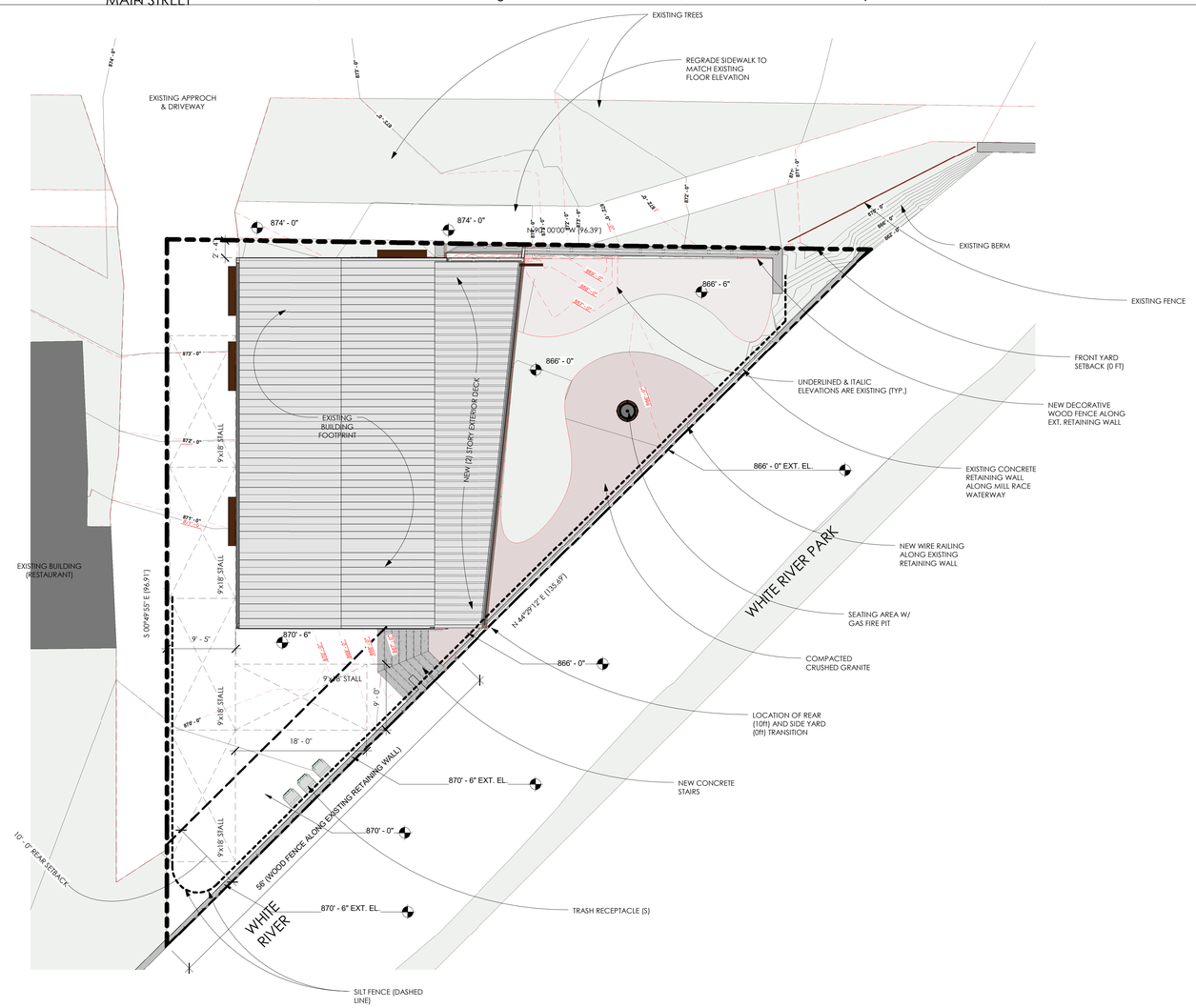
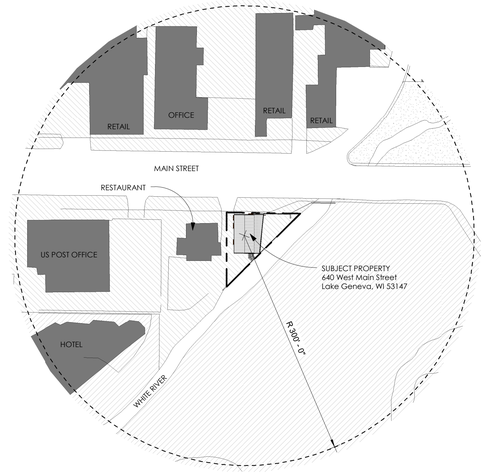
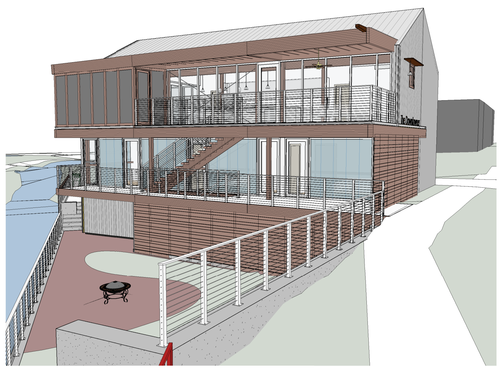


6C Overall Site Plan
1/8" = 1'-0"

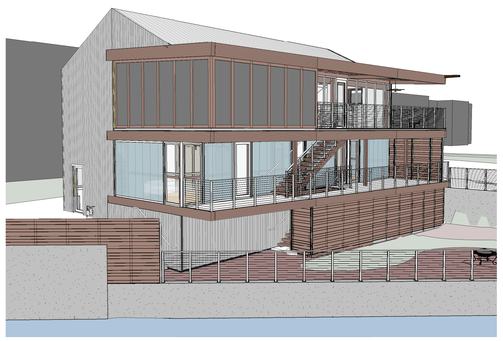


1 Location Map - 640 West Main Street - Lake Geneva, WI 53147
1" = 80'-0"

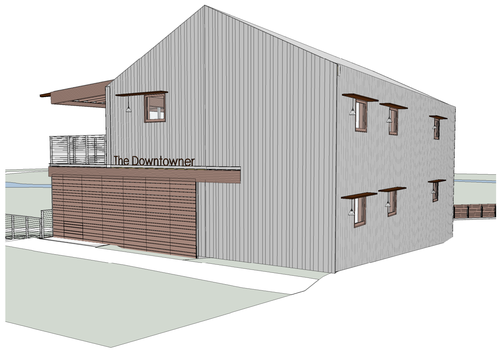
SHEET LIST			
Discipline	Sheet Number	Sheet Title	Issue for Permit
ARCH	A001	LIFE SAFETY & CODE SUMMARY	X
ARCH	A100	DEMOLITION PLANS	X
ARCH	A101	1ST & 2ND FLOOR PLANS	X
ARCH	A102	BASEMENT & ROOF FLOOR PLANS	X
ARCH	A151	1ST & 2ND REFLECTED CEILING PLANS	X
ARCH	A152	BASEMENT REFLECTED CEILING PLANS	X
ARCH	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



6A Perspective 1



5A Perspective 2



4A Perspective 3

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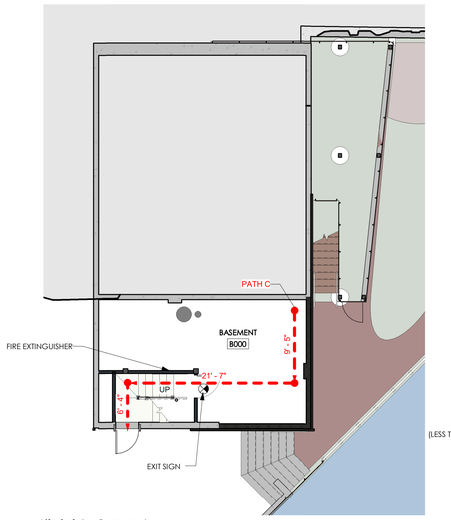
Date	Description
04.10.2017	Early Start & Footing/Foundation
05.03.2017	Issue for Permit

SITE PLAN & CODE SUMMARY
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

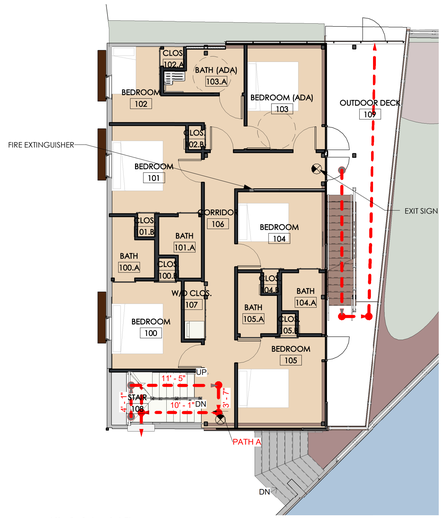
A000

5/3/2017 11:47:07 PM



6D Life Safety - Basement
1/8" = 1'-0"

5D Life Safety - 2nd Floor
1/8" = 1'-0"



4D Life Safety - 1st Floor
1/8" = 1'-0"

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: 2				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

TABLE 503
ALLOWABLE BUILDING HEIGHTS AND AREAS

USE CLASSIFICATION	HEIGHT (feet)	TYPE OF CONSTRUCTION TYPE V		Actual number of stories, building height above grade plane, and building area per story.
		B		
R-1	S	2	≥	2
	A	7000	≥	1870sf (INCLUDING DECKS)

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

BUILDING ELEMENT	TYPE V B
Primary structural frameg (see Section 202)	0
Bearing walls	0
Exterior(f,g)	0
Interior	
Nonbearing walls and partitions Exterior	0 from Table 602
Nonbearing walls and partitions Interiore	0
Floor construction and secondary members (see Section 202)	0
Roof construction and secondary members (see Section 202)	0

MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES

CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE INTERNA TIONAL PLUMBING CODE)				LAVATORIES				BATHTUBS SHOWERS		DRINKING FOUNTAINe f(SEE SECTION 410.1 OF THE INTERNA TIONAL PLUMBING CODE)		OTHER
			MALE	Actual Number	FEMALE	Actual Number	MALE	Actual Number	FEMALE	Actual Number	Occ/Per	Actual Number	Occ/Per	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)	<same>	4 (8 total)	1 per sleeping unit	8	-	-	1 service sink

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05.03.2017	Issue for Permit

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

A001

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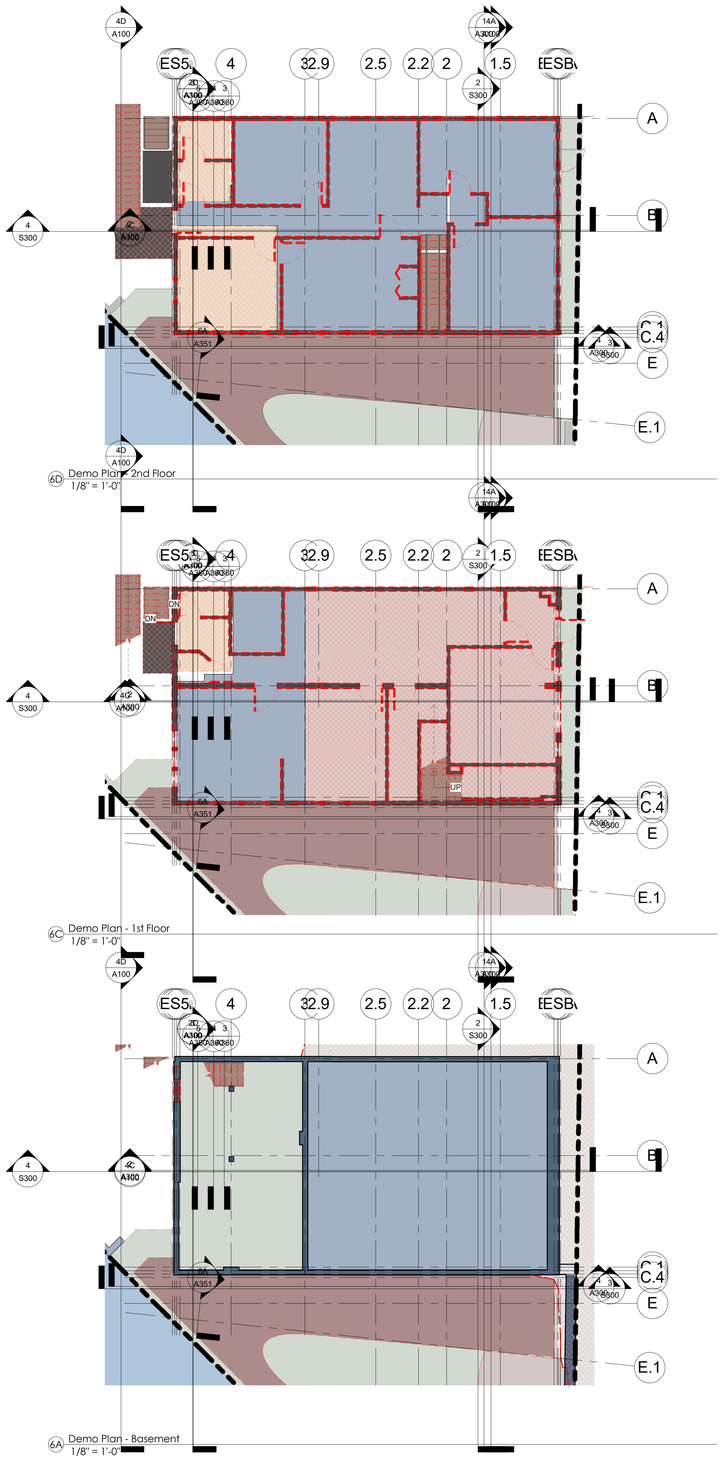
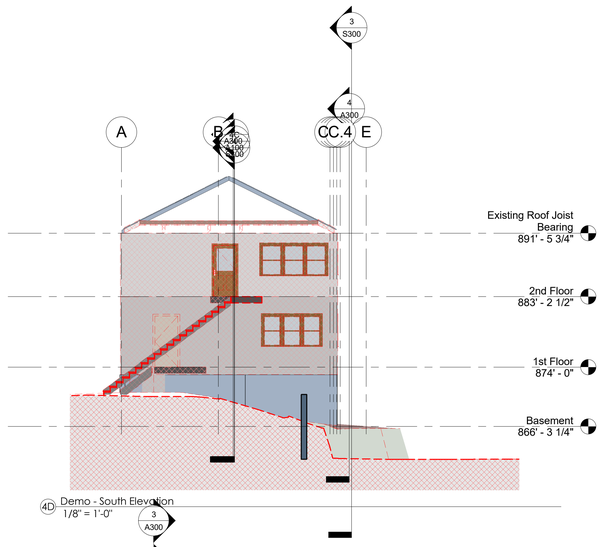


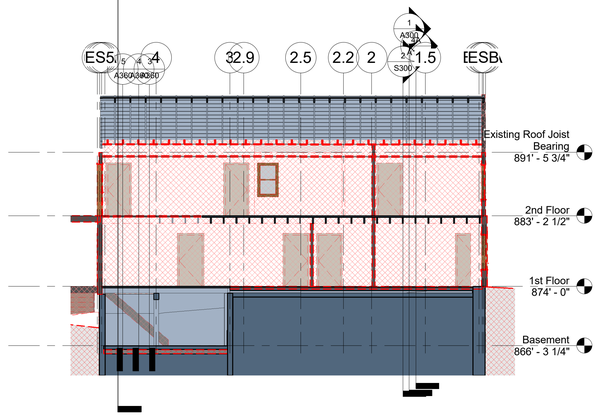
6D Demo Plan - 2nd Floor
1/8" = 1'-0"

6C Demo Plan - 1st Floor
1/8" = 1'-0"

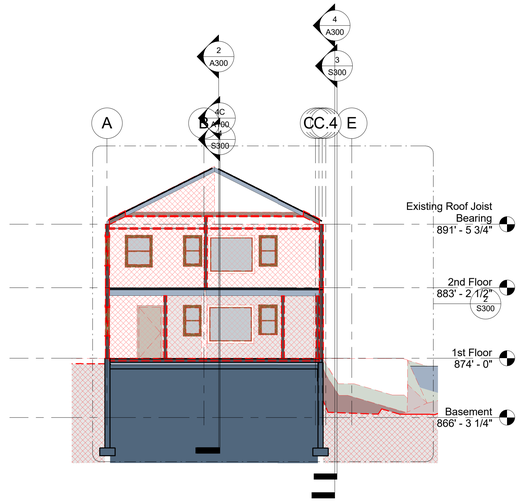
6A Demo Plan - Basement
1/8" = 1'-0"



4D Demo - South Elevation
1/8" = 1'-0"

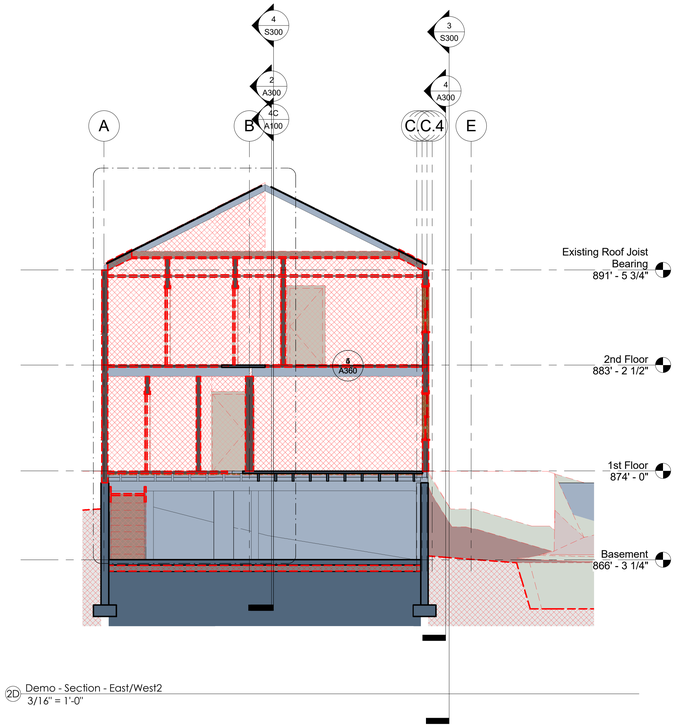


2D Demo - Section - East/West2
3/16" = 1'-0"



4C Demo - Section - North/South
1/8" = 1'-0"

4A Demo - Section - East/West
1/8" = 1'-0"



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05.03.2017	Issue for Permit

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

A100

5/3/2017 11:30:08 PM

6B Floor Plan - 1st Floor
1/4" = 1'-0"

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

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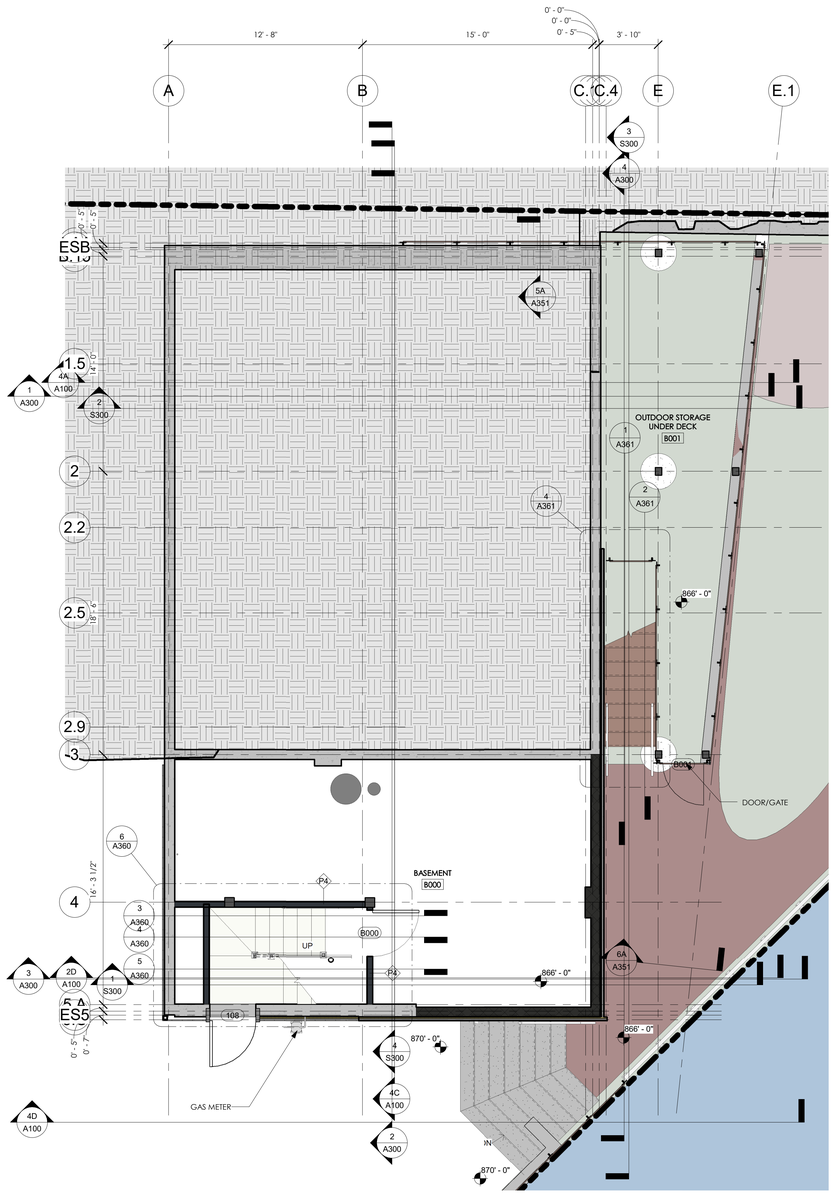
1ST & 2ND FLOOR PLANS

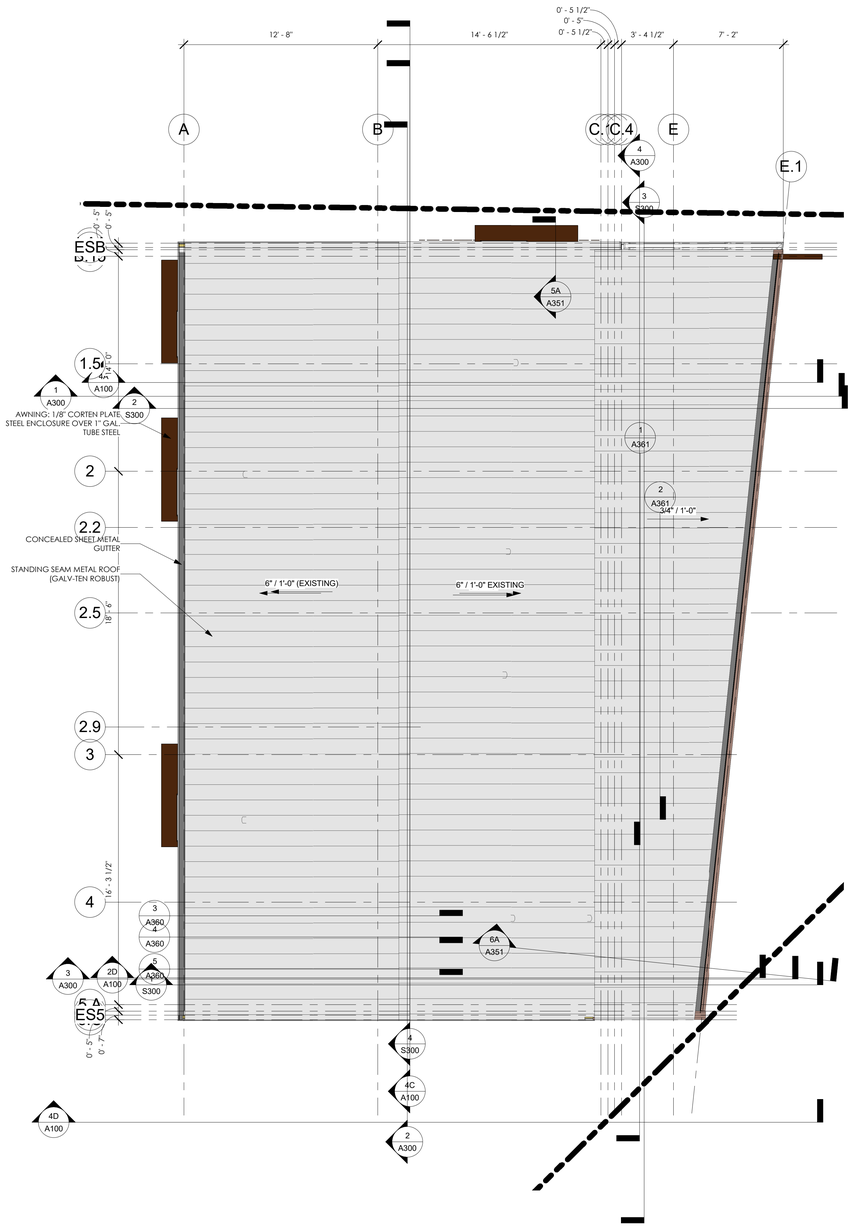
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

A101

5/3/2017 11:30:12 PM



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



4B Floor Plan - Roof
1/4" = 1'-0"

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Date	Description
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05.03.2017	Issue for Permit

BASEMENT & ROOF FLOOR PLANS

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

A102

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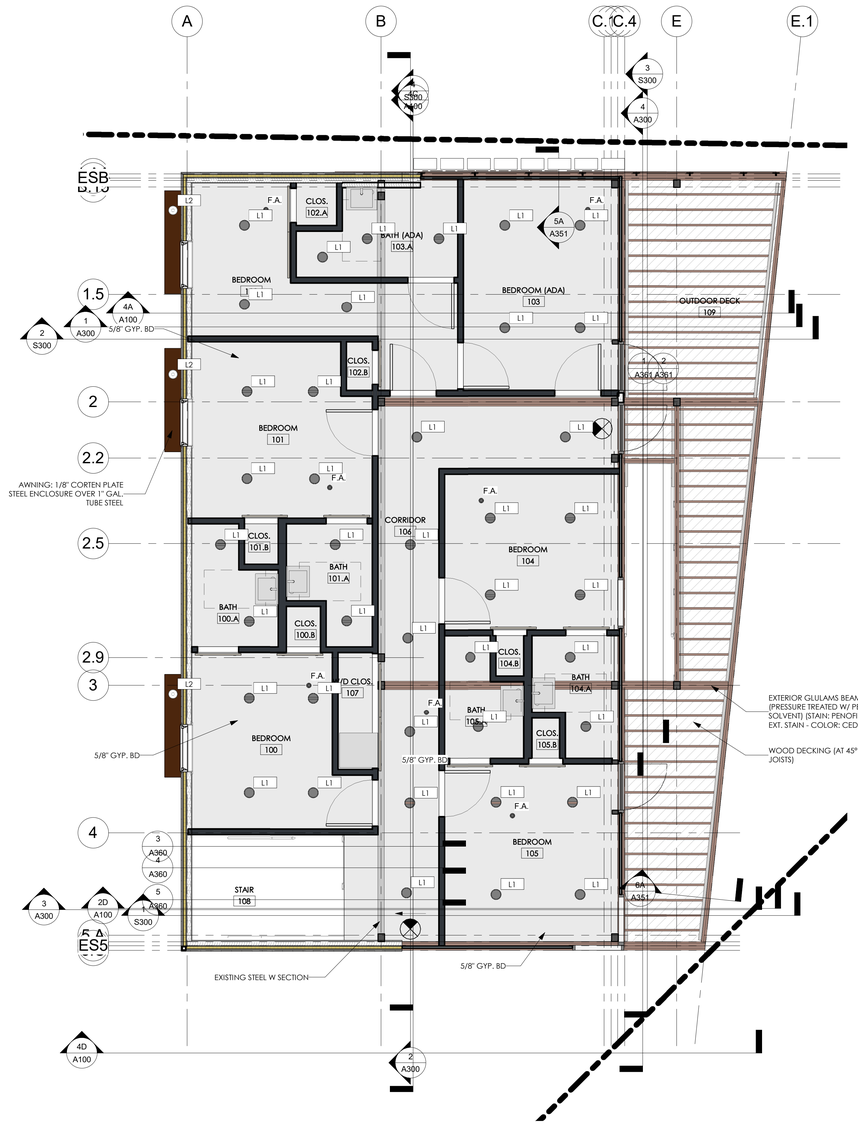
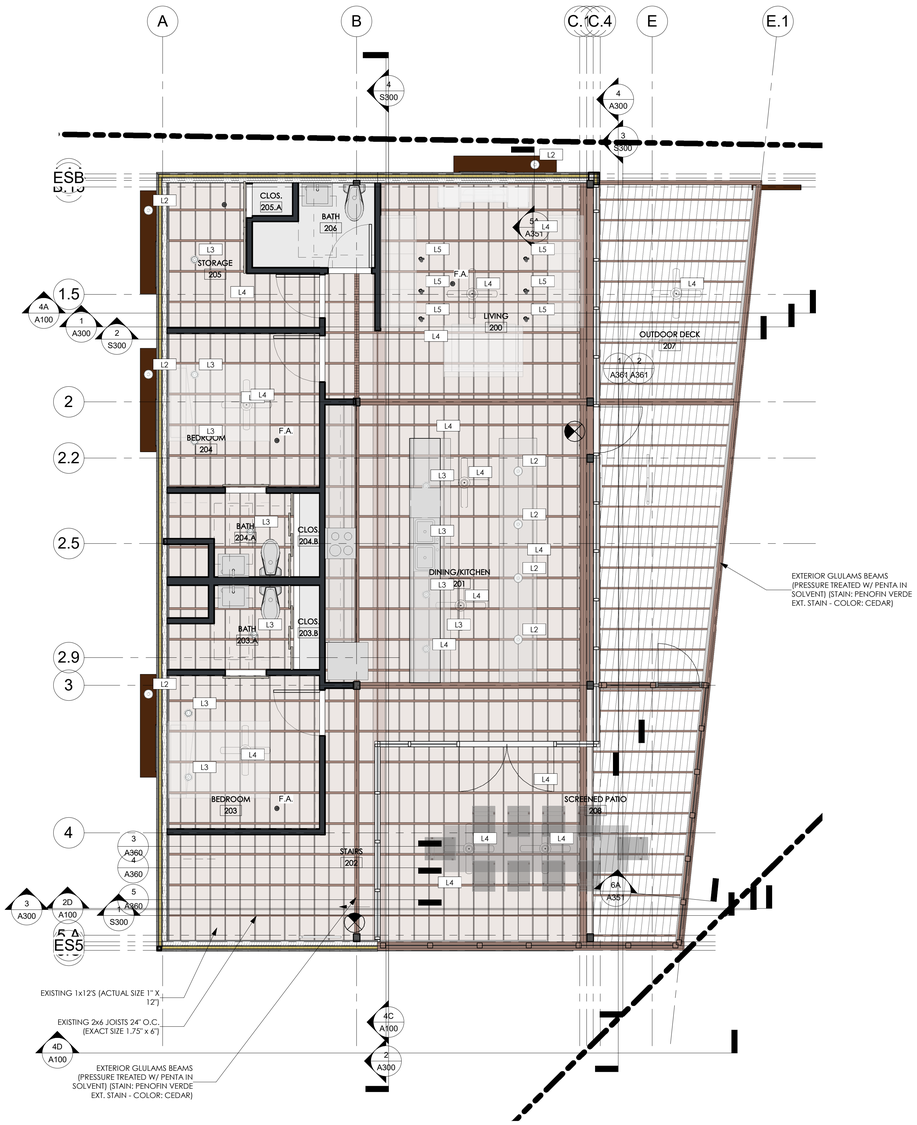


3C Reflected Ceiling Plan - 1st Floor
1/4" = 1'-0"



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

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1ST & 2ND REFLECTED CEILING PLANS

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

A151

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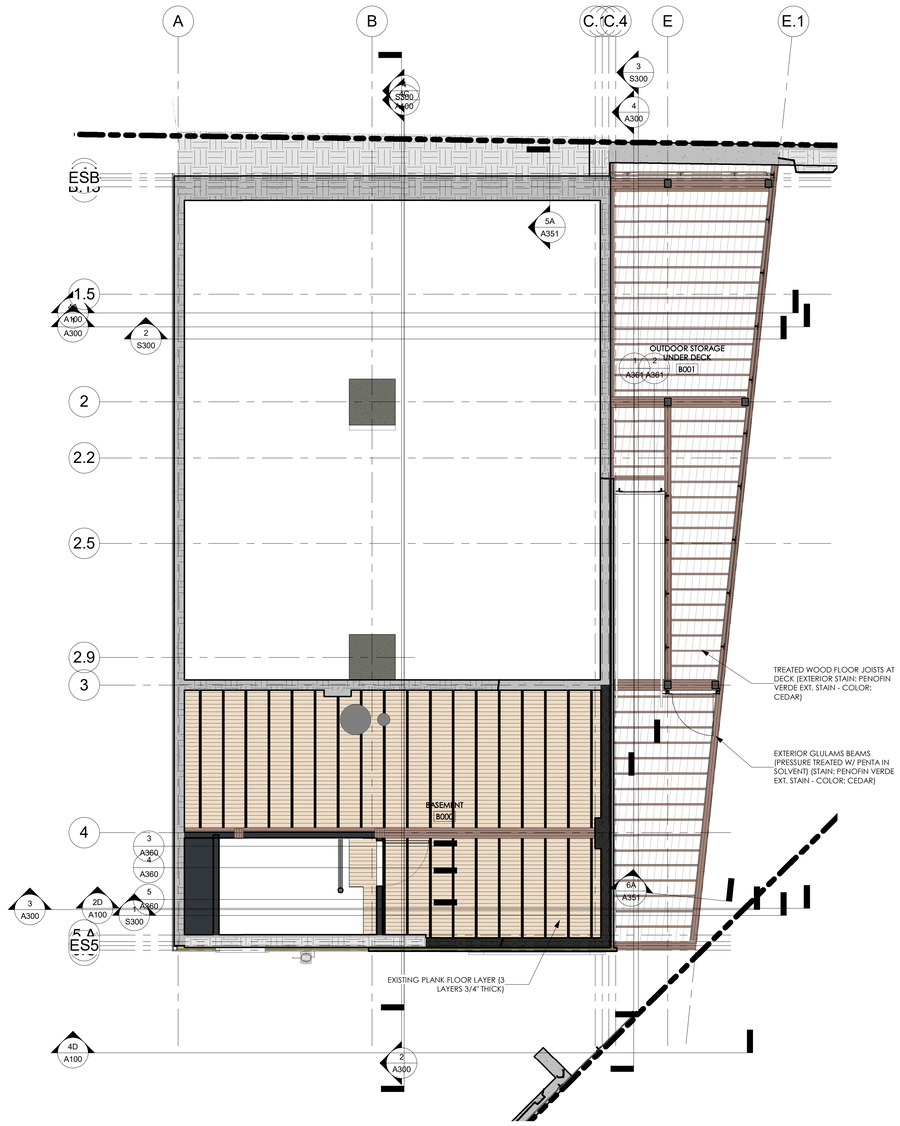

6B Reflected Ceiling Plan - Basement
1/4" = 1'-0"

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Date	Description
05.03.2017	Issue for Permit

BASEMENT REFLECTED CEILING PLANS

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

A152

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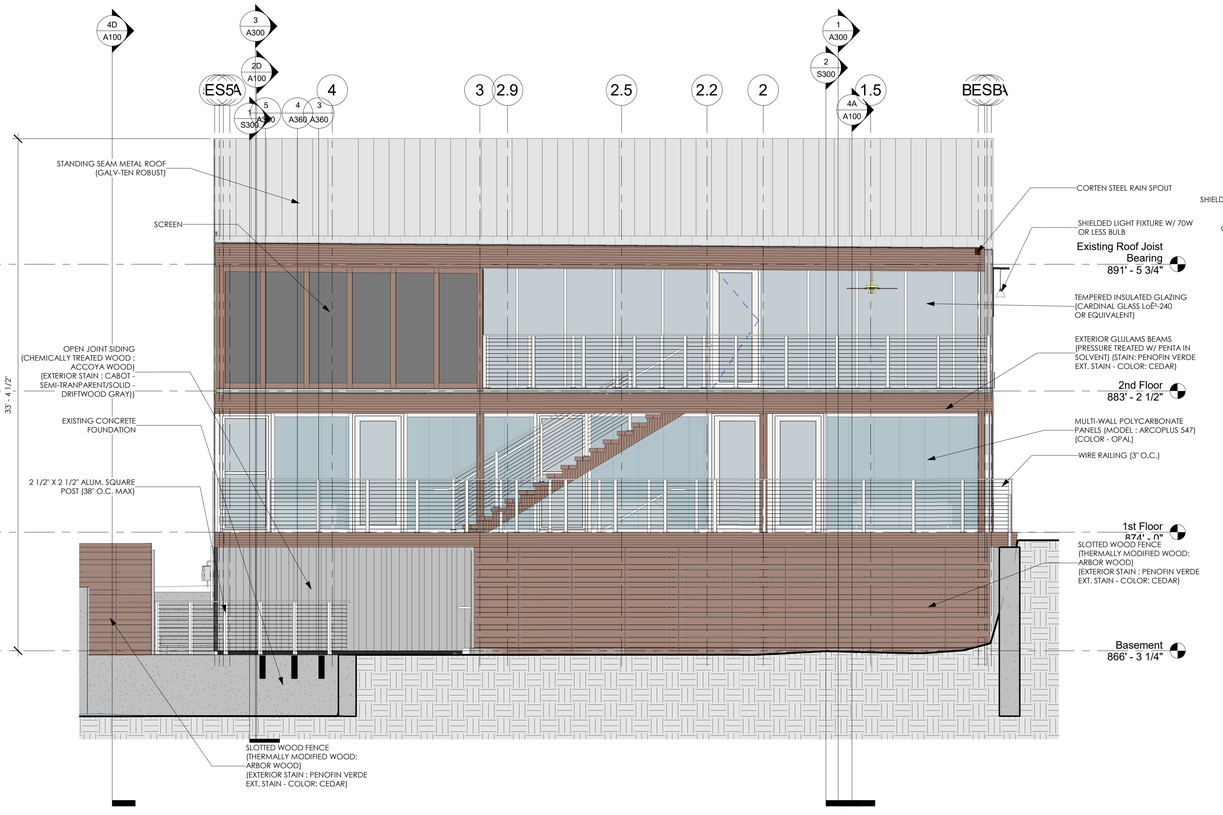
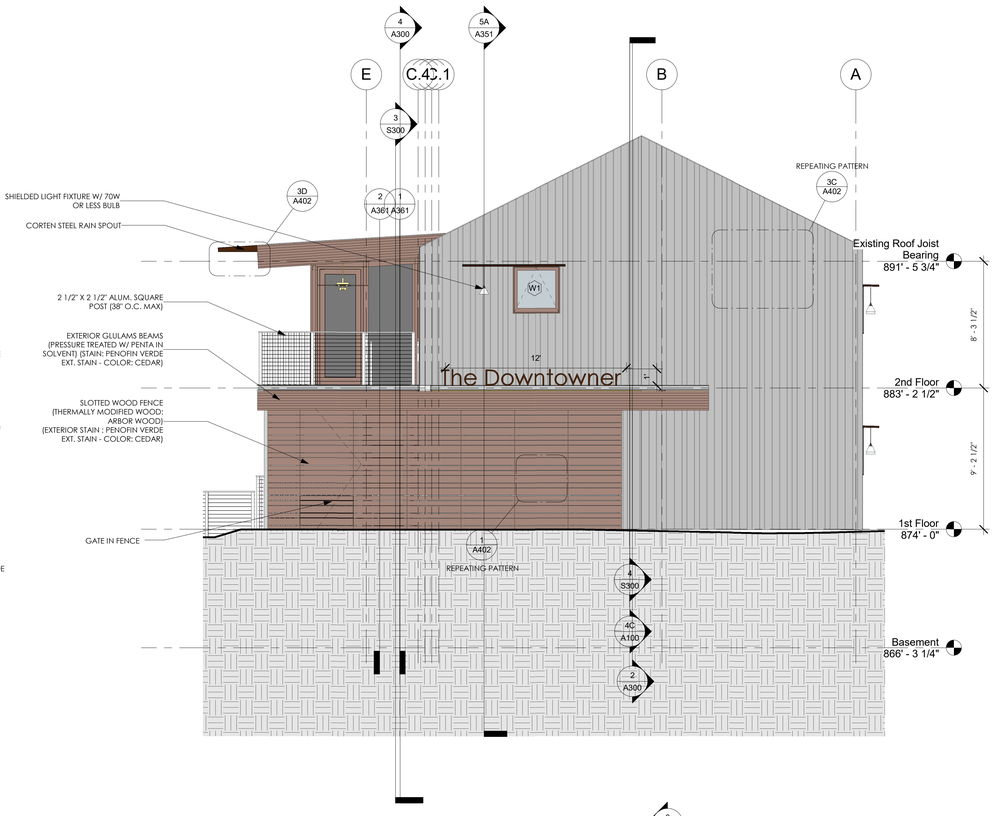
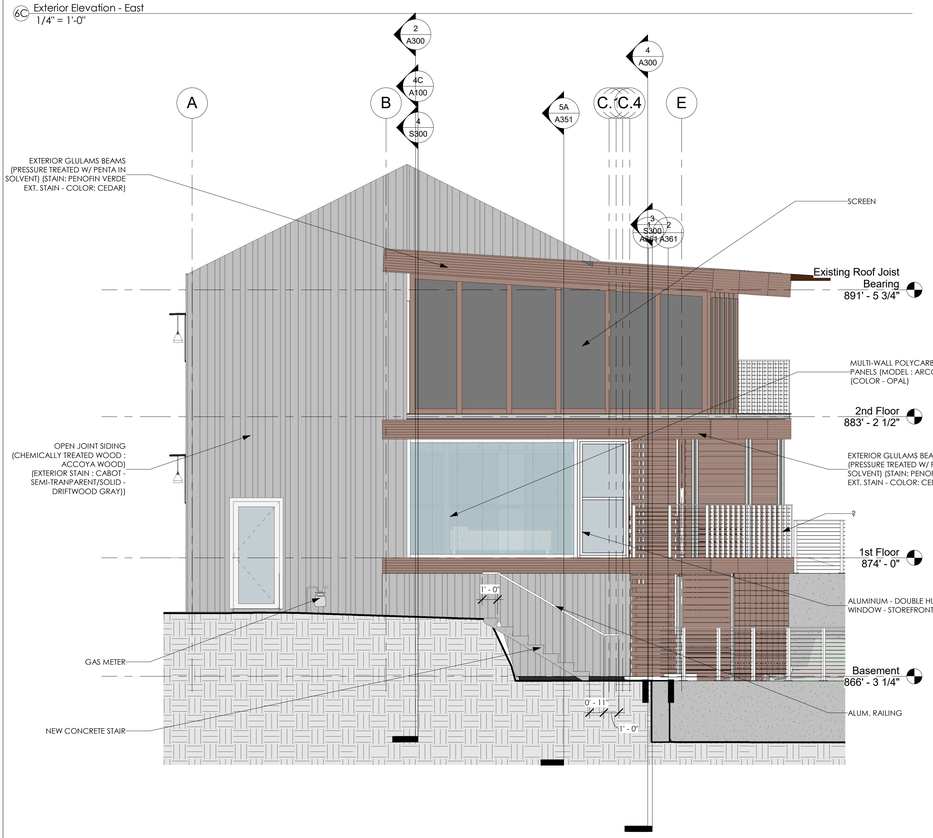


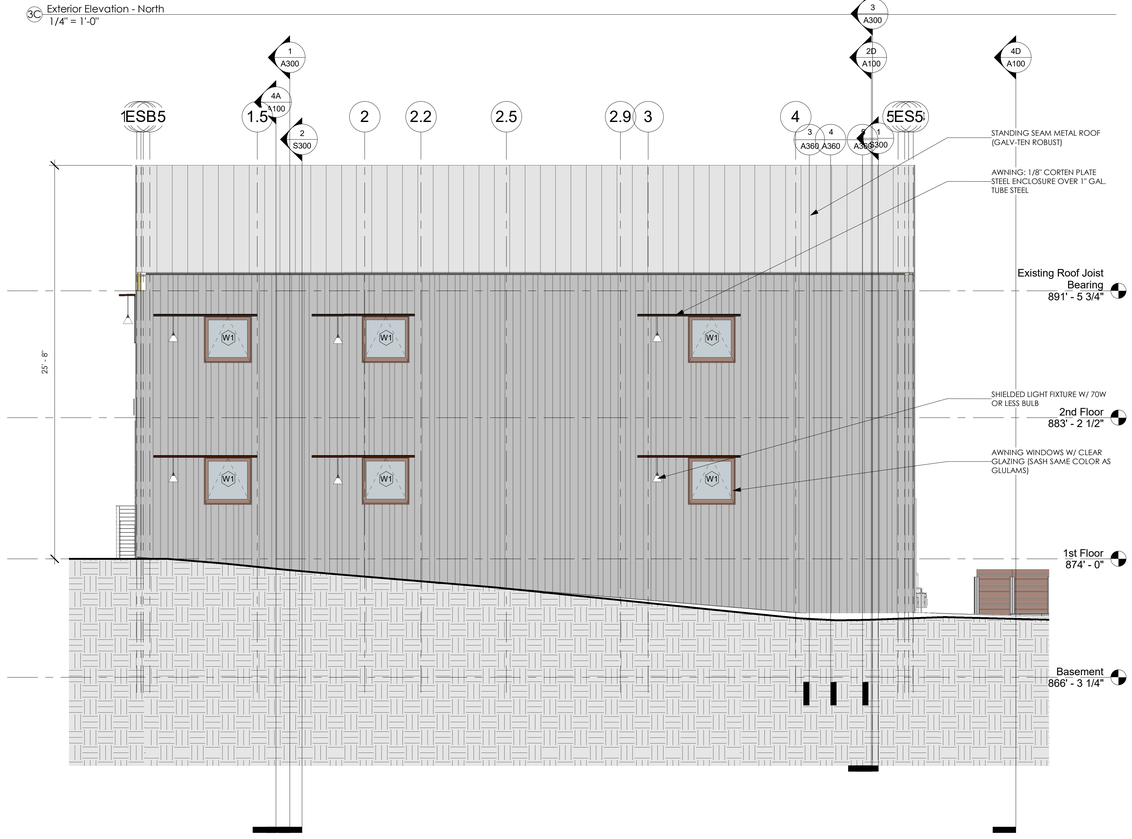
6C Exterior Elevation - East
1/4" = 1'-0"



3C Exterior Elevation - North
1/4" = 1'-0"



6A Exterior Elevation - South
1/4" = 1'-0"



4A Exterior Elevation - West
1/4" = 1'-0"

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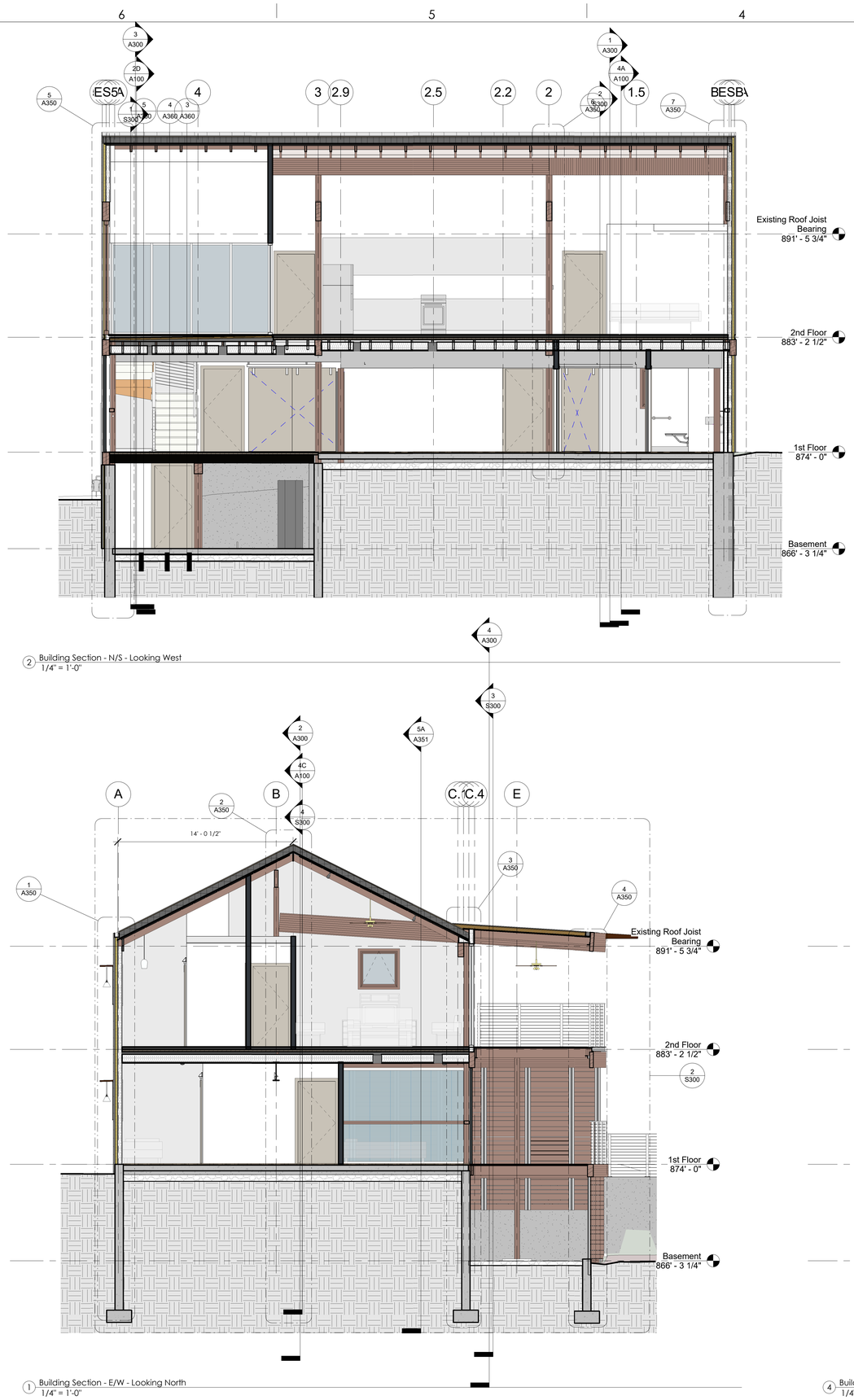
EXTERIOR ELEVATIONS

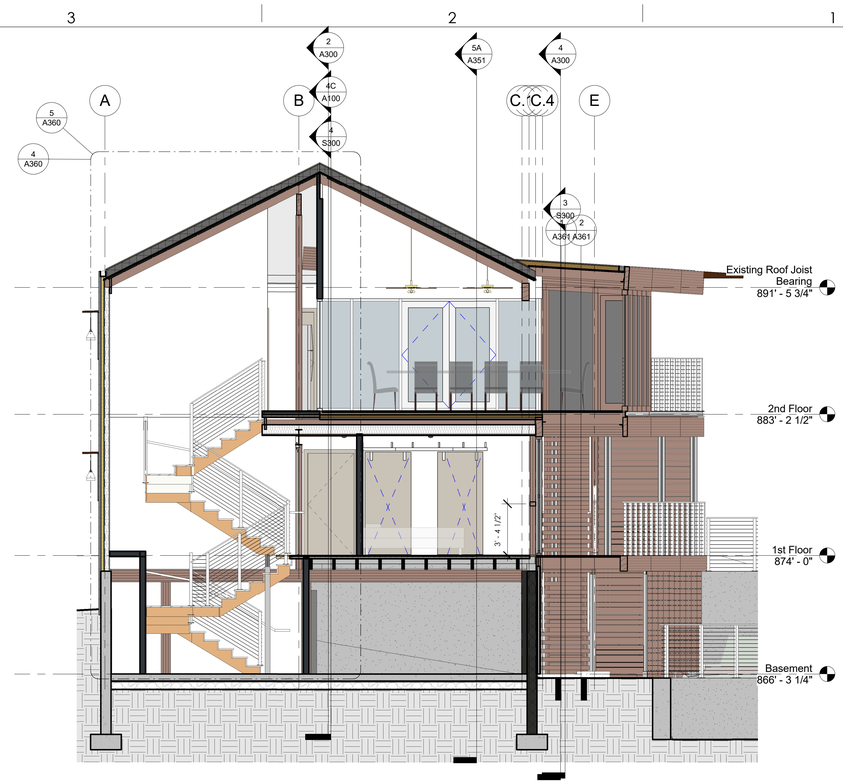
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

A200

5/3/2017 11:30:31 PM

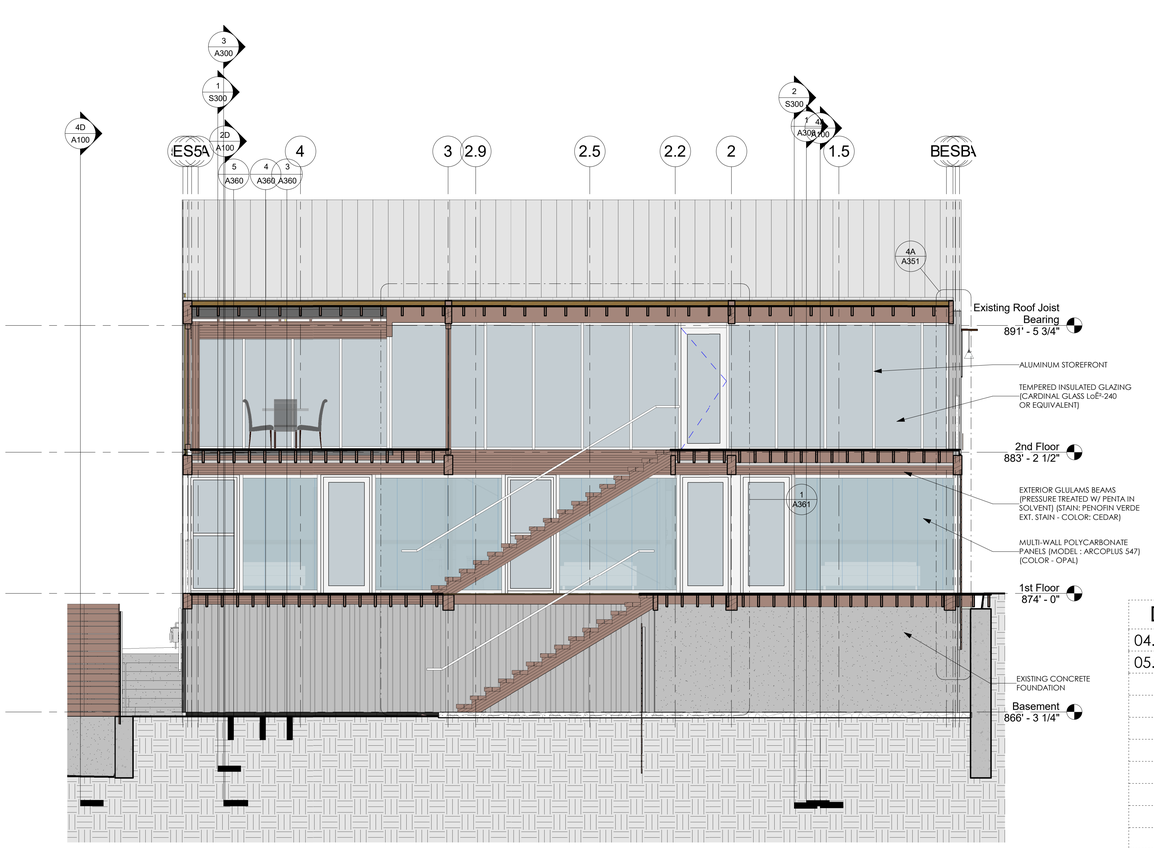


2 Building Section - N/S - Looking West
1/4" = 1'-0"



3 Building Section at Stairs - E/W - Looking North
1/4" = 1'-0"

1 Building Section - E/W - Looking North
1/4" = 1'-0"



4 Building Section at Deck - N/S - Looking West
1/4" = 1'-0"

BUILDING SECTIONS

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

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5/3/2017 11:30:39 PM

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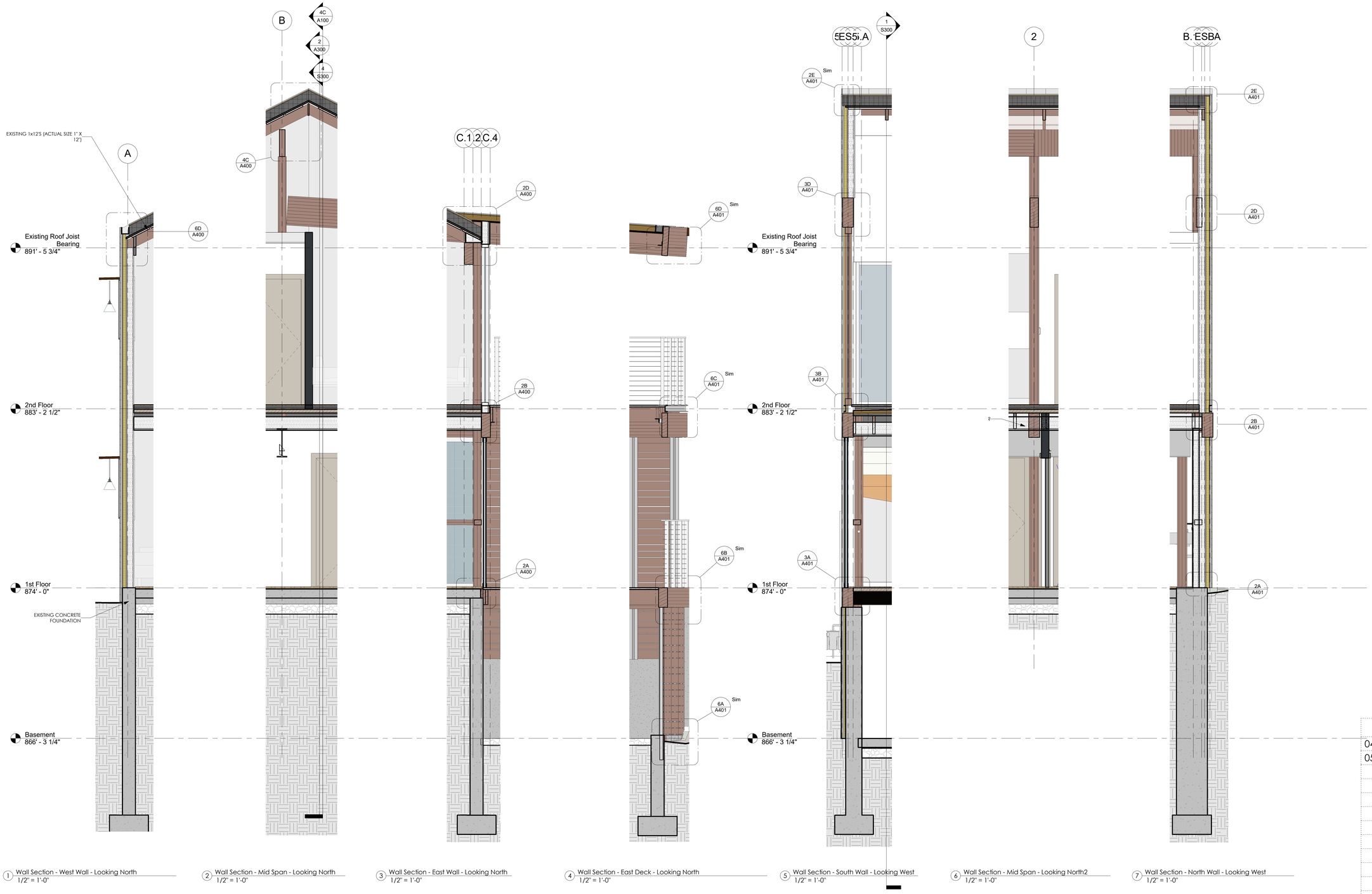
Date	Description
04.10.2017	Early Start & Footing/Foundation
05.03.2017	Issue for Permit



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

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

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 West
1/2" = 1'-0"

6 Wall Section - Mid Span - Looking North2
1/2" = 1'-0"

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

WALL SECTIONS

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

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5/3/2017 11:30:43 PM

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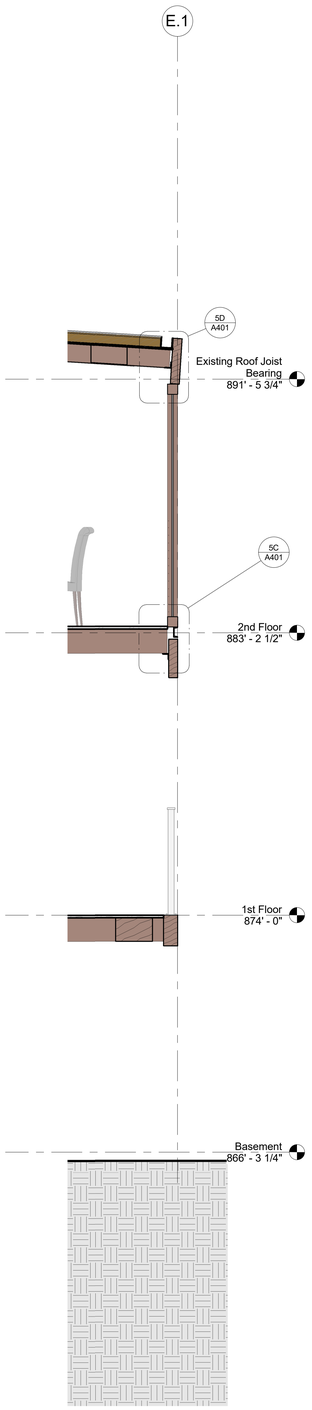
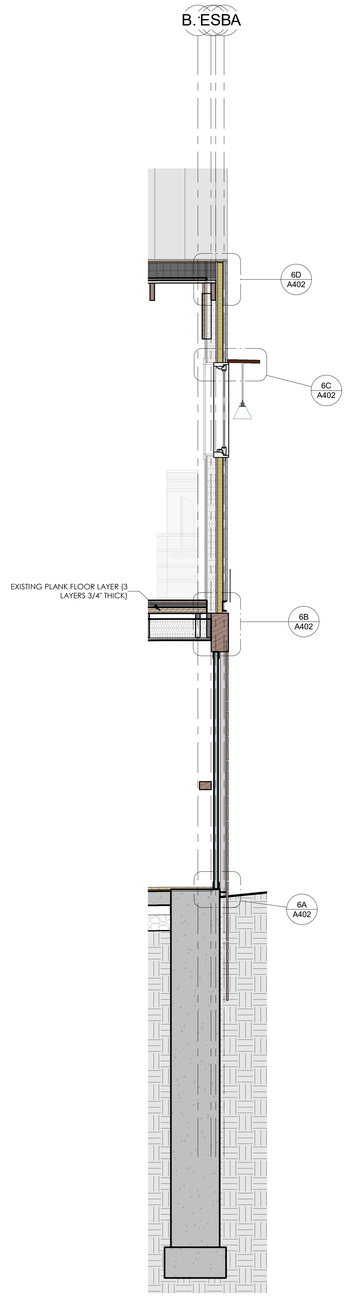
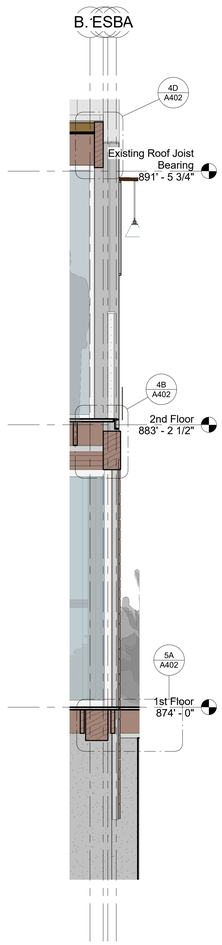


6A Wall Section - East Screen Wall - Looking North
1/2" = 1'-0"



5A Wall Section - North Wall at Polycarbonate - Looking West
1/2" = 1'-0"



4A Wall Section - East Deck - Looking West
1/2" = 1'-0"

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WALL SECTIONS

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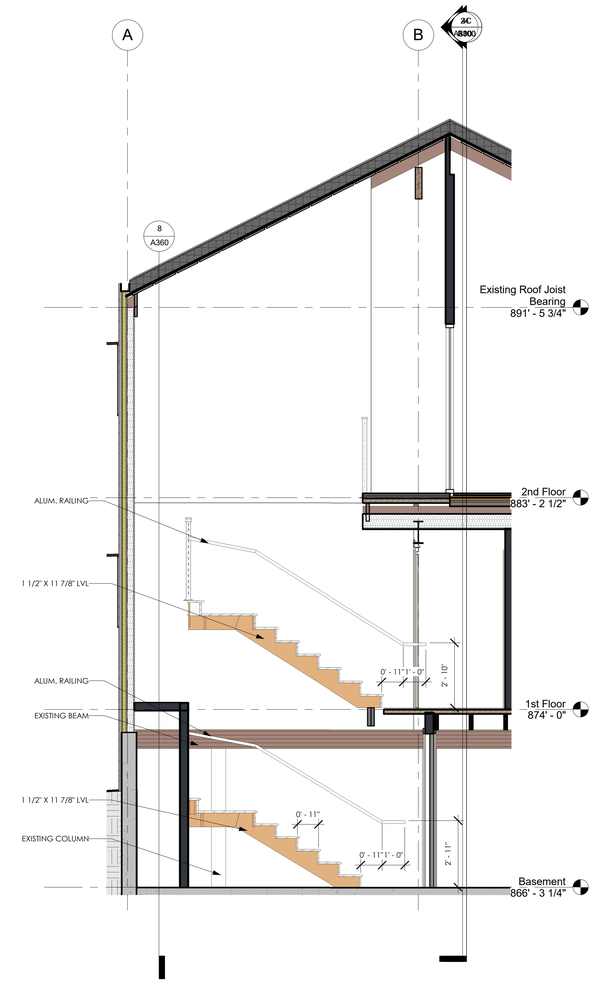
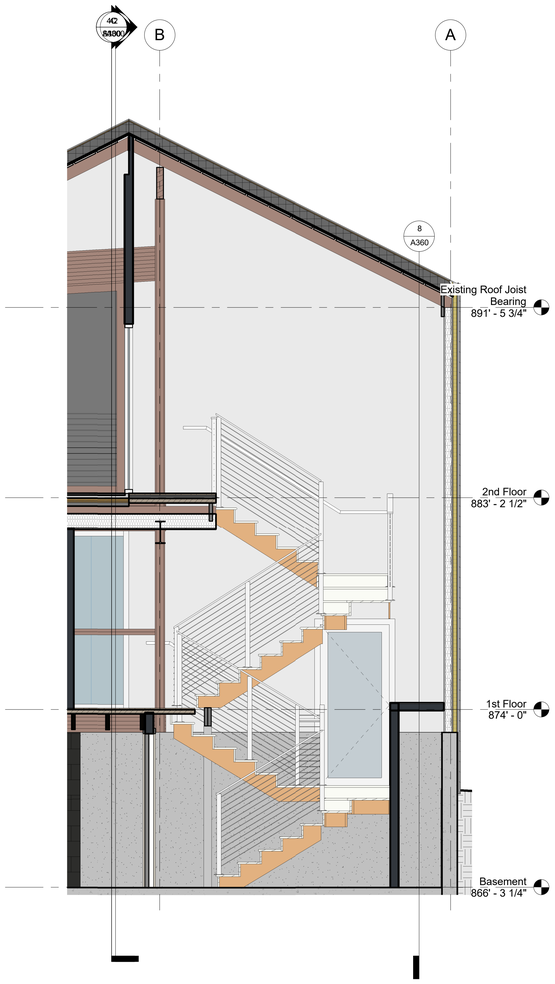
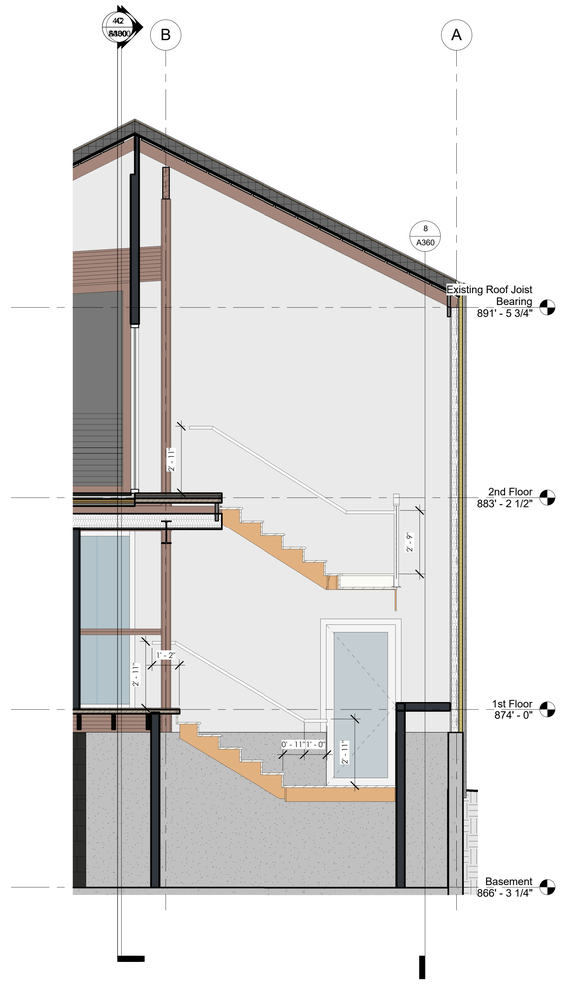


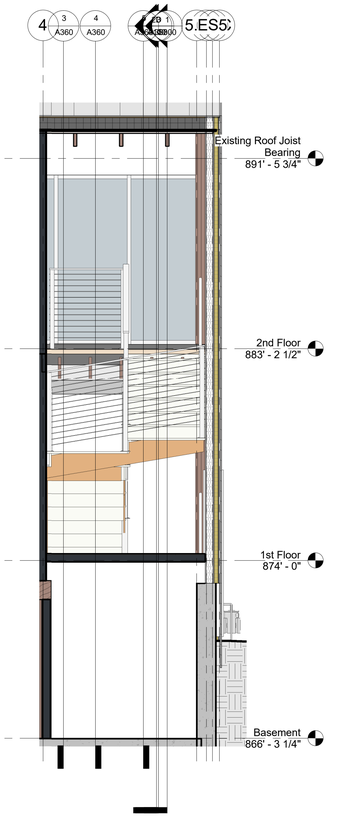
3 Detail 14
3/8" = 1'-0"



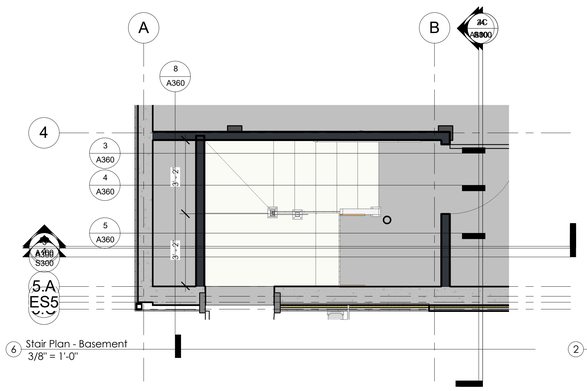
4 Detail 16
3/8" = 1'-0"



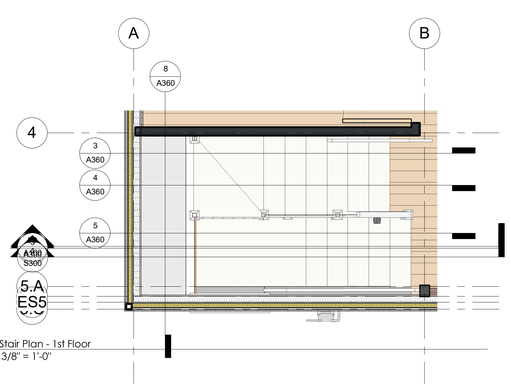
5 Detail 17
3/8" = 1'-0"



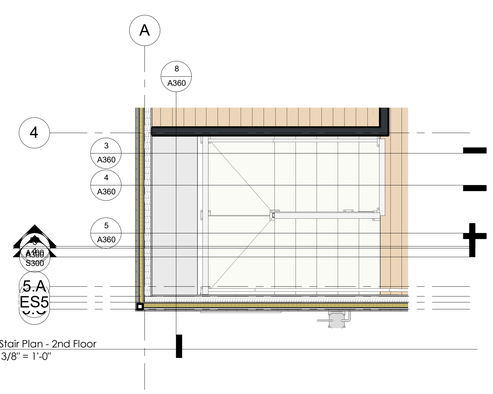
8 Detail 20
3/8" = 1'-0"



6 Stair Plan - Basement
3/8" = 1'-0"



2 Stair Plan - 1st Floor
3/8" = 1'-0"



1 Stair Plan - 2nd Floor
3/8" = 1'-0"

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Date	Description
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STAIR SECTIONS

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

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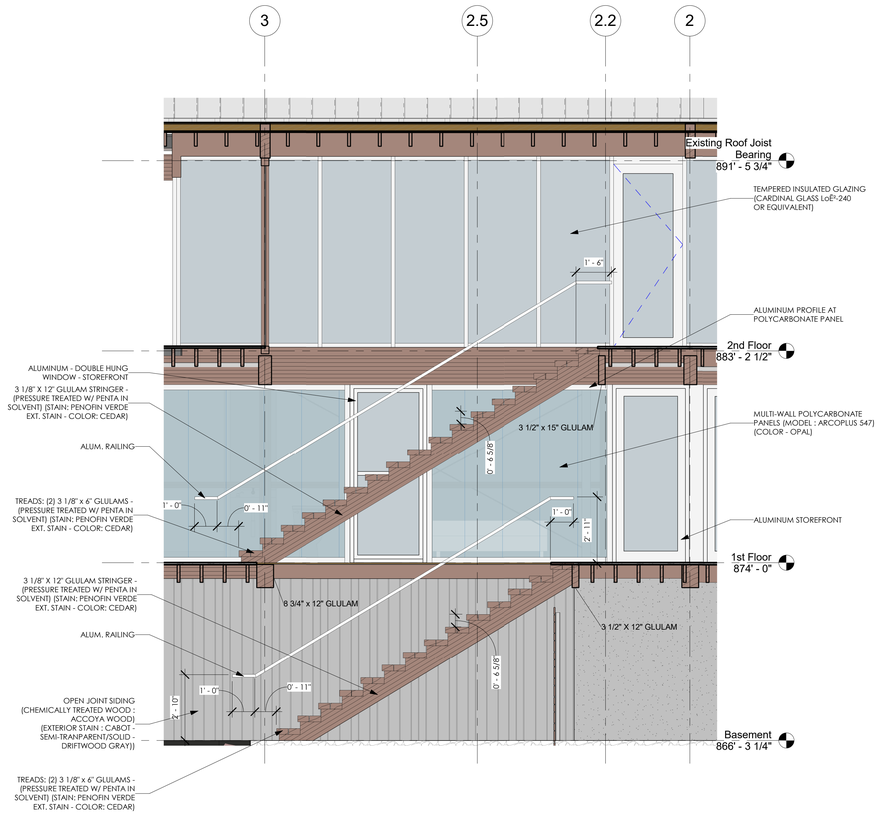
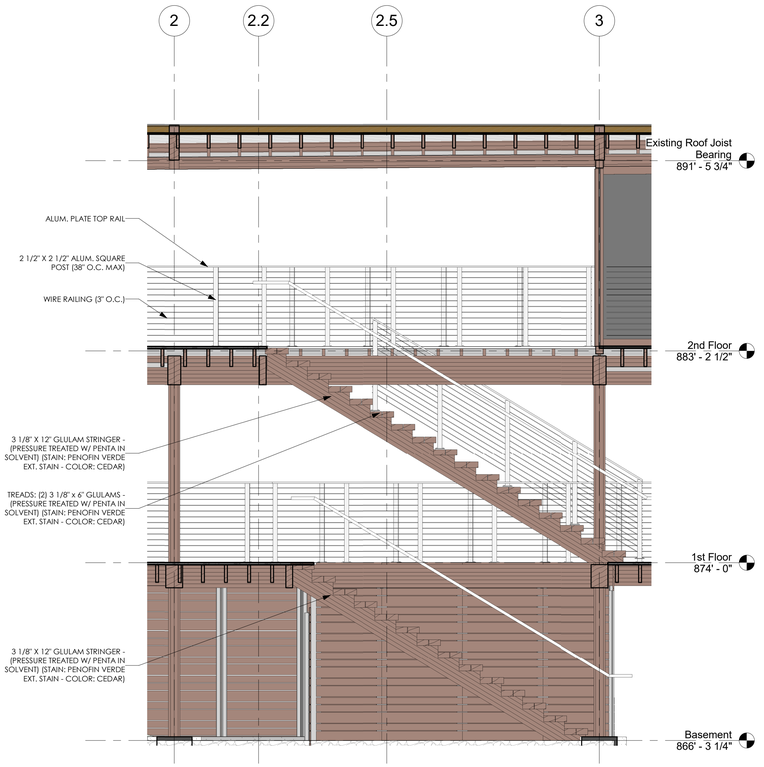
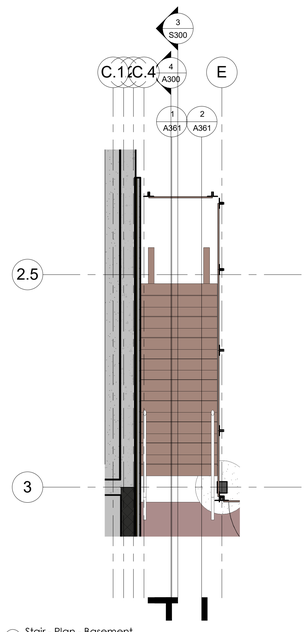


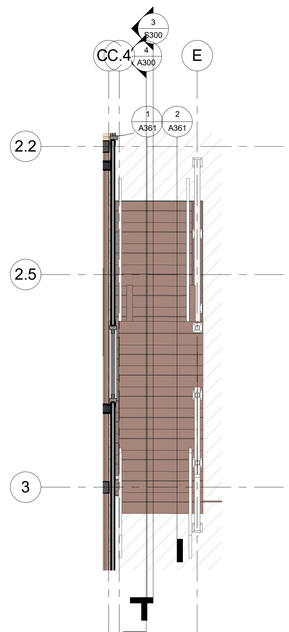
1 Detail 13
3/8" = 1'-0"



2 Detail 12
3/8" = 1'-0"



4 Stair - Plan - Basement
3/8" = 1'-0"



3 Stair - Plan - 1st Floor
3/8" = 1'-0"

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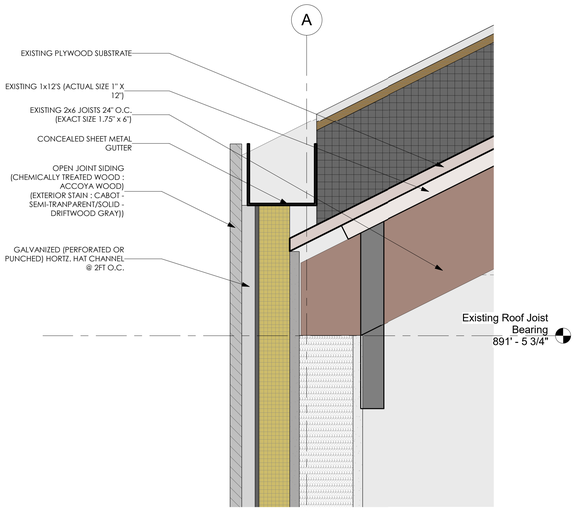
STAIR SECTIONS

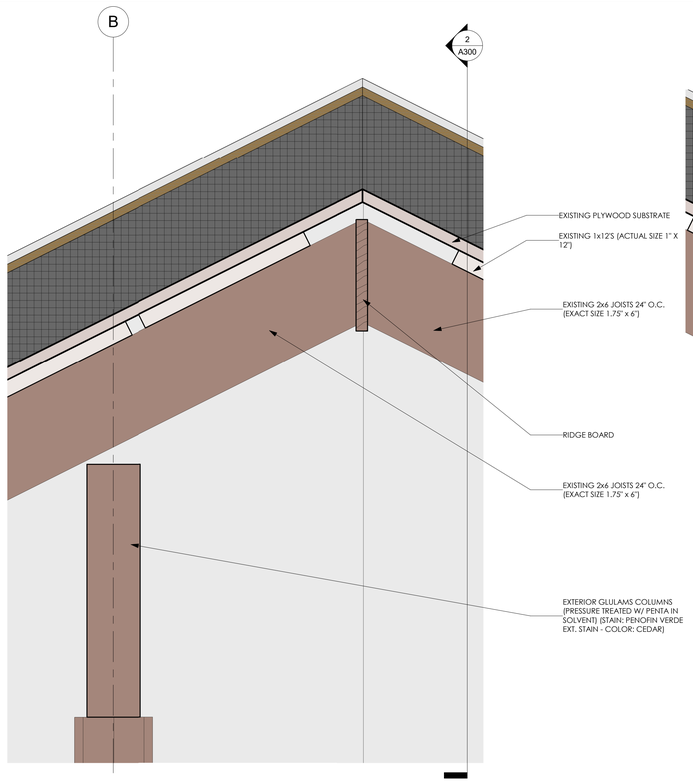
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

A361

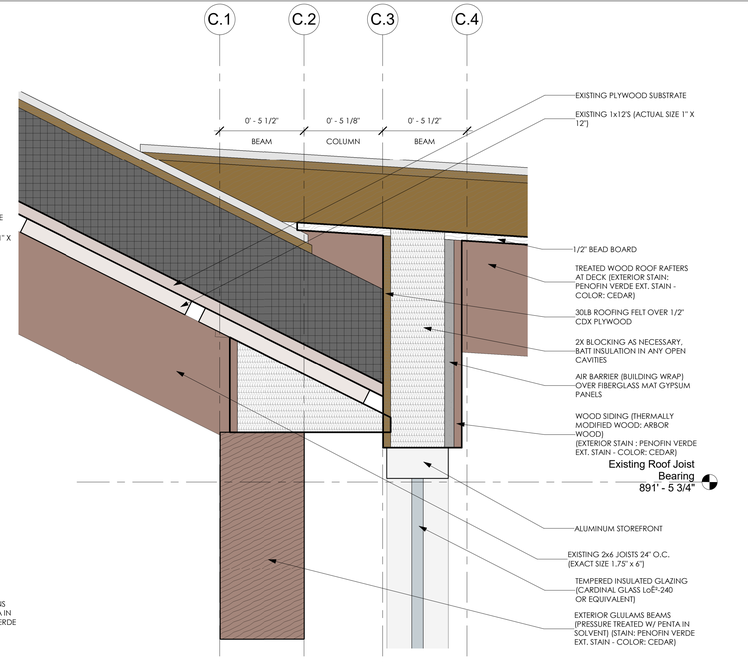
5/3/2017 11:30:54 PM



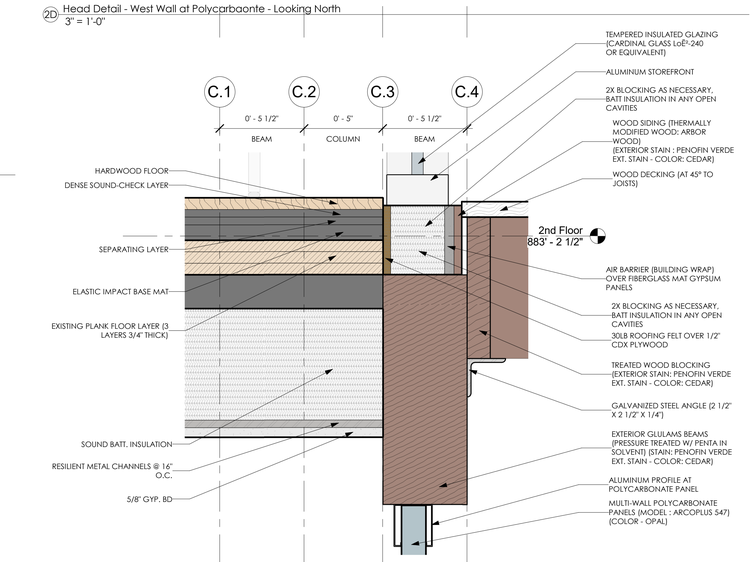
6D Eave Detail - West Wall - Looking North
3" = 1'-0"



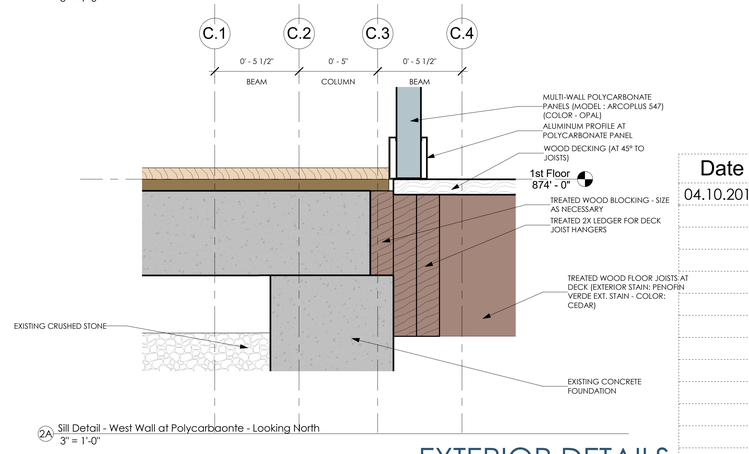
4C Head Detail - Mid Span - Looking North
3" = 1'-0"



2D Head Detail - West Wall at Polycarbaonte - Looking North
3" = 1'-0"



2B Head/Sill Detail - West Wall at Polycarbaonte - Looking North
3" = 1'-0"



2A Sill Detail - West Wall at Polycarbaonte - Looking North
3" = 1'-0"

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EXTERIOR DETAILS

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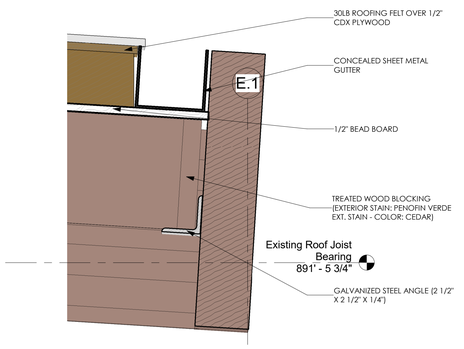
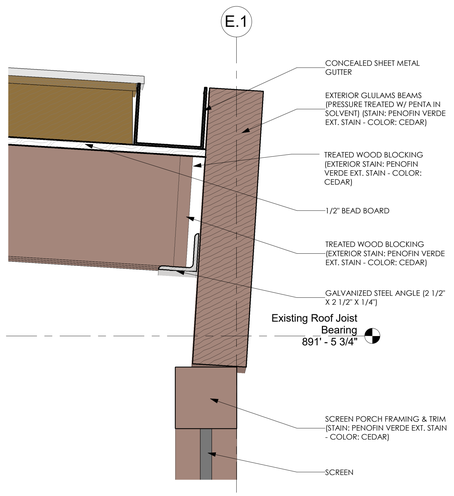
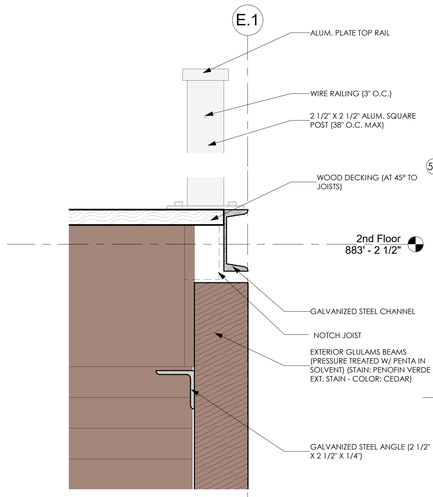


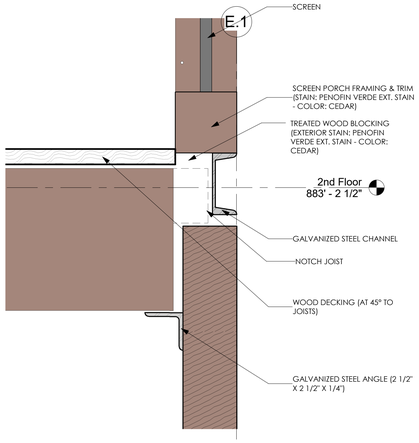
6D Eave Detail - East Deck - Looking North
3" = 1'-0"

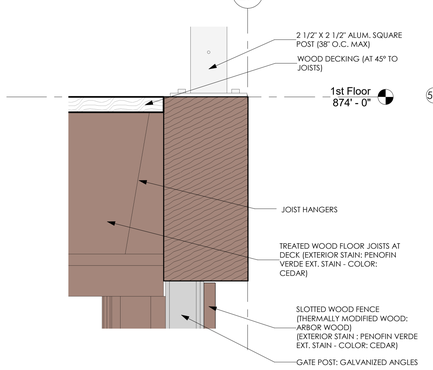


5D Eave Detail - East Screen Wall - Looking North
3" = 1'-0"



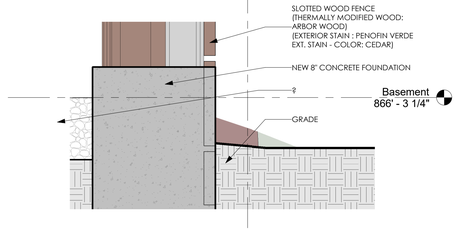
6C Railing Detail - East Deck - Looking North
3" = 1'-0"



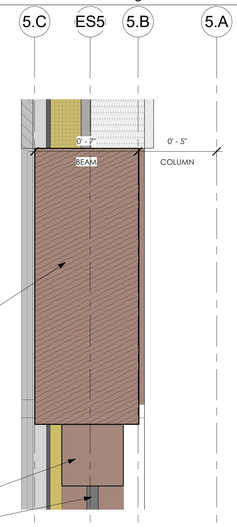


5C Sill Detail - East Screen Wall - Looking North
3" = 1'-0"

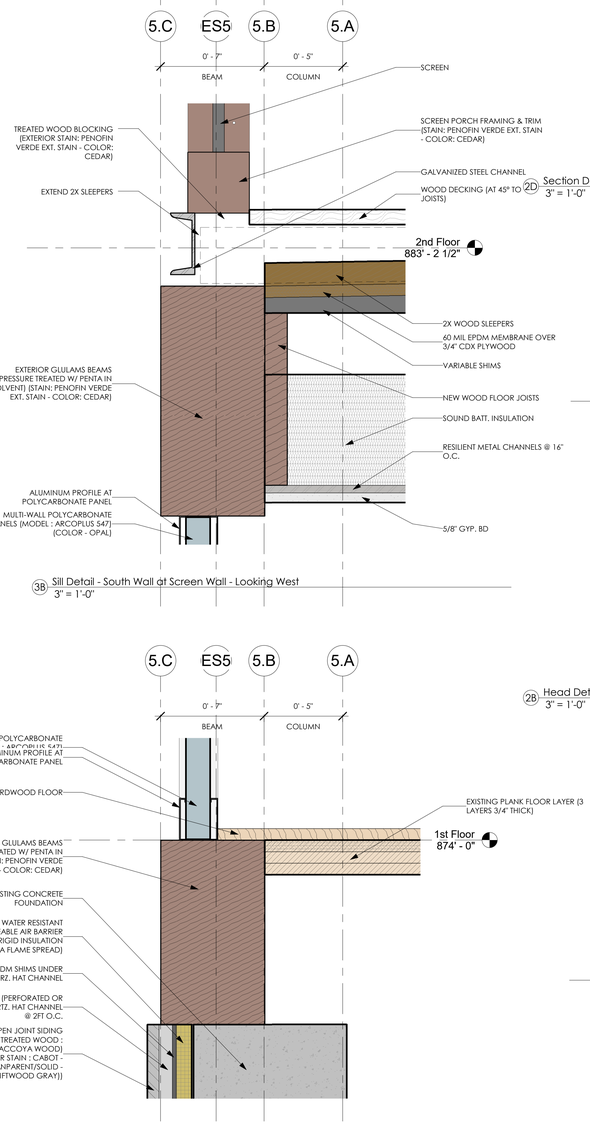
6B Section 40 - Callout 3
3" = 1'-0"



6A Section 40 - Callout 4
3" = 1'-0"

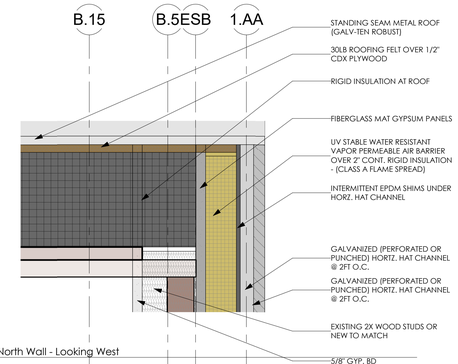


3D Head Detail - South Wall at Screen Wall - Looking West
3" = 1'-0"

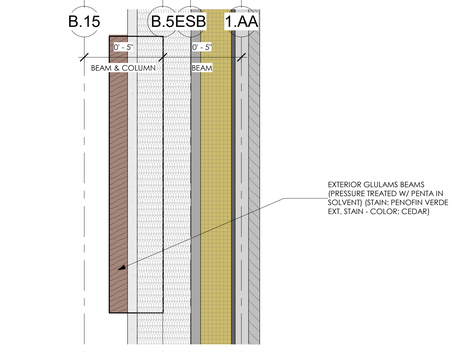


3B Sill Detail - South Wall at Screen Wall - Looking West
3" = 1'-0"

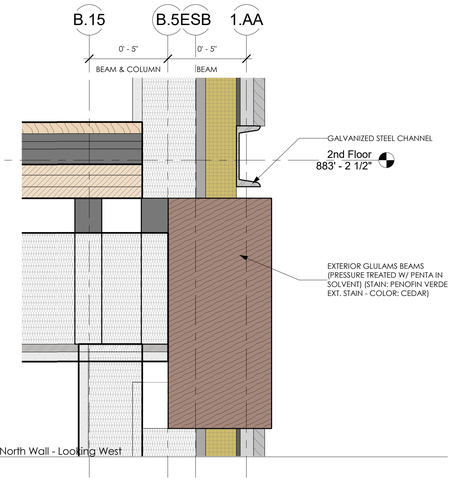
3A Sill Detail - South Wall at Polycarbonate Wall - Looking West
3" = 1'-0"



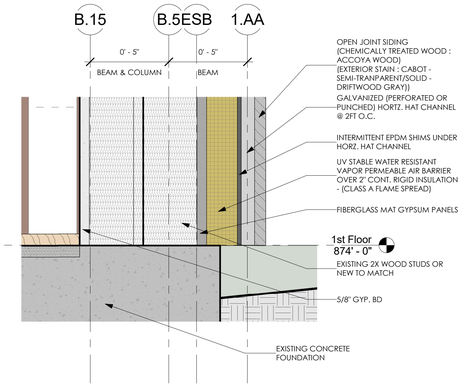
2E Rack Detail - North Wall - Looking West
3" = 1'-0"



2D Section Detail - North Wall - Looking West
3" = 1'-0"



2B Head Detail - North Wall - Looking West
3" = 1'-0"



2A Sill Detail - North Wall - Looking West
3" = 1'-0"

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EXTERIOR DETAILS

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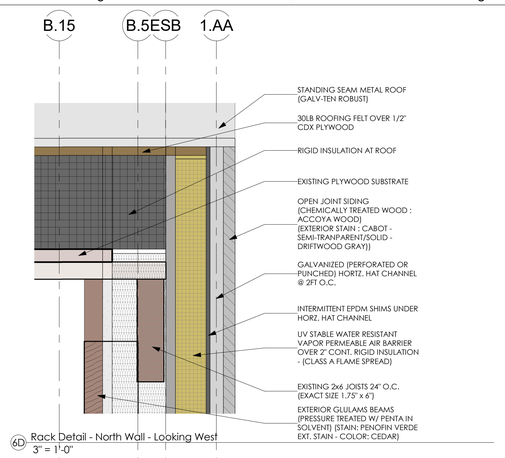
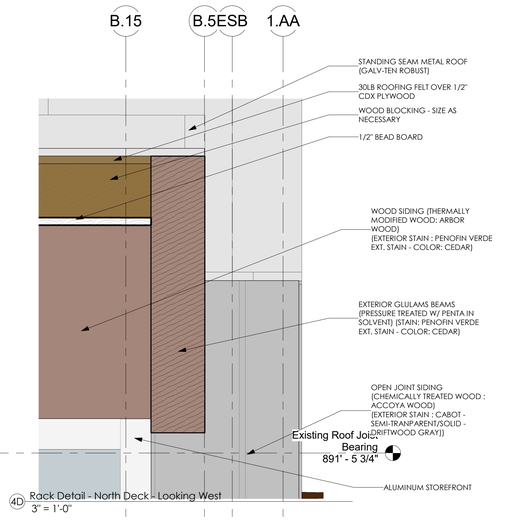
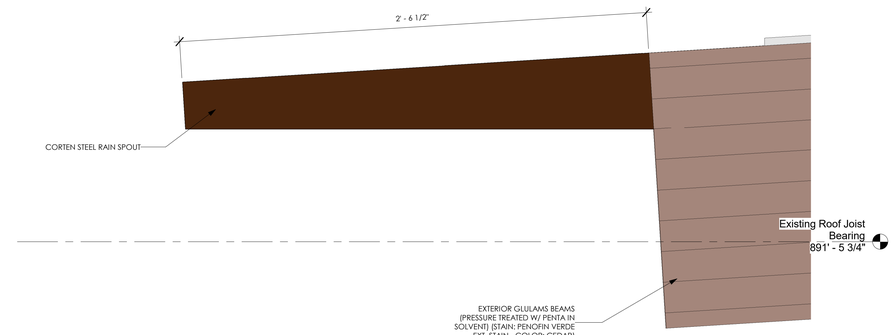


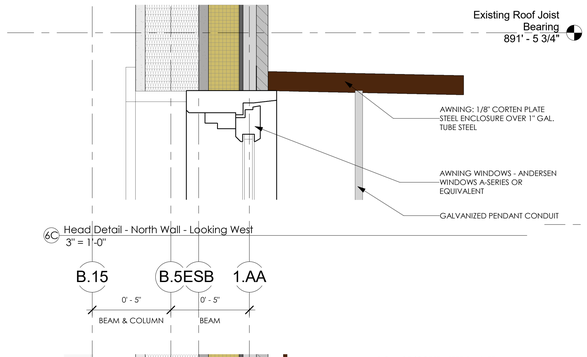
6D Rack Detail - North Wall - Looking West
3" = 1'-0"



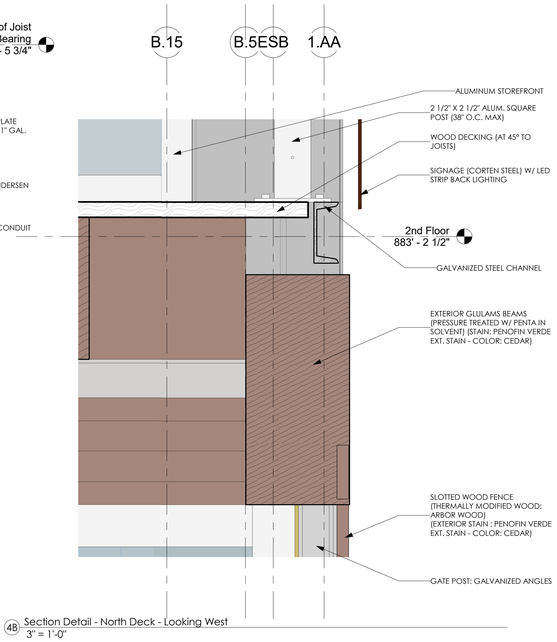
4D Rack Detail - North Deck - Looking West
3" = 1'-0"



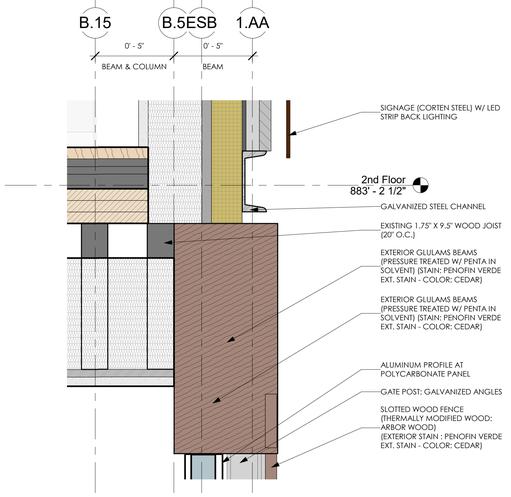
3D Detail 19
3" = 1'-0"



6C Head Detail - North Wall - Looking West
3" = 1'-0"



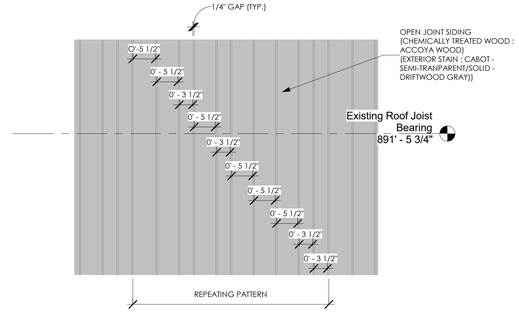
4B Section Detail - North Deck - Looking West
3" = 1'-0"



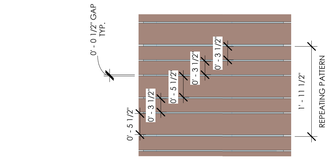
6B Head Detail - North Wall at Polycarbonate - Looking West
3" = 1'-0"

5A Detail 15
3" = 1'-0"

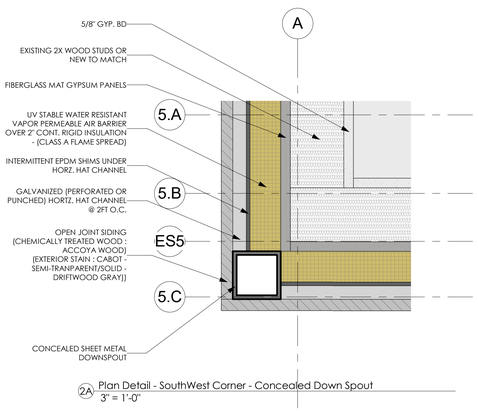
6A Sill Detail - North Wall at Polycarbonate - Looking West
3" = 1'-0"



3C Detail 10
3/4" = 1'-0"



1 Detail 11
3/4" = 1'-0"



2A Plan Detail - SouthWest Corner - Concealed Down Spout
3" = 1'-0"

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

RYAN P. SCHULTZ
A-1110F.5
STOUGHTON, WI
ARCHITECT
WISCONSIN

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

Date	Description
04.10.2017	Early Start & Footing/Foundation

8
A360

EXTERIOR DETAILS

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A402

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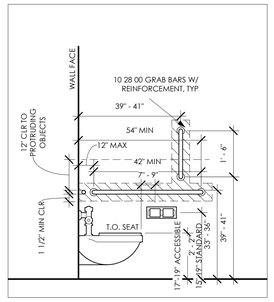
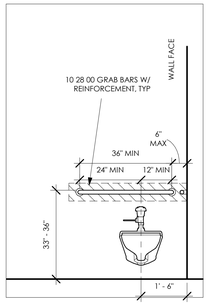
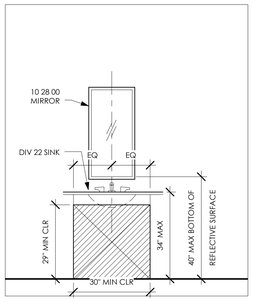


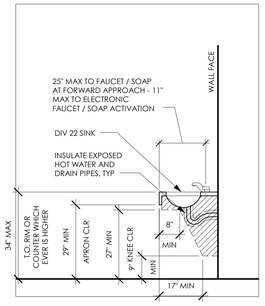
4D Toilet - Side Elevation
1/2" = 1'-0"



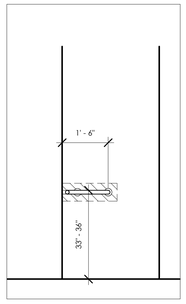
3D Toilet - Front Elevation
1/2" = 1'-0"



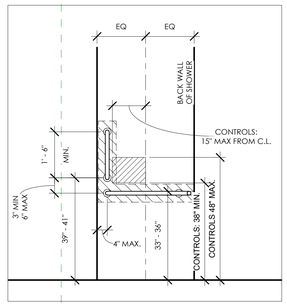
4C Lavatory - Front Elevation
1/2" = 1'-0"



3C Lavatory - Side Elevation
1/2" = 1'-0"



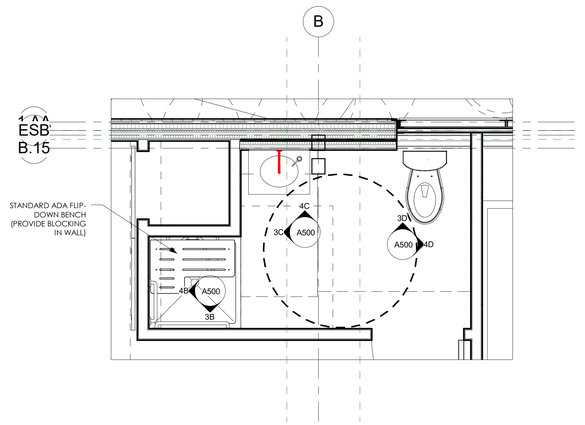
4B Shower - Back Elevation
1/2" = 1'-0"



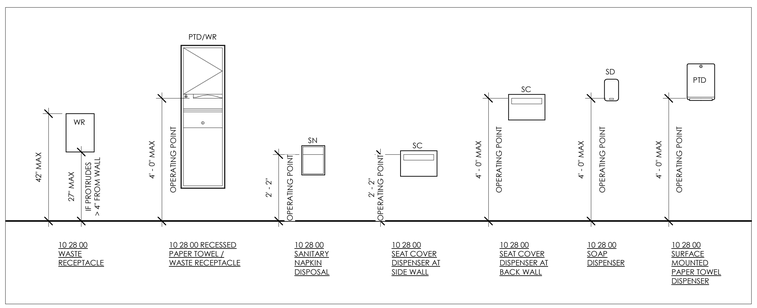
3B Shower - Side Elevation
1/2" = 1'-0"

DOOR SCHEDULE							DOOR SCHEDULE
Door Number	Room Name	Room Number	Door Width	Door Height	OD_DS_Door_Type	OD_DS_Door_Material	Notes
B000	BASEMENT	B000	3' - 0"	6' - 8"	SWING	T.B.D.	
203.A	BATH	203.A	2' - 8"	6' - 4"	SLIDER	T.B.D.	
204.A	BATH	204.A	2' - 8"	6' - 4"	SLIDER	T.B.D.	
203.B	BATH	203.A	5' - 6"	6' - 5 3/8"	SLIDER		
204.B	BATH	204.A	5' - 6"	6' - 5 3/8"	SLIDER		
206	BATH	206	2' - 10"	6' - 8"	SWING	T.B.D.	
100.A	BATH	100.A	2' - 8"	6' - 4"	SLIDER	T.B.D.	
101.A	BATH	101.A	2' - 8"	6' - 4"	SLIDER	T.B.D.	
104.A	BATH	104.A	2' - 8"	6' - 4"	SLIDER	T.B.D.	
105.A	BATH	105.A	2' - 8"	6' - 4"	SLIDER	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./GLAZING	
104.C	BEDROOM	104	3' - 4"	7' - 9"	DOUBLE HUNG WINDOW - STOREFRONT	ALUM./GLAZING	
105.C	BEDROOM	105	3' - 4"	7' - 9"	STOREFRONT	ALUM./GLAZING	
105.E	BEDROOM	105	3' - 4"	7' - 9"	DOUBLE HUNG WINDOW - STOREFRONT	ALUM./GLAZING	
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' - 4"	7' - 9"	STOREFRONT	ALUM./GLAZING	
101.B	CLOS.	101.B	2' - 2 9/16"	6' - 4"	SLIDER	T.B.D.	
100.B	CLOS.	100.B	2' - 2 9/16"	6' - 4"	SLIDER	T.B.D.	
104.B	CLOS.	104.B	2' - 2 9/16"	6' - 4"	SLIDER	T.B.D.	
105.B	CLOS.	105.B	2' - 2 9/16"	6' - 4"	SLIDER	T.B.D.	
102.A	CLOS.	102.A	2' - 2 9/16"	6' - 4"	SLIDER	T.B.D.	
205.A	CLOS.	205.A	2' - 2 9/16"	6' - 4"	SLIDER	T.B.D.	
102.B	CLOS.	102.B	2' - 2 9/16"	6' - 4"	SLIDER	T.B.D.	
100	CORRIDOR	106	3' - 0"	6' - 8"	SWING	T.B.D.	
106.B	CORRIDOR	106	7' - 6"	6' - 5 3/8"	SLIDER		
106	CORRIDOR	106	3' - 4"	7' - 9"	STOREFRONT	ALUM./GLAZING	
201	DINING/KITCHEN	201	3' - 0"	7' - 11 1/2"	STOREFRONT	ALUM./GLAZING	
109	OUTDOOR DECK	109	3' - 0 1/2"	1' - 11 1/2"	GATE DOOR	WOOD	
B001	OUTDOOR STORAGE UNDER DECK	B001	2' - 8"	1' - 11 1/2"	GATE DOOR	WOOD	
208.A	SCREENED PATIO	208	3' - 1"	7' - 0"	STOREFRONT	ALUM./GLAZING	
208.B	SCREENED PATIO	208	3' - 1"	7' - 0"	STOREFRONT	ALUM./GLAZING	
208.C	SCREENED PATIO	208	3' - 0 7/32"	7' - 8 15/32"	SWING	WOOD - SCREEN	
108	STAIR	108	3' - 0"	7' - 0"	STOREFRONT	ALUM./GLAZING	
205	STORAGE	205	2' - 10"	6' - 8"	SWING	T.B.D.	

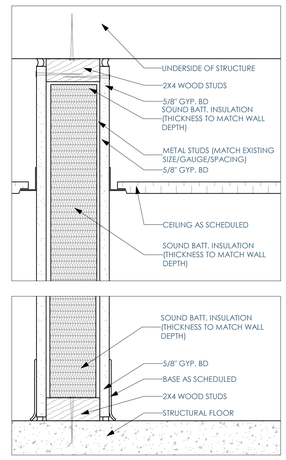
Window Schedule			
Type Mark	Width	Height	Type Comments
W1	3' - 1"	3' - 1"	Fiberglass and Fibrex clad wood awning window
W1	3' - 1"	3' - 1"	Fiberglass and Fibrex clad wood awning window
W1	3' - 1"	3' - 1"	Fiberglass and Fibrex clad wood awning window
W1	3' - 1"	3' - 1"	Fiberglass and Fibrex clad wood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



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



3 ADA COMPLIENT HEIGHTS
1/2" = 1'-0"



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

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
RYAN P. SCHULTZ
A-11197-5
STOUGHTON, 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

ADA RESTROOM & SCHEDULES

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

A500

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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 ft²**	**50 ft²**	**100 ft²**
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
EISMIC 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)	Qa = 1750psf
MODULUS OF SUB-GRADE REACTION	k = 125 pci
FROST DEPTH	42"

LIVE LOADS:

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

MATERIAL DESIGN PROPERTIES

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

EARTHWORK NOTES

1. 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
2. ALL TOPSOIL, DEBRIS, SILTS, AND ORGANIC MATERIAL SHALL BE STRIPPED AND REMOVED FROM
   LIMITS OF EXCAVATIONS AND EXISTING SUBGRADE SHALL BE COMPACTED TO 95% STANDARD
   PROCTOR MAXIMUM DRY DENSITY PRIOR TO PLACEMENT OF FILL MATERIAL
3. FILL MATERIAL SHALL BE PLACED AND COMPACTED IN LIFTS NO THICKER THAN 8". EACH LIFT SHALL
   MEET COMPACTION REQUIREMENTS PRIOR TO PLACEMENT AND COMPACTION OF ADDITIONAL
   LIFTS.
4. FILL MATERIAL SHALL BE PLACED AND COMPACTED AT +1% TO -4% OPTIMUM MOISTURE CONTENT
   TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY, UNLESS RECOMMENDED OTHERWISE BY A
   QUALIFIED SOILS ENGINEER.
5. UNSATISFACTORY SOILS LOCATED BELOW FOUNDATIONS SHALL BE REMOVED AND

GENERAL FOUNDATION NOTES

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

CAST-IN-PLACE CONCRETE NOTES

1. DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST PROVISIONS OF ACI 318/318R.
2. CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AT LEAST 48 HOURS PRIOR TO PLACING CONCRETE TO FACILITATE ON SITE OBSERVATION OF REBAR.
3. ARRANGEMENT AND BENDING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL (ACI SP-66), LATEST EDITION.
4. 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.
5. 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.
6. ALL HOOKS IN STEEL REINFORCING SHALL BE ACI STANDARD HOOKS, UNLESS NOTED OTHERWISE IN CONSTRUCTION DOCUMENTS.
7. ALL CONCRETE SURFACES SHALL BE FORMED, UNLESS OTHERWISE NOTED.
8. CONTROL JOINTS SHALL BE PLACED IN SLAB ON GRADE AND SLAB ON METAL DECK CONSTRUCTION WITHIN 24 HOURS OF INITIAL POUR.
9. 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.
10. STEEL REINFORCING SPLICES OF ADJACENT BARS SHALL BE STAGGERED SUCH THAT SPLICES ARE 4 FEET APART, MINIMUM.
11. WELDED WIRE REINFORCING SHALL BE IN FLAT SHEETS ONLY, AND LAPPED A MINIMUM OF 6 INCHES.
12. WELDING OF STEEL REINFORCING IS NOT PERMITTED.
13. SLEEVES, CONDUITS, OR PIPES THROUGH SLABS AND WALLS SHALL BE PLACED AT THREE DIAMETERS ON CENTER, OR 4 INCHES MINIMUM.
14. ALUMINUM CONDUIT OR PIPING SHALL NOT BE CAST IN CONCRETE.
15. 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	±3/8"
MEMBERS OVER 12"	±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	±1"
LATERAL ALIGNMENT	±1"
LEVEL ALIGNMENT	±1"
PLACEMENT OF FOOTINGS SHALL BE WITHIN THE FOLLOWING TOLERANCES:	
LATERAL ALIGNMENT	±2"
LEVEL ALIGNMENT	+1/2" TO -2"
(LEVEL ALIGNMENT SUPPORTING MASONRY)	±1/2"
CROSS-SECTIONAL DIMENSION OF FOOTINGS SHALL BE WITHIN THE FOLLOWING TOLERANCES:	
FORMED FOOTINGS	+2" TO -1/2"
EARTHCAST FOOTINGS:	
2' OR LESS	+3" TO -1/2"
GREATER THAN 2' BUT LESS THAN 6'	+6" TO -1/2"
GREATER THAN 6'	+12" TO -1/2"
FOOTING THICKNESS	±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"

Wood Framing Notes

- FRAMING MEMBERS:
  - VERTICAL MEMBERS:
    - SPRUCE PINE FIR (SPF) - STUD GRADE
  - HORIZONTAL MEMBERS:
    - SPRUCE PINE FIR (SPF) - NO 1/NO2
    - SPRUCE PINE FIR (SPF) - STUD GRADE
  - LUMBER TO BE KILN DRIED, MOISTURE CONTENT SHALL BE BETWEEN 15% AND 19%
- TOP & BOTTOM PLATES OF STUD WALLS SHALL BE THE SAME AS THE WALL STUDS. (BOTTOM
  PLATE TO BE TREATED). ROOF SHEATHING SHALL BE 3 AT FLAT ROOFS ATTACHED TO THE ROOF FRAMING MEMBERS w/8d COMMON OR BOX NAILS @ 6" O.C. ALONG EDGES AND 12" O.C. ALONG INTERMEDIATE MEMBERS. STAGGER PANEL EDGES. (1" MIN. EMBED. INTO FRAMING MEMBER). INSTALL EDGE CLIPS ON PANEL EDGES BETWEEN FRAMING MEMBERS.
- EXTERIOR WALLS TO BE SHEATHED w/APA RATED SHEATHING, SEE ARCH DRAWINGS FOR THICKNESS. ATTACH DIRECTLY TO THE OUTSIDE FACE OF EXTERIOR STUD WALLS WITH 8d COMMON OR BOX NAILS @ 6"O.C. ALONG EDGES AND 12" O.C. ALONG INTERMEDIATE MEMBERS. U.N.O.
- AS A MINIMUM, ALL CONNECTIONS SHALL CONFORM TO IBC 2006 TABLE 2304.9.1 FASTENING SCHEDULE. DRAWING DETAILS SHALL GOVERN IF THEIR CONNECTION CAPACITY IS GREATER THAN THOSE SPECIFIED IN TABLE 2304.9.1.
- WHERE BUILT-UP/MULTI-PLY BEAMS AND HEADERS OF DIMENSIONAL LUMBER OR LVL MATERIAL ARE INDICATED, SEE DETAIL 1/S4.00 FOR TOP LOADED MEMBERS FOR MINIMUM FASTENING REQUIREMENTS. ALSO SEE MANUFACTURER'S MINIMUM FASTENING REQUIREMENTS. WHERE BUILT-UP/MULTI-PLY POSTS AND JAMBS ARE INDICATED, FASTENING SHALL BE IN ACCORDANCE WITHNATIONAL DESIGN SPECIFICATION SECTION 15.3.3.
- USE JOIST HANGERS DESIGNED FOR GIVEN MEMBER SIZE TO SUPPORT ALL JOISTS/HEADERS FRAMING INTO SIDES OF OTHER MEMBERS.

LAMINATED WOOD STRESS COMBINATIONS:

SPECIES	**DOUGLAS FIR UNLESS NOTED**
LAMINATION THICKNESS	1 1/2" (2" NOM.) UNLESS NOTED
STRESS COMBINATION	SEE STRESS LISTING BELOW
TREATING	ALL MEMBERS EXPOSED TO THE EXTERIOR TO BE TREATED
ADHESIVE	RESORCINOL RESIN
AITC APPEARANCE GRADE	ARCHITECTURAL SMOOTH TEXTURE
FINISH (EXPOSED SURFACES)	FACTORY STAIN - ONE COAT. ARCHITECT TO SELECT COLOR
FINISH (UNEXPOSED SURFACES)	ONE COAT SEALER
PROTECTION (TRANSIT)	WRAP INDIVIDUAL MEMBERS w/WATER-RESISTANT PAPER OR OPAQUE POLYETHYLENE, TAPE SEAMS

- MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH "AMERICAN NATIONAL STANDARD", ANSI/AITC A190.1-1992.
- MEMBERS SHALL BE MARKED WITH A QUALITY MARK INDICATING CONFORMANCE TO THE STANDARD LISTED IN NOTE 1.

LAMINATED WOOD STRESS COMBINATIONS:

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

LAMINATED WOOD CONNECTION / HARDWARE NOTES:

- ALL CONNECTIONS PLATES SHALL BE FABRICATED WITH ASTM A36 STEEL
- WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWS STANDARDS
- ALL HOLES SHALL BE 13/16" - UNLESS NOTED OTHERWISE
- ALL BOLTS SHALL BE 3/4" ASTM A307 UNLESS NOTED OTHERWISE
- ALL LAGS SHALL CONFORM TO ANSI/ASME STANDARDS
- ALL SHEAR PLATES SHALL CONFORM TO ANSI/AF&PA STANDARDS.
- SHAPED STEEL CONNECTION PLATES MAY BE CUT FROM A SINGLE PLATE OR CONSTRUCTED OF MULTIPLE PLATES w/ BEVELED, FULL PENETRATION WELDS (GROUND SMOOTH)
- ALL FABRICATED STEEL, BOLTS, WASHERS, SHEAR PLATES, LAGS, AND NAILS SHALL BE HOT DIP GALVANIZED WHERE EXPOSED TO THE WEATHER OR EMBEDDED IN

LAMINATED WOOD STORAGE / ERECTION NOTES:

- JOB-SITE STORAGE SHALL BE PROVIDED IN A LEVEL AREA TO PREVENTWARPAGE. 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 NONMARRING 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.

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Date	Description
05.03.2017	Issue for Permit

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

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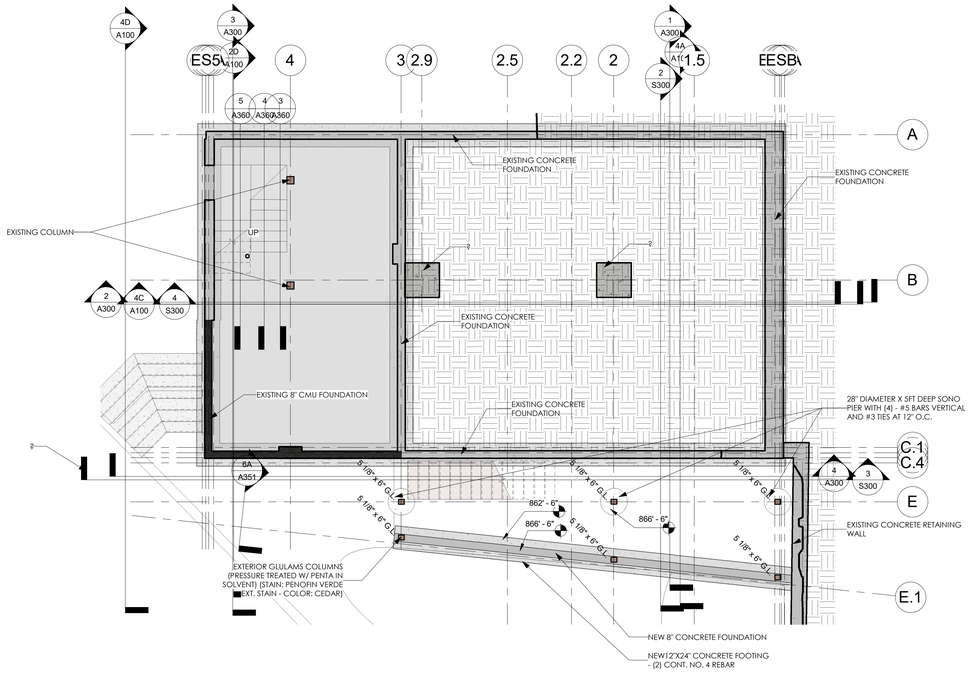
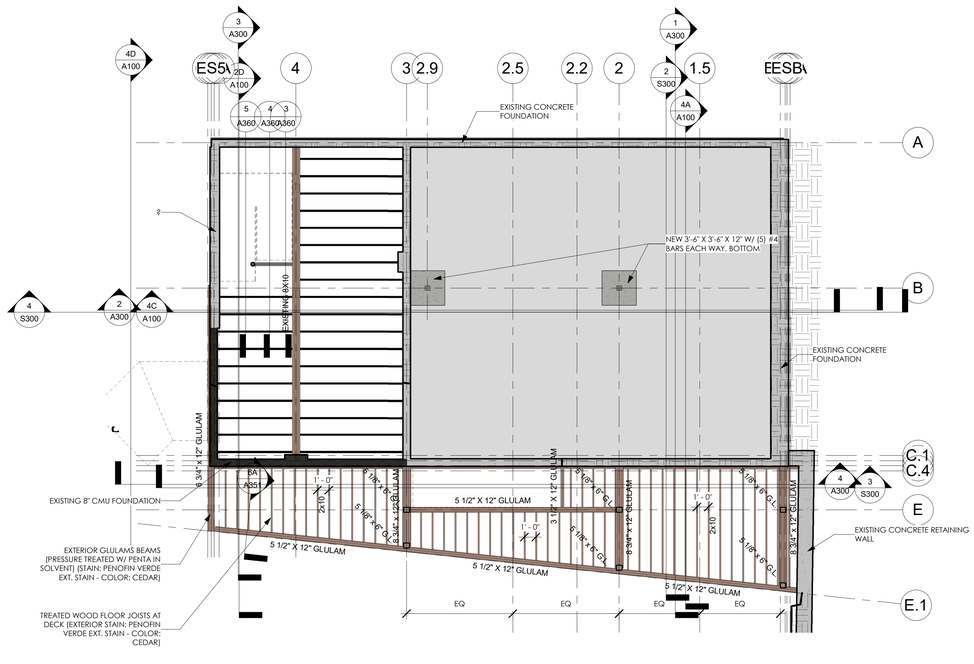
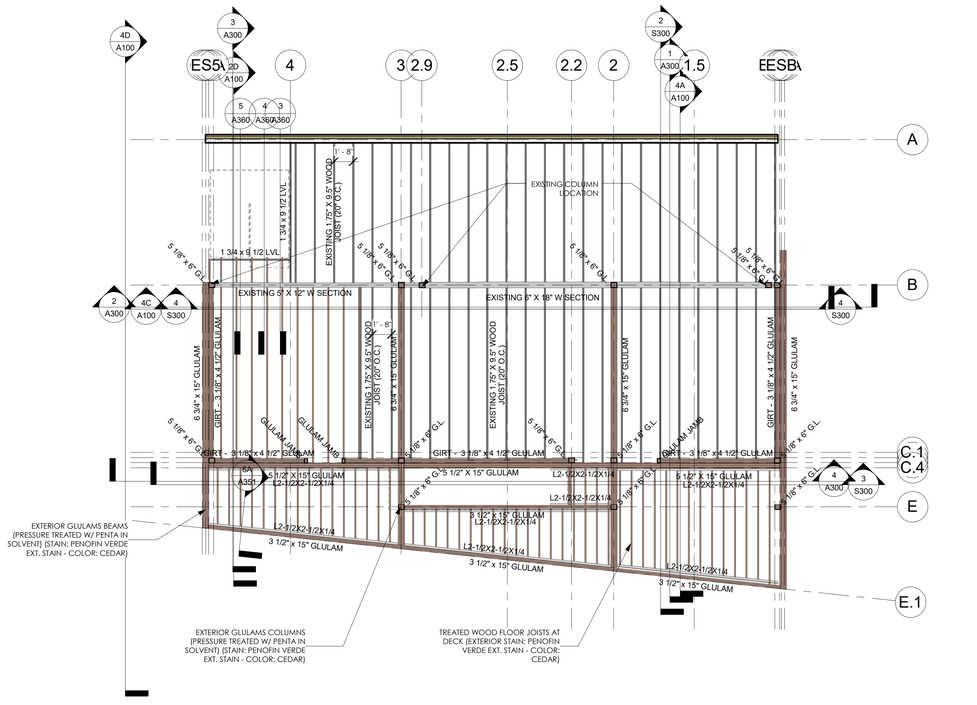


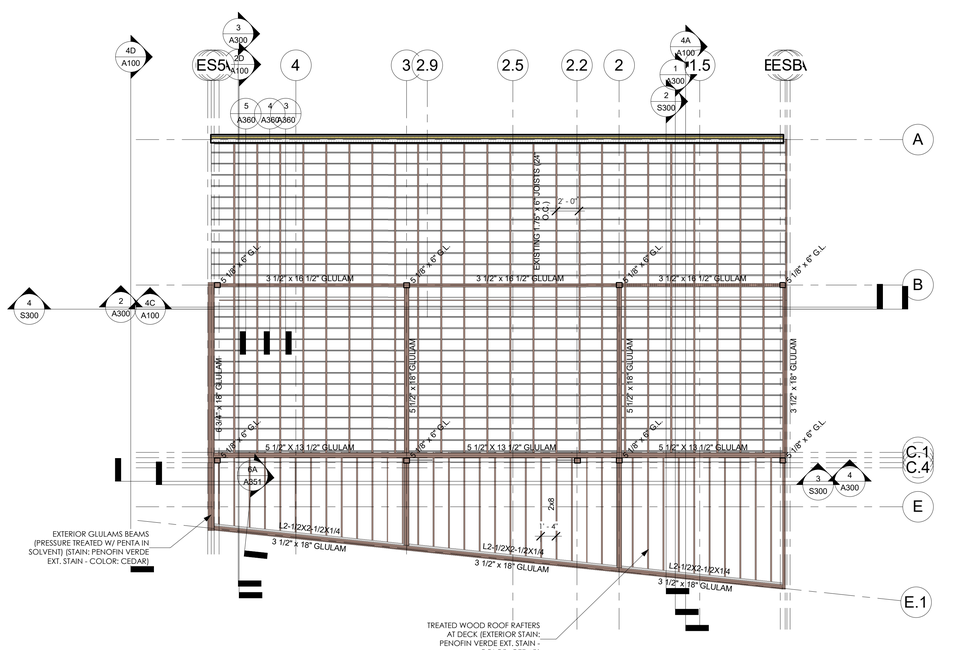
7 Structural - Foundation Plan
3/16" = 1'-0"



4 Structure - 1st Floor Framing
3/16" = 1'-0"



5 Structure - 2nd Floor Framing
3/16" = 1'-0"



6 Structure - Roof Framing
3/16" = 1'-0"

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Date	Description
04.10.2017	Early Start & Footing/Foundation

STRUCTURAL - FLOOR PLANS
The Downtowner | 640 West Main Street, Lake Geneva, WI 53147

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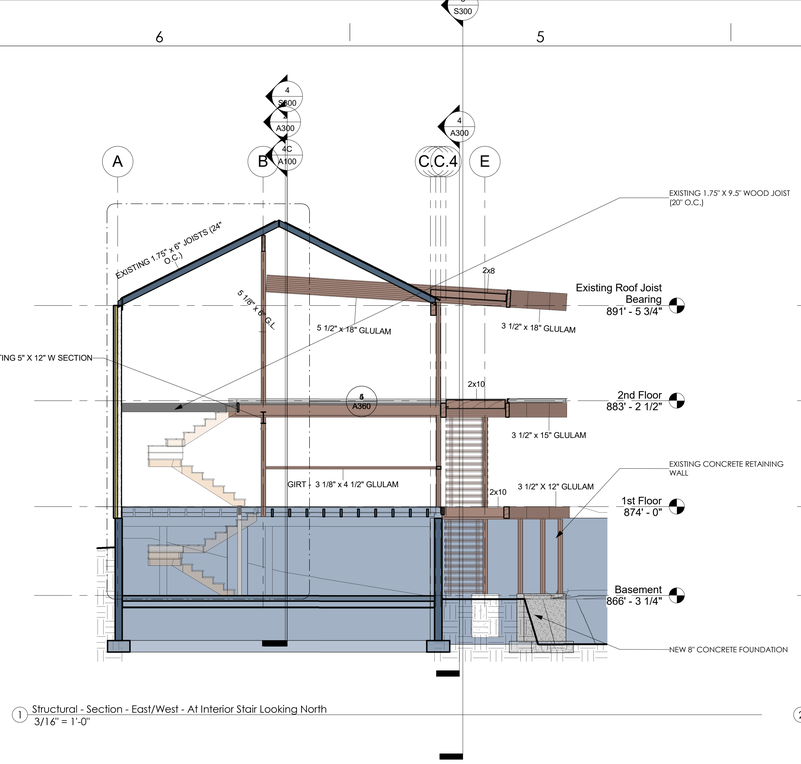
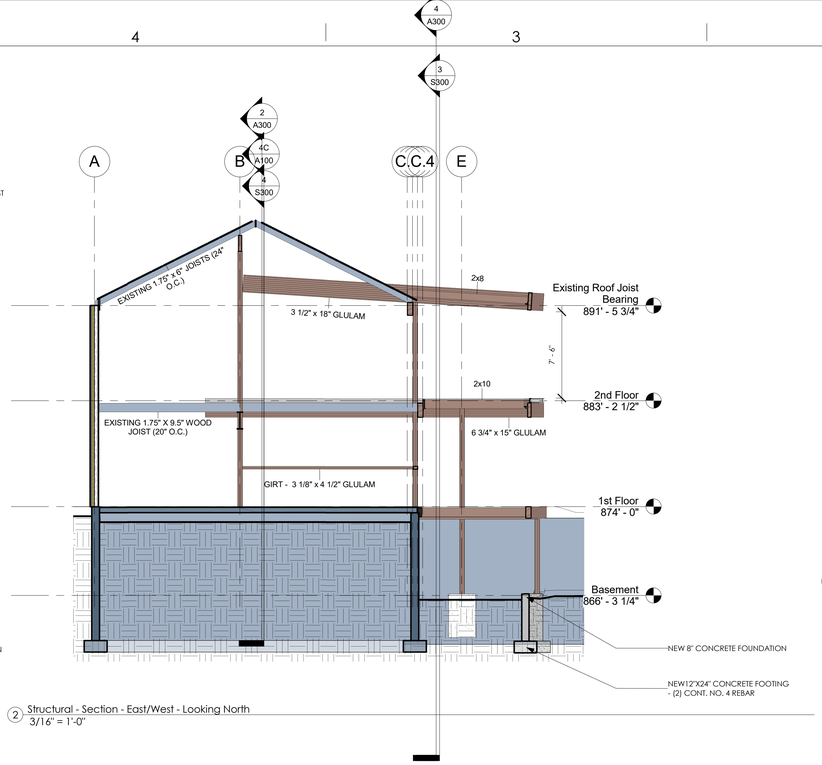
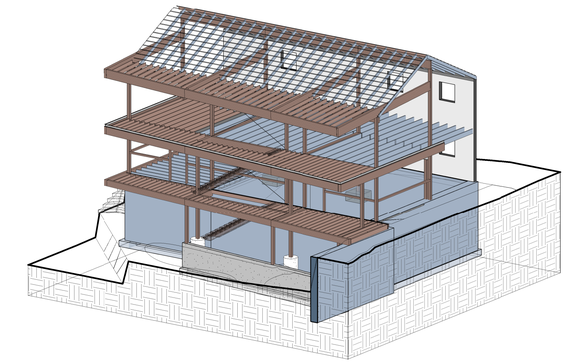


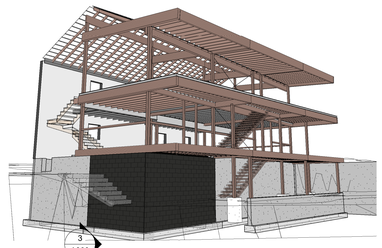
1 Structural - Section - East/West - At Interior Stair Looking North
3/16" = 1'-0"



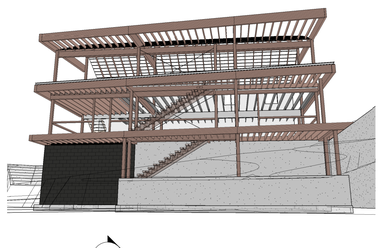
2 Structural - Section - East/West - Looking North
3/16" = 1'-0"



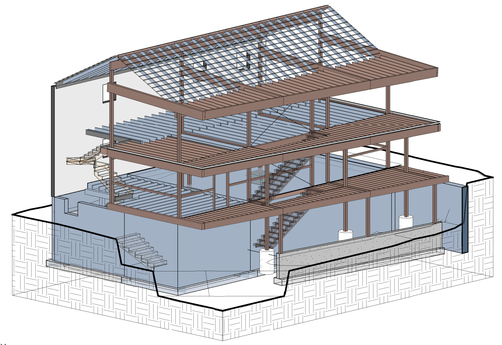
6 Structure Only Copy 1



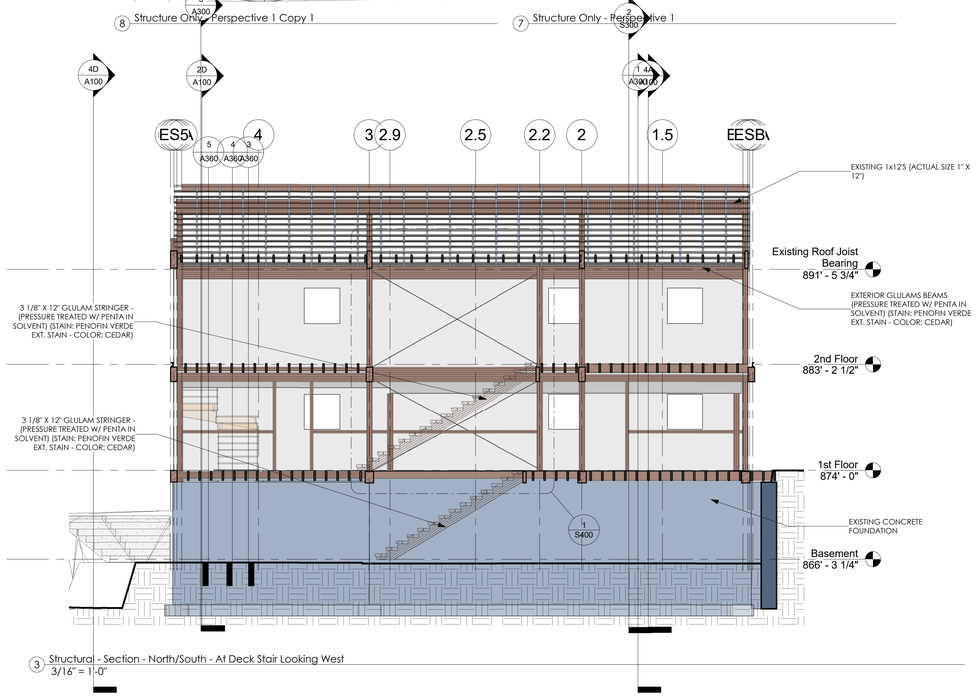
8 Structure Only - Perspective 1 Copy 1



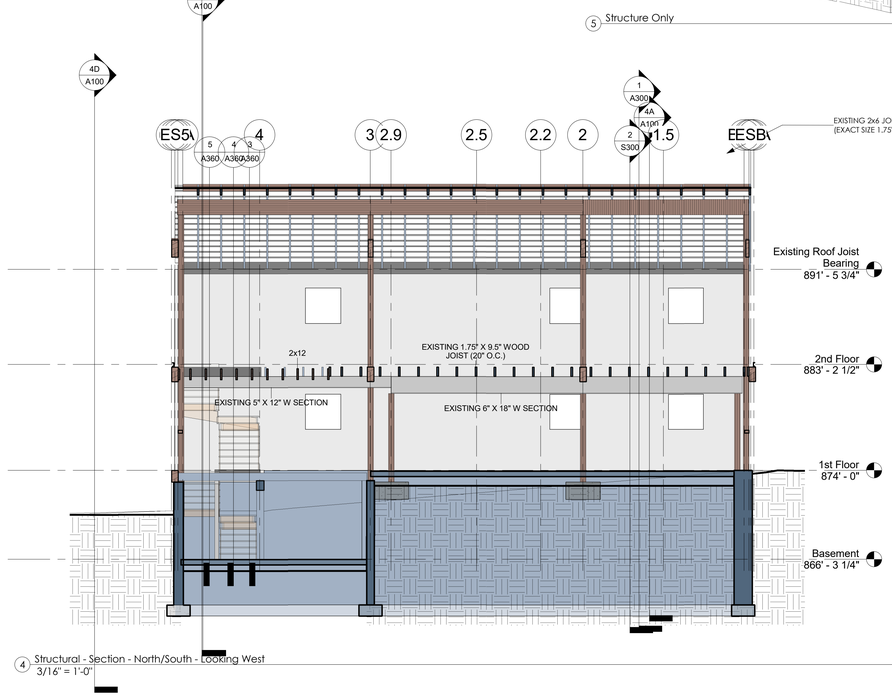
7 Structure Only - Perspective 1



5 Structure Only



3 Structural - Section - North/South - At Deck Stair Looking West
3/16" = 1'-0"



4 Structural - Section - North/South - Looking West
3/16" = 1'-0"

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Date	Description
05.03.2017	Issue for Permit

STRUCTURAL - SECTIONS
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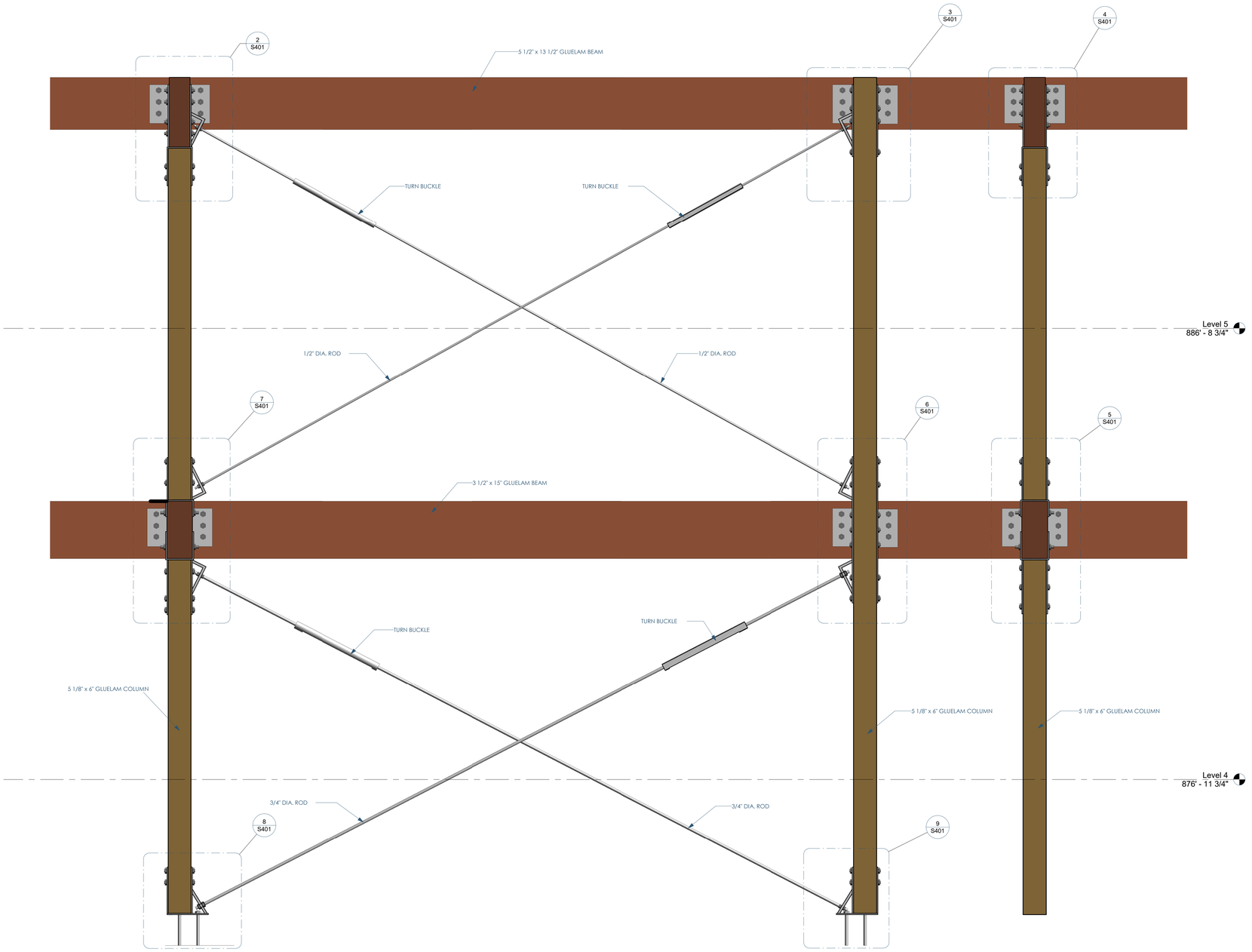

1 Detail 5
1" = 1'-0"

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Date	Description
2017.05.03	Issue For Permit

BRACING ELEVATION
Project Name | Enter address here

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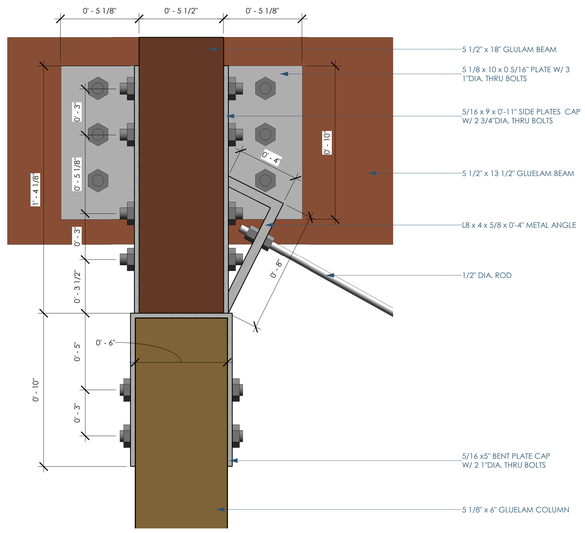
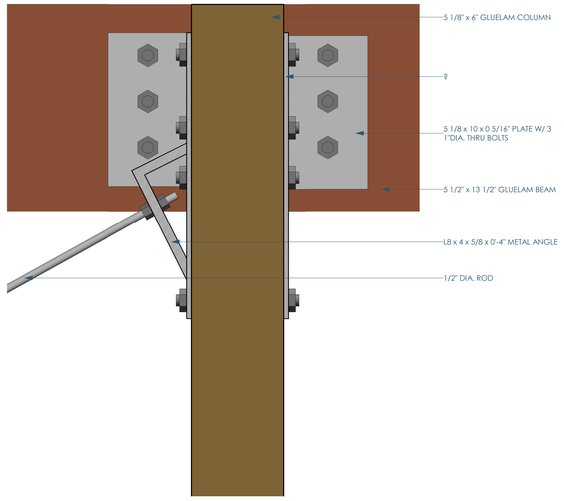
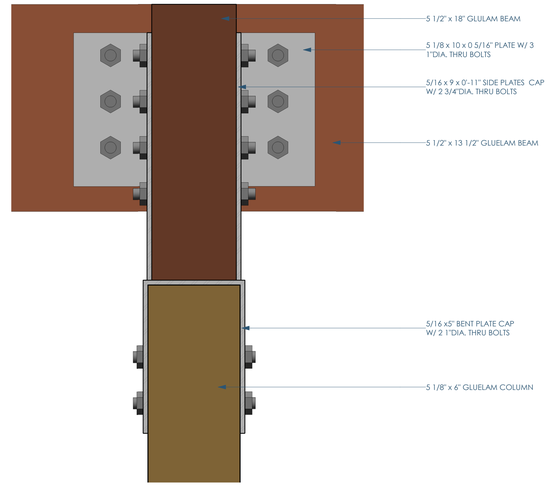


2 Detail 6
3" = 1'-0"



3 Detail 7
3" = 1'-0"



4 Detail 8
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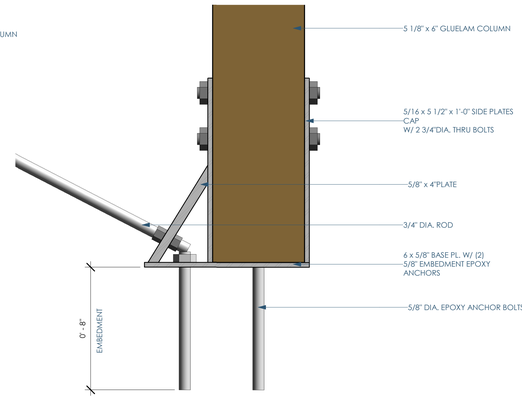
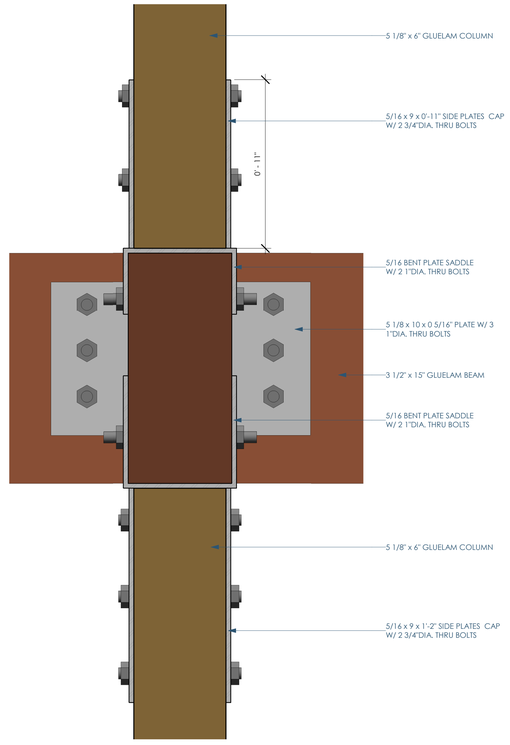
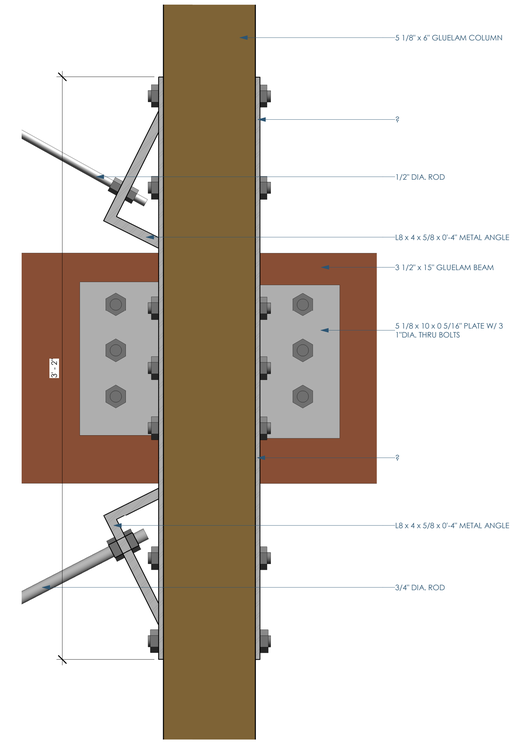


9 Detail 13
3" = 1'-0"



5 Detail 9
3" = 1'-0"



6 Detail 10
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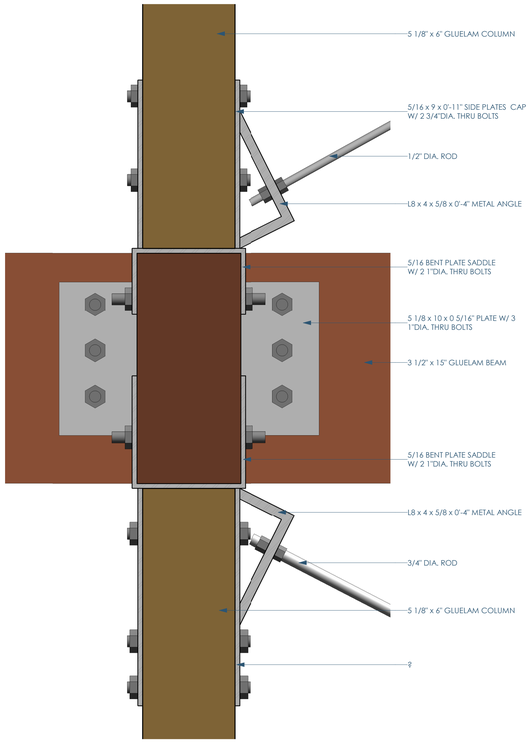

7 Detail 11
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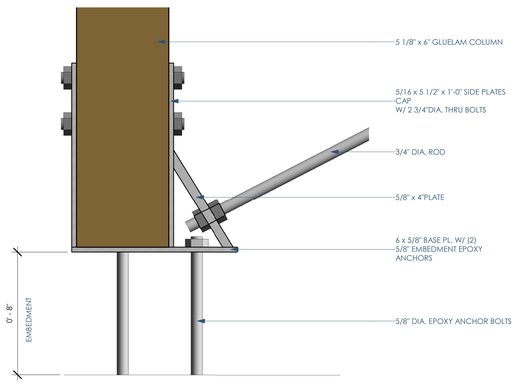

8 Detail 12
3" = 1'-0"

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Date	Description
2017.05.03	Issue For Permit

BRACING DETAILS

Project Name | Enter address here

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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 make all necessary changes required based on existing conditions for proper installation of new work and include all the materials and required work in his bid price. 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 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 from building structure and framing in an approved manner. Where overhead construction does not permit fastening of supports and equipment, provide additional steel framing. For floor-mounted equipment, provide housekeeping pads.
Contractor shall furnish and install all equipment, ductwork, interconnecting piping, and fittings, insulation, interlock and controls.
Contractor is responsible for field conditions and field coordination with other trades.

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 install pressure relief valve on high pressure side of the system and upstream of any intervening valves; remove expansion 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. Refill lines if necessary.
3. Lubricate motors.
4. Check operation of thermostats.
5. Replace return air filters.
6. Clean condenser coils.
7. Check and tighten electrical connections.
8. Check controls.
9. Check for noise and vibration.
10. Check refrigerant pressure during operation.
11. Check current (amperage) 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 written 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- colour 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 piping, ductwork and equipment layout shall be submitted on a scale 1/4"=1'-0" drawings, and shall be coordinated and signed by all trades.
Shop drawings shall show location 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".

Ducting & air distribution work:
Except as noted, all ductwork and other sheet metal work shall be in accordance with latest edition of sheet metal and air conditioning contractor's national association, Inc. (SMACNA), "duct manual and sheet metal construction for ventilating and air conditioning systems, section 1 - low velocity systems". Metal gauge as per SMACNA recommended guidelines.

All ductwork shall be galvanized sheet steel unless otherwise noted;
Minimum ductwork static pressure construction shall be 2 in. W.G. All ducts shall be seal class 'a'. Duct flange systems shall be bolted at corners, with corner inserts, nuts shall be welded, not crimped and be integral with stiffeners.

It shall be this contractor's responsibility to size all ductwork (run-outs not already sized), registers, grilles, etc. The ductwork shall be sized utilizing the equal friction method while not exceeding 0.1" per 100 feet static pressure to ensure a relatively quiet system.
Noise criteria for the above applications shall not exceed 30.

Duct connections to air terminals may be made with flexible duct such that the length of the flex ducts does not exceed 5'-0".
Volume dampers: galvanized steel, per SMACNA "low velocity manual", except provide bearing at one end of damper rod and quadrant, with lever and locks crew at another end. For insulated ducts, quadrants mounted on collar to clear insulation, install with levers accessible. Balancing dampers shall be the opposed blade type.

Access doors: insulate or un-insulated, same as duct.
Provide minimum access door on main duct & location where fire dampers are installed. Access door shall be enough of duct cleaning & damper servicing.

All access doors to be hinged and sealed as per IMC sealing requirements.
Flexible connections: neoprene coated fabric, 30 oz. Per sq. Td. With sewed and cemented seams, like vent fabrics. Provide flexible connections between all equipment and rigid ductwork.
Turning vanes: galvanized steel, small double thickness vanes with minimum 2" inside radius.

Thermal and sound insulation
All materials of insulation shall be of the kind and quality as manufactured by armstrong, certain-teed, johns-manville, knauf, owens-corning and pittsburgh. All material and equipment specified to be insulated shall be thoroughly tested and approved prior to applying the insulation and method of application shall be as follows: the insulation shall be ul approved and is to meet or exceed nfpa90a and b requirements.
Thermal and sound insulation application and material:

1. All supply and return air ductwork located within the upper level ceiling cavities and in chases at exterior locations, and in all other areas where ductwork is exposed, they shall be insulated with two-inch (2") thick, three-quarter pound (3/4 lb.) Density glass fiber with a reinforced foil / kraft (frk) vapor retarder facing.

2. All furnace return air plenums and ductwork approximately ten feet (10') away from furnace inlet shall be lined with one-half inch (1/2") thick, three-pound (3 lb.) Density glass fibre sound insulation. The insulation shall have a black pigmented high velocity (+4000 fpm) facing set to the air stream side. Lined sizes are not indicated on drawings.

3. All refrigerant suction lines shall be covered with three-eighth inch (3/8") thick closed cell insulation.

Registers & grills:
All terminals (registers and grilles) shall be sized based on the following criteria:
Supplies — near ceiling 500 to 600 fpm velocity
— at or near floor 300 to 500 fpm velocity
Returns — high 600 to 700 fpm velocity
— low 300 to 500 fpm velocity

All Grills/registers finish/colour shall to be approved by Architects. Contractor shall provide data sheet to Architects for approval.
All selected air terminals (grills/register) pressure drop shall not exceed 10 Pa.
Supply Air grill for duct/wall mounting, titus or equivalent of sizes as mentioned in drawing/schedule with Opposed blade damper. Selected
Return Air grills for duct/wall mounting, titus or equivalent of sizes as mentioned in drawings/schedule with opposed blade damper.

Furnace and domestic hot water heater vents:
It shall be the contractor's responsibility to locate and size all class "b" furnace vents, coordinate location with architectural layout. Install in accordance with all equipment manufacturer's recommendations and installation requirements.
All flues to be class "b", double wall, extend a minimum of 3'-6" above the roof, and have tall cone flashings and storm collars. Coordinate flue requirements for domestic hot water heaters with plumbing contractor

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/devices shall be new and of first rate quality (unless otherwise specified) and is to bear the appropriate aga, csa or ul approved labels, listings, and certifications for the specific design purpose.

Exhausts

1. Vent all toilet exhaust fans out through roof or side wall with vent cap, built-in grills, backdraft damper and bird screen.
2. Vent all kitchen exhaust fans out through roof or side wall with vent cap, built-in backdraft damper and bird screen.

Condensing units

All condensing units to be located as shown in drawings. Condensing unit shall be provided with 6" thick pedestal or on factory fabricated equipment mounting rails. Minimum service clearance of 24" or as suggested by manufacturer shall be provided. 4" x 4" pads of vibration isolation material by "korafund" under four points of support.

Fresh air intake
Outside air intakes shall be 10'-0" above grade and a minimum of 15'-0" from all exhaust air or relief opening and sources of contamination. Fresh air intake louver or duct shall have damper to control the fresh air flow rate.

Piping
A. Condensate drain lines shall be by done by HVAC contractor to nearest plumbing drain or as suggested/approved by Architect. All materials shall be as accepted by code and applicable to its use.
B. Refrigerant line set piping shall be copper type k. All joints to be brazed.

Gas piping
Provide and arrange for all new natural gas services extending from the main service to each item of equipment requiring gas service necessary: furnace, appliance, device & domestic water heater. Include all regulators, valves, fittings, etc., required for a first-class installation in accordance with A.G.A. And gas company requirements.

All underground gas piping shall be wrapped in accordance with guidelines set by local utility, tape coat cold tar tape or equal.
Gas piping lines shall be new class a-120, black carbon steel, schedule 40 with 150# malleable screwed fittings. Unions shall be 150# malleable iron with brass ground joints. Each gas connection to utilize a cock, union, and dirt pocket.

All connections to the various gas-fired equipment shall be complete with gas cocks, unions and dirt pockets.
Follow all rules, regulations and guidelines as stipulated by the American Gas Association, in addition to the local gas utility, people gas.
This contractor shall be responsible for all gas piping sizing. Verify all items to be connected with the architect and mechanical drawings prior to sizing.

Temperature controls
A. All temperature controls, wiring, etc. Shall be by this contractor. Each piece of equipment shall be wired as instructed by a manufacturer's guide and or representative.
B. All control wiring to be installed in conduit.
C. Coordinate line voltage requirements with the electrical contractor.
D. Items are to be controlled by twelve split systems for furnaces and condensing units.
E. Each installation shall be complete in all aspects and tested for proper operation.

Disconnects and starters
This contractor shall furnish starters, contacts, disconnects, etc. For his equipment for installation by the electrical contractor. This contractor shall coordinate all work and locations of HVAC equipment with the electrical contractor.
All interconnecting wiring at unit shall be factory prewired and require only one power connection to the unit by the electrical contractor. Disconnect switch shall be by the electrical contractor.

Contractor to submit data sheets for all HVAC equipment for rough-in inspection. Shop drawings and equipment submittals must be submitted and approved before any installation takes place. Submit catalogue cut sheet, for the equipment specified, to the architect/engineer for approval prior to the beginning of construction. The contractor shall also assemble printed instructions for the operation and maintenance of each item installed and bind together with equipment cuts and control wiring diagrams.

Miscellaneous
All cutting, coring, and patching shall be by this contractor. Coordinate locations of roof penetrations with the general contractor. All penetrations through foundations and concrete slabs shall be sleeved.

All penetrations through fire-rated assemblies shall be sealed tight with an approved fire stop material, 3m cp 25wb+ caulk or equal.
Utilize isolation methods to prevent the migration of noise created by vibration. Methods include utilization of vibration isolation hangers, pads and flexible duct connections on the furnaces and rooftop packaged HVAC equipment.

The engineer shall not have control over or charge of and shall not be responsible for construction means, methods, techniques, sequences or procedures or safety precautions and programs about the work, since they are solely the contractor's responsibility under the contract for construction.

Balancing specification
Balance all air systems:
1. Test and balance HVAC air systems to within +10%, -5% of design flows.
2. Check all fans, instrumentation devices, control devices, dampers, etc., for proper operation and calibration. Report deficiencies which cannot be corrected. Mark and lock manual volume dampers at their proper position.
3. Adjust, test and confirm design air flow rates, pressures, temperatures, air quantities, equipment speed and motor amperages (all phases) for each segment branch, and component of each system.
4. Verify that registers/grills discharge patterns have been properly set. Air flows shall be balanced with the volume dampers installed in branch ductwork or with OBD provided for air terminals. Opposed blade dampers (OBD) in the air terminals shall be set in the fully open position during balancing.
5. Adjustments and tests shall be made under simulated maximum load conditions
6. Perform test per AABB national standards or equivalent NEBB methods.
7. Contractor shall provide air balancing report from (building approved) air balancing company. Balance all outlets to air quantities as noted on drawings
8. Prepare report, including forms, and submit to owner's facilities manager.

HVAC Legends
1. S -Supply 2. RAD-Return Air duct 3. SAD-Supply Air duct 4. FAD-Fresh Air duct 5. EAD-Exhaust Air duct 6. FLAP-Flue Air pipe 7. CFM - ft3/min 8. SAG-Supply Air Grille 9. RAG-Return Air Grille 10. OBD-Opposed blade damper 11. GF-Gas furnace 12. EXF-Exhaust fan 13. ODC-Out door condenser 14. RD-Radiator 15. HS-Heating Supply Air 16. CS-Cooling Supply Air 17. FD-Fire damper 18. CD-Control damper 19. RVC-Roof vent cap

2 HVAC Legend
1 : 100

Sheet List	
Sheet Name	Sheet Number
HVAC Notes & Legends	M.000
HVAC Basement & Roof plan	M.001
HVAC 1st & 2nd Floor plan	M.002

1 HVAC Notes
12" = 1'-0"

Ventilation & Air distribution schedule											
Level	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											
1st Floor	Bed room1	114 SF	2	15 CFM	1.00 W/ft²	0.75 W/ft²	180 CFM	110 CFM	180 CFM	110 CFM	
1st Floor	Bed room 2	128 SF	2	15 CFM	1.00 W/ft²	0.75 W/ft²	70 CFM	110 CFM	70 CFM	110 CFM	
1st Floor	Toilet 3 & 6	54 SF	0	0 CFM	0.00 W/ft²	0.00 W/ft²	0 CFM		0 CFM		50 CFM
1st Floor	Bed room 6	142 SF	2	15 CFM	1.00 W/ft²	0.75 W/ft²	120 CFM	140 CFM	120 CFM	140 CFM	
1st Floor	1F Corridor	168 SF	0	0 CFM	1.00 W/ft²	0.00 W/ft²	130 CFM	110 CFM	130 CFM	110 CFM	
1st Floor	Bedroom 5	117 SF	2	15 CFM	1.00 W/ft²	0.75 W/ft²	140 CFM	100 CFM	140 CFM	100 CFM	
1st Floor	Bed room 4	137 SF	2	15 CFM	1.00 W/ft²	0.75 W/ft²	220 CFM	130 CFM	220 CFM	130 CFM	
1st Floor	Toilet 1	37 SF	0	0 CFM	0.00 W/ft²	0.00 W/ft²	0 CFM		0 CFM		50 CFM
1st Floor	Toilet 2	37 SF	0	0 CFM	0.00 W/ft²	0.00 W/ft²	0 CFM		0 CFM		50 CFM
1st Floor	Toilet 5	40 SF	0	0 CFM	0.00 W/ft²	0.00 W/ft²	0 CFM		0 CFM		50 CFM
1st Floor	Toilet 4	35 SF	0	0 CFM	0.00 W/ft²	0.00 W/ft²	0 CFM		0 CFM		50 CFM
1st Floor	Bedroom 3	120 SF	2	15 CFM	1.00 W/ft²	0.75 W/ft²	90 CFM	110 CFM	90 CFM	110 CFM	
2nd Floor											
2nd Floor	Bedroom 7	99 SF	2	15 CFM	1.00 W/ft²	0.75 W/ft²	120 CFM	110 CFM	120 CFM	110 CFM	
2nd Floor	Bedroom 8	99 SF	2	15 CFM	1.00 W/ft²	0.75 W/ft²	100 CFM	110 CFM	100 CFM	110 CFM	
2nd Floor	Toilet 7	38 SF	0	0 CFM	0.00 W/ft²	0.00 W/ft²	0 CFM		0 CFM		50 CFM
2nd Floor	Toilet 8	38 SF	0	0 CFM	0.00 W/ft²	0.00 W/ft²	0 CFM		0 CFM		50 CFM
2nd Floor	Storage	65 SF	0	0 CFM	1.00 W/ft²	0.75 W/ft²	100 CFM	170 CFM	100 CFM	170 CFM	
2nd Floor	Living	227 SF	8	60 CFM	1.00 W/ft²	0.75 W/ft²	270 CFM	280 CFM	270 CFM	280 CFM	
2nd Floor	Dining 1	410 SF	18	135 CFM	1.00 W/ft²	0.75 W/ft²	240 CFM	550 CFM	240 CFM	550 CFM	
2nd Floor	Toilet storage	37 SF	0	0 CFM	0.00 W/ft²	0.00 W/ft²	0 CFM		0 CFM		50 CFM
Grand total: 20		2142 SF	42				1780 CFM				

Air Terminal Schedule					
Connection size	Mark	System Type	Flow	Damper	Grill level
1F					
14"x6"	RAG-06	Return Air	110 CFM	OBD	1F
14"x6"	RAG-07	Return Air	110 CFM	OBD	1F
14"x6"	RAG-03	Return Air	140 CFM	OBD	1F
24"x6"	RAG-01	Return Air	220 CFM	OBD	1F
14"x6"	RAG-02	Return Air	140 CFM	OBD	1F
24"x6"	RAG-04	Return Air	180 CFM	OBD	1F
2F					
24"x6"	RAG-08	Return Air	120 CFM	OBD	2F
24"x6"	RAG-09	Return Air	280 CFM	OBD	2F
14"x6"	RAG-10	Return Air	170 CFM	OBD	2F
1F					
18"x6"	SAG-04	Supply Air	180 CFM	OBD	1F
12"x6"	SAG-05	Supply Air	130 CFM	OBD	1F
12"x6"	SAG-06	Supply Air	110 CFM	OBD	1F
12"x6"	SAG-07	Supply Air	110 CFM	OBD	1F
12"x6"	SAG-02	Supply Air	140 CFM		1F
18"x6"	SAG-01	Supply Air	220 CFM	OBD	1F
12"x6"	SAG-03	Supply Air	140 CFM		1F
2F					
12"x6"	SAG-08	Supply Air	120 CFM	OBD	2F
18"x6"	SAG-10	Supply Air	170 CFM	OBD	2F
12"x6"	SAG-09	Supply Air	110 CFM	OBD	2F
18"x6"	SAG-11	Supply Air	275 CFM	OBD	2F
18"x6"	SAG-12	Supply Air	275 CFM	OBD	2F
12"x6"	SAG-13	Supply Air	140 CFM	OBD	2F
12"x6"	SAG-14	Supply Air	140 CFM	OBD	2F

Heating and Cooling Equipment:

GF-01 RESIDENTIAL HEATING/COOLING "CARRIER" AS STANDARD, 95% or higher -EFFICIENCY UPFLOW/HORIZONTAL FURNACE.
with (LOCATION: BASEMENT) OUTPUT CAPACITY - 70,000 Btu/hr with minimum TEMP. RISE 20 F. AIR FLOW - 1800 CFM @ 1.8" ESP., Unit shall be supplied with factory supplied filters & shall be suitable for low temperature installation

GAS Furnace shall be fitted with cased evaporator suitable for horizontal/vertical mounting with capacity 5 TR. Coil face velocity shall not exceed 500 fpm. Coil shall be supplied with TX valve suitable with connected outdoor unit.

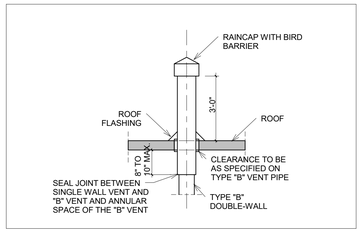
Carrier as standard Variable speed condenser using R 410 refrigerent of capacity 5 TR. Unit shall supplied with all necessary accessories to install in low temperature conditions.

Thermostat suitable for both cooling & heating application shall be supplied.

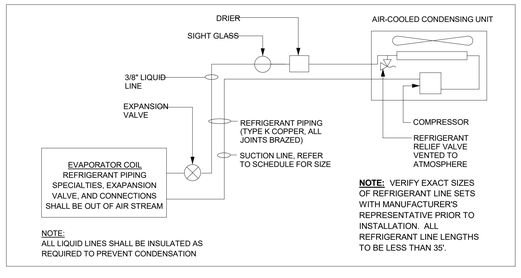
TYPICAL TOILET EXHAUST FANS:

EXF-01 "COOK" GC series as standard exhaust air fan with factory supplied ceiling grille and non return damper of capacity 50 CFM (BATHROOMS) S.P. 0.25 W.G., with direct driven 1 phase EC motor, interlock with light switch

3 Equipment detail
12" = 1'-0"



4 Flue Termination
NTS



5 Refrigeration Detail
NTS

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

Zenteno Solutions
Plumbing Designer: Zenteno Solutions
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Date	Description
05.03.2017	Issue for Permit

HVAC Notes & Legends
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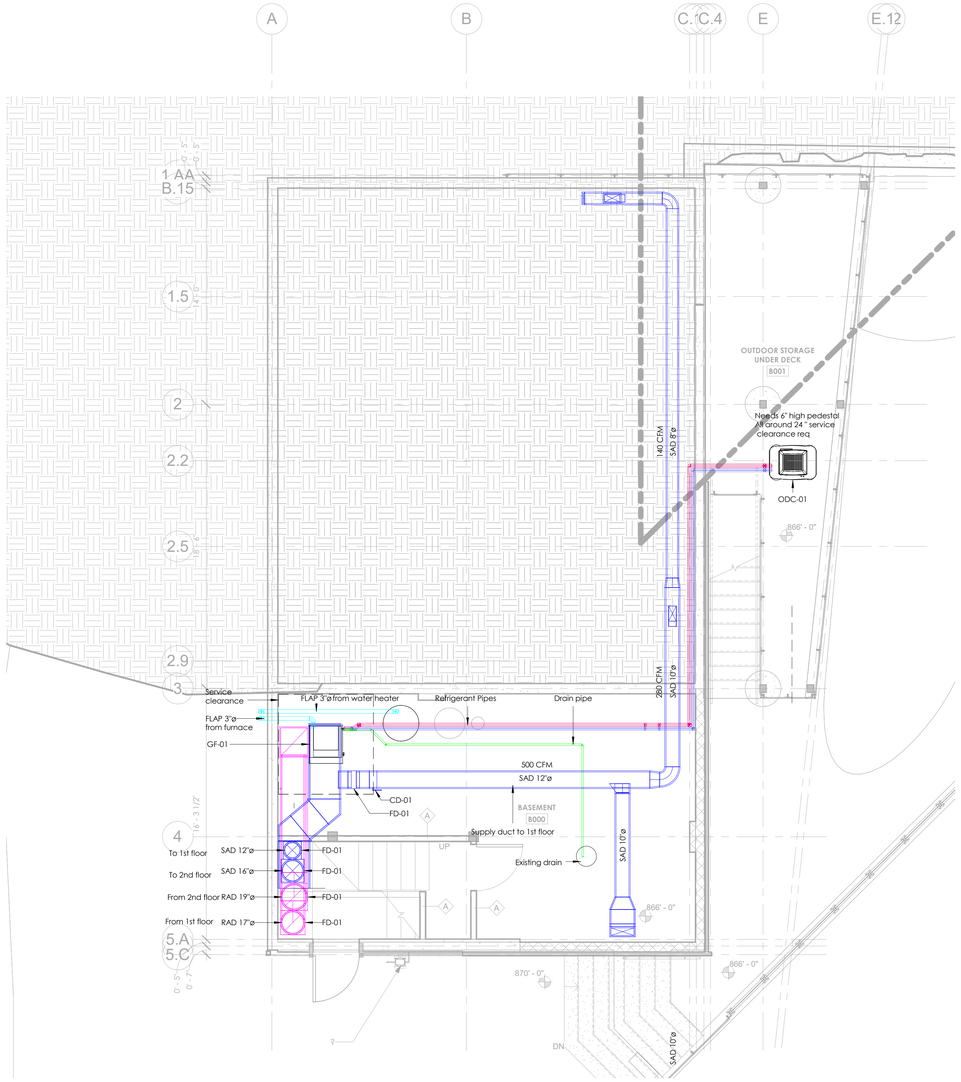
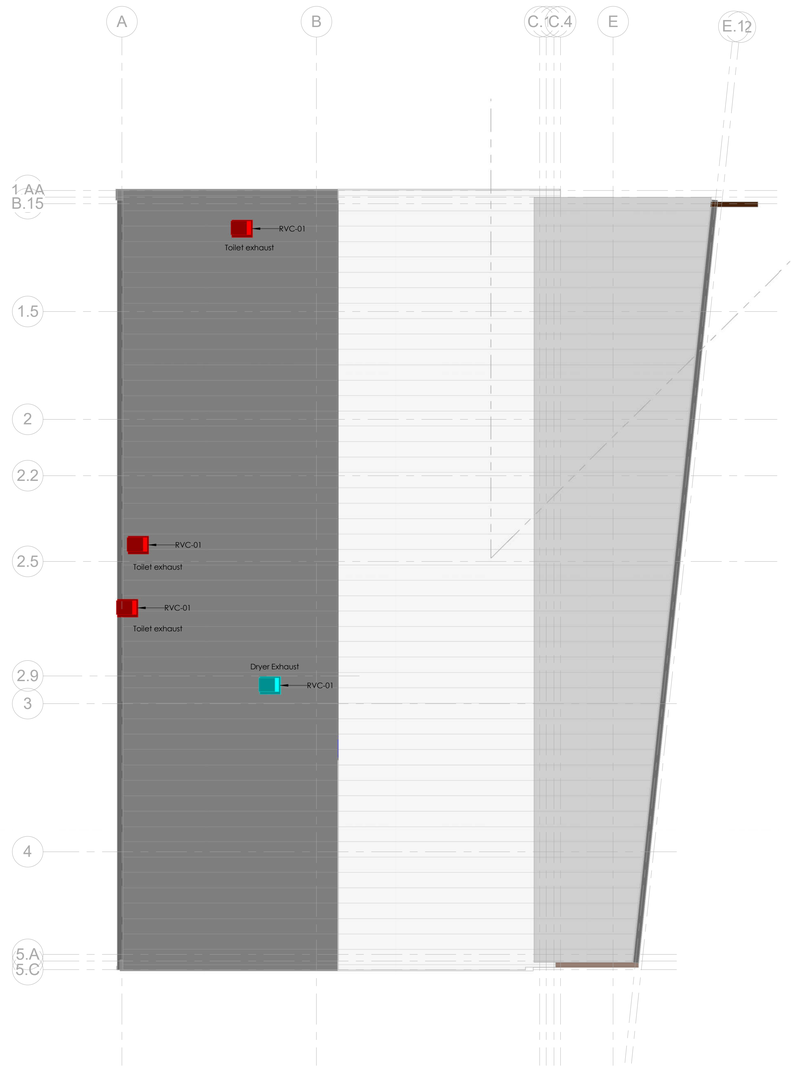


1 Basement
1/4" = 1'-0"



2 Floor plan Roof
1/4" = 1'-0"

FYF LLC.

Owner: FYF LLC.
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ilovefunkys@hotmail.com

Zenteno Solutions

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Date	Description
05.03.2017	Issue for Permit

HVAC Basement & Roof plan

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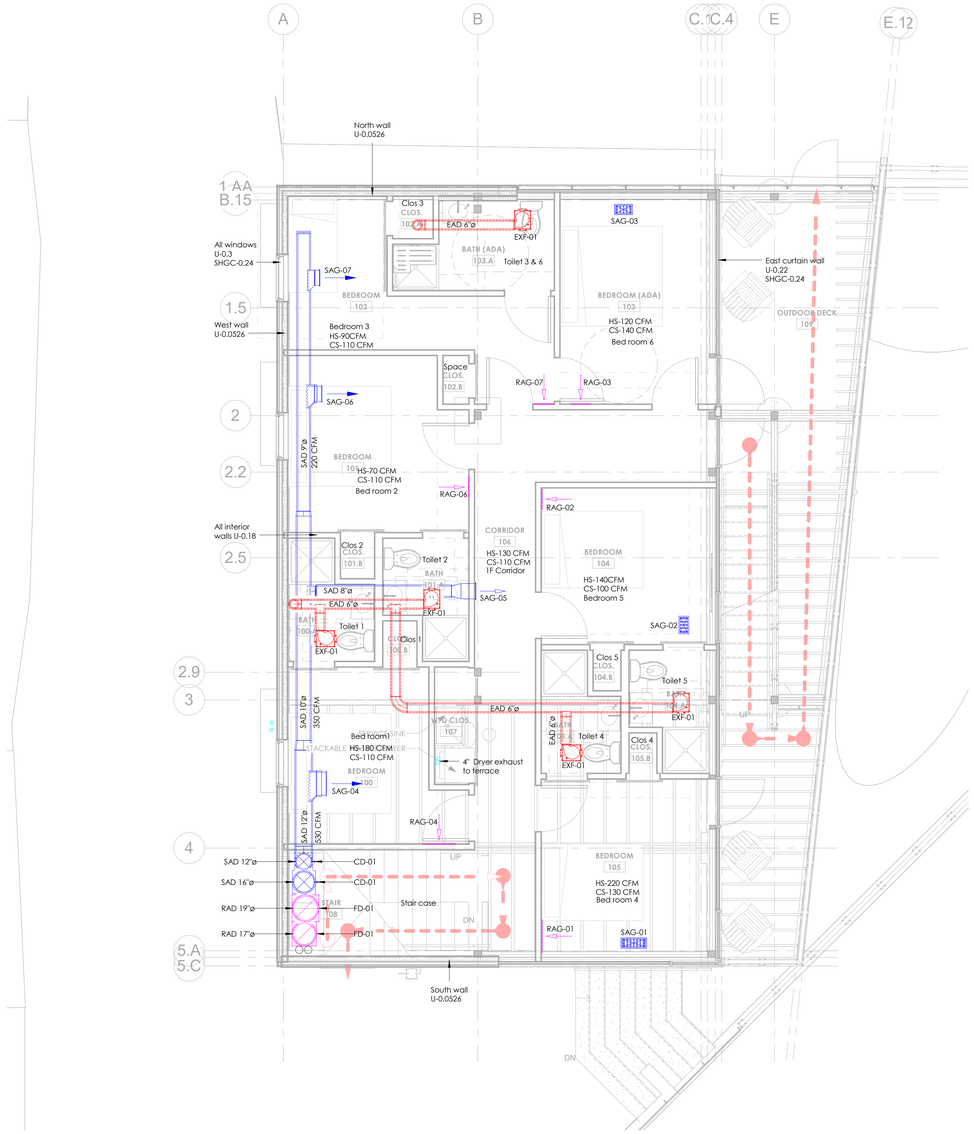
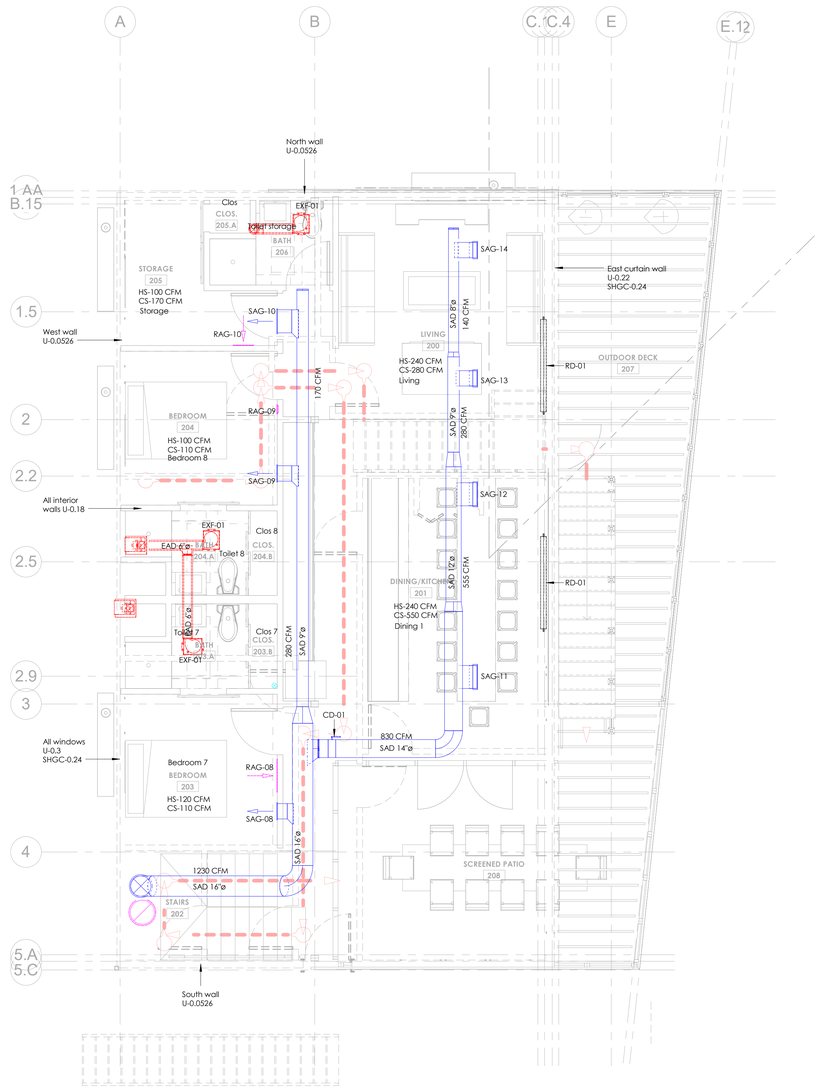


1 1st Floor
1/4" = 1'-0"



2 2nd Floor
1/4" = 1'-0"

FYF LLC.
Owner: FYF LLC.
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Date	Description
05.03.2017	Issue for Permit

HVAC 1st & 2nd Floor plan
Lake Geneva | Enter address here

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PLUMBING ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	LAV	LAVATORY
AFC	ABOVE FINISHED CEILING	NIC	NOT IN (SECTION 15400) CONTRACT
CONN	CONNECTION	NO	NORMALLY OPEN
CONT.	CONTINUATION	NC	NORMALLY CLOSED
CLG	CEILING	NTS	NOT TO SCALE
CFH	CUBIC FEET PER HOUR	OFCI	OWNER FURNISHED AND CONTRACTOR INSTALLED
CONTR.	CONTRACTOR	OFI	OWNER FURNISHED AND INSTALLED
DWG	DRAWING	PSI	POUNDS PER SQUARE INCH
DF	DRINKING FOUNTAIN	PC	PLUMBING CONTRACTOR (SECTION 15400)
EC	ELECTRICAL CONTRACTOR (DIVISION 16)	S.F.	SQUARE FEET
EWC	ELECTRIC WATER COOLER	SHWR	SHOWER
EL	ELEVATION	SK	SINK
FPC	FIRE PROTECTION CONTRACTOR (SECTION 15300)	TOP	TOP OF PIPE ELEVATION
FLR	FLOOR	TP	TRAP PRIMER
FFE	FINISHED FLOOR ELEVATION	TYP	TYPICAL
GPM	GALLONS PER MINUTE	UR	URINAL
GT	GREASE TRAP	VTR	VENT THROUGH ROOF
GC	GENERAL CONTRACTOR	W.C.	WATER COLUMN
HVAC	HEATING VENTILATION AND AIR CONDITIONING (SECTION 15600)	WTS	WATER TIGHT SLEEVE
INV	INVERT OF PIPE ELEVATION	W&V	WASTE AND VENT
JC	JANITORS SINK	WC	WATER CLOSET
KEC	KITCHEN EQUIPMENT CONTRACTOR	WS	WASTE STACK

PLUMBING PIPING LEGEND

- SAN — SOIL OR WASTE PIPING ABOVE GRADE
- SAN — SOIL OR WASTE PIPING BELOW GRADE
- GW — GREASE WASTE PIPING (GW)
- GW — GREASE WASTE PIPING BELOW GRADE (GW)
- SD — STORM DRAIN PIPING (SD)
- SD — STORM DRAIN PIPING BELOW GRADE (SD)
- CD — CONDENSATE DRAIN PIPING (CD)
- D — CONDENSATE EQUIPMENT DRAIN PIPING (D)
- V — VENT PIPING (V)
- CW — COLD WATER PIPING (CW)
- HW — HOT WATER PIPING (HW)
- HWR — HOT WATER RETURN PIPING (HWR)
- SOFT — SOFT WATER PIPING (SOFT)
- CHW — CHILLED WATER PIPING (CHW)
- TP — TRAP PRIMER LINE (TP)
- FIRE — FIRE PROTECTION PIPING (FIRE)
- G — NATURAL GAS PIPING (G)
- AIR — COMPRESSED AIR PIPING (AIR)

PIPE MATERIAL LIST

ABOVE GRADE, INSIDE RESIDENCE

SANITARY WASTE, AND VENT PIPING SHALL BE
SCHEDULE 40 DWV POLYVINYL CHLORIDE PIPE AND FITTINGS CONFORMING TO ASTM-2665 WITH SOLVENT WELDED JOINTS. PVC NOT ALLOWED IN RETURN AIR PLENUM

DOMESTIC WATER PIPING SHALL BE
DRAWN (HARD) COPPER WATER TUBE, TYPE "L", ASTM B88, WITH WROUGHT COPPER FITTINGS, ANSI B16.22 AND 95-5 SOLDER JOINTS. COPPER FOR ANYTHING OVER 150 PSI. CPVC SCHEDULE 80 FOR ANYTHING UNDER 150 PSI. PEX-B PIPING FOR DISTRIBUTION IN EACH UNIT.

NATURAL GAS PIPING SHALL BE
SCHEDULE 40 BLACK STEEL, SEAMLESS, OR ELECTRIC RESISTANCE WELDED. ASTM A-53 WITH WELDED JOINTS AND STEEL FITTINGS SAME THICKNESS AS PIPE. LOW PRESSURE (LESS THAN 1 PSI) PIPING 2 INCHES AND SMALLER MAY BE SCHEDULE 40 GALVANIZED STEEL PIPE WITH MALLEABLE IRON 150 PSI CLASS FITTINGS ANSI B16.3, BANDED AIR TESTED AND SCREWED JOINTS.

BELOW GRADE INSIDE BUILDING

SANITARY WASTE, AND VENT PIPING SHALL BE
SCHEDULE 40 DWV POLYVINYL CHLORIDE PIPE AND FITTINGS CONFORMING TO ASTM-2665 WITH SOLVENT WELDED JOINTS.

DOMESTIC WATER PIPING SHALL BE
DRAWN (HARD) COPPER WATER TUBE, TYPE "L", ASTM B88, WITH WROUGHT COPPER FITTINGS, ANSI B16.22 AND 95-5 SOLDER JOINTS.

NATURAL GAS PIPING SHALL BE
NATURAL GAS PIPING IS NOT TO BE INSTALLED BELOW SLAB INSIDE BUILDING.

ABOVE GRADE, OUTSIDE BUILDING

DOMESTIC WATER PIPING SHALL BE
SIZES 2-1/2 INCHES AND SMALLER. COPPER WATER TUBE, TYPE "K" RIGID, ASTM B-88 WITH WROUGHT COPPER FITTINGS, ANSI B16.22 AND 95-5 SOLDER JOINTS. PROVIDE CLOSED-CELL ELASTOMERIC MATERIAL INSULATION FOR PIPING SUBJECTED TO FREEZING.

SIZES 3 INCHES AND LARGER. CAST IRON PIPE 150 PSI CLASS WITH BELL AND SPIGOT CLASS C CAST IRON OR ASTM A-53 PIPE, STEEL, HOT DIPPED MECHANICAL FITTINGS. PROVIDE 1 INCH THICK MOLDED FIBERGLASS INSULATION COVERED ALUMINUM JACKET.

NATURAL GAS PIPING SHALL BE
SCHEDULE 40 BLACK STEEL, SEAMLESS, OR ELECTRIC RESISTANCE WELDED. ASTM A-53 WITH WELDED JOINTS AND STEEL FITTINGS SAME THICKNESS AS PIPE. PIPING 2 INCHES AND SMALLER MAY BE SCHEDULE 40 BLACK STEEL PIPE WITH MALLEABLE IRON 150 PSI CLASS FITTINGS ANSI B16.3, BANDED AIR TESTED AND SCREWED JOINTS. ALL GAS PIPING AND FITTINGS OUTDOORS SHALL BE PAINTED WITH TWO COATS OF BRUSHED ON RUST PREVENTATIVE SILVER PAINT. ONE COAT OF RUST PREVENTATIVE PRIMER SHALL BE APPLIED TO THE PIPE IMMEDIATELY AFTER INSTALLATION. PAINTING BY OTHERS.

PLUMBING NOTES AND DESIGNATIONS

- I.E.=X'-0" — INVERT ELEVATION NOTE
- 1, 2 — NOTE DESIGNATIONS
- P-XX — PLUMBING FIXTURE DESIGNATION
- DS / 1 — RISER DIAGRAM DESIGNATION

GENERAL VALVES AND CROSS CONNECTION DEVICES

- ANGLE VALVE
- ASME TEMPERATURE & PRESSURE RELIEF VALVE
- BALANCING VALVE
- BALL VALVE
- BUTTERFLY VALVE
- FIRE DEPARTMENT VALVE AT RISER
- HORIZONTAL SWING CHECK
- HOSE BIB
- LUBRICATED PACKED PLUG STOP COCK
- MOTOR CONTROLLED VALVE
- OS+Y VALVE
- PNEUMATICALLY CONTROLLED VALVE
- PRESSURE REDUCING VALVE
- REDUCED PRESSURE BACKFLOW PREVENTER
- SHUT-OFF VALVE
- SOLENOID VALVE
- VALVE IN RISE

GENERAL VALVES AND CROSS CONNECTION DEVICES

- ACCESS PANEL FOR TRAP PRIMER
- ACCESS PANEL LOCATION SYMBOL
- BRANCH CONNECTION OUT OF BOTTOM
- BRANCH CONNECTION OUT OF SIDE
- BRANCH CONNECTION OUT OF TOP
- CAP ON END OF PIPE
- CLEANOUT (AT FLOOR) (FCO)
- CLEANOUT (ON GRADE) WITH 18" X 18" X 4" CONCRETE PAD (COTG)
- CLEANOUT (TWO-WAY) (PROVIDE CONCRETE PAD OUTSIDE 18" X 24" X 4")
- CLEANOUT (WALL OR CEILING) (CO)
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- FLOOR DRAIN/FLOOR SINK (FD) (FS)
- HUB DRAIN (HD)
- NEW CONNECTION TO EXISTING
- PIPE CONTINUATION
- PIPING DOWN
- PIPING UP -OR- PIPING UP AND DOWN
- SHOCK ABSORBER
- STRAINER
- UNION

PROJECT NOTES

1. SANITARY WASTE AND VENT SYSTEM DESIGNED IN ACCORDANCE GENERAL ENGINEERING PRACTICES AND LOCAL BUILDING CODES.
2. ALL WORK, METHODS AND INSTALLATIONS INVOLVED IN THE PLUMBING DESIGN SHALL BE IN ACCORDANCE WITH THE CITY BUILDING CODE AND INSPECTION REGULATIONS AND ALL OTHER OFFICIALS HAVING JURISDICTION. WORK SHALL BE COMPLETE IN ALL RESPECTS AND IN ACCORDANCE WITH THE BEST ESTABLISHED AND ACCEPTED CONSTRUCTION PRACTICES.
3. THIS CONTRACTOR SHALL COORDINATE ROUTING OF PIPING IN CEILING SPACES WITH MECHANICAL AND ELECTRICAL EQUIPMENT, DUCTWORK AND CONDUIT. SHOULD A CONFLICT OCCUR THIS CONTRACTOR SHALL NOTIFY THE ARCHITECT/ ENGINEER PRIOR TO INSTALLING AN ALTERNATE PIPING PLAN.
4. COORDINATE EXACT LOCATION OF PIPING, DEVICES AND EQUIPMENT WITH BUILDING ELEMENTS AND THE WORK OF OTHER TRADES.
5. IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE AND WORKABLE INSTALLATION BE PROVIDED. TO THIS END, THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, SUPERVISION, TRANSPORTATION, WAREHOUSING, AND OTHER SERVICES REQUIRED TO COMPLETE THE WORK IN AN EFFICIENT AND TIMELY MANNER.
6. CONTRACTOR SHALL PROCURE ALL REQUIRED PERMITS FROM THE LEGALLY CONSTITUTED AUTHORITIES, ARRANGE ALL INSPECTIONS AND PAY FOR ALL REQUIRED TESTING AND UTILITY CONNECTIONS.
7. CONTRACTOR SHALL PROTECT EXISTING BUILDINGS, STRUCTURES AND UTILITIES FROM DAMAGE. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AT NO EXPENSE TO THE OWNER.
8. THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC TO EXTENT THAT ALL OFFSETS, BENDS, SPECIAL FITTING LOCATIONS ARE NOT EXACTLY LOCATED.
9. ALL INDICATED DIMENSIONS ARE APPROXIMATE AND ARE GIVEN FOR ESTIMATE PURPOSES ONLY. BEFORE PROCEEDING WITH THE WORK, CONTRACTOR SHALL CAREFULLY CHECK AND VERIFY ALL DIMENSIONS, SIZES, REQUIRED CLEARANCES AND SHALL ASSUME FULL RESPONSIBILITY FOR THE FITTING OF ALL EQUIPMENT AND MATERIALS HEREIN REQUIRED TO OTHER PARTS OF THE WORK AND TO THE WORK OF THE OTHER TRADES.
10. CONTRACTOR SHALL HAVE A COMPETENT SUPERINTENDENT PRESENT AT THE JOB SITE AT ALL TIMES, WITH AUTHORITY TO ACT FOR THE CONTRACTOR.
11. ALL CONTRACT PERSONNEL WILL BE RESTRICTED TO THE PARTICULAR JOB SITE OF THIS CONTRACT.
12. UNLESS NOTED OTHERWISE, ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND OF THE HIGHEST QUALITY.
13. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
14. ALL MISCELLANEOUS IRON AND STEEL WORK REQUIRED TO PROPERLY INSTALL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. WORK INCLUDES ALL HANGERS, SUPPORTS, RACKS, BRACKETS, AND ANY WELDING REQUIRED.
15. ACCESS AND WORKING SPACE SHALL BE PROVIDED AND MAINTAINED AROUND ALL MECHANICAL, ELECTRICAL AND CONTROL EQUIPMENT TO PERMIT READY AND SAFE OPERATION, EXAMINATION AND MAINTENANCE.
16. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A DAILY RECORD OF ALL DEVIATIONS FROM THE BID DRAWINGS. ALL DIMENSIONS AND OTHER INFORMATION NECESSARY COMPLETELY EXPLAIN, AND LOCATE ALL ELEMENTS OF THESE DEVIATIONS SHALL BE RECORDED. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL SUBMIT TO THE OWNERS REPRESENTATIVE, ONE ONE COMPLETE SET OF REPRODUCIBLE DRAWINGS CORRECTED TO REFLECT "AS-BUILT" CONDITIONS OF THE WORK.
17. THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH, MAINTAIN THE WORK AREA IN A NEAT, ORDERLY MANNER, AND LEAVE THE PREMISES IN A ROOM- CLEAN CONDITION AT THE END OF EACH DAY. THE CONTRACTOR SHALL FURNISH TRASH BINS AND SHALL BE RESPONSIBLE FOR THE PROPER TRANSPORTATION AND DISPOSAL OF ALL WASTE MATERIAL.
18. ANY INTERRUPTIONS AND/ OR SHUTDOWN OF EXISTING SERVICE SHALL BE MADE ONLY WITH THE APPROVAL OF AND AT TIMES DESIGNATED BY OWNER.
19. UPON COMPLETION OF WORK THE CONTRACTOR SHALL DEMONSTRATE, TO THE OWNER'S SATISFACTION THE OPERATION OF THE INSTALLED EQUIPMENT AND SYSTEMS TO THE INTENT OF THE DESIGN.
20. ALL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER, DURING THIS PERIOD, ANY DEFECT FOUND IN MATERIAL, OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO OWNER'S SATISFACTION, AT THE CONTRACTOR'S EXPENSE.
21. INSULATE ALL METAL DOMESTIC COLD WATER PIPES, STORM DRAIN LEADERS AND CONDENSATE DRAIN PIPES WITH CLOSED-CELL ELASTOMERIC MATERIAL.

DRAWING LIST

SHEET	DESCRIPTION
P0.00	PLUMBING SYMBOLS & ABBREVIATIONS
P1.01	BASEMENT & FIRST FLOOR SANITARY PLAN
P1.02	SECOND FLOOR AND ROOF PLUMING PLANS
P1.03	BASEMENT & FIRST FLOOR WATER DISTRIBUTION
P1.04	DETAILS
P1.05	RISER DIAGRAMS

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Date	Description
05.03.2017	Issue for Permit

PLUMBING SYMBOLS & ABBREVIATIONS
640 West Main Street, Lake Geneva, WI 53147

P0.00

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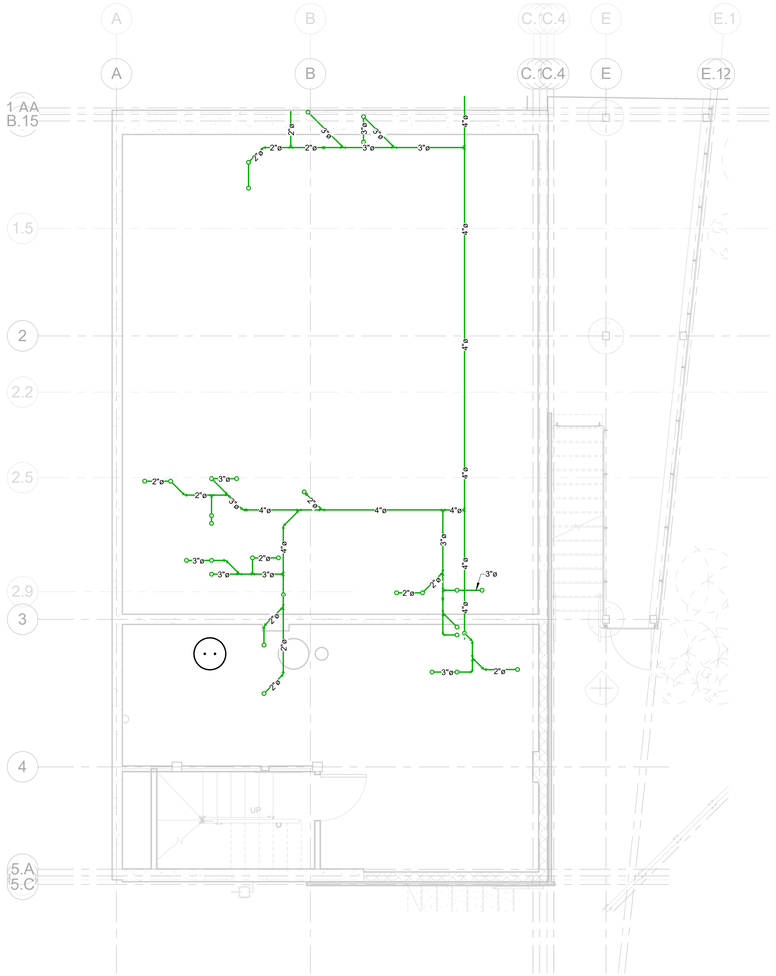
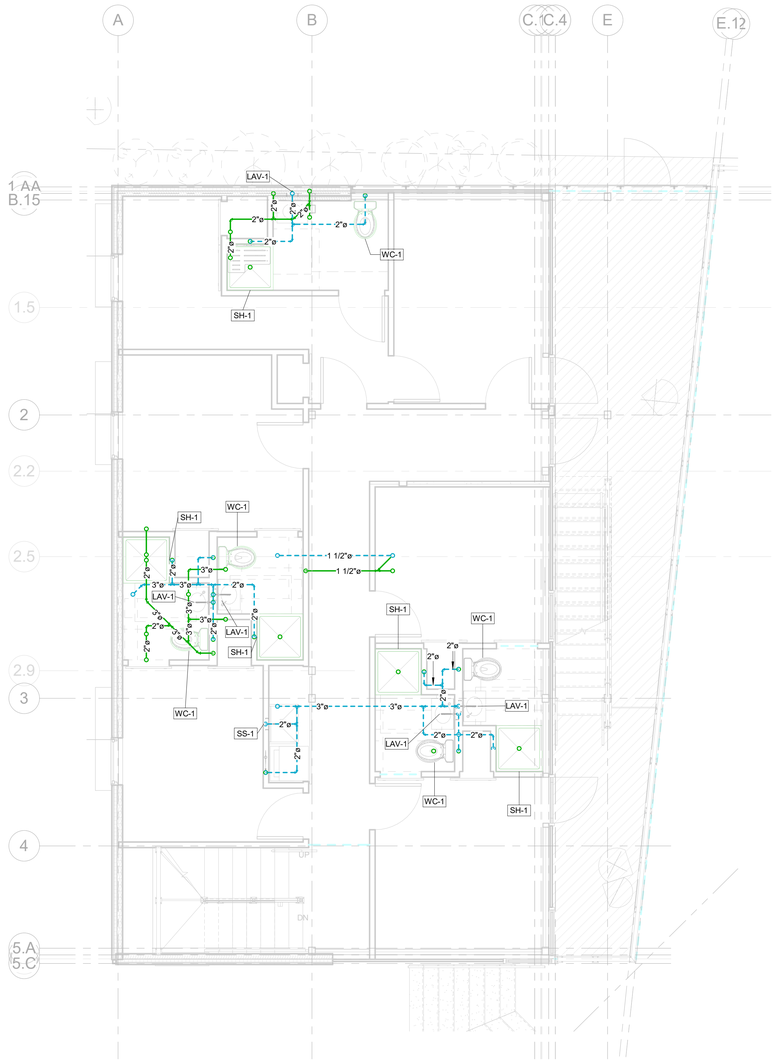


1 00 - Basement
1/4" = 1'-0"



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

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Date	Description
05.03.2017	Issue for Permit

BASEMENT & FIRST FLOOR SANITARY PLAN
640 West Main Street, Lake Geneva, WI 53147

P1.01

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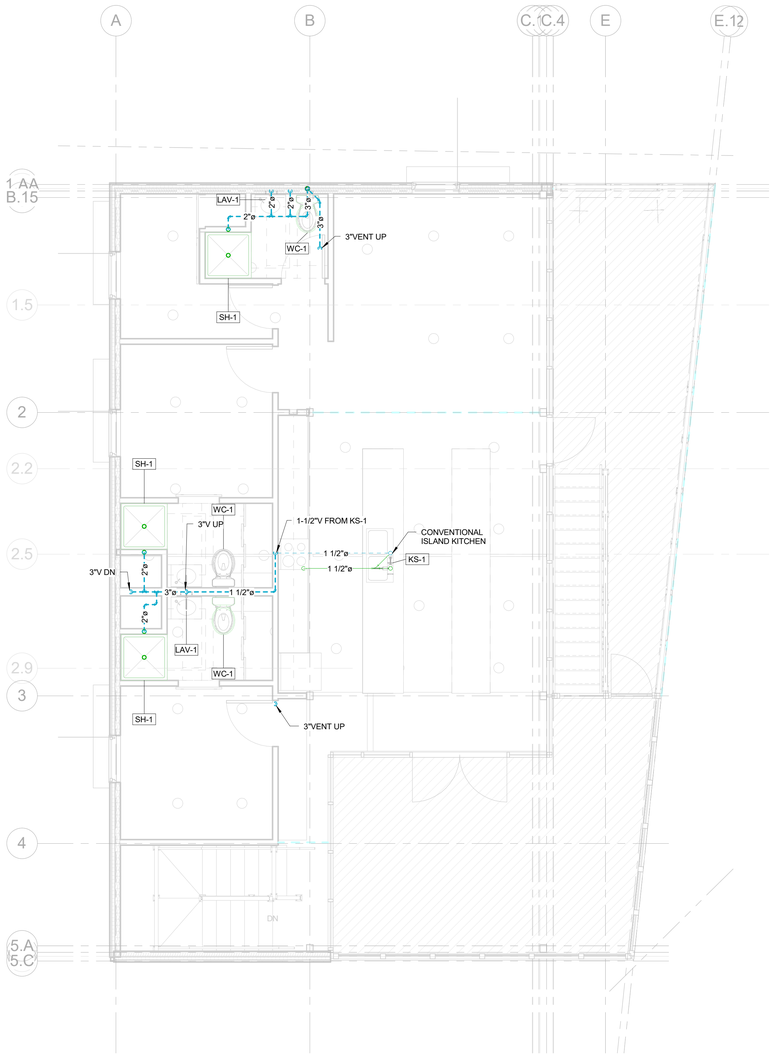
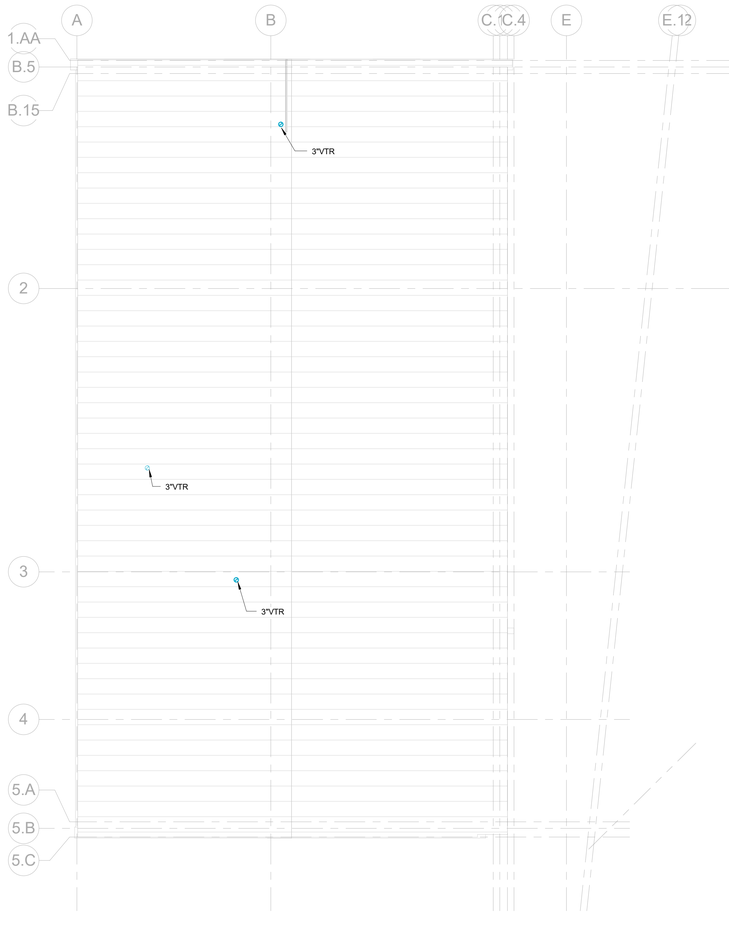


1 02 - 2nd Floor
1/4" = 1'-0"



2 03 - Existing Roof Joist Bearing
1/4" = 1'-0"

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Date	Description
05.03.2017	Issue for Permit

SECOND FLOOR AND ROOF PLUMING PLANS | 640 West Main Street, Lake Geneva, WI 53147

P1.02

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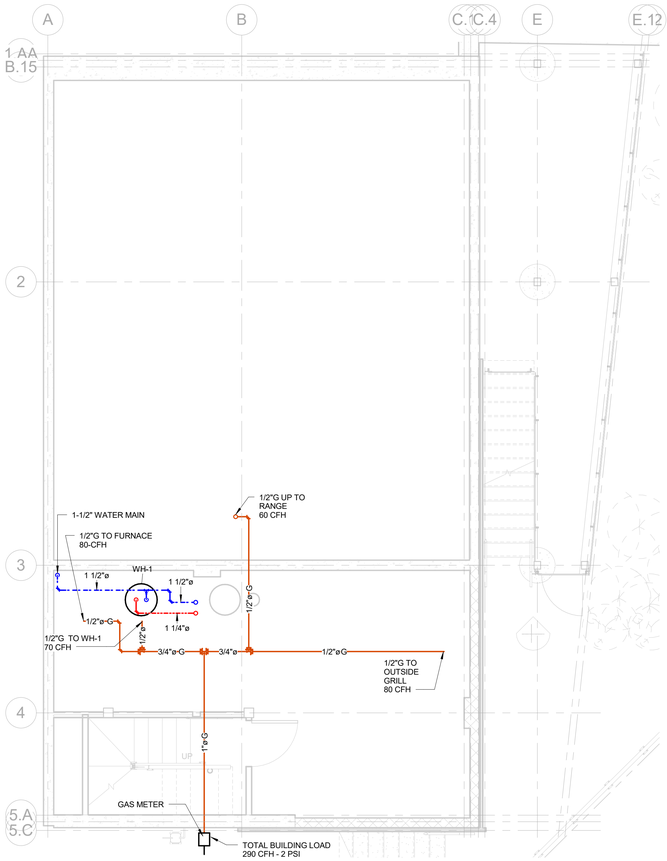
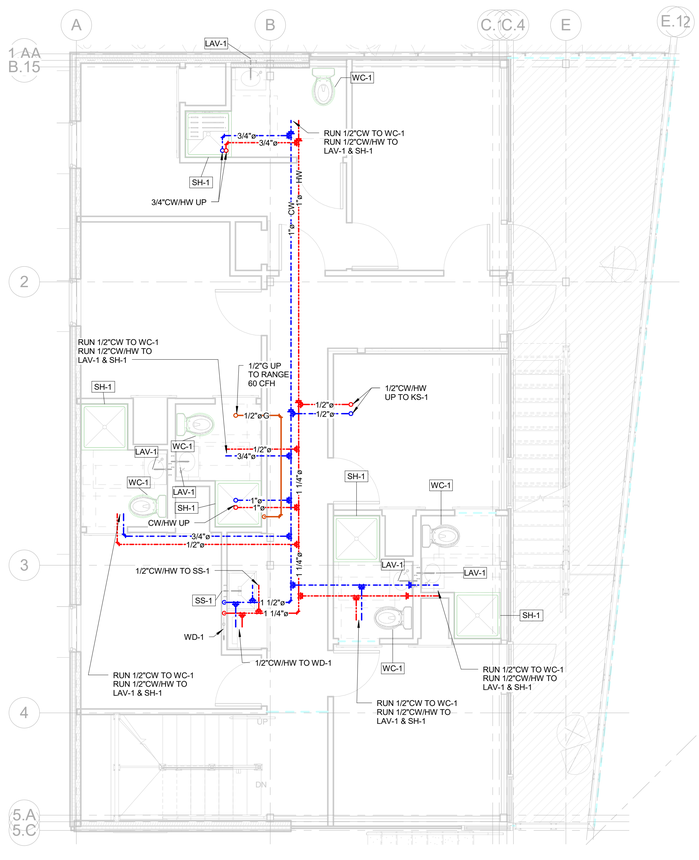
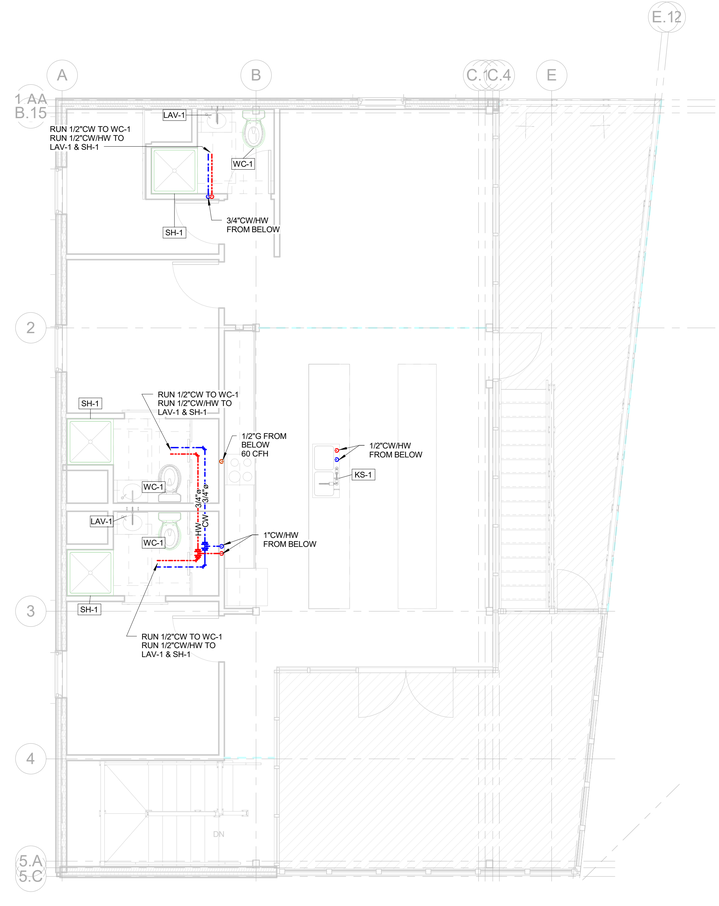


1 00 - Basement - Water Distribution
1/4" = 1'-0"



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



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

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Date	Description
05.03.2017	Issue for Permit

BASEMENT & FIRST FLOOR WATER DISTRIBUTION
640 West Main Street, Lake Geneva, WI 53147

P1.03

5/3/2017 11:28:33 PM

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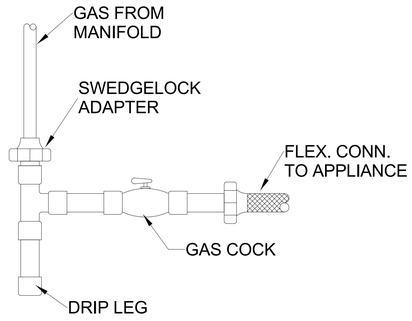
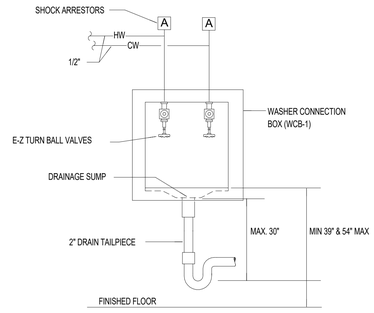
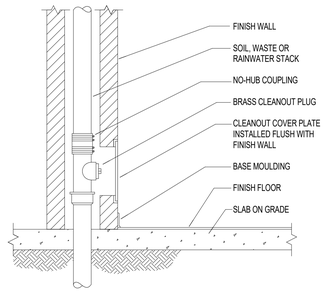


6 APPLIANCE GAS CONNECTION
NOT TO SCALE

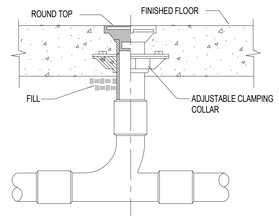


3 WASHING MACHINE CONNECTION BOX DETAIL
NOT TO SCALE

9
NOT TO SCALE

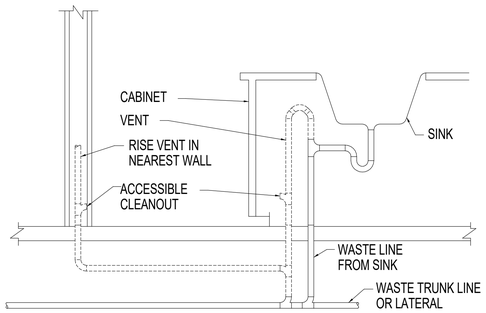


5 WALL CLEANOUT DETAIL
NOT TO SCALE

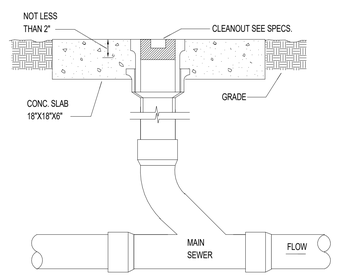


2 FLOOR CLEANOUT DETAIL
NOT TO SCALE

8
NOT TO SCALE



4 KITCHEN ISLAND PIPING CONFIGURATION
NOT TO SCALE



1 EXTERIOR CLEANOUT DETAIL
NOT TO SCALE

7
NOT TO SCALE

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Date	Description
05.03.2017	Issue for Permit

DETAILS | 640 West Main Street, Lake Geneva, WI 53147

P1.04

5/3/2017 11:28:34 PM

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

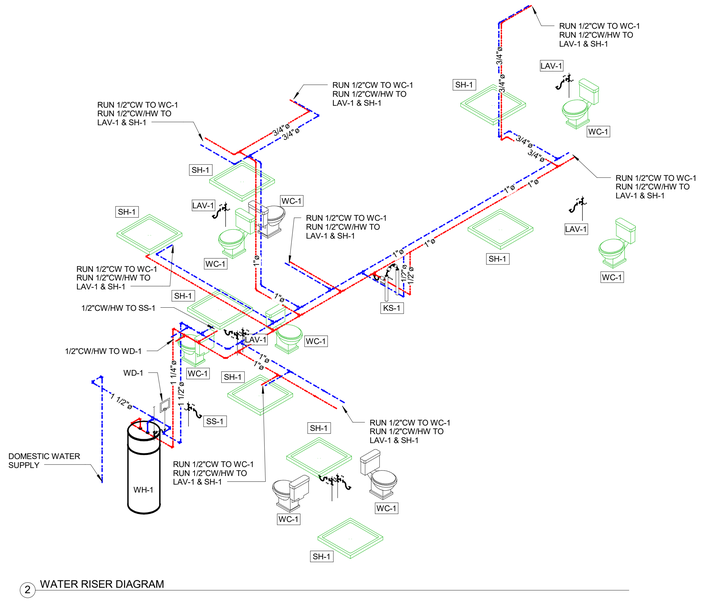
4.	Low pressure at building entrance.		40.0	psi
5.	Pressure loss due to water meter.		2.0	psi
6.	Available pressure after building water meter.	(Line 6 - 7a - 7b - 8)	38.0	psi

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

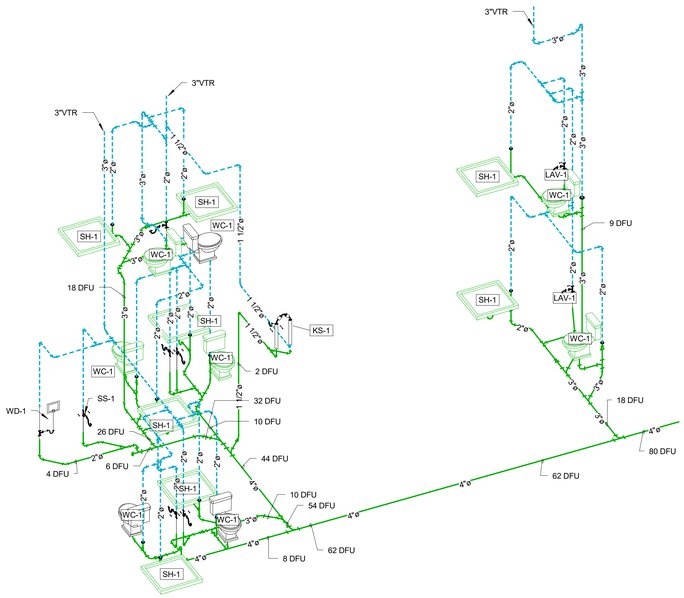
B.	Available distribution pressure.	(Line 9 + B1 - B2)	38.0	psi
D.	Pressure required at controlling fixture. (Shower in second floor bathroom.)		20.0	psi
		Subtotal	18.0	psi
E.	Head loss from the building control valve to the controlling fixture. (Elevation change, multiply by 0.434 psi/ft.)			
	Elevation change ft 25		10.9	psi
		Subtotal	7.2	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
		Total Available Pressure	7.2	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

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Date	Description
05.03.2017	Issue for Permit

RISER DIAGRAMS
640 West Main Street, Lake Geneva, WI 53147

P1.05

5/3/2017 11:28:35 PM

STRUCTURAL CALCULATIONS

For

640 West Main Street
Lake Geneva, Wisconsin

by

United Building Solutions

Date: May 2, 2017

Index

United Building Solutions
Address
City, State
Phone

JOB TITLE Lake Geneva - Vaction Rental

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

United Building Solutions
Address
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JOB TITLE Lake Geneva - Vaction Rental

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

Wind Loads : ASCE 7 - 05

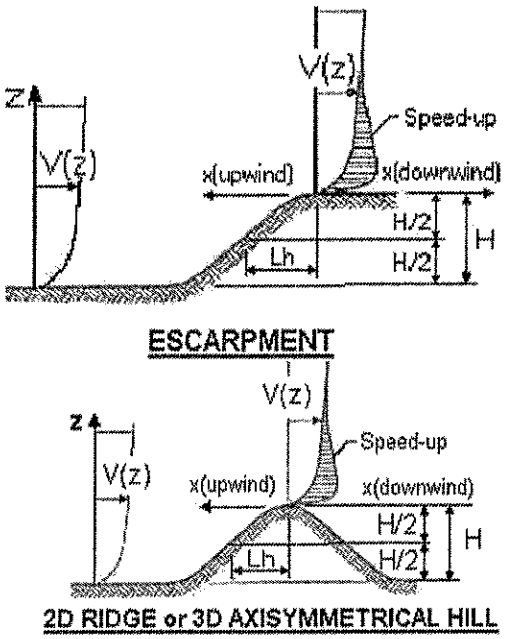
Basic Wind Speed	90 mph
Importance Factor	1.00
Occupancy Category	II
Exposure Category	C
Enclosure Classif.	Enclosed Building
Internal pressure	+/-0.18
Directionality (Kd)	0.85
Kh case 1	0.968
Kh case 2	0.968
Type of roof	Gable

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:
Kzt = $(1+K_1K_2K_3)^2$ = 1.00



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 Rigid structure

G = 0.85 Using rigid structure default

Rigid Structure

$\bar{e}$ =	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			
/α =	0.15			
Vz =	77.3			
N_1 =	0.00			
R_n =	0.000			
R_h =	28.282	η =	0.000	h = 28.0 ft
R_B =	28.282	η =	0.000	
R_L =	28.282	η =	0.000	
g_R =	0.000			
R =	0.000			
G =	0.000			

United Building Solutions
Address
City, State
Phone

JOB TITLE Lake Geneva - Vaction Rental

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 ≥ 0.8Ag

Test for Partially Enclosed Building:

	Input			Test	
Ao	100000.0	sf	Ao ≥ 1.1Aoi	YES	
Ag	0.0	sf	Ao > 4' or 0.01Ag	YES	
Aoi	0.0	sf	Aoi / Agi ≤ 0.20	NO	Building is NOT Partially Enclosed
Agi	0.0	sf			

ERROR: Ag must be greater than Ao

Conditions to qualify as Partially Enclosed Building. Must satisfy all of the following:
Ao ≥ 1.1Aoi
Ao > smaller of 4' or 0.01 Ag
Aoi / Agi ≤ 0.20

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.
Agi = 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
Constant = 0.00256
Average Air Density = 0.0765 lbm/ft^3

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Address
City, State
Phone

JOB TITLE Lake Geneva - Vaction Rental

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

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

Kz = Kh (case 1) = 0.97
Base pressure (qh) = **17.1 psf**
GCpi = +/-0.18

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

Wind Pressure Coefficients

	Transverse Direction			Longitudinal Direction			
	Perpendicular θ = 26.6 deg			Parallel θ = 0.0			
Surface	GCpf	w/-GCpi	w/+GCpi	GCpf	w/-Gcpi	w/+GCpi	
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 (GCpn = +1.5)
Leeward parapet = 0.0 psf (GCpn = -1.0)

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

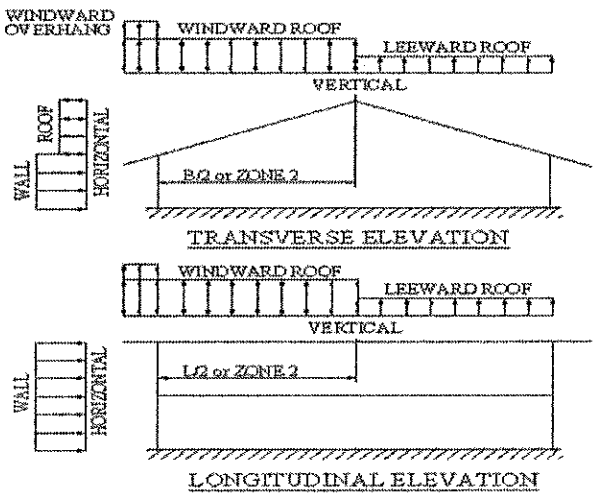
Horizontal MWFRS Simple Diaphragm Pressures (psf)

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



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JOB TITLE Lake Geneva - Vaction Rental

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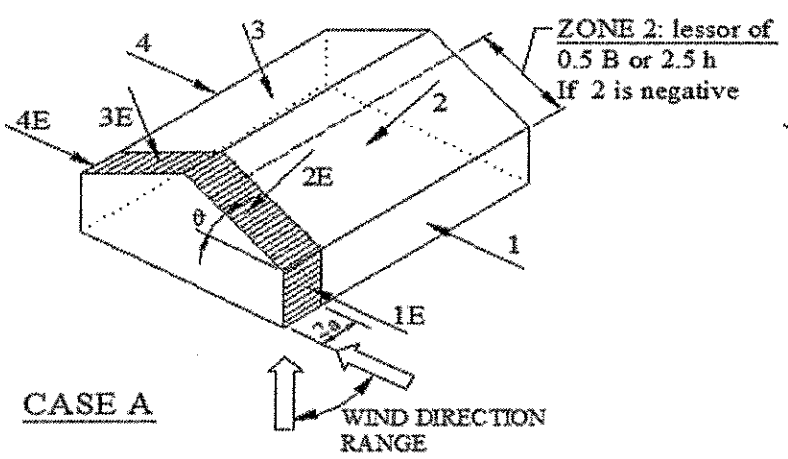
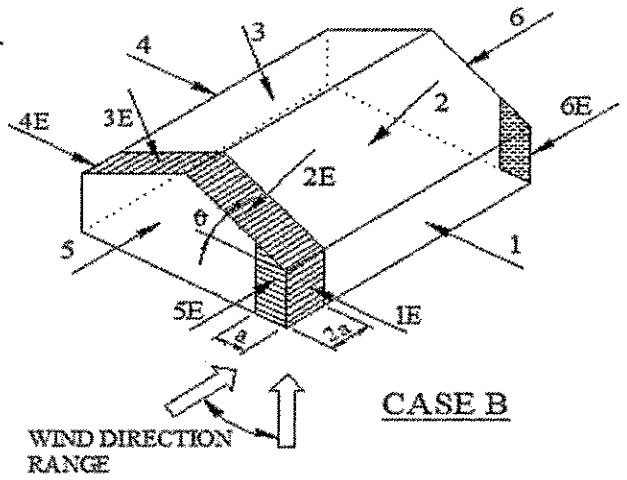
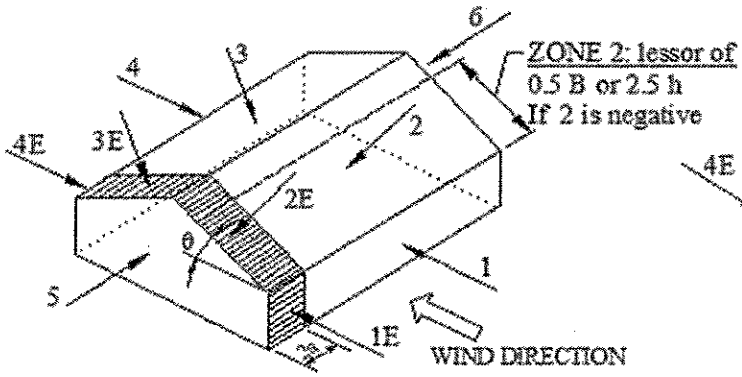
Location of MWFRS Wind Pressure Zones

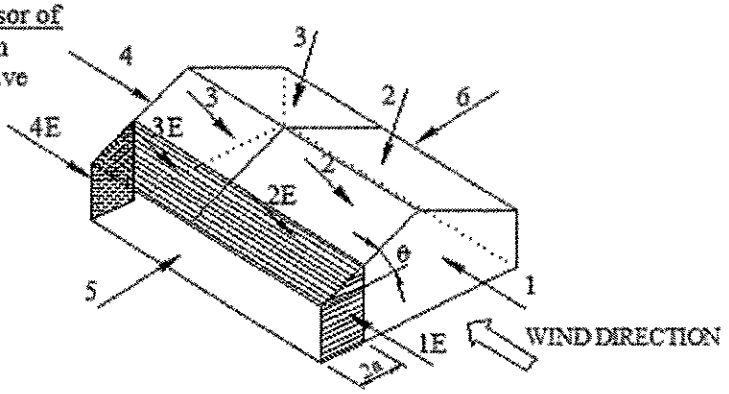




NOTE: Torsional loads are 25% of zones 1 - 6. See code for loading diagram.

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





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

ASCE 7 -02 and ASCE 7-05

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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	500 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 (Gcpi) of 0.0

Parapet

qp = 0.0 psf

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

	Surface Pressure (psf)			**User input**
Solid Parapet Pressure	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

	GCp +/- GCpi			Surface Pressure (psf)			**User input**	
Area	10 sf	100 sf	500 sf	10 sf	100 sf	500 sf	25 sf	200 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

United Building Solutions
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City, State
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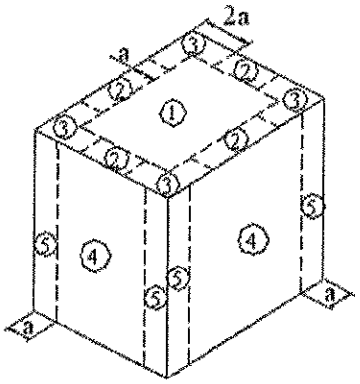
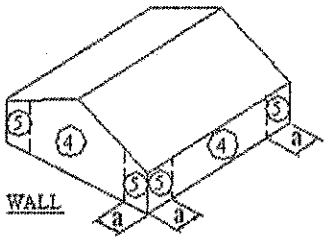
JOB TITLE Lake Geneva - Vaction Rental

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

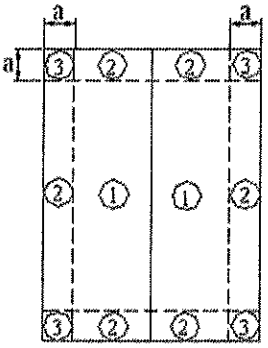
Location of C&C Wind Pressure Zones



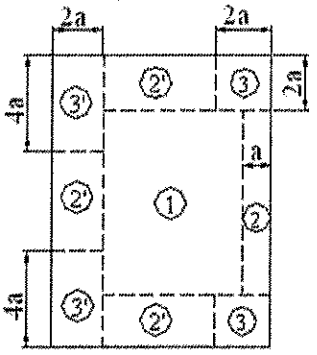
Roofs w/ $\theta \leq 10°$
and all walls
h > 60'



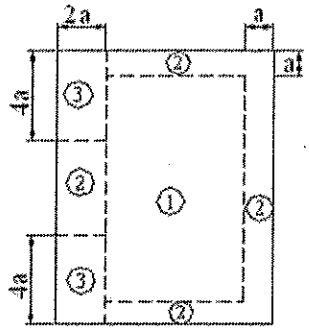
Walls h ≤ 60'
& alt design h<90'



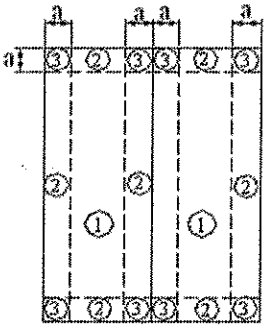
Gable, Sawtooth and
Multispan Gable $\theta \leq 7$ degrees &
Monoslope ≤ 3 degrees
h ≤ 60' & alt design h<90'



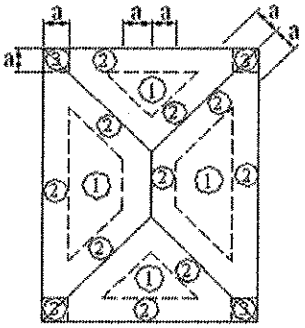
Monoslope roofs
$3° < \theta \leq 10°$
h ≤ 60' & alt design h<90'



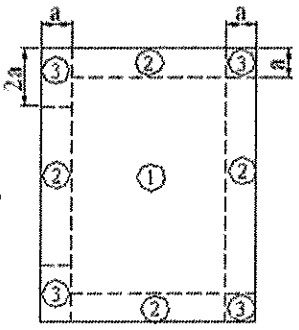
Monoslope roofs
$10° < \theta \leq 30°$
h ≤ 60' & alt design h<90'



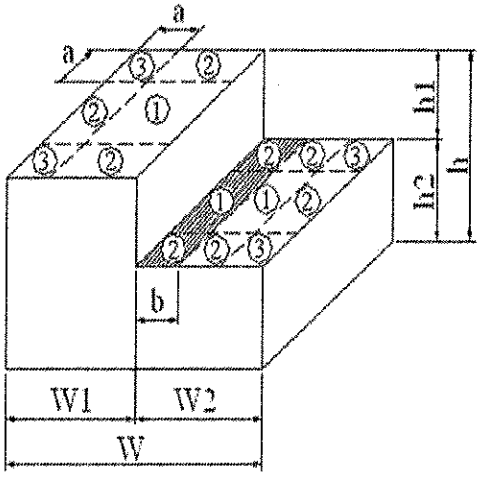
Multispan Gable &
Gable $7° < \theta \leq 45°$

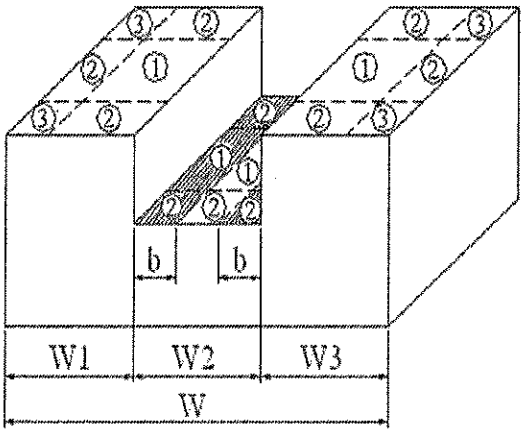


Hip $7° < \theta \leq 27°$



Sawtooth $10° < \theta \leq 45°$
h ≤ 60' & alt design h<90'





Stepped roofs $\theta \leq 3°$
h ≤ 60' & alt design h<90'

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**

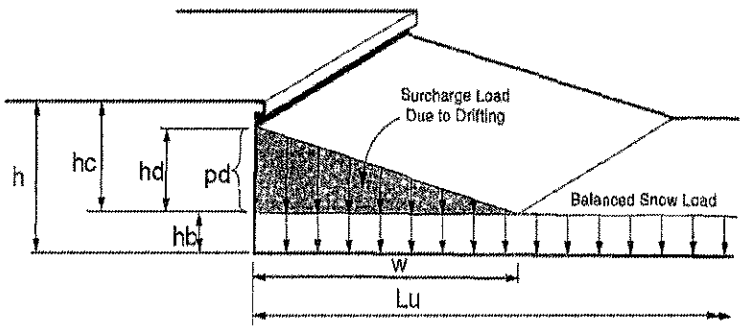
NOTE: Alternate spans of continuous beams and other areas shall be loaded with half the design roof snow load so as to produce the greatest possible effect - see code.

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	= hdγ / √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 = γ*hd	=	**22.3 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 = γ*hd	=	**0.0 psf**
Balanced Snow load:		=	23.1 psf
			23.1 psf

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PROJECT LAK GENEVA - VACATION RENTAL
DESCR. _____ PROJ. NO. _____
CALCULATED BY _____ DATE _____
CHECKED BY _____ DATE _____
SCALE _____ SHEET NO. _____

DESIGN DATA SUMMARY

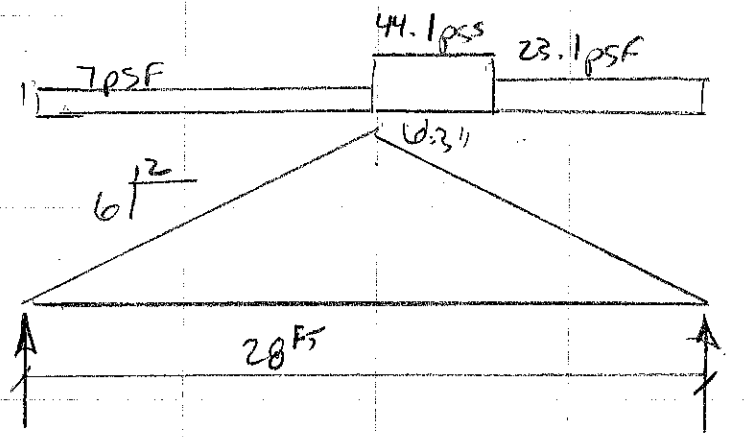
GRAVITY LOADS

ROOF

SNOW : 30PSF
+DRIFT AND/OR UNBALANCE LOAD

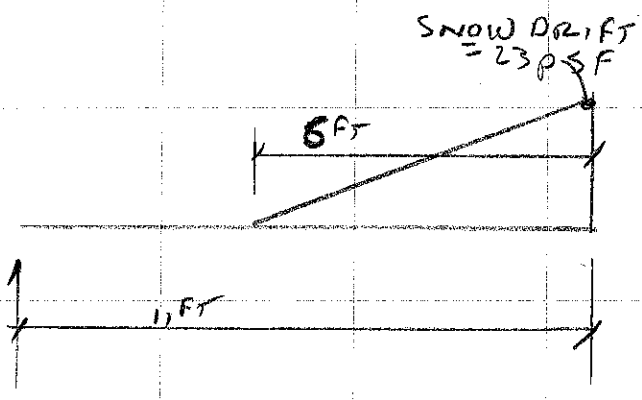
DEAD : 20psf

UNBALANCE SNOW



NOTE: UNIFORM SNOW OF 30PSF GOVERNS OVER UNBALANCE

SNOW DRIFT @ FLAT AREA



FLOOR

LIVE LOAD = 40psf
DEAD LOAD = 15PSF
PARTITION = 15psf

PATIO / DECKS

LIVE LOAD = 75psf
DEAD LOAD = 15 PSF

WIND

MWFRS = 17.2psf

C&C = 22psf (ZONE 4)
= 27 psf (ZONE 5)

FOUNDATION DESIGN

EARTH PRESSURES

ACTIVE = 35psf/ft
AT REST = 55PSF/FT

ASSUMED ALLOWABLE SOIL BRG = 2000PSF

SERVICEABILITY

DEFLECTION LIMITS

ROOF
SNOW: $\Delta \leq L/360$
TOTAL $\Delta \leq L/240$

FLOOR

LIVE LOAD = $\Delta \leq L/480$
TOTAL LOAD = $\Delta \leq L/240$

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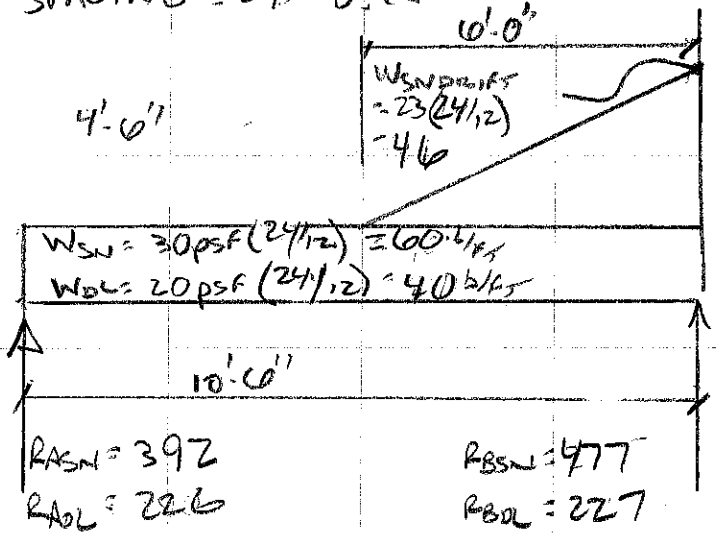
PROJECT LAKE GENEVA - VACATION RENTAL
DESCR. _____ PROJ. NO. _____
CALCULATED BY KJP DATE _____
CHECKED BY _____ DATE _____
SCALE _____ SHEET NO. _____

NEW ROOF JOISTS

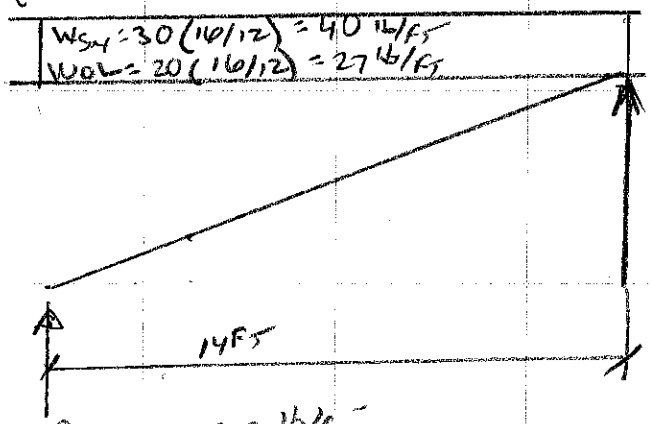
CRITICAL SPAN = 10'-0"
SPACING = 24" O.C.



USE 2x10's @ 24"

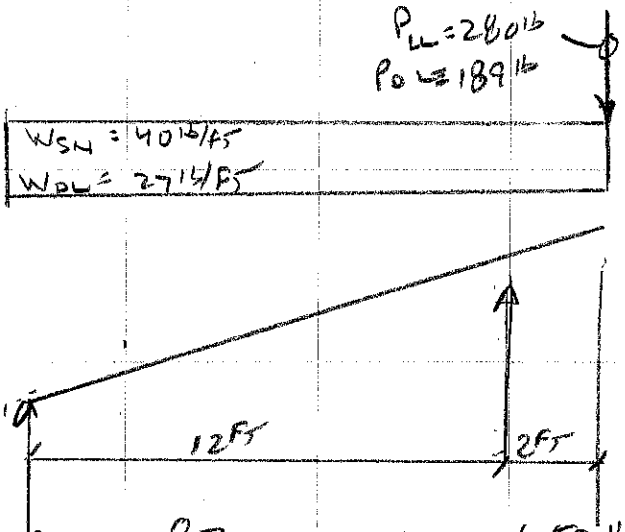
EXISTING ROOF RAFTERS

(SPACING = 16" O.C.



R_{ALL} = 280 lb/ft
R_{ADL} = 189 lb/ft

EXIST'G. ROOF JOIST - NEW CANTILEVER COND.



R_{ALL} = 187
R_{ADL} = 127 lb
R_{BLL} = 653 lb
R_{BDL} = 441 lb

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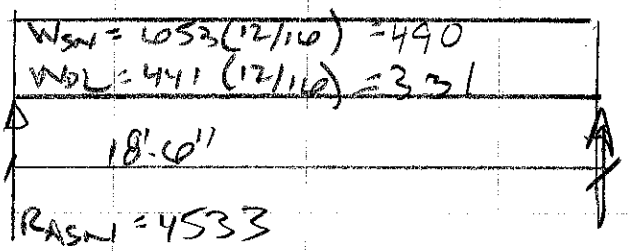
PROJECT LAKE GENEVA - VACATION RENTAL
DESCR. _____ PROJ. NO. _____
CALCULATED BY _____ DATE _____
CHECKED BY _____ DATE _____
SCALE _____ SHEET NO. _____

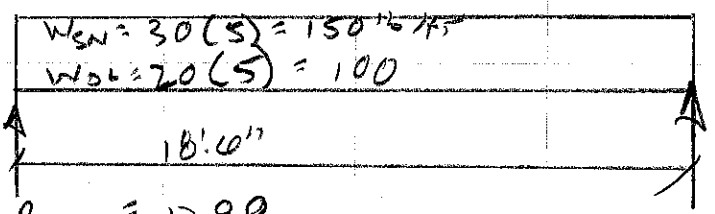
NEW RIDGE BEAM (GRID LINE B)



$R_{ASN} = 4533$
$R_{ADL} = 3062$

USE 5½x15" GLULAM
DOUG FIR 24F. 1.8E
BALANCED

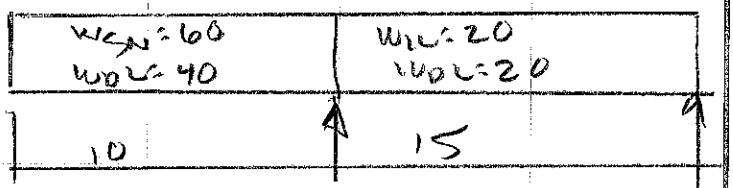
NEW RIM BEAM - LINE E-2



$R_{ASN} = 1388$
$R_{ADL} = 925$

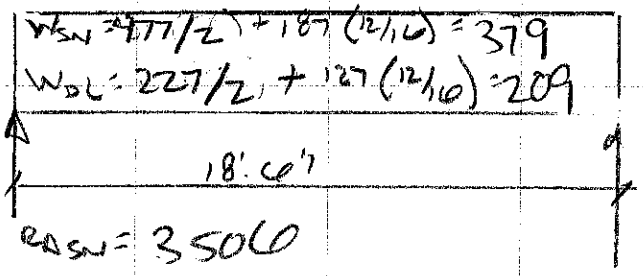
NEW CANTILEVER ROOF BEAM

$P_{SN} = 2(1388) = 2776$
$P_{DL} = 925(2) = 1850$



$R_{ASN} = 5427$
$R_{ADL} = 4092$
$R_{BSN} = -2051$
$R_{BDL} = 95$

NEW BEAM @ EXISTING WALL (LINE C-2)



$R_{ASN} = 3506$
$R_{ADL} = 1931$

USE 5½x13½ GLULAM
DOUG FIR 24f. 1.8E
BALANCED

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

Design Check Calculation Sheet

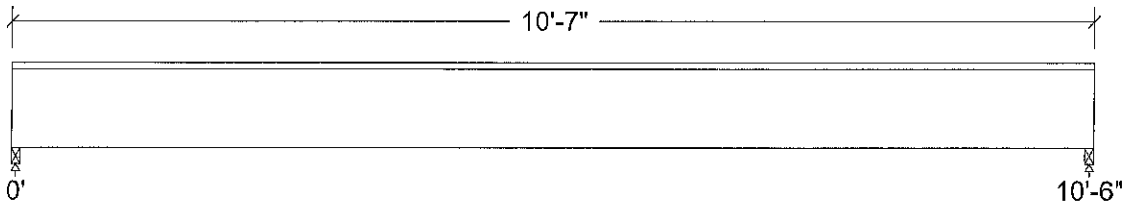
WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
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	fv = 62	Fv' = 155	psi	fv/Fv' = 0.40
Bending(+)	fb = 943	Fb' = 1273	psi	fb/Fb' = 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

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.

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:26	New Ridge Beam - Grid Line B

Design Check Calculation Sheet

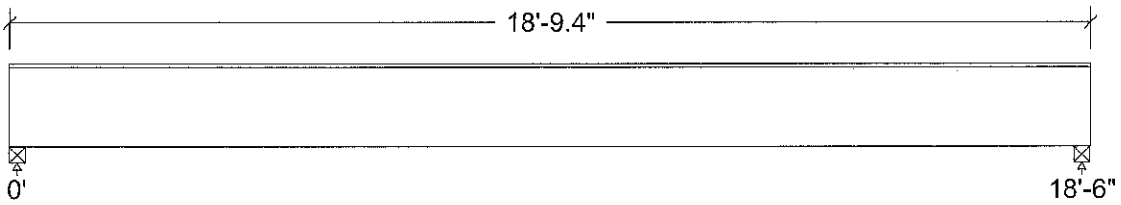
WoodWorks Sizer 10.4

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;

WoodWorks® Sizer SOFTWARE FOR WOOD DESIGN

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 168	Fv' = 305	psi	fv/Fv' = 0.55
Bending(+)	fb = 2697	Fb' = 2760	psi	fb/Fb' = 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#
Fv'	265	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	2400	1.15	1.00	1.00	1.000	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 = 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).

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:25	New Beam @ Existing Wall - Grid Line C2

Design Check Calculation Sheet

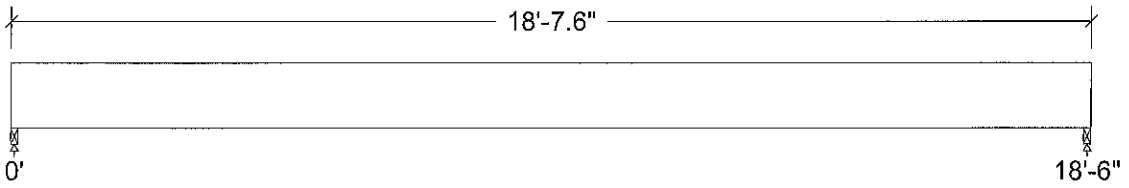
WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
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

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 99	Fv' = 305	psi	fv/Fv' = 0.32
Bending(+)	fb = 1859	Fb' = 2642	psi	fb/Fb' = 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#
Fv'	265	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	2400	1.15	1.00	1.00	0.957	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

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).

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:25	New Cantilever Roof Beam

Design Check Calculation Sheet

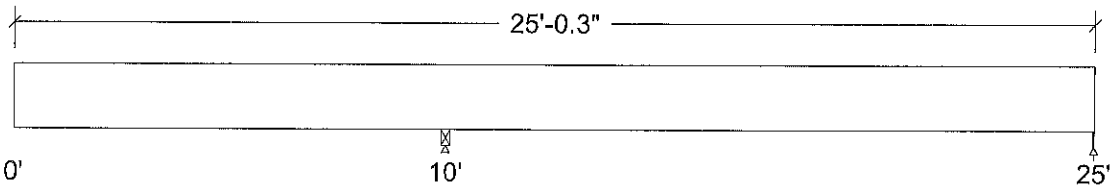
WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
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:					
Dead			4092		95
Snow			5427		-2051
Factored:					
Uplift					3322
Total			9518		95
Bearing:					
Capacity					
Beam			10608		1787
Support			9518		1836
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;

WoodWorks® Sizer SOFTWARE FOR WOOD DESIGN

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	fv = 86	Fv' = 305	psi	fv/Fv' = 0.28
Bending(-)	fb = 2117	Fb' = 2586	psi	fb/Fb' = 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#
Fv'	265	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'-	2400	1.15	1.00	1.00	0.974	0.937	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+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).

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:26	New Rim Beam - Line E.2

Design Check Calculation Sheet

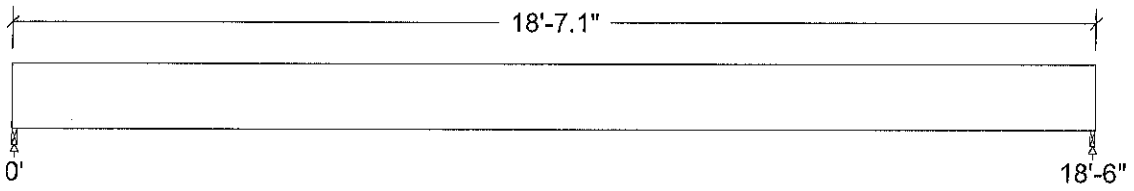
WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
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	fv = 67	Fv' = 305	psi	fv/Fv' = 0.22
Bending(+)	fb = 1260	Fb' = 2002	psi	fb/Fb' = 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

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:

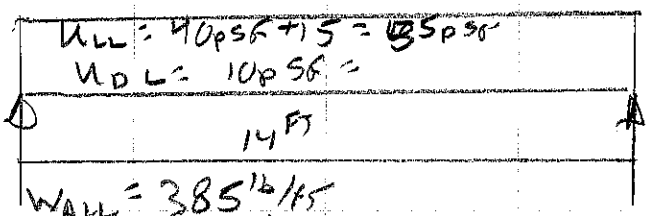
1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2012), the National Design Specification (NDS 2012), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Glulam design values are for materials 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).

United Building Solutions
A Wall-tech Company

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

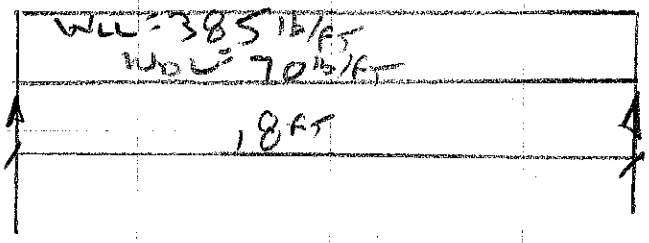
2ND & 1ST FLOOR JOIST REACTIONS

SPAN = 14'.0"



$W_{ALL} = 385^{lb}/_{FT}$
$W_{ADL} = 70^{lb}/_{FT}$

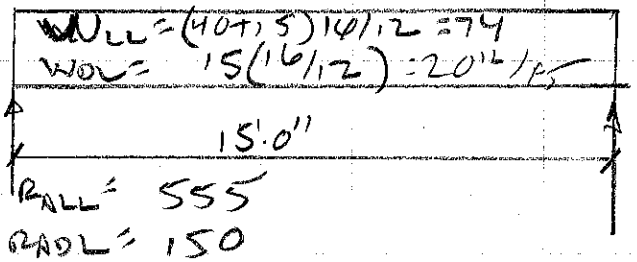
BEAM - LINE C.2



USE 5 1/2 x 13 1/2" GLULAM

NEW FLOOR JOISTS @ SCREEN PATIO

(SPACING = 16" o.c.

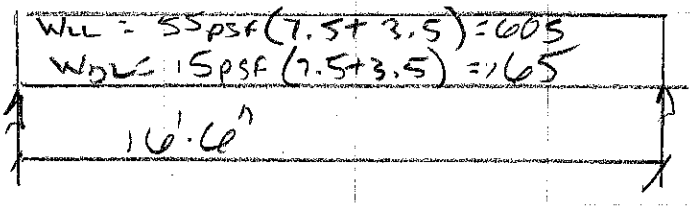


R_{ALL} = 555
R_{ADL} = 150

USE 2 x 12's @ 16" } N.G.

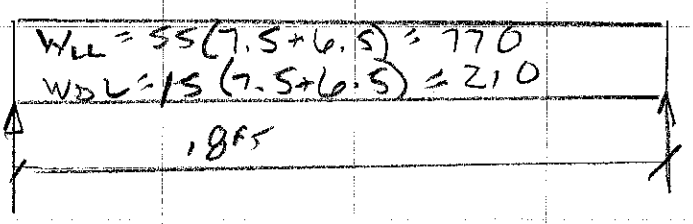
SPACE @ 12" o.c.

BEAM - LINE C.2 (SCREEN PATIO)



5 1/2 x 13 1/2 GLULAM

NEW GLULAM - LINE B



5 1/2 x 16 1/2 GLULAM

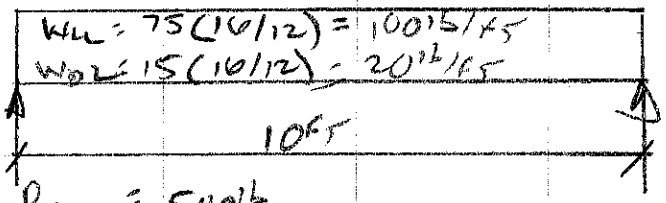
United Building Solutions
A Wall-tech Company

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

SECOND FLOOR FRAMING

NEW DECK JOISTS

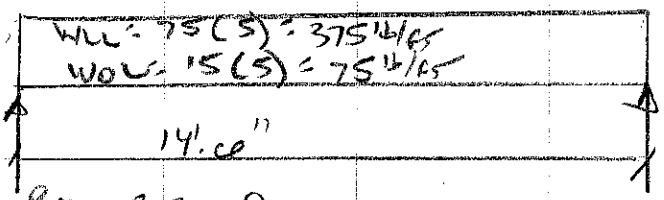
(SPACING = 16" O.C.)



R_{ALL} = 500 #
R_{ADL} = 100 #

TREATED 2x10's @ 16"

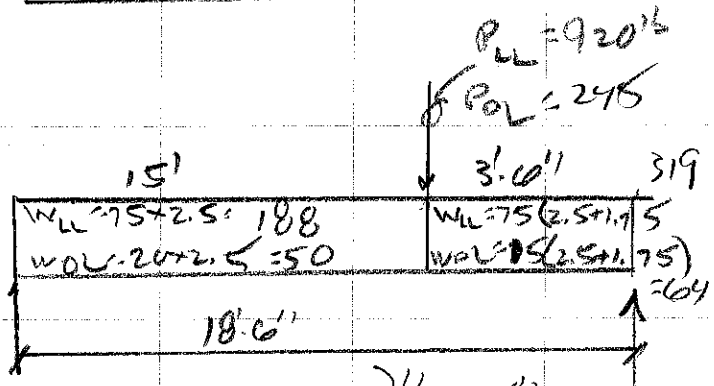
NEW DECK RIM BEAM



R_{ALL} = 2719
R_{ADL} = 544 #

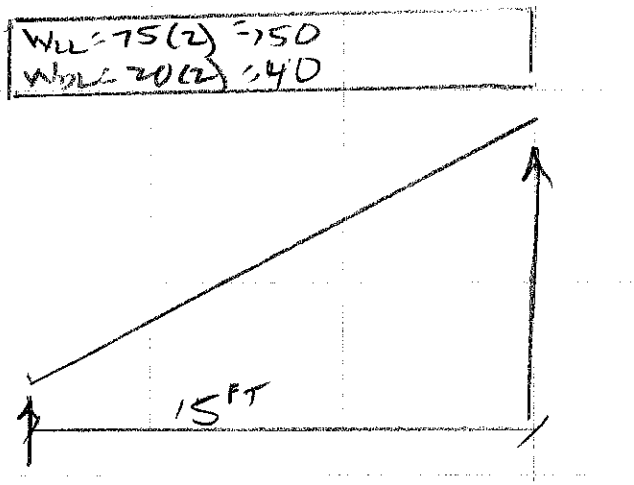
3 1/2" x 3 1/2" GLULAM

BEAM ALONG STAIR



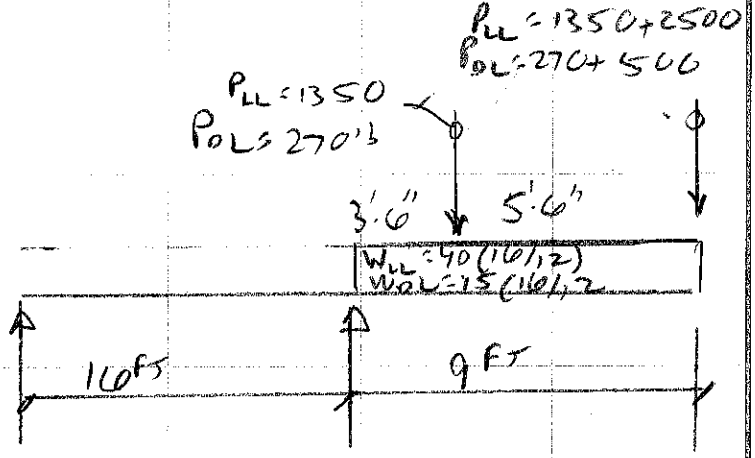
3 1/2" x 15" GLULAM

NEW DECK STAIR STRINGER



3 1/8" x 12" GLULAM

CANTILEVERED BM - LINE 2



8 3/4" x 19 1/2"

LINE 3 8 3/4" x 16 1/2"
LINE 1 8 3/4" x 19 1/2"
LINE 5 [illegible] 5 1/2" x 16 1/2"

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:28	New Deck Joists

Design Check Calculation Sheet

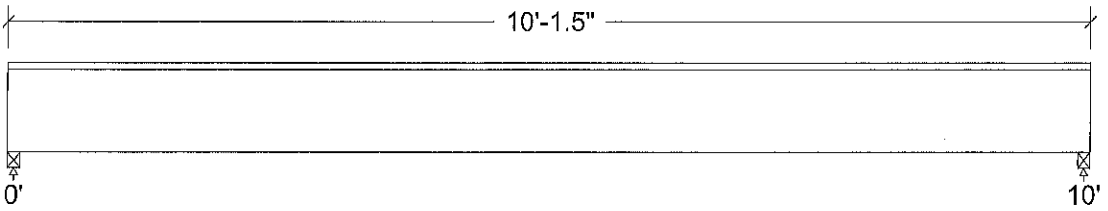
WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
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);

WoodWorks® Sizer SOFTWARE FOR WOOD DESIGN

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 55	Fv' = 151	psi	fv/Fv' = 0.37
Bending(+)	fb = 861	Fb' = 1273	psi	fb/Fb' = 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#
Fv'	135	1.15	0.97	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	-	0.67	1.00	-	-	-	-	1.00	1.00	-	-
E'	1.4 million		0.90	1.00	-	-	-	-	1.00	1.00	-	2
Emin'	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.

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
		2ND FLOOR
	May 1, 2017 03:29	New Deck Rim Beam

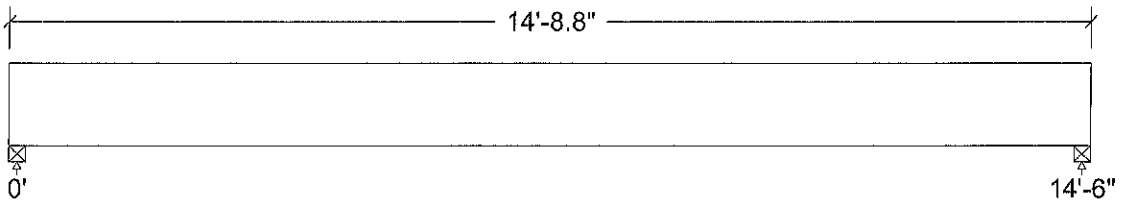
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] 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				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	fv = 88	Fv' = 232	psi	fv/Fv' = 0.38
Bending(+)	fb = 1367	Fb' = 1705	psi	fb/Fb' = 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

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).

WoodWorks® SOFTWARE FOR WOOD DESIGN

COMPANY	PROJECT
	2ND FLOOR
May 1, 2017 03:28	New Beam Along Stair

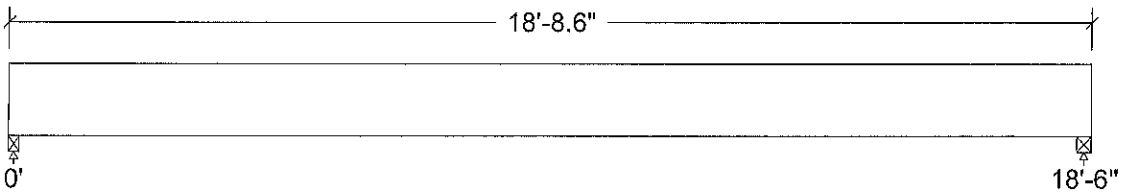
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load3	Live	Partial UDL		0.00	15.00	188.0	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;

WoodWorks® Sizer SOFTWARE FOR WOOD DESIGN

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 91	Fv' = 232	psi	fv/Fv' = 0.39
Bending(+)	fb = 1226	Fb' = 1464	psi	fb/Fb' = 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#
Fv'	265	1.00	0.88	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	2400	1.00	0.80	1.00	0.762	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 =   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).

WoodWorks® SOFTWARE FOR WOOD DESIGN

COMPANY	PROJECT
May 1, 2017 03:28	New Beam Along Stair-1st Floor

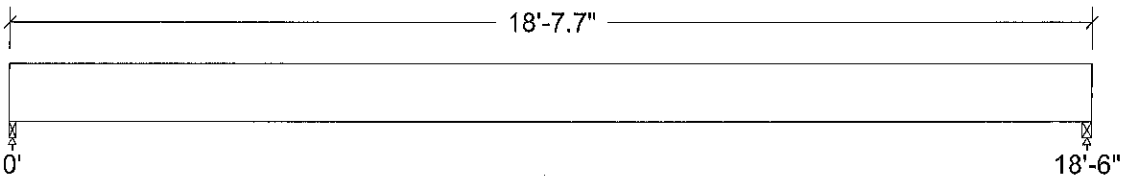
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load3	Live	Partial UDL		0.00	15.00	188.0	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				15.2		plf

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

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 76	Fv' = 232	psi	fv/Fv' = 0.33
Bending(+)	fb = 1228	Fb' = 1868	psi	fb/Fb' = 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#
Fv'	265	1.00	0.88	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	2400	1.00	0.80	1.00	0.973	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 =   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	COMPANY	PROJECT
	May 1, 2017 03:29	New Deck Rim Beam-1st Floor

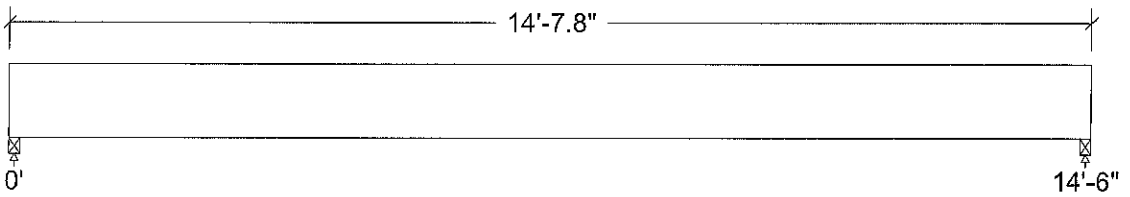
Design Check Calculation Sheet

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	fv = 65	Fv' = 232	psi	fv/Fv' = 0.28
Bending(+)	fb = 1111	Fb' = 1883	psi	fb/Fb' = 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

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	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).

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:29	New Deck Stair Stringer Beam

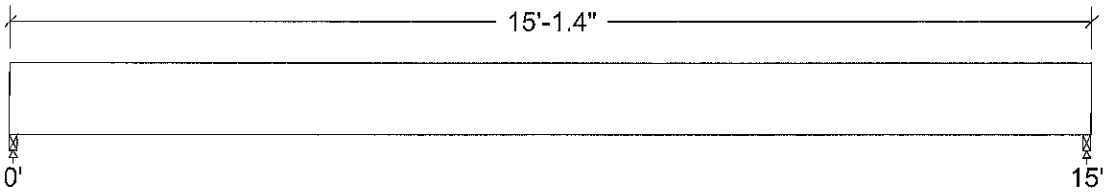
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
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	fv = 51	Fv' = 232	psi	fv/Fv' = 0.22
Bending(+)	fb = 894	Fb' = 1630	psi	fb/Fb' = 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

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).

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:30	New Floor Beam Line B

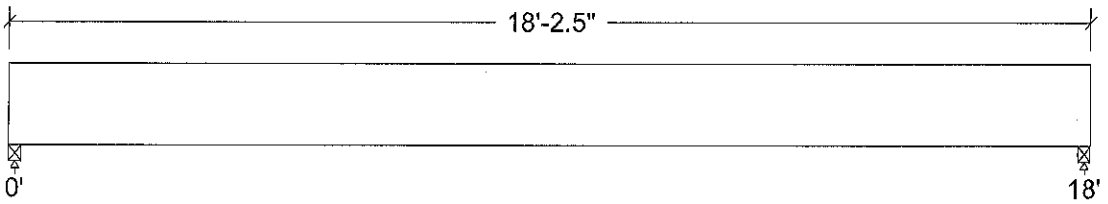
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
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	fv = 124	Fv' = 265	psi	fv/Fv' = 0.47
Bending(+)	fb = 1949	Fb' = 2289	psi	fb/Fb' = 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

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).

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:30	New Floor Beam - Line C.2

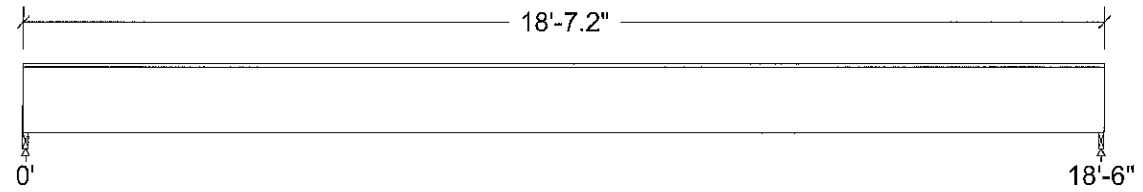
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
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	fv = 77	Fv' = 265	psi	fv/Fv' = 0.29
Bending(+)	fb = 1451	Fb' = 2385	psi	fb/Fb' = 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

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).

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:30	New Floor Joists Screen Patio (12 inches o.c.)

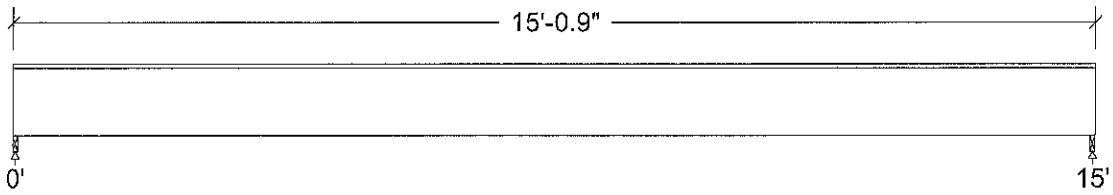
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
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	fv = 43	Fv' = 135	psi	fv/Fv' = 0.32
Bending(+)	fb = 783	Fb' = 1006	psi	fb/Fb' = 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

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.

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:30	New Floor Beam Line C.2 @ Screen Patio

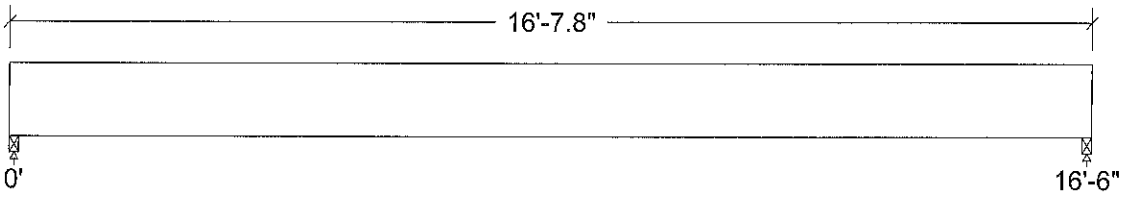
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
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	fv = 112	Fv' = 265	psi	fv/Fv' = 0.42
Bending(+)	fb = 1924	Fb' = 2331	psi	fb/Fb' = 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

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).

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:27	Cantilever Beam - Line 1

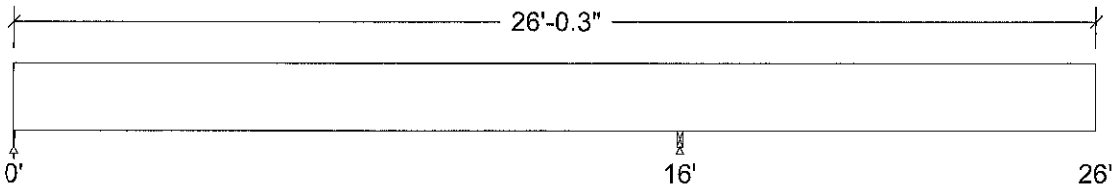
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

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

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					
Beam	1507		6502		
Support	1832		6529		
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;

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 34	Fv' = 232	psi	fv/Fv' = 0.15
Bending(-)	fb = 757	Fb' = 1697	psi	fb/Fb' = 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#
Fv'	265	1.00	0.88	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'-	2400	1.00	0.80	1.00	0.988	0.884	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

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).

WoodWorks® SOFTWARE FOR WOOD DESIGN

COMPANY	PROJECT
May 1, 2017 03:27	Cantilever Beam - Line 2- with added column

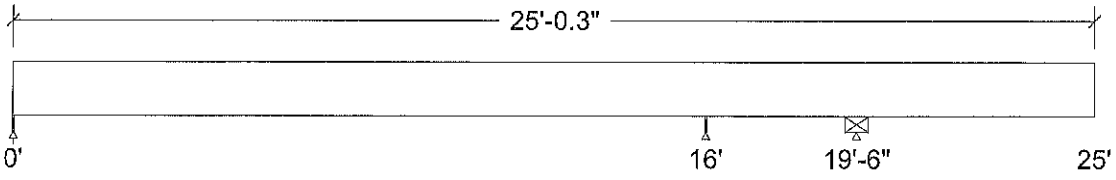
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load3	Dead	Partial UDL	No	16.02	25.02	20.0	20.0	plf
Load5	Live	Partial UDL	Yes	16.02	25.02	75.0	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;

WoodWorks® Sizer SOFTWARE FOR WOOD DESIGN

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 125	Fv' = 232	psi	fv/Fv' = 0.54
Bending(+)	fb = 92	Fb' = 1874	psi	fb/Fb' = 0.05
Bending(-)	fb = 1289	Fb' = 1910	psi	fb/Fb' = 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#
Fv'	265	1.00	0.88	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	2400	1.00	0.80	1.00	0.985	0.976	1.00	1.00	1.00	1.00	-	2
Fb'-	2400	1.00	0.80	1.00	0.995	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	-	-	6
Eminy'	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

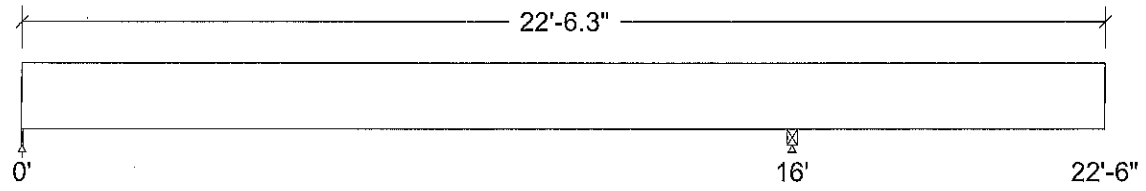
Design Check Calculation Sheet

WoodWorks Sizer 10.4

Loads:

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

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



Unfactored:					
Dead	222		2094		
Live	-1718		6820		
Factored:					
Uplift	1894				
Total	222		8914		
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;

WoodWorks® Sizer SOFTWARE FOR WOOD DESIGN

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	fv = 66	Fv' = 232	psi	fv/Fv' = 0.28
Bending(-)	fb = 1044	Fb' = 1751	psi	fb/Fb' = 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#
Fv'	265	1.00	0.88	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'-	2400	1.00	0.80	1.00	0.991	0.912	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

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).

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:28	Cantilever Beam - Line 5

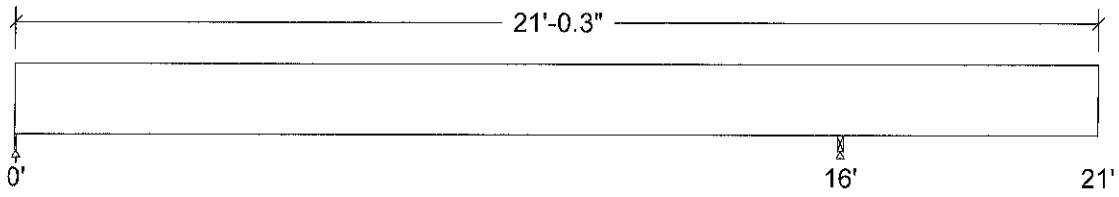
Design Check Calculation Sheet

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					
Beam	947		3645		
Support	1230		3810		
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;

WoodWorks® Sizer SOFTWARE FOR WOOD DESIGN

Analysis vs. Allowable Stress and Deflection using NDS 2012 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 43	Fv' = 232	psi	fv/Fv' = 0.18
Bending(-)	fb = 598	Fb' = 1847	psi	fb/Fb' = 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#
Fv'	265	1.00	0.88	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'-	2400	1.00	0.80	1.00	0.969	0.962	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

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 lbs
Bending(-): LC #2 = D+L, M = 12433 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 = 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: 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).

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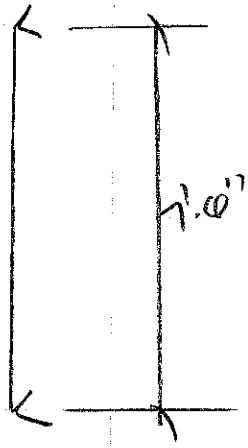
A Wall-tech Company

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

NEW POST - LINE C2

$P_{SN} = 2(5427) + 2(3506)$
$= 17866$
$P_{OL} = 2(4092) + 2(1931)$
$= 12046$

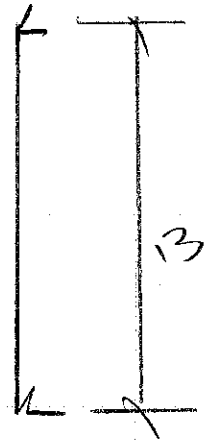


IGNORE UP LIFT SNOW LOAD

USE 5 1/8 x 6"
DOUG FIR L2

NEW POST - RIDGE BEAM

$P_{SN} = 2(4533) = 9066$
$P_{OL} = 2(3062) = 6124$



WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:31	New Post - Line C2

Design Check Calculation Sheet

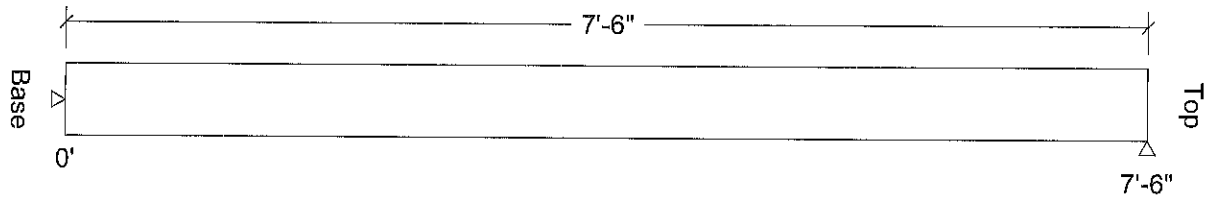
WoodWorks Sizer 10.4

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.

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	May 1, 2017 03:31	New Post @ Ridge Beam Line B

Design Check Calculation Sheet

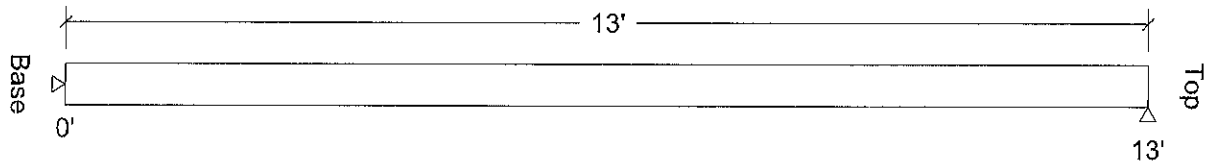
WoodWorks Sizer 10.4

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	Fc' = 720	psi	fc/Fc' = 0.69
Axial Bearing	fc = 497	Fc* = 2242	psi	fc/Fc* = 0.22

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	0.321	-	-	-	1.00	-	2
Fc*	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.

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

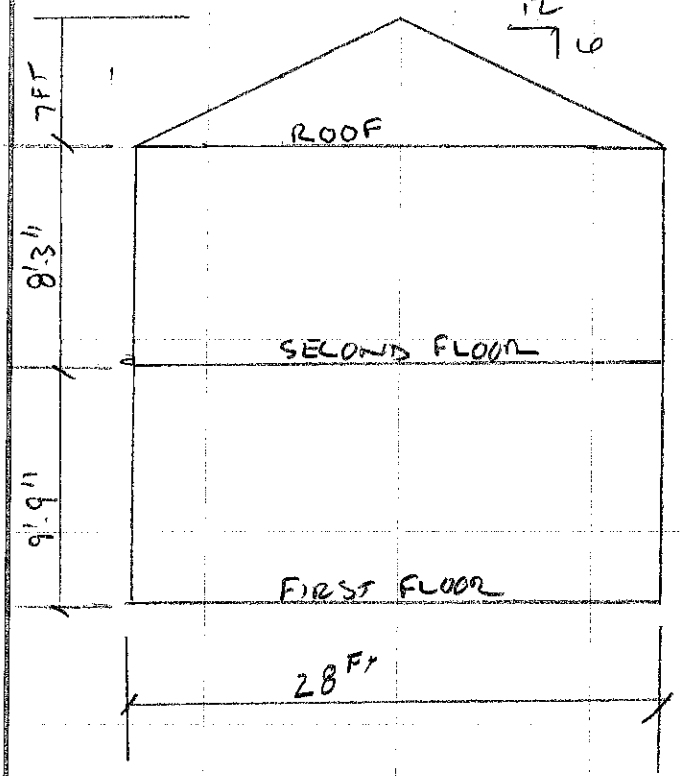
LATERAL BRACING

NEW WALL BRACING @ LINE C

MWFRS BASE PRESSURE = 17.1 psf

END WALL WIND PRESSURE

GABLE END ROOF
PROJECTION AREA = $\frac{1}{2}(28^{FT} \times 7^{FT})$
$= 98^{FT^2}$



END WALL WIND LOAD

ROOF LEVEL

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

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

USE 2000^{lb}

SECOND FLOOR

$$P_{W_{2ND}} = \frac{17.1psf(8.25/2 + 9.75/2)28^{FT}}{2}$$

$P_{W_{2ND}} = 2155psf$

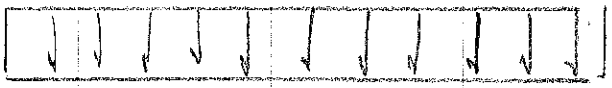
USE 2500^{lb}

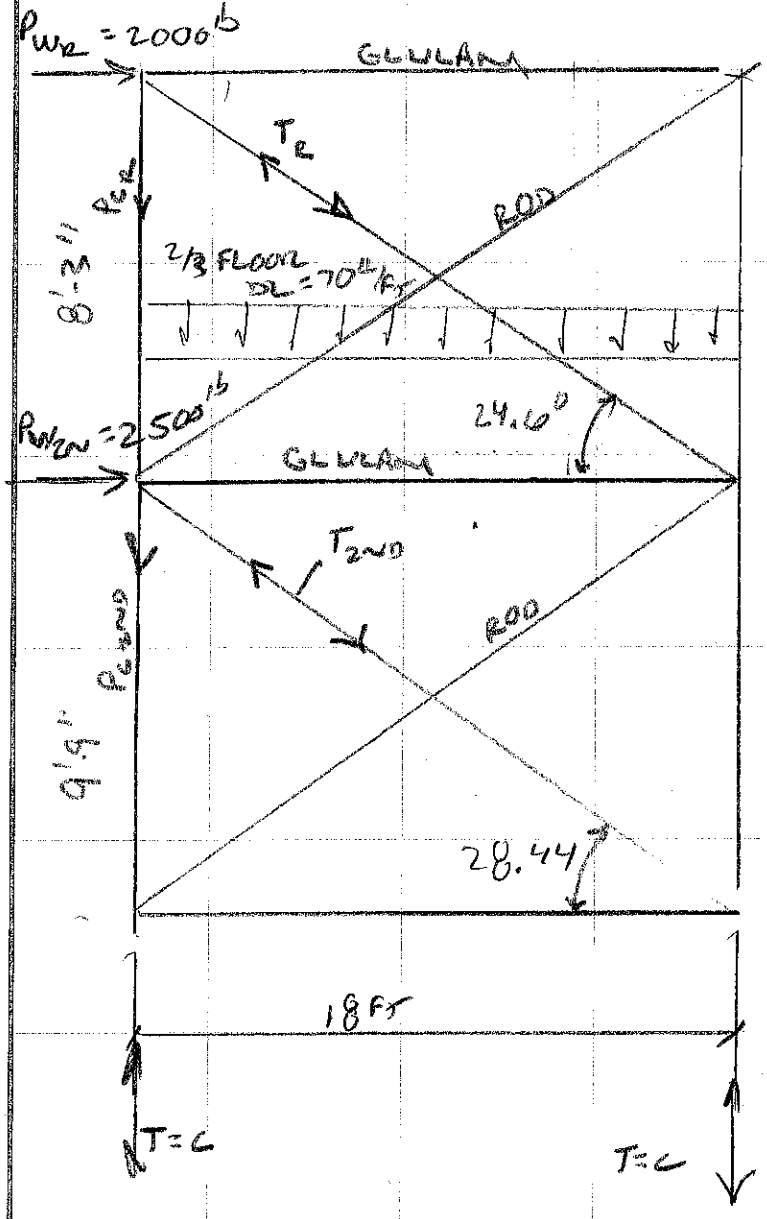
United Building Solutions
A Wall-tech Company

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

LATERAL BRACING LOADING DIAGRAM

$2/3$ ROOF DL $= 15 psf (2/3)(14^{ft})/2 = 70^{lb/ft}$





ROD $F_y = 36,000$ psi

ALLOW TEN $= 0.6(36,000) = 21,600^{lb}$

2ND FLOOR BRACE

$P_{WR} = 2000^{lb}$

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

$A_{ROD} = \dfrac{2200^{lb}}{21,600} = 0.101^{in^2}$ $\quad A = \pi d^2/4$

MIN $d = 0.36"$

USE 1/2" ϕ ROD

$P_{CR} = 2200^{lb}(\sin 24.6^\circ) = 916^{lb}$

1ST FLOOR

$P_{W1ST} = 2000^{lb} + 2500^{lb} = 4500^{lb}$

$T_{2ND} = \dfrac{4500^{lb}}{\cos 28.44} = 5118^{lb}$

$A_{ROD} = \dfrac{5118}{21,600} = 0.24^{in^2}$

MIN $d = 0.55"$

USE 3/4" ϕ ROD

$P_{C2ND} = 5118(\sin 28.44^\circ) = 2438^{lb}$

NET UPLIFT @ COLUMN BASE

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

$$T = C = 2094^{lb}$$