

PB Structures  
 Peter M Blakely, SE  
 WA License 46754

7th Ave Townhomes  
 1200 7th Ave SE  
 Puyallup, WA 98371

Calculations required to be provided by  
 the Permittee on site for all Inspections

Job No. 24146

PRRNTH 24146  
**REVIEWED FOR COMPLIANCE**

City of Puyallup  
 Development & Permitting Services  
 Building - 1070 Wenden  
 Engineering - Public Works  
 03/26/2025  
 11:12:56 AM

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## Structural Calculations

### ROOF LOADS

3.0 ROOFING  
 2.1 SHEATHING  
 1.5 MEP  
 1.0 INSULATION  
 0.6 MISC  
 2.8 CEILING  
 2.0 RAFTERS  
 13.0 PSF TO RAFTERS  
 2.0 BEAMS AND GIRDERS  
 15.0 PSF TO GIRDERS  
 20.0 PSF LIVE LOAD  
 25.0 PSF ROOF SNOW LOAD  
 25.0 PSF GROUND SNOW LOAD

### FLOOR LOADS

2.5 FLOORING  
 3.0 SHEATHING  
 0.5 MEP  
 0.7 MISC  
 2.3 CEILING  
 1.0 JOISTS  
 10.0 PSF TO JOISTS  
 2.0 BEAMS AND GIRDERS  
 12.0 PSF TO GIRDERS  
 40.0 PSF TYPICAL LIVE LOAD  
 60.0 PSF LIVE LOAD ON DECKS

### WALL LOADS

2.0 SIDING  
 2.1 SHEATHING  
 2.0 INSULATION  
 0.4 MISC  
 2.8 GYP BOARD  
 1.7 STUDS  
 11.0 PSF

Risk Category = II ASCE 7-16 Table 1.5.1

I snow = 1.00  
 I ice = 1.00  
 I wind = 1.00  
 I seismic = 1.00



1/22/2025

Exp 03/17/27

Seismic Loads Per Section ASCE 7-16, Section 12.14: Simplified Alternative Structural Design  
 Criteria for Simple Bearing Wall or Building Frame Systems

S1 = 0.435  
 Sds = 1.011 Default Soil Type D Sd1 = NA  
 Seismic Design Category = D Table 11.6-1 (Design Category E if S1>0.75)  
 Resp. Mod. Coef R= 6.5 Table 12.14-1 Light Frame Sheathed Wood Walls  
 Number of Stories above Grade = 2  
 F = 1.1 Section 12.14.18.1, F=1.0 for 1 story, 1.1 for 2, 1.2 for 3  
 (V/W) ULT = 0.17 12.14-12 (V=F\*Sds/R)  
 (V/W) ASD = 0.12 0.7 \*ULT

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Wind Loads - Per ASCE 7-16 Chapter 28, Envelope Procedure for Low Rise Buildings  
 Part 2: Enclosed Simple Diaphragm Low-Rise Buildings

Basic Wind Speed = 98 Vmph - per ASCE 7 Hazards Report (ASCE7-16)  
 Wind Directionality Kd = 0.85 Section 26.6 and Table 26.6-1  
 Exposure Category = B Section 26.7  
 Topographic Factor Kzt = 1.00 Section 26.8 or Seattle DPD  
 Ground Elevation Factor Ke = 1.00 Section 26.9 and Table 26.9-1  
 Enclosure Classification = Enclosed  
 Int Press Coef. Gcpi = ±0.18 Table 26.13-1  
 Vel. Press. Exp. Coef Kh or Kz = 0.70 Table 26.10  
 Vel. Press. Qz or Qh = 14.63 Eq 26.10-1  $Qz=0.00256 * Kz * Kzt * Kd * Ke * (V^2)$   
 Roof Angle = 18 Varies, 4:12 min, 14:12 max  
 Mean Roof Height = 15 feet  
 Adj Factor Height and Exp λ = 1.00 Figure 28.5-1

PS30 Wind Pressures - Base

Load Case	Zones									
	Horizontal Pressures				Vertical Pressures				Overhangs	
	A	B	C	D	E	F	G	H	Eoh	Goh
1	22.0	-5.8	14.6	-3.2	-19.1	-13.3	-13.3	-10.1	-26.7	-20.9
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Design Wind Pressures per Equation 28.5-1  $P_s = I * \lambda * Kzt * PS30 * 0.6$  (ASD factor)

Load Case	Zones									
	Horizontal Pressures				Vertical Pressures				Overhangs	
	A	B	C	D	E	F	G	H	Eoh	Goh
1	13.2	-3.5	8.8	-1.9	-11.5	-8.0	-8.0	-6.1	-16.0	-12.5
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Minimum Design Wind Loads 28.5.4

Zones A & C = 16 Ultimate  
 10 ASD(Ultimate\* 0.6)  
 Zones B & D = 8 Ultimate  
 5 ASD(Ultimate \* 0.6)

**Horizontal Design Pressure Walls = 10 PSF (max LC1, LC2 or Minimum)**  
**Horizontal Design Pressure Roofs = 5 PSF (max LC1, LC2 or Minimum)**

POST CAPACITY CALCULATIONS

LDF = 1.0

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<https://courses.cit.cornell.edu/arch264/calculators/>

DF #1

SIZE	8 FT	9 FT	10 FT	11 FT	12 FT	
2 X 4	643	510	414	343	288	
2 X 6	1,010	801	650	539	453	
2 2 X 4	2,921	2,348	1,924	1,603	1,355	
2 2 X 6	4,572	3,679	3,017	2,515	2,126	
4 X 4	7,479	6,068	5,001	4,183	3,545	
4 X 6	11,681	9,494	7,833	6,556	5,560	
6 X 6	24,795	22,955	20,918	18,829	16,823	
6 X 8	32,685	30,259	27,574	24,821	22,176	
8 X 8	47,767	46,175	56,473	45,034	39,533	

HF#1

2 X 4	571	453	367	304	256
2 X 6	896	711	577	478	402
2 2 X 4	2,594	2,085	1,708	1,423	1,202
2 2 X 6	4,061	3,267	2,678	2,232	1,887
4 X 4	6,647	5,390	4,441	3,713	3,147
4 X 6	10,383	8,434	6,956	5,821	4,935
6 X 6	20,791	19,146	17,350	15,541	13,830
6 X 8	27,407	25,237	22,871	20,486	18,230
8 X 8	40,361	38,918	37,189	35,184	32,953

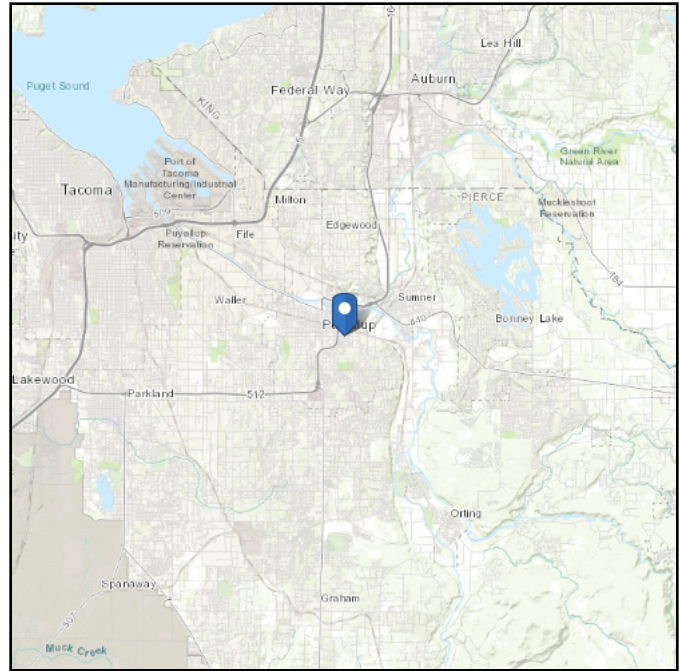
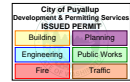
Note: Verified by comparison AWC Table M4.5-2a  
 All values are pounds

# ASCE 7 Hazards Report

**Address:**  
1200 7th Ave SE  
Puyallup, Washington  
98372

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

**Elevation:** 53.86 ft (NAVD 88)  
**Latitude:** 47.185907  
**Longitude:** -122.278274



## Wind

### Results:

Wind Speed:	98 Vmph
10-year MRI	67 Vmph
25-year MRI	73 Vmph
50-year MRI	78 Vmph
100-year MRI	83 Vmph

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

**Date Accessed:** Wed Jun 03 2020

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

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

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

**Site Soil Class:** D - Default (see Section 11.4.3)

**Results:**

$S_S$ :	1.264	$S_{D1}$ :	N/A
$S_1$ :	0.435	$T_L$ :	6
$F_a$ :	1.2	$PGA$ :	0.5
$F_v$ :	N/A	$PGA_M$ :	0.6
$S_{MS}$ :	1.516	$F_{PGA}$ :	1.2
$S_{M1}$ :	N/A	$I_e$ :	1
$S_{DS}$ :	1.011	$C_v$ :	1.353

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

**Data Accessed:** Wed Jun 03 2020

**Date Source:** [USGS Seismic Design Maps](https://www.ngs.noaa.gov/USGS/SeismicDesignMaps/)

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**Results:**

Ground Snow Load,  $p_g$  : 18 lb/ft<sup>2</sup>

Elevation: 53.9 ft

Data Source:

Date Accessed: Wed Jun 03 2020

Statutory requirements of the Authority Having Jurisdiction are not included.

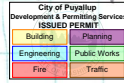
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The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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06/13/20 PAGE 7



## ROOF FRAMING

TRUSSES @ 24" OC

HEADERS  $W = (15 + 25)(31/2) = 620 \#/1$

$$A = 1.5(620) \left(\frac{4-1}{2}\right) / 1.15 / 100 = 9.7$$

$$M = 620 \times 4^2 / 8 = 1240$$

$$I = 620 \times 4^3 / 4000 = 9.9$$

USE DBL 2x8  $A = 21.8$   $M = 3022$   $I = 95.3$

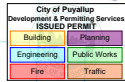
SIDE WALL HEADERS  $W = 2 \overset{RF}{(15+25)} + 6 \overset{WALL}{\times 11} = 146$

$$L = 6' \quad A = 2.6 \quad M = 657 \quad I = 7.9$$

USE DBL 2x8

# 2ND FLOOR

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06/13/70 PAGE 8



## FLOOR JOISTS

$$W = (2') (10+40) = 100 \# / \text{L}$$
$$L = 23' - 1''$$

USE 11 1/2" TJI 500  $L_{AIL} = 23'$  ( $1/2 L_{AIL} = 1.004 \text{ in}$ )

$$M = 100 \times 23.1^2 / 8 = 6660 \# < 9500 \#$$

## HEADERS

INSET WALLS  $W = \frac{23.1}{2} (12+40) = 601 \# / \text{L}$   $L = 6'$

$$A = 1.5 \times 601 \times \left( \frac{6-1}{2} \right) / 180 = 12.5$$

$$M = 601 \times 6^2 / 8 = 2704$$

$$I = 462 \times 6^3 / 2667 = 37$$

DBL 2x10

$$M = 3922$$

$$A = 22.8$$

$$I = 198$$

TYD BEARING WALL  $W = 28' \times 11' + 40' + 12(12+40) = 972$   
 $L = 8'$

$$A = 1.5 \times 972 \times (8-1.5) / 2 / 265 = 18$$

$$M = 972 \times 8^2 / 8 = 7776$$

$$I = 972 \times 8^3 / 4000 = 124$$

USE 3 1/2 x 9 GLB

$$M = 9450$$

$$I = 213$$

$$A = 31.5$$

12' IN FRONT OF RECESSES

$$W = 28' \times 11' + 40' + 3(12+40) = 504$$

$$A = 1.5 \times 504 (12-1.5) / 2 / 265 = 14.9$$

$$M = 9072$$

$$I = 218 \text{ (OK ACT SPAN } \geq 11.5')$$

USE 3 1/2 x 9 GLB



$$L = 4' \quad A = 1.5 \times 972 \frac{(4-1)}{2} / 120 = 12$$

$$M = 1944$$

$$I = 14$$

USE DBL 2x8

SIDE WALLS

$$W = 620 \# / 1 + 8 \times 11 + 100 = 808 \# / 1$$

$$L = 6'$$

$$A = 14.6$$

$$M = 3636$$

$$I = 44$$

USE DBL 2x10

CANTILEVERED BEAM CHD 4 D.B. - 13

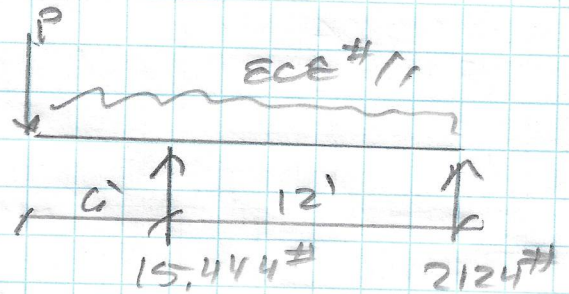
$$P = 504 \# \times 6' = 3024 \#$$

$$M = 3024 \times 6 + 508 \times 6^2 / 2$$

$$= 32,688 / 1.15 = 28,424$$

$$I = 3024 \times 6^2 / 156 + 508 \times 6^2 / 417$$

$$= 768$$



USE 5 1/2 x 13 1/2 GLB  $M = 33410$   $I = 1128$



## FIRST FLOOR FRAMING

JOISTS  $W = 2'(10 + 40) = 100\#/1$   $L = 11'-6''$

$$M = 100 \times 11.5^2 / 8 = 1653 \text{ ft}\cdot\text{lb}$$

$$I = 80 \times 11.5^3 / 1920 = 63 \text{ in}^3$$

USE 2x10 @ 24" OC  $W/A = 1467$   $I = 99$

## FOOTING

USE 16" WIDE @ 2 STORY LOADS

12" WIDE @ 1 STORY LOADS

(24" @ PARTY WALLS)



LATERAL

ANALYZE TYPICAL 24' x 32' MODULE EXTRAPOLATE TO OTHER MODULES

SEE SHEAR WALL CALCS FOR VARIANCES

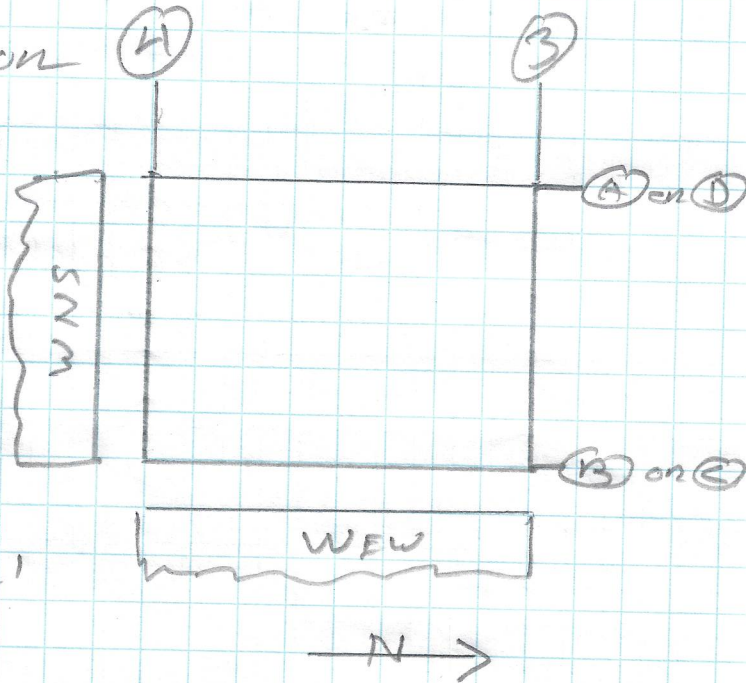
WIND LOAD

$$WNS_{ROOF} = 5' \times 13' + 10' \times 5' = 115 \#/1$$

$$WNS_{FLOOR} = 10' \times 9' = 90 \#/1$$

$$WEW_{ROOF} = \frac{10' \times 32' \times 13' + 10' \times 5'}{2 \times 32} = 115 \#/1$$

$$WEW_{FLOOR} = 90 \#/1$$



REACTIONS

$$R_A_{ROOF} = 115 \# \times 12' = 1380 \#$$

$$R_B_{ROOF} = 1380 \#$$

$$R_A_{FLOOR} = 1080 \#$$

$$R_B_{FLOOR} = 1080 \#$$

$$R_4_{ROOF} = R_3_{ROOF} = 115 \times 16 = 1840$$

$$R_4_{FLOOR} = R_3_{FLOOR} = 90 \times 16 = 1440$$



## SEISMIC LOAD

$$W_{ROOF} = 15 \times 24 \times 32 = 11520$$

$$W_{FLOOR} = 12 \times 24 \times 32 = \underline{9216}$$

$$20,736$$

H	WH	%
17	195840	70
9	<u>87,944</u>	30
	278784	

$$V_{TOT} = 0.12 \times 20736 = 2488\#$$

$$V_{ROOF} = 0.7 \times 2488 = 1742\#$$

$$V_{FLOOR} = 0.3 \times 2488 = 746\#$$

$$R_{ROOF} = 1742 / 2 = 871$$

$$R_{FLOOR} = 746 / 2 = 373$$

## DEAD LOADS

GRID 3 & 4

$$ROOF = 15 \times 14 + 8 \times 11 = 328$$

$$FLOOR = 328 + 99 = 427$$

GRIDS A & B

$$ROOF = 12 \times 11 + 1 \times 15 = 147$$

$$FLOOR = 147 + 12 \times 12 + 9 \times 11 = 390$$

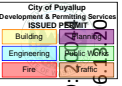
ONE STORY SHEAR WALLS BLDG B GRIDS 1.2 & 1.0

$$R_{FLOOR} 1.2 = 8' \times 10' \times 10\# = 800\# \text{ WIND}$$

$$= 0.12 \times 12 \times 8' \times 24' = 276\#$$

USE MK 1 OR BF 1X SPEC 12

BLDG B GRID - USE MK 1 & STD 10 RJ



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SHEAR WALL DESIGN SPREADSHEET  
AWS SDPWS 2015 EDITION

TABLE 4-3A BASE DESIGN VALUES

MARK	SHEATHING	FASTENER	Vs (PLF)	Vw (PLF)	Gs OR Gac (K' - OSB)	K	MARK	Vs (PLF)	Vw (PLF)
MK1	15/32	8D @ 6	560	785	14		MK1	260	365
MK2	15/32	8D @ 4	860	1205	18		MK2	400	560
MK3	15/32	8D @ 3	1100	1540	24		MK3	512	716
MK4	15/32	8D @ 2	1460	2045	37		MK4	679	951
MK5	15/32 EA SIDE	8D @ 3	2200	3080	48	46	MK5	1023	1432
MK6	15/32 EA SIDE	8D @ 2	2920	4090	74	39	MK6	1358	1902

BASE ASD SHEAR WALL CAPACITY = 4.3A/2\*0.93 (HEM FIR)

HOLD DOWN CAPACITIES

STRAPS	CS22	845	LBS
CS20	1030	LBS	
CS18	1370	LBS	
CS16	1705	LBS	
CS14	2490	LBS	
CMSTC16	4585	LBS	
CMST14	6490	LBS	
CMST12	9215	LBS	
MSTC48B3	3930	LBS	
MSTC66B3	4440	LBS	

ANCHOR BOLT CAPACITY - PT HF SILL PLATES

WWW.AWC.ORG/CONNECTORS			
6" EMBED, PARALLEL TO GRAIN, LDF=1.0			
BOLT SIZE	2X SILL	3X SILL	4X SILL
1/2"	595	732	732
5/8"	863	1071	1144
3/4"	1196	1647	1647
1"	1800	2233	2551

6" EMBED, PARALLEL TO GRAIN, LDF=1.60			
BOLT SIZE	2X SILL	3X SILL	4X SILL
1/2"	952	1171	1171
5/8"	1381	1714	1830
3/4"	1914	2635	2635
1"	2880	3573	4082

FOUNDATION ANCHORS

LSTHD8	2125	LBS
STHD10	2940	LBS
STHD14	3815	LBS
HDU2	2215	LBS
HDU4	3285	LBS
HDU5	4065	LBS
HDU8 DF POST	6970	LBS
HDU11 DF POST	9535	LBS
HDU14 DF POST	14375	LBS

**MK1 Vs all = 260 Vw all = 365**  
**MK2 Vs all = 400 Vw all = 560**  
**MK3 Vs all = 512 Vw all = 716**  
**MK4 Vs all = 679 Vw all = 951**  
**MK5 Vs all = 1023 Vw all = 1432**  
**MK6 Vs all = 1358 Vw all = 1902**  
**Exist Vs all = 180 Vw all = 250**

**SHEAR WALL DESIGN**

NAME	Bldg A - Grid A
Vs RF =	871 LBS
Vs 2ND =	373 LBS
H RF =	8 FT ABV 2ND
H 2ND =	9 FT ABOVE GND
% RF=	70%
Vw RF =	1380 LBS
Vw2ND =	1080 LBS
Lmin =	2.29 FT
Lmin =	2.57 FT
% RF =	56%

**ABOVE 2ND FLOOR**

Shear Analysis

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	18	1	871	48	1380	77	48	77
2	0	0	0	NA	0	NA	NA	NA
3	0	0	0	NA	0	NA	NA	NA
4	0	0	0	NA	0	NA	NA	NA
5	0	0	0	NA	0	NA	NA	NA
L TOT =	18		871				MAX =	77

Use MK1 Vall Seis=260 Wind=365

**Overturning Analysis**

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)
1	6968	11040	23814	-1040	-789
2	0	0	0	NA	NA
3	0	0	0	NA	NA
4	0	0	0	NA	NA
5	0	0	0	NA	NA
MAX =				NO HD REQD NO HD REQD	NOHD REQD

USE No HD Req'd

**ABOVE GROUND**

Shear Analysis

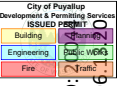
PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	18	1.00	1244	69	2460	137	69	137
2	0	0.00	0	NA	0	NA	NA	NA
3	0	0.00	0	NA	0	NA	NA	NA
4	0	0.00	0	NA	0	NA	NA	NA
5	0	0.00	0	NA	0	NA	NA	NA
L TOT =	18		1244				MAX =	137

Use MK1 Vall Seis=260 Wind=365

**Overturning Analysis**

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)
1	18164	35919	63180	-2779	-1683
2	0	0	0	NA	NA
3	0	0	0	NA	NA
4	0	0	0	NA	NA
5	0	0	0	NA	NA
MAX =				NO HD REQD NO HD REQD	NOHD REQD

USE No HD Req'd



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DATE: 06/11/2020

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**SHEAR WALL DESIGN**

NAME: **Bldg B - Grid D**  
 Vs RF = 871 LBS  
 Vs 2ND = 373 LBS  
 H RF = 8 FT ABV 2ND  
 H 2ND = 9 FT ABOVE GND  
 % RF = 70%  
 Vw RF = 1380 LBS  
 Vw 2ND = 1080 LBS  
 Lmin = 2.29 FT  
 Lmin = 2.57 FT  
 % RF = 56%

**ABOVE 2ND FLOOR**

Shear Analysis

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	6	1	219	37	347	58	37	58
2	6	1	219	37	347	58	37	58
3	11.833	1	432	37	685	58	37	58
4	0	0	0	NA	0	NA	NA	NA
5	0	0	0	NA	0	NA	NA	NA
L TOT =	23.833		871				MAX =	<b>37</b>

**Use MK1 Vall Seis=260 Wind=365**

**Overtuning Analysis**

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	WDL= (LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)	NO HD REQD
1	1754	2779	147	2646	-165	25	25
2	1754	2779		2646	-165	25	25
3	3460	5481		10291.46184	-642	-452	
4	0	0		0	NA	NA	NA
5	0	0		0	NA	NA	NA
L TOT =				MAX =	NO HD REQD	25	<b>25</b>

**USE CS222 Tall = 845 lbs**

**ABOVE GROUND**

Shear Analysis

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	0	0.00	0	NA	0	NA	NA	NA
2	16	1.00	1244	78	2460	154	78	154
3	0	0.00	0	NA	0	NA	NA	NA
4	0	0.00	0	NA	0	NA	NA	NA
5	0	0.00	0	NA	0	NA	NA	NA
L TOT =	16		1244				MAX =	<b>78</b>

**Use MK1 Vall Seis=260 Wind=365**

**Overtuning Analysis**

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	WDL= (LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)	NO HD REQD
1	0	0	390	0	NA	NA	NA
2	18164	35919		49920	-2205	-972	
3	0	0		0	NA	NA	NA
4	0	0		0	NA	NA	NA
5	0	0		0	NA	NA	NA
L TOT =				MAX =	NO HD REQD	NO HD REQD	<b>NOHD REQD</b>

**USE No HD Req'd**



**SHEAR WALL DESIGN**

NAME  
**Bldg A - Grid B**

Vs RF = 871 LBS  
 Vs 2ND = 373 LBS  
 H RF = 8 FT ABV 2ND  
 H 2ND = 9 FT ABOVE GND  
 % RF = 70%

Vw RF = 1380 LBS  
 Vw 2ND = 1080 LBS  
 Lmin = 2.29 FT  
 Lmin = 2.57 FT  
 % RF = 56%

**ABOVE 2ND FLOOR**

**Shear Analysis**

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	8	1	270	34	428	53	34	53
2	12	1	405	34	642	53	34	53
3	5.8	1	196	34	310	53	34	53
4	0	0	0	NA	0	NA	NA	NA
5	0	0	0	NA	0	NA	NA	NA
L TOT =	25.8		871				MAX =	53

**Use MK1 Vall Seis=260 Wind=365**

**Overtuning Analysis**

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	WDL= 147 LBS/FT	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)	NO HD REQD	
							MAX =	2
1	2161	3423		4704	-353	-178	NA	2
2	3241	5135		10584	-680	-505	NA	2
3	1566	2482		2472.54	-174	2	NA	2
4	0	0		0	NA	NA	NA	2
5	0	0		0	NA	NA	NA	2
L TOT =							MAX =	2

**USE No HD Req'd - header reaction > 2#**

**ABOVE GROUND**

**Shear Analysis**

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	6	1.00	633	105	1251	208	105	208
2	5.8	1.00	611	105	1209	208	105	208
3	0	0.00	0	NA	0	NA	NA	NA
4	0	0.00	0	NA	0	NA	NA	NA
5	0	0.00	0	NA	0	NA	NA	NA
L TOT =	11.8		1244				MAX =	208

**Use MK1 Vall Seis=260 Wind=365**

**Overtuning Analysis**

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	WDL= 390 LBS/FT	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)	USE STHD10 Tail=2940 lbs	
							MAX =	2126
1	9236	18264		7020	410	2082	NA	2126
2	8928	17655		6560	454	2126	NA	2126
3	0	0		0	NA	NA	NA	2126
4	0	0		0	NA	NA	NA	2126
5	0	0		0	NA	NA	NA	2126
L TOT =					454		MAX =	2126

**SHEAR WALL DESIGN**

NAME  
**Bldg B - Grid C**

Vs RF = 871 LBS  
 Vs 2ND = 373 LBS  
 H RF = 8 FT ABV 2ND  
 H 2ND = 9 FT ABOVE GND  
 % RF = 70%

Vw RF = 1380 LBS  
 Vw 2ND = 1080 LBS  
 Lmin = 2.29 FT  
 Lmin = 2.57 FT  
 % RF = 56%

**ABOVE 2ND FLOOR**

**Shear Analysis**

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	6	1	203	34	321	53	34	53
2	12	1	405	34	642	53	34	53
3	7.8	1	263	34	417	53	34	53
4	0	0	0	NA	0	NA	NA	NA
5	0	0	0	NA	0	NA	NA	NA
L TOT =	25.8		871				MAX =	<b>34</b>

Use **MK1 Vall Seis=260 Wind=365**

**Overtuning Analysis**

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)
1	1620	2567	2646	-190	-15
2	3241	5135	10584	-680	-505
3	2107	3338	4471.74	-337	-162
4	0	0	0	NA	NA
5	0	0	0	NA	NA
MAX =				NO HD REQD NO HD REQD	<b>NOHD REQD</b>

USE **No HD Req'd**

**ABOVE GROUND**

**Shear Analysis**

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	6	1.00	622	104	1230	205	104	205
2	6	1.00	622	104	1230	205	104	205
3	0	0.00	0	NA	0	NA	NA	NA
4	0	0.00	0	NA	0	NA	NA	NA
5	0	0.00	0	NA	0	NA	NA	NA
L TOT =	12		1244				MAX =	<b>104</b>

Use **MK1 Vall Seis=260 Wind=365**

**Overtuning Analysis**

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)
1	9082	17960	7020	382	2026
2	9082	17960	7020	382	2026
3	0	0	0	NA	NA
4	0	0	0	NA	NA
5	0	0	0	NA	NA
MAX =				382	2026

USE **STHD10 Tail=2940 lbs**



SHEAR WALL DESIGN

NAME  
 Bldg A- Grid 4

Vs RF = 871 LBS  
 Vs 2ND = 373 LBS  
 H RF = 8 FT ABV 2ND  
 H 2ND = 9 FT ABOVE GND  
 % RF = 70%

Vw RF = 1840 LBS  
 Vw 2ND = 1440 LBS  
 Lmin = 2.29 FT  
 Lmin = 2.57 FT  
 % RF = 56%

ABOVE 2ND FLOOR

Shear Analysis

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	6	1	261	44	552	92	44	92
2	14	1	610	44	1288	92	44	92
3	0	0	0	NA	0	NA	NA	NA
4	0	0	0	NA	0	NA	NA	NA
5	0	0	0	NA	0	NA	NA	NA
L TOT =	20		871				MAX = 44	92

Use MK1 Vall Seis=260 Wind=365

Overtuning Analysis

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)
1	2090	4416	5904	-706	
2	4878	10304	32144	-2164	
3	0	0	0	NA	
4	0	0	0	NA	
5	0	0	0	NA	
MAX =					

WDL= 328 LBS/FT

NO HD REQD NO HD REQD NOHD REQD

USE No HD Req'd

ABOVE GROUND

Shear Analysis

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	6	1.00	622	104	1640	273	104	273
2	6	1.00	622	104	1640	273	104	273
3	0	0.00	0	NA	0	NA	NA	NA
4	0	0.00	0	NA	0	NA	NA	NA
5	0	0.00	0	NA	0	NA	NA	NA
L TOT =	12		1244				MAX = 104	273

Use MK1 Vall Seis=260 Wind=365

Overtuning Analysis

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)
1	9082	23946	7686	259	3011
2	9082	23946	7686	259	3011
3	0	0	0	NA	NA
4	0	0	0	NA	NA
5	0	0	0	NA	NA
MAX =					

WDL= 427 LBS/FT

USE STHD14RJ Tall = 3815 lbs

3011



**SHEAR WALL DESIGN**

NAME	Vs RF =	LBS	Vw RF =	LBS
Bldg A- Grid 2 (3 sim)	871	LBS	1840	LBS
Bldg B Grid 2 (2 sim)	373	LBS	1440	LBS
	H RF = 8	FT ABV 2ND	Lmin = 2.29	FT
	H 2ND = 9	FT ABOVE GND	Lmin = 2.57	FT
	% RF= 70%		% RF = 56%	

**ABOVE 2ND FLOOR**

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	24	1	871	36	1840	77	36	77
2	0	0	0	NA	0	NA	NA	NA
3	0	0	0	NA	0	NA	NA	NA
4	0	0	0	NA	0	NA	NA	NA
5	0	0	0	NA	0	NA	NA	NA
L TOT =	24		871				MAX = 36	77

Use MK1 Vall Seis=260 Wind=365

**Overtuning Analysis**

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	WDL=	HD SEIS (LBS)	HD WIND (LBS)
1	6968	14720	328	-4051	-3692
2	0	0	NA	NA	NA
3	0	0	NA	NA	NA
4	0	0	NA	NA	NA
5	0	0	NA	NA	NA
MAX =				NO HD REQD NO HD REQD	NOHD REQD

USE No HD Req'd

**ABOVE GROUND**

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	18	1.00	1244	69	3280	182	69	182
2	0	0.00	0	NA	0	NA	NA	NA
3	0	0.00	0	NA	0	NA	NA	NA
4	0	0.00	0	NA	0	NA	NA	NA
5	0	0.00	0	NA	0	NA	NA	NA
L TOT =	18		1244				MAX = 69	182

Use MK1 Vall Seis=260 Wind=365

**Overtuning Analysis**

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	WDL=	HD SEIS (LBS)	HD WIND (LBS)
1	18164	47892	427	-3149	-1314
2	0	0	NA	NA	NA
3	0	0	NA	NA	NA
4	0	0	NA	NA	NA
5	0	0	NA	NA	NA
MAX =				NO HD REQD NO HD REQD	NOHD REQD

USE



**SHEAR WALL DESIGN**

NAME  
**Bldg A- Grid 1**

Vs RF = 871 LBS  
 Vs 2ND = 373 LBS  
 H RF = 8 FT ABV 2ND  
 H 2ND = 9 FT ABOVE GND  
 % RF = 70%

Vw RF = 1840 LBS  
 Vw 2ND = 1440 LBS  
 Lmin = 2.29 FT  
 Lmin = 2.57 FT  
 % RF = 56%

**ABOVE 2ND FLOOR**

**Shear Analysis**

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	18	1	871	48	1840	102	48	102
2	0	0	0	NA	0	NA	NA	NA
3	0	0	0	NA	0	NA	NA	NA
4	0	0	0	NA	0	NA	NA	NA
5	0	0	0	NA	0	NA	NA	NA
L TOT =	18		871				MAX = 48	MAX = 102

**Use MK1 Vall Seis=260 Wind=365**

**Overtuning Analysis**

WDL = 328 LBS/FT

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)
1	6968	14720	53136	-2850	-2371
2	0	0	0	NA	NA
3	0	0	0	NA	NA
4	0	0	0	NA	NA
5	0	0	0	NA	NA
MAX =				NO HD REQD	NO HD REQD

**USE No HD Req'd**

**ABOVE GROUND**

**Shear Analysis**

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	8	1.00	553	69	1458	182	69	182
2	10	1.00	691	69	1822	182	69	182
3	0	0.00	0	NA	0	NA	NA	NA
4	0	0.00	0	NA	0	NA	NA	NA
5	0	0.00	0	NA	0	NA	NA	NA
L TOT =	18		1244				MAX = 69	MAX = 182

**Use MK1 Vall Seis=260 Wind=365**

**Overtuning Analysis**

WDL = 427 LBS/FT

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)
1	8073	21285	13664	-777	1059
2	10091	26607	21350	-1251	584
3	0	0	0	NA	NA
4	0	0	0	NA	NA
5	0	0	0	NA	NA
MAX =				NO HD REQD	NO HD REQD

**USE STHD10 Tail=2940 lbs**



**SHEAR WALL DESIGN**

NAME  
**Bldg B - Grid 4**

Vs RF = 871 LBS  
 Vs 2ND = 373 LBS  
 H RF = 8 FT ABV 2ND  
 H 2ND = 9 FT ABOVE GND  
 % RF = 70%

Vw RF = 1840 LBS  
 Vw 2ND = 1440 LBS  
 Lmin = 2.29 FT  
 Lmin = 2.57 FT  
 % RF = 56%

**ABOVE 2ND FLOOR**

**Shear Analysis**

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	18	1	871	48	1840	102	48	102
2	0	0	0	NA	0	NA	NA	NA
3	0	0	0	NA	0	NA	NA	NA
4	0	0	0	NA	0	NA	NA	NA
5	0	0	0	NA	0	NA	NA	NA
L TOT =	18		871				MAX =	102

**Use MK1 Vall Seis=260 Wind=365**

**Overtuning Analysis**

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)
1	6968	14720	53136	-2850	-2371
2	0	0	0	NA	NA
3	0	0	0	NA	NA
4	0	0	0	NA	NA
5	0	0	0	NA	NA
MAX =					

NO HD REQD NO HD REQD **NOHD REQD**  
**USE No HD Req'd**

**ABOVE GROUND**

**Shear Analysis**

PIER #	LENGTH (FT)	2Bs/H	Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	8	1.00	553	69	1458	182	69	182
2	10	1.00	691	69	1822	182	69	182
3	0	0.00	0	NA	0	NA	NA	NA
4	0	0.00	0	NA	0	NA	NA	NA
5	0	0.00	0	NA	0	NA	NA	NA
L TOT =	18		1244				MAX =	182

**Use MK1 Vall Seis=260 Wind=365**

**Overtuning Analysis**

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)
1	8073	21285	13664	-777	1059
2	10091	26607	21350	-1251	584
3	0	0	0	NA	NA
4	0	0	0	NA	NA
5	0	0	0	NA	NA
MAX =					

NO HD REQD NO HD REQD **NOHD REQD**  
**USE STHD10 Tail=2940 lbs**

