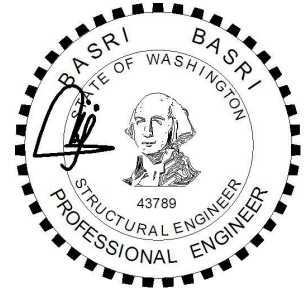




info@b2engineers.com
425-318-7047 (O)
425-318-0031 (C)

**TSO ADDITION
8802 SE 37TH ST
MERCER ISLAND, WA 98040**

**PROJECT NO: 22126 DATE:06/28/22
PREPARED BY: BASRI BASRI PE, SE**



Design Criteria

International Building Code (IBC) 2018
American Society of Civil Engineers (ASCE) 7-16

Project Description

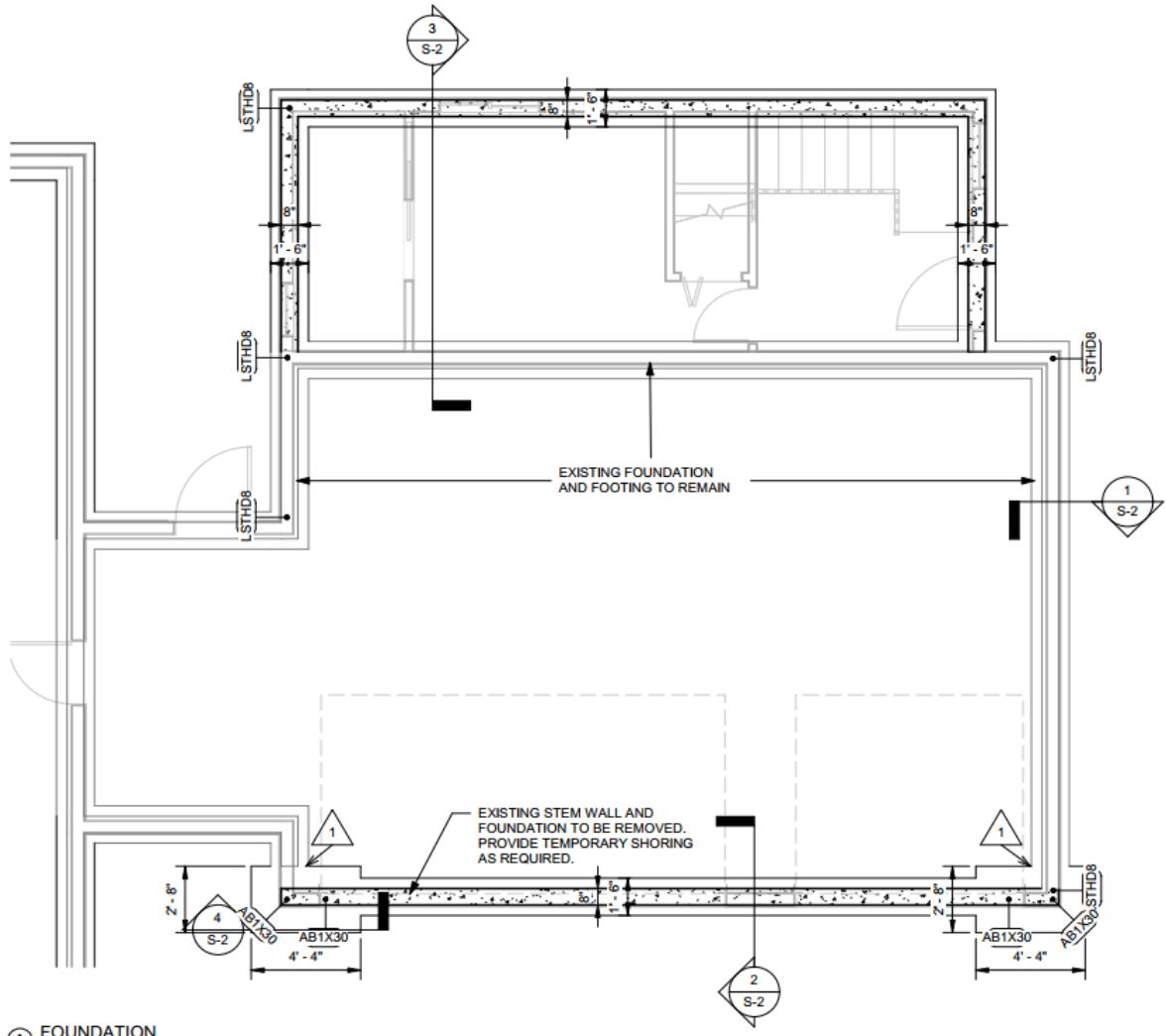
Structural design of second-story addition of 1000 sq. ft. above existing garage, utilizing conventional wood framing on shallow concrete foundation. The lateral system consists of plywood/OSB wall sheathing with Simpson holdown anchors. The seismic criteria are obtained from the ATC Hazards website and the wind criteria are obtained from City of Mercer Island Wind Mapping
Please see attached calculations for your reference

Seismic Criteria

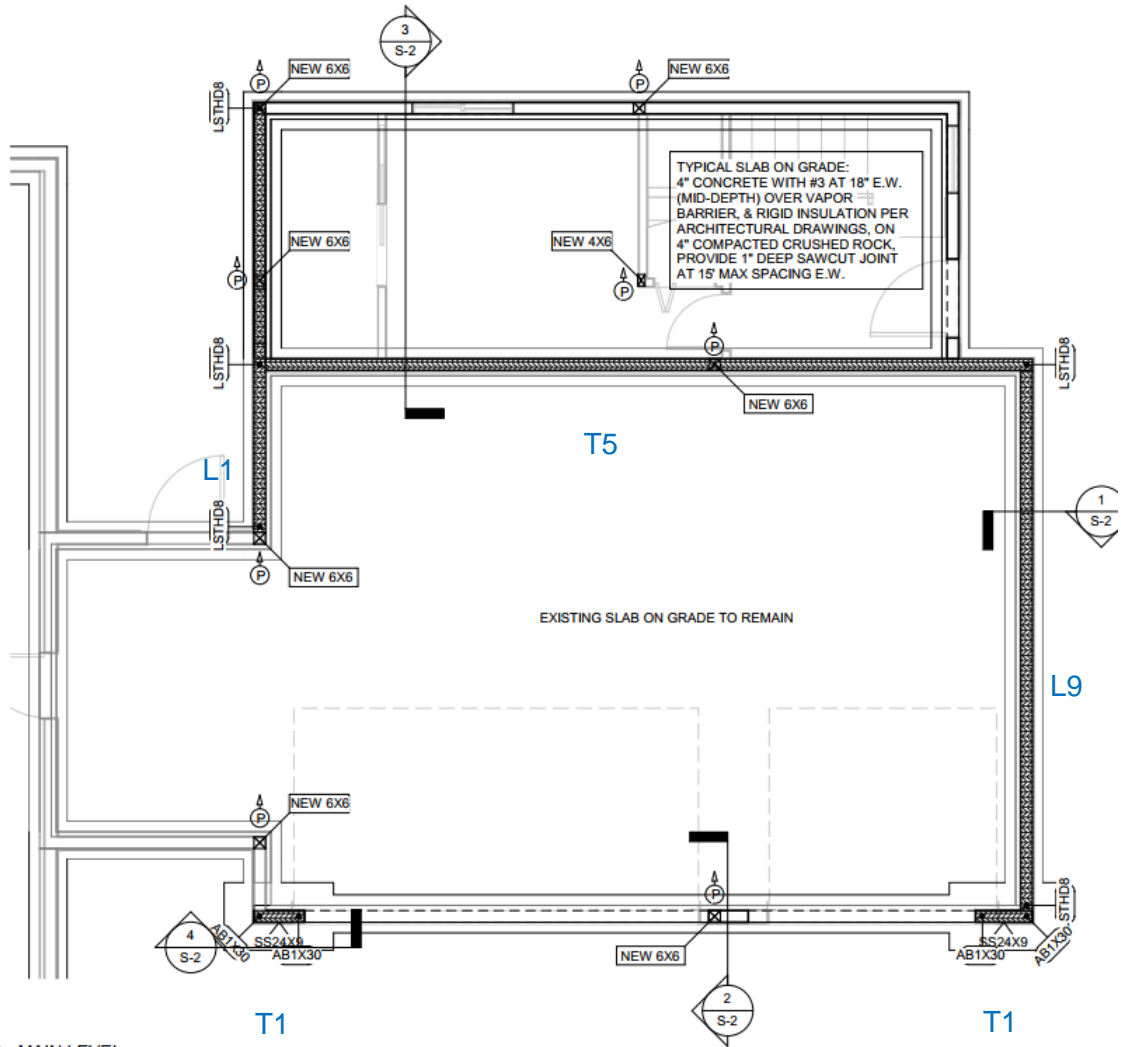
S _s , %g	140
S ₁ , %g	50
Risk Category	II
Site Class	D
Ductility Factor, R	6.5
Seismic Performance Category	D

Wind Criteria

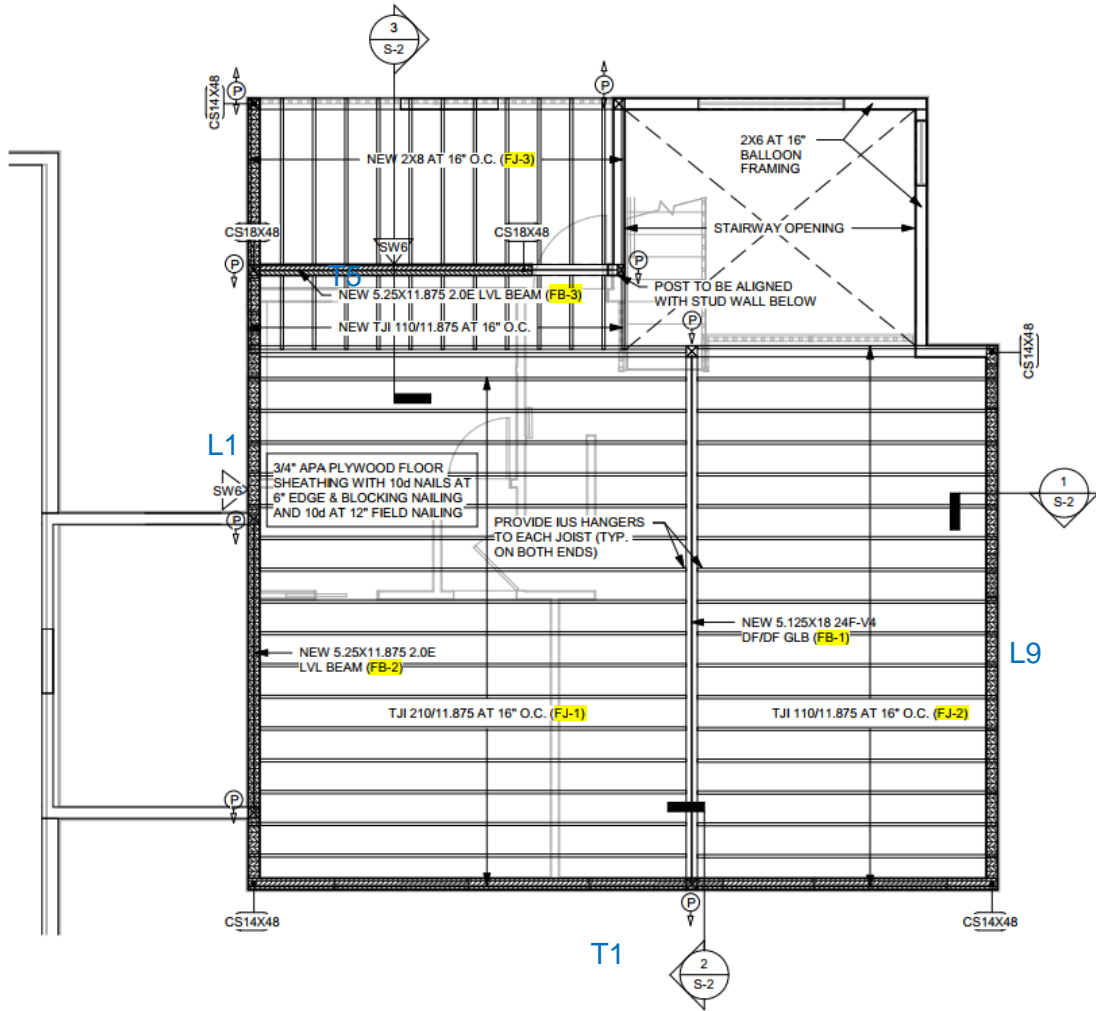
Ultimate Wind Speed, mph	97
Building Classifications	II
Wind Exposure Category	C
Topographic Effect, K _{zt}	1.6



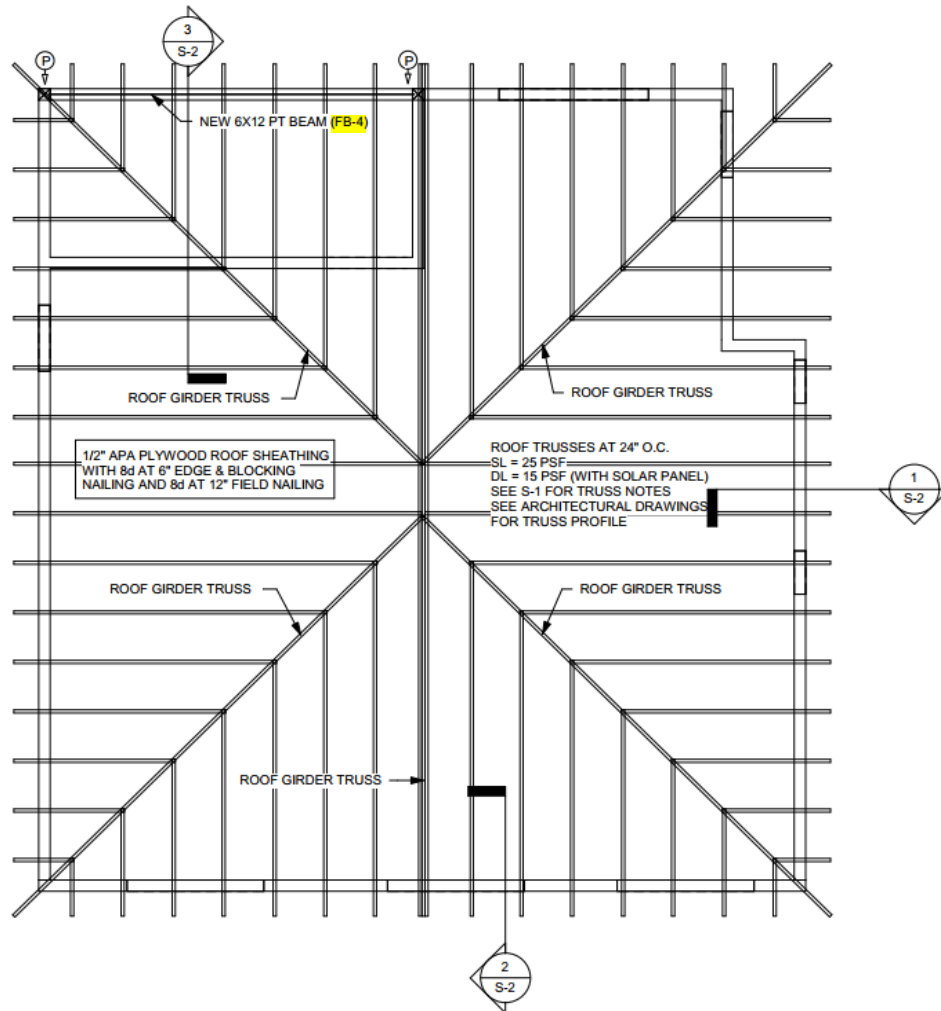
(A) FOUNDATION
1/4" = 1'-0"



(B) MAIN LEVEL
1/4" = 1'-0"



C UPPER LEVEL
1/4" = 1'-0"



D ROOF PLAN
1/4" = 1'-0"

Project: Tso Addition

Location: FJ-1

Floor Joist

[2015 International Building Code(2015 NDS)]

17.5 FT @ 16 O.C.

TJI 210 / 11.875 - iLevel Trus Joist

Section Adequate By: 3.9%

Controlling Factor: Deflection

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of

StruCalc Version 10.2.1.0

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DEFLECTIONS		Center
Live Load	0.39	IN L/533
Dead Load	0.17	in
Total Load	0.56	IN L/374
Live Load Deflection Criteria: L/480 Total Load Deflection Criteria: L/360		

REACTIONS		A	B
Live Load	467	lb	467
Dead Load	198	lb	198
Total Load	665	lb	665
Bearing Length	1.75	in	3.50
Web Stiffeners	No		No

SUPPORT LOADS		A	B
Live Load	350	plf	350
Dead Load	149	plf	149
Total Load	499	plf	499

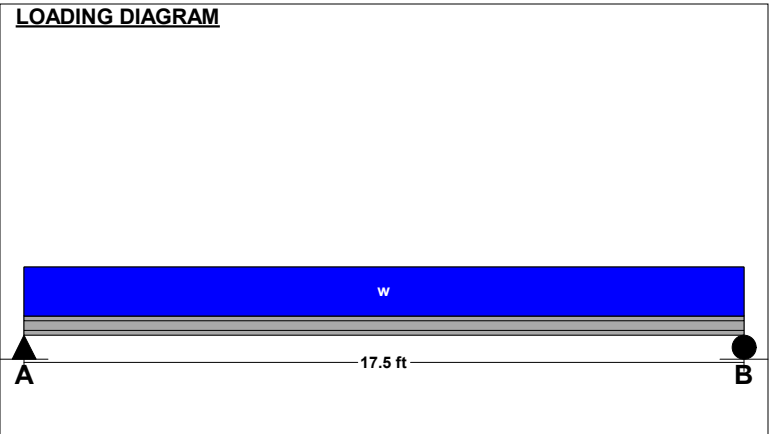
I-JOIST PROPERTIES
TJI 210 / 11.875 - iLevel Trus Joist

Base Value Adjusted
Moment Capacity: $M_n = 10.3 \text{ k-ft}$
 $C_d = 1.00$
Shear Stress: $V_n = 1655 \text{ lbs}$
 $C_d = 1.00$
Reaction A: $R_n = 1005 \text{ lbs}$
Reaction B: $R_n = 1005 \text{ lbs}$
E.I.: $EI = 3.15 \text{ in}^2 \cdot \text{in}^2$

Controlling Moment:
8.75 Ft from left support of span 3 (Right Span)
Created by combining all dead and live loads.

Controlling Shear:
At left support of span 2 (Center Span)
Created by combining all dead and live loads.

Reactions with required sections:
E.I. 3082-6158-lb xE6
Moment 379-lb
Shear 1655



JOIST DATA		Center
Span Length	17.5	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	0	ft
Floor sheathing applied to top of joists-top of joists fully braced.		
Floor Duration Factor	1.00	

JOIST LOADING		Center
Uniform Floor Loading		
Live Load	LL =	40 psf
Dead Load	DL =	17 psf
Total Load	TL =	57 psf
TL Adj. For Joist Spacing wT =		76 plf

Project: Tso Addition

Location: **FJ-2**

Floor Joist

[2015 International Building Code(2015 NDS)]

12.0 FT @ 16 O.C.

TJI 110 / 11.875 - iLevel Trus Joist

Section Adequate By: 99.6%

Controlling Factor: End Reaction

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DEFLECTIONS		Center
Live Load	0.11	IN L/1304
Dead Load	0.05	in
Total Load	0.16	IN L/915
Live Load Deflection Criteria: L/480		Total Load Deflection Criteria: L/360

REACTIONS		A	B
Live Load	320	lb	320
Dead Load	136	lb	136
Total Load	456	lb	456
Bearing Length	1.75	in	3.50
Web Stiffeners	No		No

SUPPORT LOADS		A	B
Live Load	240	plf	240
Dead Load	102	plf	102
Total Load	342	plf	342

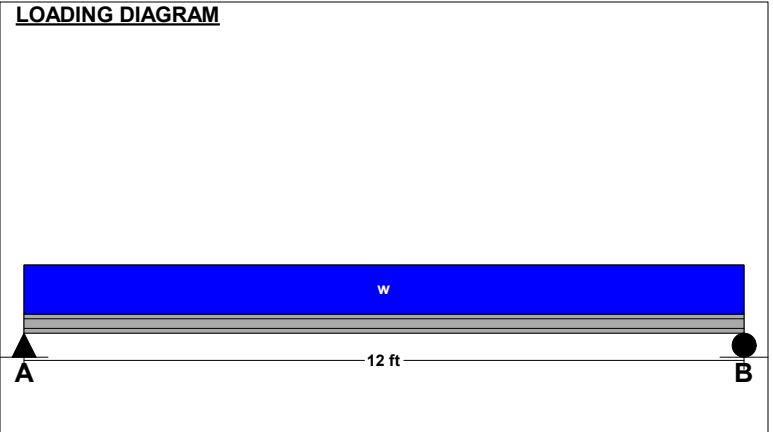
I-JOIST PROPERTIES
TJI 110 / 11.875 - iLevel Trus Joist

Base Value Adjusted
Moment Capacity: $M_n = 1062$ lb-ft
 $C_d = 1.00$
Shear Stress: $V_n = 1560$ lbs
 $C_d = 1.00$
Reaction A: $R_A = 320$ lb
Reaction B: $R_B = 320$ lb
E.I.: $EI = 267$ in²

Controlling Moment:
6.0 Ft from left support of span 3 (Right Span)
Created by combining all dead and live loads.

Controlling Shear:
At left support of span 2 (Center Span)
Created by combining all dead and live loads.

Reactions with required sections:
E.I. 1062-2678-lb xE6
Moment 3160
Shear 1560



JOIST DATA		Center
Span Length	12	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	0	ft
Floor sheathing applied to top of joists-top of joists fully braced.		
Floor Duration Factor	1.00	

JOIST LOADING		Center
Uniform Floor Loading		
Live Load	LL =	40 psf
Dead Load	DL =	17 psf
Total Load	TL =	57 psf
TL Adj. For Joist Spacing wT =	76	plf

Project: Tso Addition

Location: **FJ-3**

Floor Joist

[2015 International Building Code(2015 NDS)]

1.5 IN x 7.25 IN x 6.75 FT @ 16 O.C.

#2 - Douglas-Fir-Larch - Wet Use

Section Adequate By: 155.9%

Controlling Factor: Moment

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of**DEFLECTIONS**

Center

Live Load	0.05	IN L/1487
Dead Load	0.01	in
Total Load	0.06	IN L/1275
Live Load Deflection Criteria: L/480 Total Load Deflection Criteria: L/360		

REACTIONS

A B

Live Load	270 lb	270 lb
Dead Load	45 lb	45 lb
Total Load	315 lb	315 lb
Bearing Length	0.50 in	0.50 in

SUPPORT LOADS

A B

Live Load	203 plf	203 plf
Dead Load	34 plf	34 plf
Total Load	236 plf	236 plf

MATERIAL PROPERTIES

#2 - Douglas-Fir-Larch

	Base Values	Adjusted
Bending Stress:	Fb = 900 psi	Fb' = 1242 psi
	Cd=1.00 CF=1.20 Cr=1.15	
Shear Stress:	Fv = 180 psi	Fv' = 175 psi
	Cd=1.00 Cm=0.97	
Modulus of Elasticity:	E = 1600 ksi	E' = 1440 ksi
	Cm=0.90	
Comp. \perp to Grain:	Fc \perp = 625 psi	Fc \perp ' = 419 psi
	Cm=0.67	

Controlling Moment: 532 ft-lb

3.38 Ft from left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

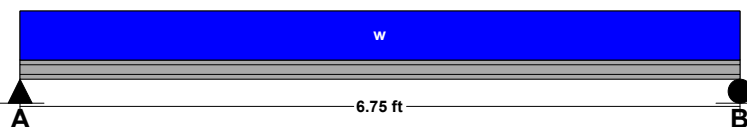
Controlling Shear: 315 lb

At left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:

	Req'd	Provided
Section Modulus:	5.14 in ³	13.14 in ³
Area (Shear):	2.71 in ²	10.88 in ²
Moment of Inertia (deflection):	15.37 in ⁴	47.63 in ⁴
Moment:	532 ft-lb	1360 ft-lb
Shear:	315 lb	1266 lb

LOADING DIAGRAM**JOIST DATA**

Center

Span Length	6.75 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	0 ft
Floor sheathing applied to top of joists-top of joists fully braced.	
Floor Duration Factor	1.00

JOIST LOADING**Uniform Floor Loading**

Center

Live Load	LL = 60 psf
Dead Load	DL = 10 psf
Total Load	TL = 70 psf
TL Adj. For Joist Spacing wT =	93.3 plf

Project: Tso Addition

Location: **FB-1**

Uniformly Loaded Floor Beam

[2015 International Building Code(2015 NDS)]

5.125 IN x 18.0 IN x 21.33 FT

24F-V4 - Visually Graded Western Species - Dry Use

Section Adequate By: 12.3%

Controlling Factor: Moment

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of**CAUTIONS**

The design dead load deflection exceeds the default maximum of 1/4" on spans (2).

DEFLECTIONS

Center

Live Load	0.61	IN L/418
Dead Load	0.25	in
Total Load	0.86	IN L/296
Live Load Deflection Criteria:	L/360	Total Load Deflection Criteria: L/240

REACTIONS

A B

Live Load	6292	lb	6292	lb
Dead Load	2573	lb	2573	lb
Total Load	8865	lb	8865	lb
Bearing Length	2.66	in	2.66	in

BEAM DATA

Center

Span Length	21.33	ft
Unbraced Length-Top	0	ft
Floor Duration Factor	1.00	
Camber Adj. Factor	1.5	
Camber Required	0.38	
Notch Depth	0.00	

MATERIAL PROPERTIES

24F-V4 - Visually Graded Western Species

	Base Values	Adjusted
Bending Stress:	Fb = 2400 psi	Controlled by:
	Fb_cmpr = 1850 psi	Fb' = 2301 psi
	Cd=1.00 Cv=0.96	
Shear Stress:	Fv = 265 psi	Fv' = 265 psi
	Cd=1.00	
Modulus of Elasticity:	E = 1800 ksi	E' = 1800 ksi
Comp. \perp to Grain:	Fc - \perp = 650 psi	Fc - \perp ' = 650 psi

Controlling Moment: 47274 ft-lb

10.665 ft from left support

Created by combining all dead and live loads.

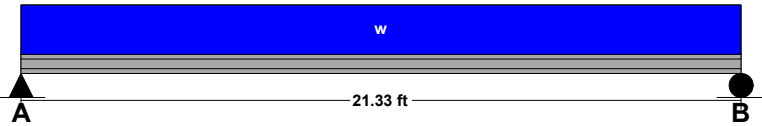
Controlling Shear: -8865 lb

At support.

Created by combining all dead and live loads.

Comparisons with required sections:

	Req'd	Provided
Section Modulus:	246.53 in3	276.75 in3
Area (Shear):	50.18 in2	92.25 in2
Moment of Inertia (deflection):	2146.77 in4	2490.75 in4
Moment:	47274 ft-lb	53068 ft-lb
Shear:	-8865 lb	16298 lb

LOADING DIAGRAM**FLOOR LOADING**

	Side 1	Side 2
Floor Live Load	FLL = 40 psf	0 psf
Floor Dead Load	FDL = 15 psf	0 psf
Floor Tributary Width	FTW = 14.8 ft	0 ft
Wall Load	WALL = 0 plf	

BEAM LOADING

Beam Total Live Load:	wL = 590 plf
Beam Total Dead Load:	wD = 221 plf
Beam Self Weight:	BSW = 20 plf
Total Maximum Load:	wT = 831 plf

Project: Tso Addition

Location: **FB-2**

Multi-Loaded Multi-Span Beam

[2015 International Building Code(2015 NDS)]

5.25 IN x 11.875 IN x 11.6 FT

1.8E-2600F - APA EWS LVL Stress Classes

Section Adequate By: 74.5%

Controlling Factor: Deflection

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of**DEFLECTIONS**

Center

Live Load	0.11	IN L/1288
Dead Load	0.11	in
Total Load	0.22	IN L/628
Live Load Deflection Criteria: L/480 Total Load Deflection Criteria: L/360		

REACTIONS

A B

Live Load	2030 lb	2030 lb
Dead Load	2130 lb	2130 lb
Total Load	4160 lb	4160 lb
Bearing Length	1.13 in	1.13 in

BEAM DATA

Center

Span Length	11.6	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	11.6	ft
Live Load Duration Factor	1.00	
Notch Depth	0.00	

MATERIAL PROPERTIES

1.8E-2600F - APA EWS LVL Stress Classes

	Base Values	Adjusted
Bending Stress:	Fb = 2600 psi Cd=1.00 CF=1.00	Fb' = 2603 psi
Shear Stress:	Fv = 285 psi Cd=1.00	Fv' = 285 psi
Modulus of Elasticity:	E = 1800 ksi	E' = 1800 ksi
Comp. \perp to Grain:	Fc - \perp = 700 psi	Fc - \perp ' = 700 psi

Controlling Moment:

12063 ft-lb

5.8 Ft from left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Controlling Shear:

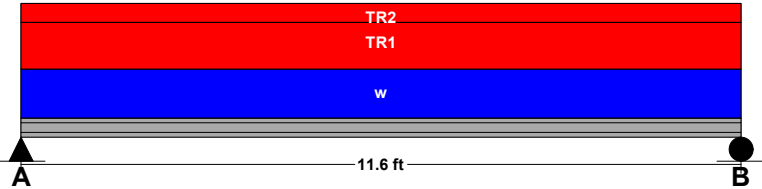
-4160 lb

12.0 Ft from left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:

	Req'd	Provided
Section Modulus:	55.6 in ³	123.39 in ³
Area (Shear):	21.89 in ²	62.34 in ²
Moment of Inertia (deflection):	419.73 in ⁴	732.62 in ⁴
Moment:	12063 ft-lb	26769 ft-lb
Shear:	-4160 lb	11845 lb

LOADING DIAGRAM**UNIFORM LOADS**

Center

Uniform Live Load	0	plf
Uniform Dead Load	0	plf
Beam Self Weight	18	plf
Total Uniform Load	18	plf

TRAPEZOIDAL LOADS - CENTER SPAN

Load Number	One	Two
Left Live Load	350 plf	0 plf
Left Dead Load	149 plf	200 plf
Right Live Load	350 plf	0 plf
Right Dead Load	149 plf	200 plf
Load Start	0 ft	0 ft
Load End	11.6 ft	11.6 ft
Load Length	11.6 ft	11.6 ft

Project: Tso Addition

Location: **FB-3**

Multi-Loaded Multi-Span Beam

[2015 International Building Code(2015 NDS)]

5.25 IN x 11.875 IN x 14.75 FT

2.0E-2900F - APA EWS LVL Stress Classes

Section Adequate By: 60.6%

Controlling Factor: Deflection

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DEFLECTIONS

Center

Live Load	0.14	IN L/1296
Dead Load	0.17	in
Total Load	0.31	IN L/578
Live Load Deflection Criteria: L/480 Total Load Deflection Criteria: L/360		

REACTIONS

A B

Live Load	1387 lb	1387 lb
Dead Load	1778 lb	1509 lb
Total Load	3165 lb	2896 lb
Bearing Length	0.80 in	0.74 in

BEAM DATA

Center

Span Length	14.75 ft
Unbraced Length-Top	0 ft
Unbraced Length-Bottom	14.75 ft
Live Load Duration Factor	1.00
Notch Depth	0.00

MATERIAL PROPERTIES

2.0E-2900F - APA EWS LVL Stress Classes

	Base Values	Adjusted
Bending Stress:	Fb = 2900 psi Cd=1.00 CF=1.00	Fb' = 2904 psi
Shear Stress:	Fv = 285 psi Cd=1.00	Fv' = 285 psi
Modulus of Elasticity:	E = 2000 ksi	E' = 2000 ksi
Comp. \perp to Grain:	Fc - \perp = 750 psi	Fc - \perp ' = 750 psi

Controlling Moment:

11508 ft-lb

7.23 Ft from left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Controlling Shear:

3164 lb

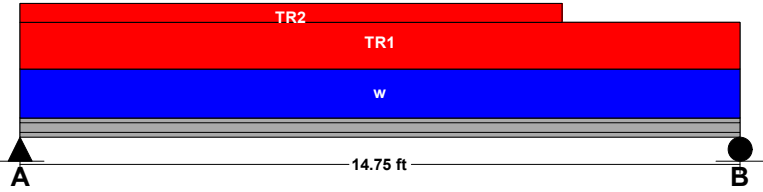
At left support of span 2 (Center Span)

Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:

	Req'd	Provided
Section Modulus:	47.56 in3	123.39 in3
Area (Shear):	16.66 in2	62.34 in2
Moment of Inertia (deflection):	456.18 in4	732.62 in4
Moment:	11508 ft-lb	29858 ft-lb
Shear:	3164 lb	11845 lb

LOADING DIAGRAM



UNIFORM LOADS

Center

Uniform Live Load	0 plf
Uniform Dead Load	0 plf
Beam Self Weight	18 plf
Total Uniform Load	18 plf

TRAPEZOIDAL LOADS - CENTER SPAN

Load Number	One	Two
Left Live Load	188 plf	0 plf
Left Dead Load	130.9 plf	98 plf
Right Live Load	188 plf	0 plf
Right Dead Load	130.9 plf	98 plf
Load Start	0 ft	0 ft
Load End	14.75 ft	11.1 ft
Load Length	14.75 ft	11.1 ft

Project: Tso Addition

Location: **FB-4**

Roof Beam

[2015 International Building Code(2015 NDS)]

5.5 IN x 11.5 IN x 14.5 FT

#2 - Douglas-Fir-Larch - Wet Use

Section Adequate By: 22.8%

Controlling Factor: Moment

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DEFLECTIONS

Center

Live Load	0.22	IN L/793
Dead Load	0.13	in
Total Load	0.35	IN L/504
Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180		

REACTIONS

	A	B
Live Load	1450 lb	1450 lb
Dead Load	833 lb	833 lb
Total Load	2283 lb	2283 lb
Bearing Length	0.99 in	0.99 in

BEAM DATA

Span Length	14.5	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	0	ft
Roof Pitch	4	:12
Roof Duration Factor	1.15	
Notch Depth	0.00	

MATERIAL PROPERTIES

#2 - Douglas-Fir-Larch

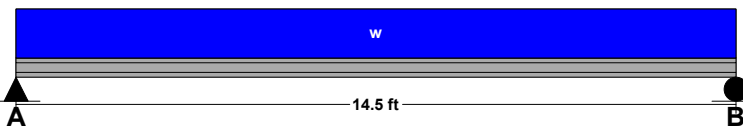
	Base Values	Adjusted
Bending Stress:	Fb = 875 psi <i>Cd=1.15 CF=1.00</i>	Fb' = 1006 psi
Shear Stress:	Fv = 170 psi <i>Cd=1.15</i>	Fv' = 196 psi
Modulus of Elasticity:	E = 1300 ksi	E' = 1300 ksi
Comp. \perp to Grain:	Fc - \perp = 625 psi <i>Cm=0.67</i>	Fc - \perp ' = 419 psi

Controlling Moment: 8276 ft-lb
7.25 ft from left support
Created by combining all dead and live loads.

Controlling Shear: 2283 lb
At support.
Created by combining all dead and live loads.

Comparisons with required sections:	Req'd	Provided
Section Modulus:	98.7 in3	121.23 in3
Area (Shear):	17.52 in2	63.25 in2
Moment of Inertia (deflection):	249.2 in4	697.07 in4
Moment:	8276 ft-lb	10166 ft-lb
Shear:	2283 lb	8244 lb

LOADING DIAGRAM



ROOF LOADING

Side One:	
Roof Live Load: LL =	25 psf
Roof Dead Load: DL =	12 psf
Tributary Width: TW =	8 ft
Side Two:	
Roof Live Load: LL =	0 psf
Roof Dead Load: DL =	0 psf
Tributary Width: TW =	0 ft
Wall Load: WALL =	0 plf

SLOPE/PITCH ADJUSTED LENGTHS AND LOADS

Adjusted Beam Length:	Ladj =	14.5	ft
Beam Self Weight:	BSW =	14	plf
Beam Uniform Live Load:	wL =	200	plf
Beam Uniform Dead Load:	wD_adj =	115	plf
Total Uniform Load:	wT =	315	plf

SEISMIC BASE SHEAR CALCULATIONS PER IBC 2018 (ASCE 7-16)

Response Spectral Acc. (0.2 sec) $S_s = 140.50\%g$ = 1.405g Figure 22-1 through 22-14
 Response Spectral Acc. (1.0 sec) $S_1 = 48.90\%g$ = 0.489g Figure 22-1 through 22-14

Soil Site Class Table 20-3-1, Default = D

Site Coefficient $F_a = 1.200$ Table 11.4-1

Site Coefficient $F_v = 1.812$ Table 11.4-2

Max Considered Earthquake Acc. $S_{MS} = F_a \cdot S_s = 1.686$ (11.4-1)

Max Considered Earthquake Acc. $S_{M1} = F_v \cdot S_1 = 0.886$ (11.4-2)

@ 5% Damped Design $S_{DS} = 2/3(S_{MS}) = 1.124$ (11.4-3)

$S_{D1} = 2/3(S_{M1}) = 0.591$ (11.4-4)

Building Occupancy Categories Table 1-1

Design Category Consideration: with dist. between seismic resisting system >40ft

Seismic Design Category for 0.1sec Table 11.6-1

Seismic Design Category for 1.0sec Table 11.6-2

$S_1 < .75g$ Section 11.6

Since $T_a < .8T_s$ (see below), SDC = **Control (exception of Section 11.6 does not apply)**

Comply with Seismic Design Category D T-R301.2.2.1.1

12.8 Equivalent lateral force procedure

A. BEARING WALL SYSTEMS T-12.2-

Seismic Force Resisting Systems

$C_t = 0.02$ $x = 0.75$ T-12.8-2

Building ht. $H_n = 25.2$ ft Limited Building Height (ft) = 65

$C_u = 1.400$ for S_{D1} of 0.591g Table 12.8-1

Approx Fundamental period, $T_a = C_t(h_n)^x = 0.225$ 12.8-7 $T_L = 6.000$ Sec

Calculated T shall not exceed $\leq C_u \cdot T_a$ Use T = sec.

$0.8T_s = 0.8(S_{D1}/S_{DS}) = 0.420$ Control (exception of Section 11.6 does not apply)

Is structure Regular & ≤ 5 stories? 12.8.1.3

Response Spectral Acc. (0.2 sec) $S_s = 1.405g$ **Max $S_s \leq 1.5g$**

$F_a = 1.20$

@ 5% Damped Design $S_{DS} = 2/3(F_a \cdot S_s) = 1.124g$ (11.4-3)

Response Modification Coef. $R = 6.5$ Table-12.2-1

Over Strength Factor $\Omega_o = 2.5$ **foot note g**

Importance factor $I = 1$ Table 11.5-1

Seismic Base Shear $V = C_s W$
 $C_s = \frac{S_{DS}}{R/I} = 0.173$ (12.8-2)

or need not to exceed, $C_s = \frac{S_{D1}}{(R/I) \cdot T} = 0.404$ For $T \leq T_L$ (12.8-3)

or $C_s = \frac{S_{D1} \cdot T_L}{T^2(R/I)}$ N/A For $T > T_L$ (12.8-4)

C_s shall not be less than = 0.01 (12.8-5)

Min $C_s = 0.5S_1/R$ N/A For $S_1 \geq 0.6g$ (12.8-6)

Use $C_s = 0.173$

Design base shear $V = 0.173 W$ Control

WIND FORCES CALCULATIONS PER IBC 2018 (ASCE 7-16)

Ultimate wind speed = 97 MPH
 Bldg. Classification = II
 Exposure C
 $K_{zt} = 1.600$
 Roof Pitch = 4.00 : 12
 Mean Roof Height h = 25 ft

CHAPTER 28-MWFRS (ENVELOPE PROCEDURE)

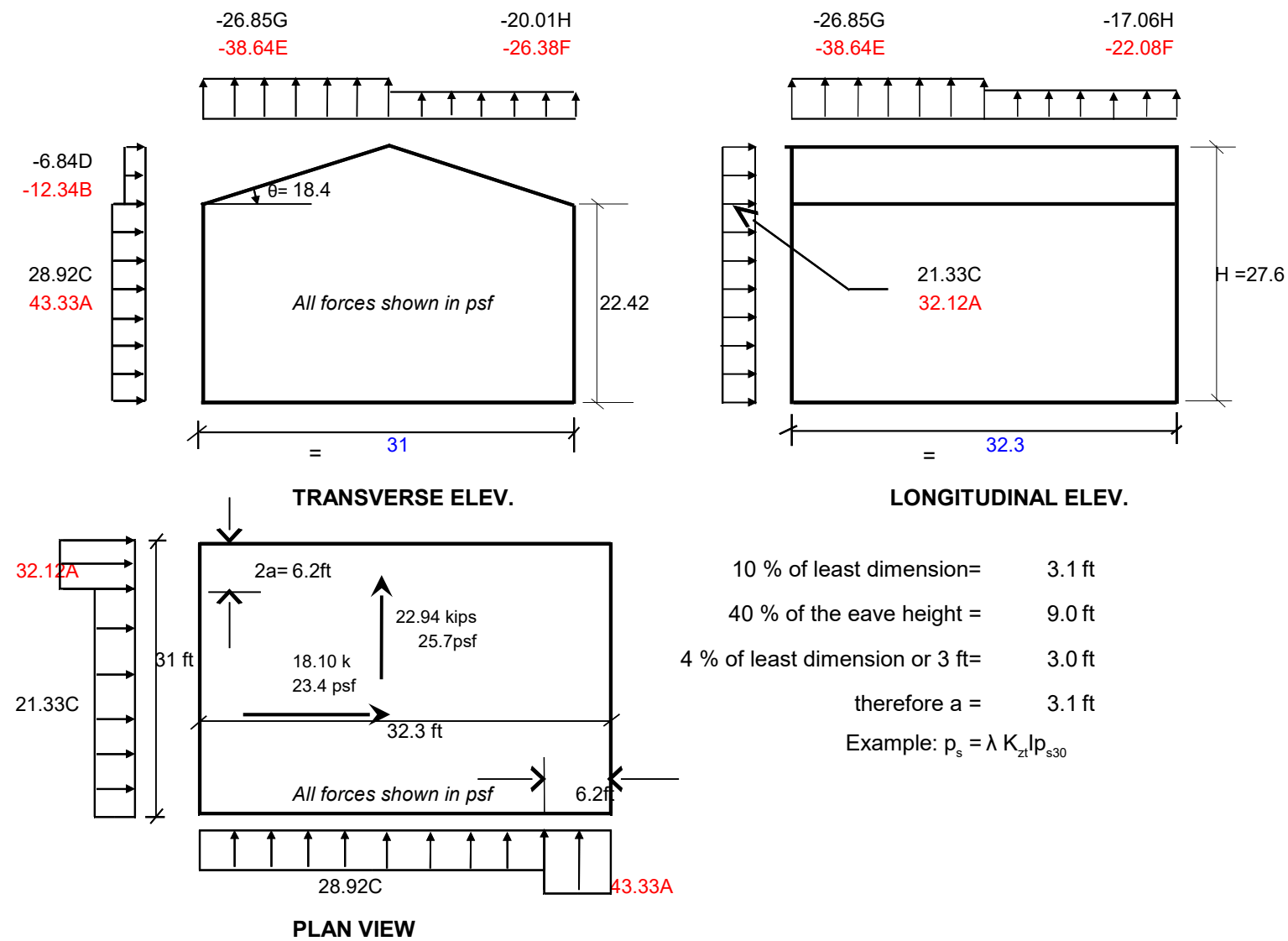


FIGURE 28.4-1, Main Wind Force System


MWFRS

Load Direction	Roof Angle	Horizontal Loads				Vertical Loads					
		End Zone		Interior zone		End Zone		Interior zone		Overhang	
		Wall (A)	Roof (B)	Wall (C)	Roof (D)	WW (E)	LW (F)	WW (G)	LW (H)	E_{OH}	G_{OH}
Transverse	18.4	43.33	-12.34	28.92	-6.84	-38.64	-26.38	-26.85	-20.01	-54.20	-42.40
Longitudinal	All	32.12	-16.81	21.33	-10.04	-38.64	-22.08	-26.85	-17.06	-54.2	-42.4

* If roof pressure under horizontal loads is less than zero, use zero

Plus and minus signs signify pressures acting toward and away from projected surfaces, respectively.

For the design of the longitudinal MWFRS use $\theta = 0^\circ$, and locate the zone E/F, G/H boundary at the mid-length of the building


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	Date	Date 06/08/22

WIND FORCES:

LOCATION	WIDTH	HEIGHT	INTERIOR PRESSURE	END ZONE PRESSURE		FORCE	SUBTOT
Transverse Direction							
END ZONE WIDTH	6.2	FT					
ROOF							
T.O.Roof to Parapet	32.3	0.0	-6.84	-12.34	=	0	
T.O. Roof TO MID	32.3	5.00	28.92	43.33	=	5563	
5th FLOOR							5563
MID TO FLOOR	32.3		28.92	43.33	=	0	
FLOOR TO MID	32.3		28.92	43.33	=	0	
4th FLOOR							0
MID TO FLOOR	32.3		28.92	43.33	=	0	
FLOOR TO MID	32.3		28.92	43.33	=	0	
3rd FLOOR							0
MID TO FLOOR	32.3		28.92	43.33	=	0	
FLOOR TO MID	32.3		28.92	43.33	=	0	
2nd FLOOR							0
MID TO FLOOR	32.3	5.00	28.92	43.33	=	5563	
FLOOR TO MID	32.3	5.00	28.92	43.33	=	5563	
						11126	
TOTAL FOR WALL SHEAR:							16.69 Kips

Longitudinal Direction

ROOF							
T.O.Roof to Parapet	31	0.0	21.33	32.12	=	0	
T.O. Roof TO MID	31	5.00	21.33	32.12	=	3975	
5th FLOOR							3975
MID TO FLOOR	31	0.0	21.33	32.12	=	0	
FLOOR TO MID	31	0.0	21.33	32.12	=	0	
4th FLOOR							0
MID TO FLOOR	31	0.0	21.33	32.12	=	0	
FLOOR TO MID	31	0.0	21.33	32.12	=	0	
3rd FLOOR							0
MID TO FLOOR	31	0.00	21.33	32.12	=	0	
FLOOR TO MID	31	0.00	21.33	32.12	=	0	
2nd FLOOR							0
MID TO FLOOR	31	5.00	21.33	32.12	=	3975	
FLOOR TO MID	31	5.00	21.33	32.12	=	3975	
						7950	
TOTAL FOR WALL SHEAR:							11.93 Kips

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DEAD LOAD WEIGHTS FOR SEISMIC FORCE CALCULATIONS:

Unit Roof Weight:	10 psf
Unit Floor Weight:	12 psf
Unit Exterior Wall Weight :	9 psf
Unit Interior Corridor Wall Weight:	0 psf
Unit Interior Party Wall Weight:	0 psf
Unit Interior Partition Wall Weight:	6.5 psf

LOCATION	LENGTH	HEIGHT	UNIT WT.	TOTAL WEIGHT	SUB TOTAL
ROOF DIAPHRAGM					
Roof	972	1	10	= 9720	
Ext. Wall Below	118	4.50	9	= 4779	psf
Corridor Wall Below	0		0	= 0	17
Party Wall Below	0		0	= 0	
Partition Wall Below	70	4.50	6.5	= 2048	
					16547
FIFTH FLOOR DIAPHRAGM					
Floor		1	12	= 0	
Ext. Wall Above			9	= 0	
Corridor Wall Above	0		0	= 0	
Party Wall Above	0		0	= 0	
Partition Wall Above			6.5	= 0	
Ext. Wall Below			9	= 0	psf
Corridor Wall Below	0		0	= 0	#DIV/0!
Party Wall Below			0	= 0	
Partition Wall Below			6.5	= 0	
					0
FOURTH FLOOR DIAPHRAGM					
Floor		1	12	= 0	
Ext. Wall Above			9	= 0	
Corridor Wall Above	0		0	= 0	
Party Wall Above	0		0	= 0	
Partition Wall Above			6.5	= 0	
Ext. Wall Below			9	= 0	psf
Corridor Wall Below	0		0	= 0	#DIV/0!
Party Wall Below			0	= 0	
Partition Wall Below			6.5	= 0	
					0
THIRD FLOOR DIAPHRAGM					
Floor		1	12	= 0	
Ext. Wall Above			9	= 0	
Corridor Wall Above			0	= 0	
Party Wall Above			0	= 0	
Partition Wall Above			6.5	= 0	
Ext. Wall Below			9	= 0	psf
Corridor Wall Below			0	= 0	#DIV/0!
Party Wall Below			0	= 0	
Partition Wall Below			6.5	= 0	
					0
SECOND FLOOR DIAPHRAGM					
Floor	972	1	12	= 11664	
Ext. Wall Above	118	4.50	9	= 4779	
Corridor Wall Above			0	= 0	
Party Wall Above			0	= 0	
Partition Wall Above	70	4.50	6.5	= 2048	
Ext. Wall Below	105	4.50	9	= 4253	psf
Corridor Wall Below	0		0	= 0	24
Party Wall Below			0	= 0	
Partition Wall Below	20	4.50	6.5	= 585	
					23329
STRUCTURE WEIGHT FOR BASE SHEAR TOTAL:					39.9 Kips



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Vertical Seismic Distribution


Cs = 0.17 W
 W = 39.9 kips
 V = 6.9 kips
 Rho = 1

Important: It is assumed that the R value is the same for both directions

Floor	Story Height Hi (ft)	Total Height Ht (ft)	Story Weight Wi (kips)	Wi*Ht (k-ft)	N/S Direction		E/W Direction		Mot E (kip-ft)
					Story Force Fi (kips)	Story Shear E (kips)	Story Force Fi (kips)	Story Shear E (kips)	
Roof	9.00	18.00	16.5	298	4.0	4.0	4.0	4.0	72.8
5 th	0.00	9.00	0.0	0	0.0	0.0	0.0	0.0	0
4 th	0.00	9.00	0.0	0	0.0	0.0	0.0	0.0	0
3 rd	0.00	9.00	0.0	0	0.0	0.0	0.0	0.0	0
2 nd	9.00	9.00	23.3	210	2.9	2.9	2.9	2.9	25.66
			39.9	508	6.9	6.90		6.90	98.46

Diaphragm Seismic Distribution

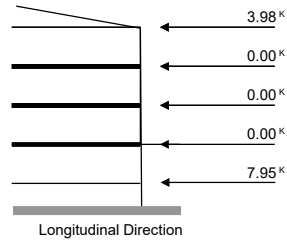
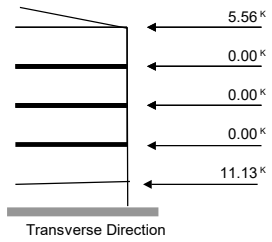
Floor	Story Height Hi (ft)	Total Height Ht (ft)	Story Weight Wi (kips)	Force Distribution Fx (kips)	Calculated Fpx (kips)	Max Fpx (kips)	Min Fpx (kips)	Governing Fpx (kips)	Transverse Fpx (plf)	Longitudinal Fpx (plf)
Roof	9.00	18.00	16.5	4.0	4.0	7.4	3.7	4.0	129	134
5 th	0.00	9.00	0.0	0.0	0.0	0.0	0.0	0.0	#DIV/0!	#DIV/0!
4 th	0.00	9.00	0.0	0.0	0.0	0.0	0.0	0.0	#DIV/0!	#DIV/0!
3 rd	0.00	9.00	0.0	0.0	0.0	0.0	0.0	0.0	#DIV/0!	#DIV/0!
2 nd	9.00	9.00	23.3	2.9	4.0	10.5	5.2	5.2	5.2	5.2
			39.9	6.9						

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	Date			Date	06/08/22

Lateral Forces Summary

Level	Wind (Trans.) (kips)	Wind (Long.) (kips)	Seismic (Trans.) (kips)	Seismic (Long.) (kips)
Roof	5.56	3.98	4.04	4.04
Fifth	0.00	0.00	0.00	0.00
Fourth	0.00	0.00	0.00	0.00
Third	0.00	0.00	0.00	0.00
Second	11.13	7.95	2.85	2.85
Total	16.69	11.93	6.90	6.90

Controlling:
 Transverse - **Wind**
 Longitudinal - **Wind**



SECOND STORY

Shearwall forces -Transverse Direction

SEG= SEGMENTAL SHEARWALL METHOD
 PERF = PERFORATED SHEARWALL METHOD
 FTM = SHEAR TRANSFER METHOD

Story shear(kips) = 5.56 (WIND CONTROLS) Accumulated shear(kips)= 5.56
 Story height (ft) = 9.00
 Floor depth (ft)= 1.00
 Total Width(Ft) = 31.00

Story	Wall	Method	Wall D(ft)	Σ Opening Width (ft)	FTM Opening Width (ft)	FTM Opening Height (ft)	PERF/FTM Wall Width(ft)	PERF Co	Trib.Width (ft)	Story DL(klf)	Sheathing Ratio	h/w Ratio	%Sharing	Story V(kips)	Sum V(kips)	Sum DL(klf)	Wall Shear (plf)	Sum OTM(k-ft)	RM (k-ft)	Resultant HD(kips)	FTM Bound. Shear(k)	Force at Opening(k)
2	T1	PERF	31.0	14.10			16.90	0.8	11.50	0.16	0.55	0.47	1.00	2.06	2.06	0.16	153	18.56	76.40	-3.71	0.00	0.00
2	T2	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T3	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T4	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T5	SEG	11.8						19.50	0.16	1.00	0.68	1.00	3.50	3.50	0.16	296	31.48	11.07	1.82	0.00	0.00
2	T6	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T7	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T8	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T9	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
2	T10	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T11	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T12	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T13	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
2	T14	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T15	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T16	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T17	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
2	T18	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T19	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T20	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T21	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
2	T22	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T23	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T24	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T25	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
2	T26	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T27	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T28	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T29	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
2	T30	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T31	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
2	T32	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
Sum			42.8		0.00				31.00					5.56	5.56							

FIRST STORY

Shearwall forces -Transverse Direction

Story shear(kips) = 11.13
 Story height (ft) = 9.00
 Floor depth (ft)= 1.00
 Total Width(Ft) = 31.00

Accumulated shear(kips)=

16.69

SEG= SEGMENTAL SHEARWALL METHOD
 PERF = PERFORATED SHEARWALL METHOD
 FTM = SHEAR TRANSFER METHOD

Story	Wall	Method	Wall D(ft)	Σ Opening Width (ft)	FTM Opening Width (ft)	FTM Opening Height (ft)	PERF/FTM Wall Width(ft)	PERF Co	Trib.Width (ft)	Story DL(klf)	Sheathing Ratio	h/w Ratio	%Sharing	Story V(kips)	Sum V(kips)	Sum DL(klf)	Wall Shear (plf)	Sum OTM(k-ft)	RM (k-ft)	Resultant HD(kips)	FTM Bound. Shear(k)	Force at Opening(k)
1	T1	SEG	2.0						11.00	0.20	1.00	4.00	0.50	1.97	2.96	0.35	2961	45.21	0.71	22.29	0.00	0.00
1	T2	SEG	2.0						11.00	0.20	1.00	4.00	0.50	1.97	2.96	0.35	2961	45.21	0.71	22.29	0.00	0.00
1	T3	SEG		WSW24X9							1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T4	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T5	SEG	31.0						20.00	0.20	1.00	0.26	1.00	7.18	10.77	0.35	347	128.39	170.10	-0.80	0.00	0.00
1	T6	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T7	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T8	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T9	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
1	T10	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T11	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T12	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T13	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
1	T14	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T15	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T16	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T17	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
1	T18	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T19	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T20	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T21	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
1	T22	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T23	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T24	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T25	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
1	T26	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T27	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T28	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T29	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
1	T30	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T31	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	T32	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
Sum			35.0		0.00				31.00					11.13	16.69							

SECOND STORY

Shearwall forces -Longitudinal Direction

Story shear(kips) = 3.98
 Story height (ft) = 9.00
 Floor depth (ft)= 1.00
 Total Width(Ft) = 32.30

Accumulated shear(kips)= 3.98

SEG= SEGMENTAL SHEARWALL METHOD
 PERF = PERFORATED SHEARWALL METHOD
 FTM = SHEAR TRANSFER METHOD

Story	Wall	Method	Wall D(ft)	Σ Opening Width (ft)	FTM Opening Width (ft)	FTM Opening Height (ft)	PERF/FTM Wall Width(ft)	PERF Co	Trib.Width (ft)	Story DL(klf)	Sheathing Ratio	h/w Ratio	%Sharing	Story V(kips)	Sum V(kips)	Sum DL(klf)	Wall Shear (plf)	Sum OTM(k-ft)	RM (k-ft)	Resultant HD(kips)	FTM Bound. Shear(k)	Force at Opening(k)
1	L1	SEG	32.3						16.15	0.25	1.00	0.25	1.00	1.99	1.99	0.25	62	17.91	130.13	-3.07	0.00	0.00
1	L2	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L3	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L4	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L5	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L6	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L7	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L8	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L9	SEG	22.33						16.15	0.25	1.00	0.36	1.00	1.99	1.99	0.25	89	17.91	62.08	-1.70	0.00	0.00
1	L10	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L11	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L12	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L13	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L14	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L15	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L16	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L17	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
1	L18	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L19	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L20	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L21	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L22	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L23	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L24	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L25	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
1	L26	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L27	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L28	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L29	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L30	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L31	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L32	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
Sum			54.7		0.00				32.30		1.00	#DIV/0!	0.00	3.98	3.98		#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00

FIRST STORY

Shearwall forces -Longitudinal Direction

Story shear(kips) = 7.95
 Story height (ft) = 9.00
 Floor depth (ft)= 1.00
 Total Width(Ft) = 32.30

Accumulated shear(kips)=

11.93

SEG= SEGMENTAL SHEARWALL METHOD
 PERF = PERFORATED SHEARWALL METHOD
 FTM = SHEAR TRANSFER METHOD

Story	Wall	Method	Wall D(ft)	Σ Opening Width (ft)	FTM Opening Width (ft)	FTM Opening Height (ft)	PERF/FTM Wall Width(ft)	PERF Co	Trib.Width (ft)	Story DL(klf)	Sheathing Ratio	h/w Ratio	%Sharing	Story V(kips)	Sum V(kips)	Sum DL(klf)	Wall Shear (plf)	Sum OTM(k-ft)	RM (k-ft)	Resultant HD(kips)	FTM Bound. Shear(k)	Force at Opening(k)
1	L1	SEG	17.00						16.15	0.25	1.00	0.47	1.00	3.98	5.97	0.50	351	71.60	71.96	0.40	0.00	0.00
1	L2	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L3	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L4	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L5	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L6	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L7	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L8	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L9	SEG	22.33						16.15	0.25	1.00	0.36	1.00	3.98	5.97	0.50	267	71.60	124.16	-1.80	0.00	0.00
1	L10	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L11	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L12	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L13	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L14	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L15	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L16	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L17	SEG	0.00								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
1	L18	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L19	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L20	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L21	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L22	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L23	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L24	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L25	SEG	0.0								1.00	8000.00	1.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
1	L26	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L27	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L28	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L29	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L30	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L31	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
1	L32	SEG									1.00	#DIV/0!	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	0.00
Sum			39.3		0.00				32.30					7.95	11.93							

SHEARWALL, DIAPHRAGM, STRAP AND HOLDOWN CAPACITY TABLE PER IBC 2012**PLYWOOD SHEATHED SHEARWALL**

SW6 (15/32" PLYWOOD WITH 10d AT 6" AT EDGE, 10d AT 12" FIELD NAILING)
 SW4 (15/32" PLYWOOD WITH 10d AT 4" AT EDGE, 10d AT 12" FIELD NAILING)
 SW3 (15/32" PLYWOOD WITH 10d AT 3" AT EDGE, 10d AT 12" FIELD NAILING)
 SW2 (15/32" PLYWOOD WITH 10d AT 2" AT EDGE, 10d AT 12" FIELD NAILING)

LRFD CAPACITY (SEISMIC/WIND)

496 PLF/ 696 PLF
 736 PLF/ 1032 PLF
 960 PLF/ 1344PLF
 1232 PLF/ 1724 PLF

COMMENT

SDPWS TABLE 4.3A
 MULTIPLY VALUES BY TWO IF SHEATHING
 APPLIED ON BOTH SIDES

UNBLOCKED FLOOR DIAPHRAGM

15/32" PLYWOOD WITH 8d AT 6" AT EDGE, 8d AT 12" FIELD NAILING
 15/32" PLYWOOD WITH 10d AT 6" AT EDGE, 10d AT 12" FIELD NAILING
 19/32" PLYWOOD WITH 10d AT 6" AT EDGE, 10d AT 12" FIELD NAILING

LRFD CAPACITY (SEISMIC/WIND)

368 PLF/ 516 PLF
 408 PLF/ 572 PLF
 456 PLF/ 640 PLF

COMMENT

SDPWS TABLE 4.2B

SIMPSON'S FLOOR STRAP

CS18
 CS16
 CS14
 CMSTC16
 CMSTC14

LRFD CAPACITY (SEISMIC/WIND)

1916 LBS/ 2190 LBS
 2363 LBS/ 2700 LBS
 3487 LBS/ 3985 LBS
 6236 LBS/ 7336 LBS
 9086 LBS/ 10384 LBS

COMMENT

12" END LENGTH
 14" END LENGTH
 20" END LENGTH
 26" END LENGTH
 36" END LENGTH

SIMPSON'S HOLDOWN

HDU2
 HDU4
 HDU5
 ..

LSTD8/ LSTD8RJ AT 6" STEMWALL
 STHD10/ STH10RJ AT 6" STEMWALL
 STHD14/ STH14RJ AT 6" STEMWALL
 LSTD8/ LSTD8RJ AT 8" STEMWALL
 STHD10/ STH10RJ AT AT 8" STEMWALL
 STHD14/ STH14RJ AT AT 8" STEMWALL

LRFD CAPACITY (SEISMIC/WIND)

4305 LBS/ 4920 LBS
 6391 LBS/ 7304 LBS
 7905 LBS/ 9032 LBS
 8372 LBS/ 9568 LBS
 2730 LBS/ 3120 LBS
 3700 LBS/ 4224 LBS
 5173 LBS/ 5912 LBS
 2730 LBS/ 3120 LBS
 4116 LBS/ 4700 LBS
 5340 LBS/ 6100 LBS

COMMENT

CRACKED CONCRETE (CORNER CONDITION)
 CRACKED CONCRETE (CORNER CONDITION)
 CRACKED CONCRETE (CORNER CONDITION)
 CRACKED CONCRETE (CORNER CONDITION)
 CRACKED CONCRETE (CORNER CONDITION)
 CRACKED CONCRETE (CORNER CONDITION)

SIMPSON'S ANCHOR BOLT FOR SHEARWALL HOLDOWNS

SSTB16 (5/8" DIAMETER, 12 5/8" MIN. EMBED., 6" STEMWALL)
 SSTB20 (5/8" DIAMETER, 16 5/8" MIN. EMBED., 6" STEMWALL)
 SB 5/8"X24 (5/8" DIAMETER, 18" MIN. EMBED., 6" STEMWALL)
 SB 7/8"X24 (7/8" DIAMETER, 18" MIN. EMBED., 8" STEMWALL)
 SB 1"X30 (1" DIAMETER, 24" MIN. EMBED., 8" STEMWALL)

LRFD CAPACITY (SEISMIC/WIND)

3570 LBS/ 5776 LBS
 4403 LBS/ 6464 LBS
 8022 LBS/ 10680 LBS
 10997 LBS/ 14968 LBS
 11640 LBS/ 15848 LBS

COMMENT

2500 PSI MIN. CONCRETE (CORNER CONDITION)
 1 3/4" MIN. EDGE DISTANCE

