PB Structures
Peter M Blakely, SE
WA License 46754

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

Job No. 24156

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

Structural Calculations

ROOF LOADS		FLOOR LOADS		WALL LOADS	
3.0	ROOFING	2.5	FLOORING	2.0	SIDING
2.1	SHEATHING	3.0	SHEATHING	2.1	SHEATHING
1.5	MEP	0.5	MEP	2.0	INSULATION
1.0	INSULATION	0.7	MISC	0.4	MISC
0.6	MISC	2.3	CEILING	2.8	GYP BOARD
2.8	CEILING	1.0	JOISTS	1.7	STUDS
2.0	RAFTERS	10.0	PSF TO JOISTS	11.0	PSF
13.0	PSF TO RAFTERS	2.0	BEAMS AND GIRDERS		
2.0	BEAMS AND GIRDERS	12.0	PSF TO GIRDERS		
15.0	PSF TO GIRDERS	40.0	PSF TYPICAL LIVE LOAD		
20.0	PSF LIVE LOAD	60.0	PSF LIVE LOAD ON DECKS		
25.0	PSF ROOF SNOW LOAD				
25.0	PSF GROUND SNOW LOAD				

Risk Category = II ASCE 7-16 Table 1.5.1

1/22/2025

Exp 03/17/27

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

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**		

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
Topagraphic 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 Ps = I * λ * 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	Zones B & D =	8	Ultimate
	10	ASD(Ultimate* 0.6)		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 Page 3

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

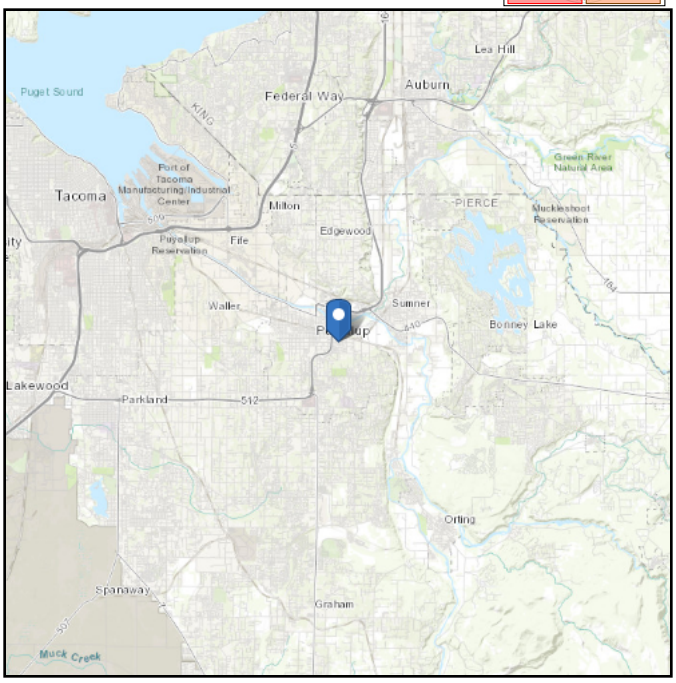
Note: Verified by comparision AWC Table M4.5-2a
All values are pounds

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.

Seismic

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

Snow

Results:

Ground Snow Load, p_g:	18 lb/ft^2
Elevation:	53.9 ft
Data Source:	
Date Accessed:	Wed Jun 03 2020

Statutory requirements of the Authority Having Jurisdiction are not included.

ROOF FRAMING

TRUSSES @ 24" OC

HEADERS $w = (15+25)(3\,1/2) = 620^{\#}/_{'}$

$A = 1.5(620)\left(\frac{4-1}{2}\right)/1.15/180 = 6.7$

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

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

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

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

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

USE DBL 2x6

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2ND FLOOR

FLOOR JOISTS

$w = (2')(10+40) = 100\#/'$
$L = 23'-1''$

USE 11 7/8" TJI 560 $L_{ALL} = 23'$ ($\frac{L}{L_{ALL}} = 1.004$ OK)

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

HEADERS

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

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

$m = 601 * 6^2/8 = 2704$

$I = 462 * 6^3/2667 = 37$

DBL 2x10 $m = 3922$, $A = 27.8$, $I = 198$

TYP BEARING WALL $w = 28' * 11\# + 40\# + 12(12+40) = 972$, $L = 8'$

$A = 1.5 * 972 * (8 - 1.5)/2/265 = 18$
$m = 972 * 8^2/8 = 7776$
$I = 972 * 8^3/4000 = 124$

USE 3 1/2 x 9 GLB $m = 9450$, $I = 213$, $A = 31.5$

12' IN FRONT OF RECESSES

$w = 28 * 11 + 40 + 3(12+40) = 504\#/'$

$A = 1.5 * 504(12 - 1.5)/2/265 = 14.9$
$m = 9072$
$I = 218$ (OK AT SPAN = 11.5')

USE 3 1/2 x 9 GLB

L = 4' A = 1.5 x 972 (4-1)/2 /180 = 12

M = 1944
I = 16

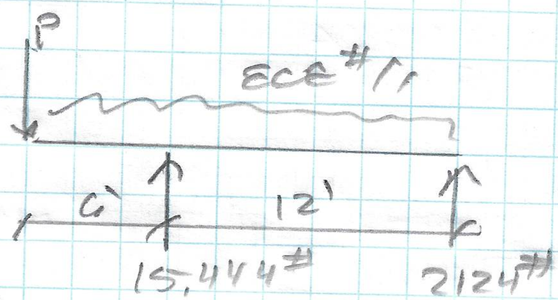
USE DBL 2x8

SIDE WALLS W = 620#/' + 8x11 + 160 = 868#/'
L = 6'

A = 14.6
M = 3636
I = 44

USE DBL 2x10

CANTILEVER BEAM GRID 4 A.3 - B



P = 504# x 6' = 3024#

M = 3024x6 + 868x6²/2
= 32,688 / 1.15 = 28,424

I = 3024x6²/156 + 868x6²/417
= 768

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

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FIRST FLOOR FRAMING

JOISTS

$w = 2'(100 + 40) = 100\#/l$ $L = 11'-6"$

$M = 100 \times 11.5^2 / 8 = 1653\ l\#$

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

USE 2x10 @ 24" oc $MA = 1467$ $I = 99$

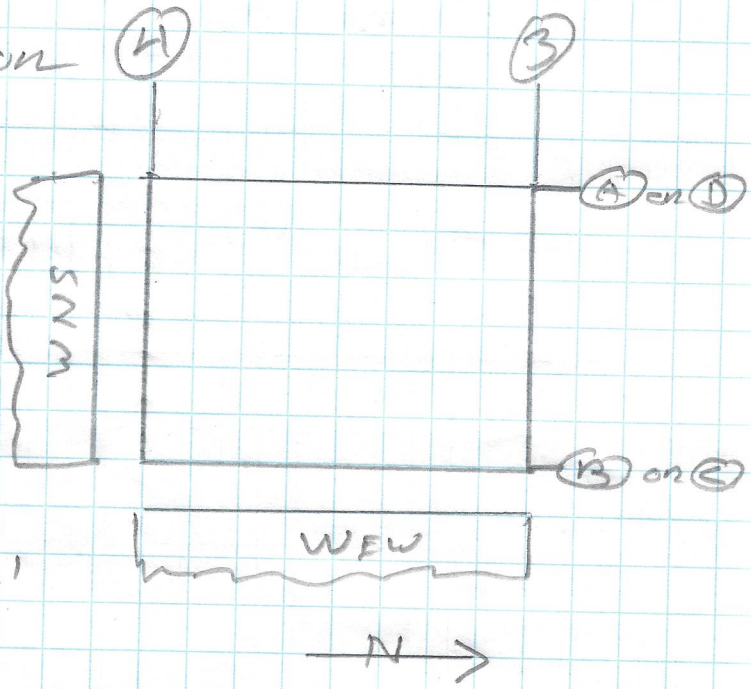
FOOTING

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



$W_{NS\ ROOF} = 5^{\#} \times 13' + 10^{\#} \times 5'$
$= 115^{\#}/'$

$W_{NS\ FLOOR} = 10^{\#} \times 19' = 90^{\#}/'$

$W_{EW\ ROOF} = \frac{10^{\#} \times 32' \times 13'}{2 \times 32} + 10^{\#} \times 5'$

$= 115^{\#}/'$

$W_{EW\ FLOOR} = 90^{\#}/'$

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

$W_{ROOF} = 15 \times 24 \times 32 = 11520$
$W_{FLOOR} = 12 \times 24 \times 32 = 9216$

$20,736$

H	WH	%
17	195840	70
9	82,944	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 = $15 \times 16 + 8 \times 11 = 328$
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 GRIDS 1.2 & 1.0

$R_{FLOOR\ 1.2} = 8'' \times 10' \times 10^{\#} = 800^{\#}$ WIND
$= 0.12 \times 12 \times 8' \times 24' = 276^{\#}$
USE MK I OR BY NW SPECIES

BLDG B GRID - USE MK I & STUDIO RJ

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1200 7th Ave Townhomes
Puyallup, WA 98371

JOB NO: 20044
DATE: 06.13.20

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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
MK1	15/32	8D @ 6	560	785	14	
MK2	15/32	8D @ 4	860	1205	18	
MK3	15/32	8D@ 3	1100	1540	24	
MK4	15/32	8D @ 2	1460	2045	37	
MK5	15/32 EA SIDE	8D @ 3	2200	3080	48	46
MK6	15/32 EA SIDE	8D @ 2	2920	4090	74	39

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

MARK	Vs (PLF)	Vw (PLF)
MK1	260	365
MK2	400	560
MK3	512	716
MK4	679	951
MK5	1023	1432
MK6	1358	1902

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

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

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

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

PO BOX 354, MAPLE VALLEY, WA 98038
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SHEAR WALL DESIGN

NAME								
Bldg A - Grid A	Vs RF =	871	LBS	Vw RF =	1380	LBS		
	Vs 2ND =	373	LBS	Vw2ND =	1080	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

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	100%	871	48	1380	77	48	77
2	0	0	0%	0	NA	0	NA	NA	NA
3	0	0	0%	0	NA	0	NA	NA	NA
4	0	0	0%	0	NA	0	NA	NA	NA
5	0	0	0%	0	NA	0	NA	NA	NA
L TOT =	18		100%	871			MAX =	**48**	**77**

Use MK1 Vall Seis=260 Wind=365

Overturning Analysis WDL= 147 LBS/FT

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	100%	1244	69	2460	137	69	137
2	0	0.00	0%	0	NA	0	NA	NA	NA
3	0	0.00	0%	0	NA	0	NA	NA	NA
4	0	0.00	0%	0	NA	0	NA	NA	NA
5	0	0.00	0%	0	NA	0	NA	NA	NA
L TOT =	18		100%	1244			MAX =	**69**	**137**

Use MK1 Vall Seis=260 Wind=365

Overturning Analysis WDL= 390 LBS/FT

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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SHEAR WALL DESIGN

NAME								
Bldg B - Grid D	Vs RF =	871	LBS	Vw RF =	1380	LBS		
	Vs 2ND =	373	LBS	Vw2ND =	1080	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

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	25%	219	37	347	58	37	58
2	6	1	25%	219	37	347	58	37	58
3	11.833	1	50%	432	37	685	58	37	58
4	0	0	0%	0	NA	0	NA	NA	NA
5	0	0	0%	0	NA	0	NA	NA	NA
L TOT =	23.833		100%	871			MAX =	**37**	**58**

Use MK1 Vall Seis=260 Wind=365

Overturning Analysis WDL= 147 LBS/FT

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)	
1	1754	2779	2646	-165	25	
2	1754	2779	2646	-165	25	
3	3460	5481	10291.46184	-642	-452	
4	0	0	0	NA	NA	
5	0	0	0	NA	NA	
			MAX =	NO HD REQD	25	**25**

USE USE CS22 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%	0	NA	0	NA	NA	NA
2	16	1.00	100%	1244	78	2460	154	78	154
3	0	0.00	0%	0	NA	0	NA	NA	NA
4	0	0.00	0%	0	NA	0	NA	NA	NA
5	0	0.00	0%	0	NA	0	NA	NA	NA
L TOT =	16		100%	1244			MAX =	**78**	**154**

Use MK1 Vall Seis=260 Wind=365

Overturning Analysis WDL= 390 LBS/FT

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)	
1	0	0	0	NA	NA	
2	18164	35919	49920	-2205	-972	
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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SHEAR WALL DESIGN

NAME								
Bldg A - Grid B	Vs RF =	871	LBS	Vw RF =	1380	LBS		
	Vs 2ND =	373	LBS	Vw2ND =	1080	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

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	31%	270	34	428	53	34	53
2	12	1	47%	405	34	642	53	34	53
3	5.8	1	22%	196	34	310	53	34	53
4	0	0	0%	0	NA	0	NA	NA	NA
5	0	0	0%	0	NA	0	NA	NA	NA
L TOT =	25.8		100%	871			MAX =	**34**	**53**

Use MK1 Vall Seis=260 Wind=365

Overturning Analysis WDL= 147 LBS/FT

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)	
1	2161	3423	4704	-353	-178	
2	3241	5135	10584	-680	-505	
3	1566	2482	2472.54	-174	2	
4	0	0	0	NA	NA	
5	0	0	0	NA	NA	
			MAX =	NO HD REQD	2	**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	51%	633	105	1251	208	105	208
2	5.8	1.00	49%	611	105	1209	208	105	208
3	0	0.00	0%	0	NA	0	NA	NA	NA
4	0	0.00	0%	0	NA	0	NA	NA	NA
5	0	0.00	0%	0	NA	0	NA	NA	NA
L TOT =	11.8		100%	1244			MAX =	**105**	**208**

Use MK1 Vall Seis=260 Wind=365

Overturning Analysis WDL= 390 LBS/FT

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)	
1	9236	18264	7020	410	2082	
2	8928	17655	6560	454	2126	
3	0	0	0	NA	NA	
4	0	0	0	NA	NA	
5	0	0	0	NA	NA	
			MAX =	454	2126	**2126**

USE STHD10 Tall=2940 lbs

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PB Structures
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WA LICENSE 46754

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Puyallup, WA 98371

JOB: 20044
DATE: 06.13.20

SHEAR WALL DESIGN

NAME							
Bldg B - Grid C	Vs RF =	871	LBS	Vw RF =	1380	LBS	
	Vs 2ND =	373	LBS	Vw2ND =	1080	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
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	23%	203	34	321	53	34	53
2	12	1	47%	405	34	642	53	34	53
3	7.8	1	30%	263	34	417	53	34	53
4	0	0	0%	0	NA	0	NA	NA	NA
5	0	0	0%	0	NA	0	NA	NA	NA
L TOT =	25.8		100%	871			MAX =	**34**	**53**

Use MK1 Vall Seis=260 Wind=365

Overturning Analysis WDL= 147 LBS/FT

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 **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	50%	622	104	1230	205	104	205
2	6	1.00	50%	622	104	1230	205	104	205
3	0	0.00	0%	0	NA	0	NA	NA	NA
4	0	0.00	0%	0	NA	0	NA	NA	NA
5	0	0.00	0%	0	NA	0	NA	NA	NA
L TOT =	12		100%	1244			MAX =	**104**	**205**

Use MK1 Vall Seis=260 Wind=365

Overturning Analysis WDL= 390 LBS/FT

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 **2026**

USE STHD10 Tall=2940 lbs

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SHEAR WALL DESIGN

NAME								
Bldg A- Grid 4	Vs RF =	871	LBS	Vw RF =	1840	LBS		
	Vs 2ND =	373	LBS	Vw2ND =	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
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	30%	261	44	552	92	44	92
2	14	1	70%	610	44	1288	92	44	92
3	0	0	0%	0	NA	0	NA	NA	NA
4	0	0	0%	0	NA	0	NA	NA	NA
5	0	0	0%	0	NA	0	NA	NA	NA
L TOT =	20		100%	871			MAX =	**44**	**92**

Use MK1 Vall Seis=260 Wind=365

Overturning Analysis WDL= 328 LBS/FT

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)	
1	2090	4416	5904	-706	-276	
2	4878	10304	32144	-2164	-1733	
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	6	1.00	50%	622	104	1640	273	104	273
2	6	1.00	50%	622	104	1640	273	104	273
3	0	0.00	0%	0	NA	0	NA	NA	NA
4	0	0.00	0%	0	NA	0	NA	NA	NA
5	0	0.00	0%	0	NA	0	NA	NA	NA
L TOT =	12		100%	1244			MAX =	**104**	**273**

Use MK1 Vall Seis=260 Wind=365

Overturning Analysis WDL= 427 LBS/FT

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 =	259	3011	**3011**

USE STHD14RJ Tall = 3815 lbs

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SHEAR WALL DESIGN

NAME								
Bldg A- Grid 2 (3 sim)	Vs RF =	871	LBS	Vw RF =	1840	LBS		
Bldg B Grid 2 (2 sim)	Vs 2ND =	373	LBS	Vw2ND =	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
Shear Analysis

PIER #	LENGTH (FT)	2Bs/H		Vs PIER	Vs LBS/FT	Vw PIER	Vw LBS/FT	Vs/(2Bs/H)	Vw/(2Bs/H)
1	24	1	100%	871	36	1840	77	36	77
2	0	0	0%	0	NA	0	NA	NA	NA
3	0	0	0%	0	NA	0	NA	NA	NA
4	0	0	0%	0	NA	0	NA	NA	NA
5	0	0	0%	0	NA	0	NA	NA	NA
L TOT =	24		100%	871			MAX =	**36**	**77**

Use MK1 Vall Seis=260 Wind=365

Overturning 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	94464	-4051	-3692
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	100%	1244	69	3280	182	69	182
2	0	0.00	0%	0	NA	0	NA	NA	NA
3	0	0.00	0%	0	NA	0	NA	NA	NA
4	0	0.00	0%	0	NA	0	NA	NA	NA
5	0	0.00	0%	0	NA	0	NA	NA	NA
L TOT =	18		100%	1244			MAX =	**69**	**182**

Use MK1 Vall Seis=260 Wind=365

Overturning Analysis WDL= 427 LBS/FT

PIER #	OTM SEIS (FT LBS)	OTM WIND (FT LBS)	DLRM (FT LBS)	HD SEIS (LBS)	HD WIND (LBS)
1	18164	47892	69174	-3149	-1314
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

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SHEAR WALL DESIGN

NAME								
Bldg A- Grid 1	Vs RF =	871	LBS	Vw RF =	1840	LBS		
	Vs 2ND =	373	LBS	Vw2ND =	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

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	100%	871	48	1840	102	48	102
2	0	0	0%	0	NA	0	NA	NA	NA
3	0	0	0%	0	NA	0	NA	NA	NA
4	0	0	0%	0	NA	0	NA	NA	NA
5	0	0	0%	0	NA	0	NA	NA	NA
L TOT =	18		100%	871			MAX =	**48**	**102**

Use MK1 Vall Seis=260 Wind=365

Overturning 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 **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	44%	553	69	1458	182	69	182
2	10	1.00	56%	691	69	1822	182	69	182
3	0	0.00	0%	0	NA	0	NA	NA	NA
4	0	0.00	0%	0	NA	0	NA	NA	NA
5	0	0.00	0%	0	NA	0	NA	NA	NA
L TOT =	18		100%	1244			MAX =	**69**	**182**

Use MK1 Vall Seis=260 Wind=365

Overturning 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	1059 **1059**

USE STHD10 Tall=2940 lbs

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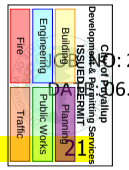

JOB: 20044
DATE: 06.13.20

SHEAR WALL DESIGN

NAME							
Bldg B - Grid 4	Vs RF =	871	LBS	Vw RF =	1840	LBS	
	Vs 2ND =	373	LBS	Vw2ND =	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
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	100%	871	48	1840	102	48	102
2	0	0	0%	0	NA	0	NA	NA	NA
3	0	0	0%	0	NA	0	NA	NA	NA
4	0	0	0%	0	NA	0	NA	NA	NA
5	0	0	0%	0	NA	0	NA	NA	NA
L TOT =	18		100%	871			MAX =	**48**	**102**

Use MK1 Vall Seis=260 Wind=365

Overturning 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	**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	44%	553	69	1458	182	69	182
2	10	1.00	56%	691	69	1822	182	69	182
3	0	0.00	0%	0	NA	0	NA	NA	NA
4	0	0.00	0%	0	NA	0	NA	NA	NA
5	0	0.00	0%	0	NA	0	NA	NA	NA
L TOT =	18		100%	1244			MAX =	**69**	**182**

Use MK1 Vall Seis=260 Wind=365

Overturning 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	1059	**1059**

USE STHD10 Tall=2940 lbs

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