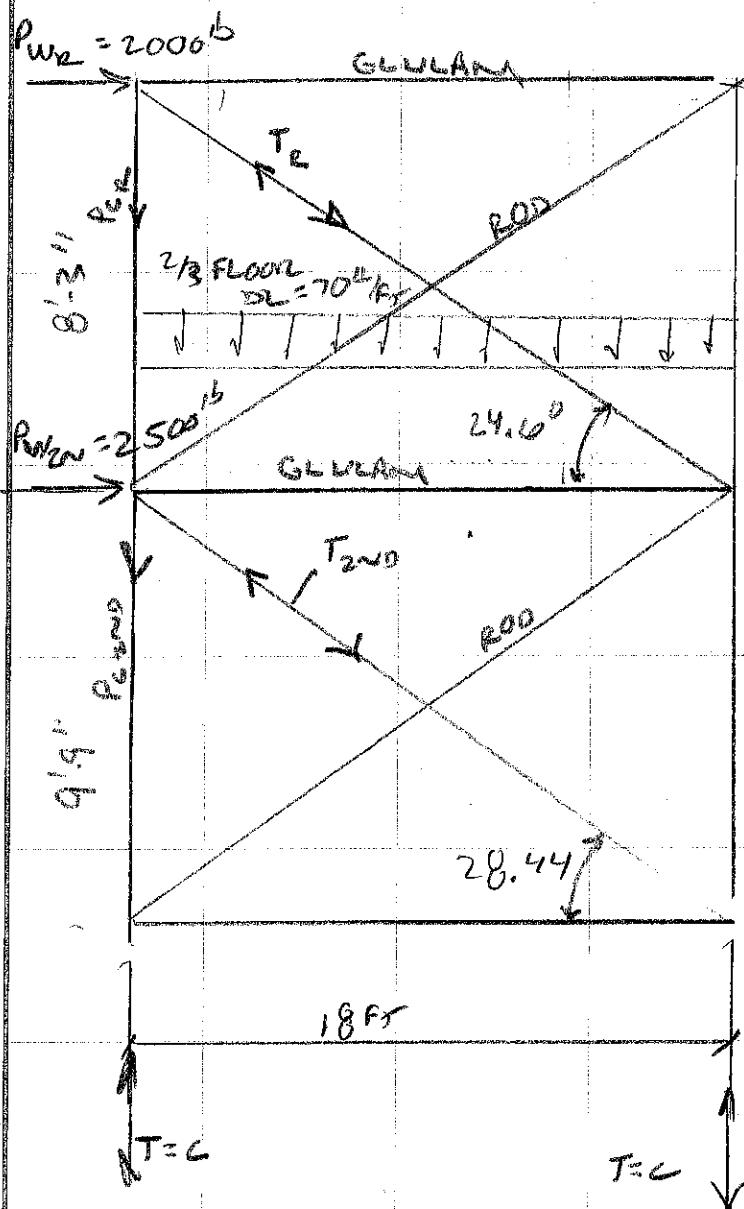
USE 2500^b



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LATERAL BRACING LOADING DIAGRAM

$$\frac{2}{3} \text{ ROOF DL} = 15 \text{ psf} (\frac{2}{3})^{14\%} \frac{1}{2} = 704 \text{ ft}$$



$$\text{ROD } F_y = 36,000 \text{ psi}$$

$$\text{Allow stress} = 0.6(36,000) = 21,600 \text{ psi}$$

2ND FLOOR BRACE

$$P_{W2} = 2000^{\text{lb}}$$

$$T_R = \frac{2000^{\text{lb}}}{\cos 24.6^\circ} = 2200^{\text{lb}}$$

$$A_{200} = \frac{2200^{\text{lb}}}{21,600} = 0.104 \text{ in}^2$$

$$A = \pi d^2 / 4$$

$$\text{MIN } d = 0.36 \text{ in}$$

USE 1/2" & 200

$$P_{c_{200}} = 2200^{\text{lb}} (\sin 24.6^\circ)$$

$$= 916^{\text{lb}}$$

1ST FLOOR

$$P_{W1,1ST} = 2000^{\text{lb}} + 2500^{\text{lb}} = 4500^{\text{lb}}$$

$$T_{200} = \frac{4500^{\text{lb}}}{\cos 28.44^\circ} = 5118^{\text{lb}}$$

$$A_{200} = \frac{5118}{21,600} = 0.24 \text{ in}^2$$

$$\text{MIN } d = 0.55 \text{ in}$$

USE 3 1/4" & 200

$$P_{c_{200}} = 5118 (\sin 28.44^\circ) = 2438^{\text{lb}}$$

NET UPLIFT @ COLUMN BASE

$$T=C = 2000^{\text{lb}} (18 \text{ ft}) + 2500(9.75) - 70(2)(18)^2 / 2$$

$$18 \text{ ft}$$

$$\underline{T = C = 2094^{\text{lb}}}$$