STRUCTURAL CALCULATIONS

FOR THE

PRESIDENTIAL HOMES RESIDENTIAL PROJECT

Plan L2-2565-2

June 28, 2021

Job No. : 08-019
Location: 1212 - 39th Avenue SW
Puyallup, Washington

SEGA Engineers
Structural & Civil Consulting Engineers

22939 SE 292nd PL (360) 886-1017
Black Diamond, WA 98010

STATEMENT OF WORK

SEGA Engineers was asked to provide a lateral loads analysis, shear wall design, review of major framing members and foundation, and drawing red-lines for a two-story wood framed single family residence. The roof framing is manufactured trusses, the floor framing is 2x dimensional or wood I-joists, and the foundation is typical concrete strip footings with a crawl space.

The application and use of these calculations is limited to a single site referenced on the cover sheet. The cover sheet should have an original signature in blue ink over the seal. The attached calculations may or may not apply to other sites and the contractor assumes all responsibility and liability for sites not expressly reviewed and approved. Please contact SEGA Engineers for use at other sites.

SEGA Engineers will use that degree of care and skill ordinarily exercised under similar circumstances by members of the engineering profession in this local. No other warranty, either expressed or implied is made in connection with our rending of professional services. For any dispute, claim, or action arising out of this design, SEGA Engineers shall have liability limited to the amount of the total fee received by SEGA Engineers.

Questions regarding the attached should be addressed to SEGA Engineers.

Greg Thesenvitz, PE/SE
SEGA Engineers

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Project L2-2565

Job No. 08-019 By: GAT

Checked Date: 02/08/21 Sht 1

Design Criteria

International Building Code (IBC), 2018

LOADS

Roof

DL	15	psf
LL	25	psf

Floor

DL	12	psf
LL	40	psf

Wind

Risk Category	II		
Design Wind Speed	110	mph	(V_{ult})
K_{zt}	1.00		
Exposure	B		

Seismic

Design Category	D
S_{DS}	1.00
Response Factor	6.5
C_S =	0.154
Importance Factor	1.00

Soil

Allowable Bearing	1,500	psf

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LOADS

ROOF

DL	Roofing (Comp)	3.5 psf		
	1/2" OSB	1.8		
	2 x @ 24"	3.5		
	Insulation	1.1		
	5/8" GWB	2.8		
	Misc.	1.5		
		14.2 psf		
LL	Snow, P_f	25 psf	(115% Load Duration)	
	Reduction, Cs	0.00	(C_t = 1.1, other surfaces)	
	5/12 pitch = 23 deg			
	Total Roof Load		39.2 psf	

FLOOR

DL	Flooring	0.5 psf	
	3/4" Plywood	2.3	
	FT @ 24" o.c.	3.3	
	5/8" GWB	2.8	
	Misc.	1.5	
		10.4 psf	
LL	Residential	40 psf	
	Total Floor Load		50.4 psf

DECKS

DL	2 x Decking	4.3 psf	
	2 x 10 @ 16" oc	2.8	
	Misc	1.5	
		8.6	
LL	Residential	60 psf	
	Total Deck Load		68.6 psf

WALLS

DL	Siding	3.5	
	1/2" Plywood	1.5 psf	
	2 x 6 @ 16" oc	1.7	
	Insul	0.6	
	1/2" GWB	2.2	
			9.5 psf

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PROJECT L2-2565

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FRAMING - ROOF

HDR @ MASTER BR. - ELEV. 'A'

$\ell = 8'$

$w = (\frac{4.5}{2})(45\,PSF) = 1{,}015\,PLF$

$M = \frac{(1.02\,K/FT)(8')^2}{8} = 8.2\,K\text{-}FT$ 3½x9 GLB ←

$V = \frac{8}{2}(1.02\,K/FT) = 4.1^K / 1.15 = 3.5^K$ OK

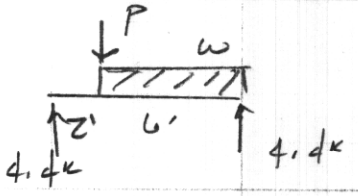
$\frac{EI}{1/240} = 0.45(1.02\,K/FT)(8')^3 = 235\times10^3\,K\text{-}IN^2$ OK.

HDR @ MASTER BR. - ELEV. 'B'

$\ell = 8'$

$w = (\frac{4.3}{2})(45\,PSF) = 970\,PLF$

$P = \frac{8}{2}(45\,PSF)(\frac{4.3}{2}) = 2{,}905^{\#}$



$M = (4.5^{FT})(4.4^K) - (4.5')(0.98^{K/FT})(\frac{4.5}{2}) = 9.9\,K\text{-}FT$ 3½x10.5 ←

$V = 4.4^K / 1.15 = 3.8^K$

OK

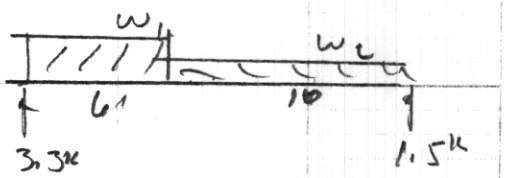
$\frac{EI}{1/240} = 0.45(8.8^{K/FT})(8')^2 = 253\times10^3\,K\text{-}IN^2$ OK

HDR @ GARAGE DOOR

$\ell = 16'$

$w_1 = (\frac{26}{2})(45.3\,PSF) = 585^{PLF}$

$w_2 = (\frac{5}{2})(45\,PSF) = 115^{PLF}$



$M = (5.5^{FT})(3.3^K) - (5.5')(0.6^{K/FT})(\frac{5.5'}{2}) = 9.1\,K\text{-}FT$

$V = 3.3^K$

$\frac{EI}{1/24} = 0.45(4.8^{K/FT})(16')^2 = 553\times10^3\,K\text{-}IN^2$ 3½x10.5 ←

USE 3½x12 GLB FOR PEP. ←

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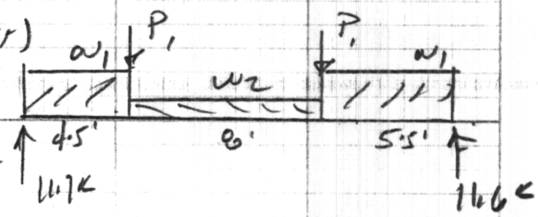
FRAMING - UPPER FLOOR

FLUSH BM @ COVERED PATIO (CA WORST)



$l = 18FT$

$w_1 = (\frac{5}{2})(50psf) + 100^{plf} + (\frac{45+2}{2})(45^{psf}) = 1{,}285^{plf}$

$P = (\frac{45}{2})(45^{psf})(\frac{8}{2}) = 4{,}050^{\#}$

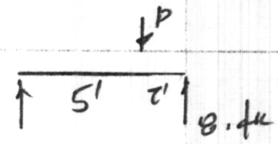
$w_2 = (\frac{5}{2})(50psf) + 100^{plf} + \frac{2}{2}(45^{psf}) = 270^{plf}$

$M = (11.1FT)(11.7^K) - (4.5')(1.29^{K/FT})(8.9^{FT}) - (6.6')(4.1^K) - (6.6)(0.27)(\frac{6.6}{2}) = 45^{KIP}$ — 5½×16.5 OK

$V' = 11.7^K - \frac{16.5}{12}(1.29^{K/FT}) = 9.9^K$

$EI_{1/240} = 0.45(15^K)(18')^2 + 0.613(8.2^K)(18')^2 = 3{,}824 \times 10^3 K\text{-}IN^2$ — 5½×18 ←

TRANSFER BEAM (EXT PATIO)



$l = 7FT$

$P = 11.7^K$

$M = (2')(8.4^K) = 16.8^{KIP}$ — 5½×10.5 GLB

$V = 8.4^K / 1.15 = 7.3^K$ — 5½×12 ←

$EI_{1/360}$ — OK

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FRAMING - UPPER FLOOR

FLUSH TUBE NOOK

$\ell = 13.5'$

$w = \left(\frac{5+19}{2}\right)(55psf) = 660 plf$

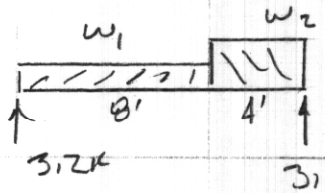
$M = \frac{(0.168^{K/FT})(13.5')^2}{8} = 15.5^{K'}$ — 3½ x 12 5½ x 10.5 GLB ←

$V = \frac{13.5}{2}(0.168^{K/FT}) = 4.6^K$ — OK

$\frac{EP}{1240} = 0.45(0.168^{K/FT})(135')^3 = 753 \times 10^3 K in^2$ — OK

TUBE GREAT ROOM (12' SGN OPTION)

$\ell = 12FT$



$w_1 = \left(\frac{5+15}{2}\right)(50psf) = 500 plf$

$w_2 = \left(\frac{5+19}{2}\right)(55psf) = 660 plf$

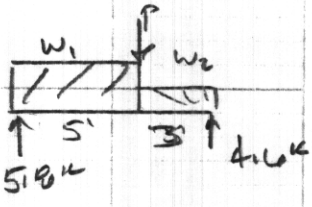
$M = (6.12^{FT})(3.2^K) - (6.12')(0.52^{K/FT})\left(\frac{6.12}{2}\right) = 9.8^{K'}$ — 3½ x 10.5 GLB ←

$V = 3.7^K$ — OK

$\frac{EP}{12} = 0.45(69^{in^4})(12')^2 = 447 \times 10^3 K in^2$ — OK

TUBE NOOK (B WORST)

$\ell = 8 FT$



$w_1 = \left(\frac{6}{2}\right)(50psf) + 100plf + \left(\frac{4.5}{2}\right)(45psf) = 1,305^{plf}$

$P = \left(\frac{4.5}{2}\right)(45^{psf})\left(\frac{4.8}{2}\right) = 3,240^{lbf}$

$w_2 = \left(\frac{6}{2}\right)(50psf) + 100plf = 225plf$

$M = (4.5^{FT})(5.8^K) - (4.5')(1.3^{K/FT})\left(\frac{4.5}{2}\right) = 12.8^{K'}$ — 3½ x 10.5 GLB

$V = 5.8^K / 1.15 = 5^K$ — 5½ - 9 ←

$\frac{EP}{1240} = 0.613(10.4^{in^4})(8')^2 = 408 \times 10^3 K in^2$ — OK

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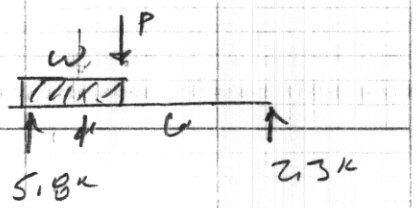
FRAMING - UPPER FLOOR

FLUSH BM @ ENTRY (ELEV. B)

$L = 10'$

$P = (\frac{10}{2})(45 psf)(\frac{48}{2}) = 3,240\#$

$w = (\frac{48}{2})(45 psf) + 100 plf = 1,180 plf$



$M = (6')(2.3k) = 13.8 k'/1.15 = 12 k'$

$V = 5.8k/1.15 = 5k$

EF - OK

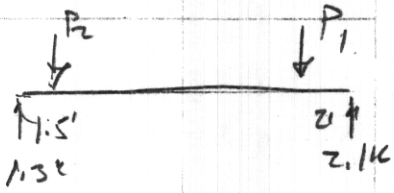
3 1/2 x 10.5 GLB
GIRDER TRUSS
5 1/2 x 10.5
(2) 2x12 @ 'A'

BM @ FRONT ENTRY - ELEV 'B'

$L = 14'$

$P_1 = 2.3k$

$P_2 = (\frac{10}{2})(45 psf)(\frac{10}{2}) = 1,125\#$



$M = (2')(2.1k) = 4.2 k'$

$V = 2.1k/1.15 = 1.8k$

EF - OK

4x10
OK

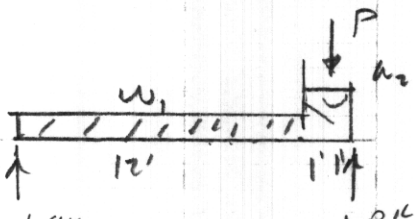
BM @ FRONT ENTRY - ELEV 'A'

$L = 14'$

$w_1 = (\frac{10}{2})(45 psf) = 225 plf$

$w_2 = (\frac{25}{2})(45 psf) + 100 plf = 575 plf$

$P = (\frac{45}{2})(45 psf)(\frac{25}{2})(\frac{1}{2}) = 2,660\#$



$M = (8.4k)(1.9k) - (8.4')(0.123 k'/ft)(\frac{8.4}{2}) = 7.8 k'$

$V = 4.8k/1.15 = 4.2k$

EF - OK -
1,2k

3 1/2 x 9 GLB
3 1/2 x 12 GLB
5 1/2 x 9

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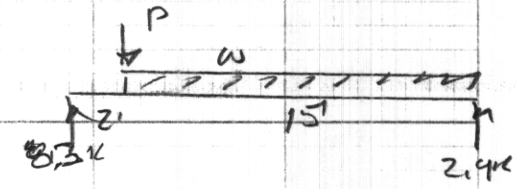
FRAMING - UPPER FLOOR

FLUSH BM @ GARAGE - ELEV. 'B'



$l = 17$ ft

$w_1 = (\frac{6}{2})(45\text{psf}) + 100\text{plf} = 235\text{plf}$

$P = (\frac{44}{2})(45\text{psf})(16')(\frac{8}{22}) + (\frac{6}{2})(45\text{psf})(\frac{44}{2})(\frac{16}{22}) = 7{,}920\#$

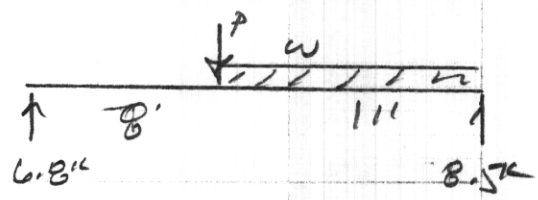
$M = (12\text{ft})(2.9^k) - (12')(0.24^{k/ft})(\frac{12}{2}) = 17.5^{k\cdot ft}$

GIRDER MULL. $5\frac{1}{2} - 11\frac{1}{4}$" LVL ←
$3\frac{1}{2}$ x 8 GLB ok

$V = 8.3^k$

EI - ok

FLOOR BM @ GARAGE - ELEV. 'B'



$l = 19$ ft

$P = 8.3^k$

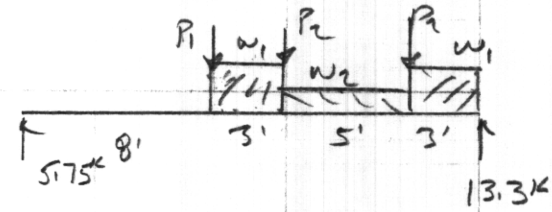
$w = (\frac{17}{2})(50\text{psf}) + 100\text{plf} + (\frac{5}{2})(45\text{psf}) = 640\text{plf}$

$M = (8\text{ft})(6.8^k) = 55^{k\cdot ft} / 1.15 = 47^{k\cdot ft}$ $5\frac{1}{2} \times 16.5$ GLB ← ok

$V = 8.5^k$

$EI_{req'd} = 0.45(7^k)(19')^2 + 0.72(8.3^k)(19')^2 = 3{,}301 \times 10^3\ k\text{-}in^2$ ok

FLOOR BM @ GARAGE - ELEV. 'A'



$l = 19$ ft

$P_1 = (\frac{17}{2})(100\text{plf}) = 850\#$

$w_1 = (\frac{17}{2})(50\text{psf}) + 100\text{plf} + (\frac{45+5}{2})(45\text{psf}) = 1{,}650\text{plf}$

$P_2 = (\frac{45}{2})(45\text{psf})(\frac{5}{2}) = 2530\#$

$w_2 = (\frac{17}{2})(50\text{psf}) + 100\text{plf} + (\frac{5}{2})(45\text{psf}) = 640\text{plf}$

$M = (11\text{ft})(5.8^k) - (3')(0.85^k) - (3')(1.65^{k/ft})(\frac{3}{2}) = 54^{k\cdot ft}$ $5\frac{1}{2} \times 18$ GLB ←

$V = 13.3^k - \frac{18}{12}(1.65^{k/ft}) = 10.8^k$ ok

$EI_{1.24} = 0.613(19.1^k)(19')^2 = 4{,}344 \times 10^3\ k\text{-}in^2$ ok

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Project Typical Ftg

Job No. By: GAT

Checked Date: 12/03/15 Sht. 8

Square Footing Design

Ftg 36 x 36

Design Parameters

f'_c = 2,500 psi Fy = 40,000 psi All. q = 1,500 psf

b = 6.0 in - short side of column
d = 6.0 in - long side of column

Loads:

Col DL = 2.4 kip (Service Load)
Col LL = 9.6 kip (Service Load)
Floor LL = 0 psf
Overburden = 0.0 in (120 pcf assumed)
Slab Thick. = 0.0 in (150 pcf assumed)

Size and Footing Pressure

h = 8.0 in ← Ftg. Thickness
q_n = 1.40 ksf

Req'd Area = 8.57 ft^2

Try 2.95 ft x 2.95 ft ← Min. Ftg. Size

Factored Net Soil Pressure = 2.13 ksf (1.2D + 1.6L)

Check for Two-Way Shear

Avg d = 4.00 in
V_u = 16.76 kips
b_o = 40.00 in (Critical Shear Perimeter)
B_c = 1 (Long Side/Short Side of Column)
phi V_c = 27.20 kips

Phi V_c > V_u OK

Check for One-Way Shear

V_u = 5.598 kips
Phi V_c = 12.04 kips

Phi V_c > V_u OK

Design Reinforcement

M_u = 4.71 kip-ft
A_s = 0.51 in^2 Use (3) - # 4 bars EW ← Reinforcement
a = 0.27 in 0.59 in^2
Phi M_n = 5.58 kip-ft

Phi M_n > M_u OK
A_s min = 0.51 in^2 OK

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Project Typical Ftg

Job No. By: GAT

Checked Date: 12/03/15 Sht. 9

Square Footing Design

Ftg 48 x 48

Design Parameters

f'_c = 2,500 psi Fy = 40,000 psi All. q = 1,500 psf

b = 6.0 in - short side of column
d = 6.0 in - long side of column

Loads:

Col DL = 4.2 kip (Service Load)
Col LL = 16.8 kip (Service Load)
Floor LL = 0 psf
Overburden = 0.0 in (120 pcf assumed)
Slab Thick. = 0.0 in (150 pcf assumed)

Size and Footing Pressure

h = 10.0 in ← Ftg. Thickness
q_n = 1.38 ksf

Req'd Area = 15.27 ft^2

Try 3.95 ft x 3.95 ft ← Min. Ftg. Size

Factored Net Soil Pressure = 2.09 ksf (1.2D + 1.6L)

Check for Two-Way Shear

Avg d = 6.00 in
V_u = 29.83 kips
b_o = 48.00 in (Critical Shear Perimeter)
B_c = 1 (Long Side/Short Side of Column)
phi V_c = 48.96 kips

Phi V_c > V_u OK

Check for One-Way Shear

V_u = 10.11 kips
Phi V_c = 24.17 kips

Phi V_c > V_u OK

Design Reinforcement

M_u = 12.28 kip-ft
A_s = 0.85 in^2 Use (5) - # 4 bars EW ← Reinforcement
a = 0.34 in 0.98 in^2
Phi M_n = 14.09 kip-ft

Phi M_n > M_u OK
A_s min = 0.85 in^2 OK

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Project L2-2565

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LATERAL LOADS - (Alternate ASD)

SEISMIC

Maximum Base Shear, $V = \frac{F\ S_{DS}\ W}{R}$ Eq. 12.14-11

where,

F = 1.1 Two-Story Building

S_{DS} = 1.00 S_S = 1.5 Fa = 1.00 (Table 11.4-1, $S_s > 1.25$)

R = 6.5 Table 12.14-1

W = Seismic Weight

For W:

W_{roof} = (32 ft) (49 ft) (16 psf) + (2) (32 ft + 49 ft) (4.0 ft) (9.5 psf) = 31 kips

W_{floor} = (40 ft) (43 ft) (14 psf) + (2) (40 ft + 43 ft) (8.5 ft) (9.5 psf) = 37 kips

W total = 69 kips

Design Base Shear , V = (.169) (69 kip) = 11.6 kip

$E = \frac{11.6\ kip}{1.4}$ = 8.3 kip

WIND

Design Wind Pressure, $p_s = \lambda\ K_{zt}\ p_{s30}$ Eq. 28.6-1, Sect. 28.6.3

where,

λ =	1.00	0 - 15 ft	Exposure B	Figure 28.6-1
=	1.00	20 ft		
=	1.00	25 ft		
=	1.00	30 ft		
=	1.05	35 ft		

K_{zt} = 1.00 Section 26.8

p_{30} = 17.7 psf 110 mph Figure 28.6-1

					(ASD)
P_{0-15} =	(1.00) (1.00) (17.7 psf)	=	17.70 psf		(x 0.6 = 10.62 psf)
P_{20} =	(1.00) (1.00) (17.7 psf)	=	17.70 psf		(x 0.6 = 10.62 psf)
P_{25} =	(1.00) (1.00) (17.7 psf)	=	17.70 psf		(x 0.6 = 10.62 psf)
P_{30} =	(1.00) (1.00) (17.7 psf)	=	17.70 psf		(x 0.6 = 10.62 psf)
P_{35} =	(1.05) (1.00) (17.7 psf)	=	18.59 psf		(x 0.6 = 11.15 psf)

Design Base Shear: (Wind)

$V_{f/b}$ = (40 ft) (10 ft) (17.7 psf) + (32 ft) (5 ft) (17.7 psf)
+ (32 ft) (5 ft) (17.7 psf) + (32 ft) (1 ft) (18.6 psf) =16.2 x 0.6 = 9.7 kips

$V_{s/s}$ = (54 ft) (10 ft) (17.7 psf) + (54 ft) (5 ft) (17.7 psf)
+ (46 ft) (5 ft) (17.7 psf) + (18 ft) (5 ft) (17.7 psf)
+ (4 ft) (1 ft) (18.6 psf) (0.0 psf) =20.1 x 0.6 = 12.0 kips

Therefore,

Wind Loads Govern for Lateral Design - Front/Back
Wind Loads Govern for Lateral Design - Side/Side

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PROJECT LZ-2565

JOB NO. 08-019 FIGURED BY GAT

CHECKED BY DATE 08/21/13 SHEET 11 OF

SHEAR WALL DESIGN

SHEAR WALL #1

ROOF $V_R = \left(\frac{32}{2}\right)[(1')(100\#/ft) + (5')(10.4\#/ft) + (5')(10.4\#/ft) + (5')(10.4\#/ft)] = 2{,}670\#$

$l = 6.5' + 3.5' + 4.5' + 6.5' = 21'$

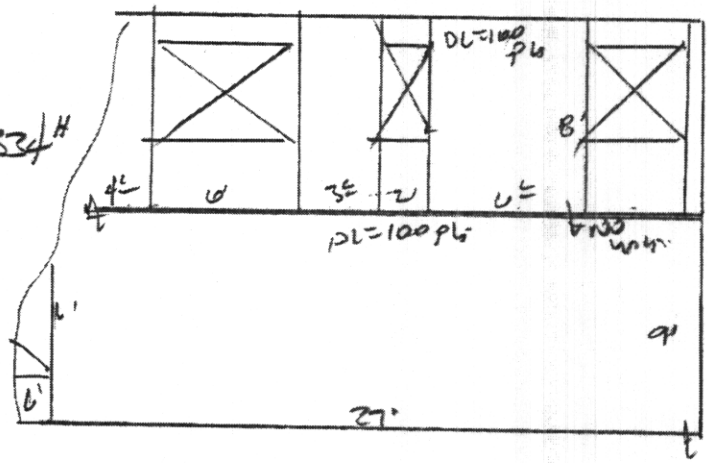
$q = 2{,}670\#/21' = 127\#/ft$ (A)

FLOOR $V_F = 2{,}670\# + \left(\frac{32}{2}\right)(40')(10.4\#/ft) = 4{,}334\#$

$l = 27 + 13' = 40'$

$q = 4{,}334\#/40' = 108\#/ft$ (A)

$\frac{40}{4L} = 0.07$



SHEAR WALL #2

ROOF: $V_R = 2{,}670\#$

$l = 8.5' + 10.5' + 18.5' = 37.5'$

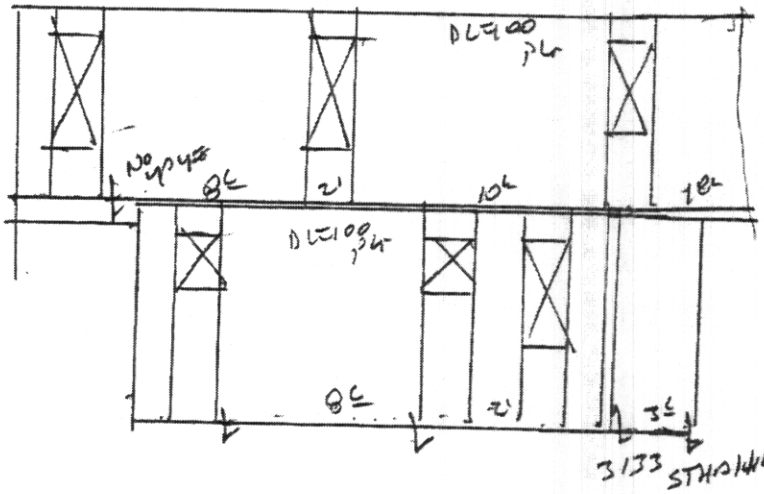
$q = 2{,}670\#/37.5' = 71\#/ft$ (A)

FLOOR:

$V_F = 4{,}334\#$

$l = 8.5' + 3.5' = 12'$

$q = 4{,}334\#/12' = 361\#/ft$ (B)



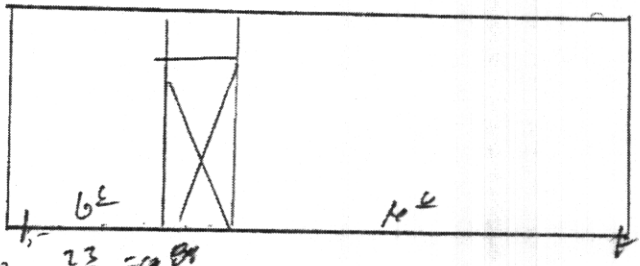
SHEAR WALL #3

ROOF:

$V_R = \left(\frac{40}{2}\right)(10 \times 10.4\#/ft) = 2{,}080\#$

$l = 6.5' + 16.5' = 23'$

$q = 2{,}080\#/23' = 90\#/ft$ (A)



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SHEAR WALL DESIGN (CONT)

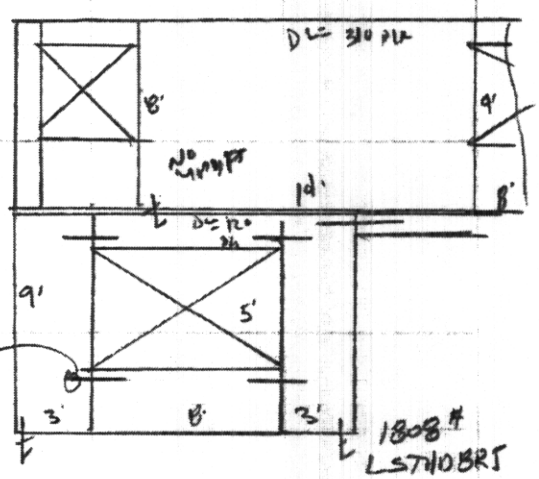
SHEAR WALL #4

ROOF: $V_R = (\frac{4}{2})(11')(10.9^{PLF}) + (\frac{18}{2})(5')(10.4^{PLF}) + (\frac{38}{2})(5')(10.4^{PLF}) + (\frac{45}{2})(5')(10.4^{PLF}) = 2,648^{\#}$

$l = 4.5' + 14' = 18.5^{FT}$

$q = 2,648^{\#} / 18.5' = 143^{PLF}$ (A)

$\frac{18.5'}{200'} = 0.09$



FLOOR:

$V_F = 2,648^{\#} + (\frac{20}{2})(10')(10.4^{PLF}) = 3,688^{\#}$

$l = 3' + 3' = 6^{FT}$

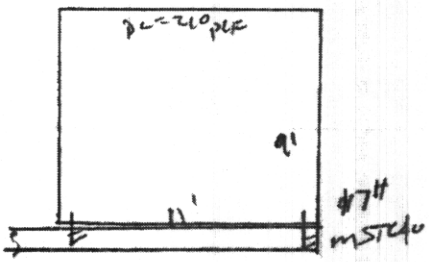
$q = 3,688^{\#} / 6' = 615^{PLF}$ (C)

SHEAR WALL #5

FLOOR: $V_F = (\frac{20+18}{2})(10')(10.4^{PLF}) = 1,456^{\#}$

$l = 11^{FT}$

$q = 1,456^{\#} / 11' = 132^{PLF}$ (A)



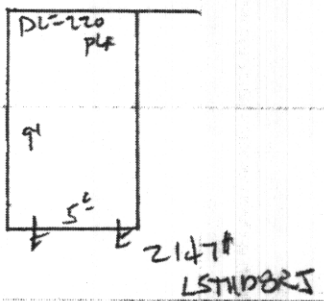
SHEAR WALL #6

FLOOR:

$V_F = (\frac{8+22}{2})(10')(10.4^{PLF}) = 1,560^{\#}$

$l = 5.5^{FT}$

$q = 1,560^{\#} / 5.5' = 284^{PLF}$ (B)



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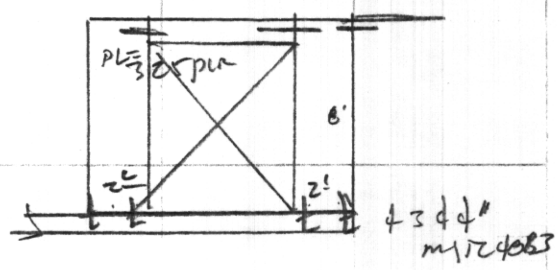
SHEAR WALL DESIGN

SHEAR WALL #7 - ELEV A

ROOF: $V_R = (\frac{4}{2})(1')(11.2^{psf}) + (\frac{18}{2})(5')(10.6^{psf}) + (\frac{45}{2})[(5')(10.6^{psf}) + (5')(10.6^{psf})] = 2,884^{\#}$

$l = 2.5' + 2.5' = 5^{ft}$

$q = 2,884^{\#}/5' = 577^{plf}$

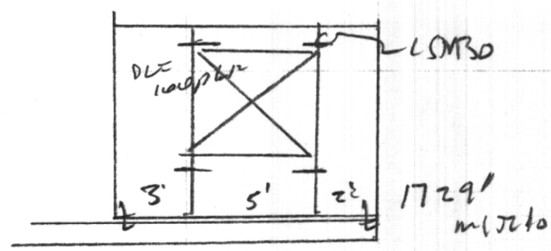


SHEAR WALL #7 - ELEV B'

ROOF: $V_R = 2,884^{\#}$

$l = 3' + 2.5' = 5.5^{ft}$

$q = 2,884^{\#}/5.5' = 524^{plf}$



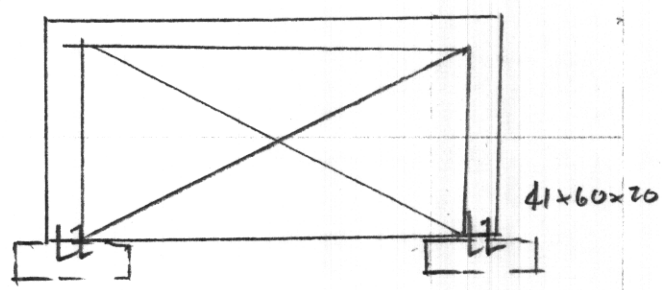
SHEAR WALL #8

ROOF: $V_R = 2,884^{\#} + (\frac{26}{2})(10')(10.6^{psf}) = 4,262^{\#}$

$l = 1.5' + 1.5' = 3^{ft}$

q - USE WSW 18x8 SB PORTAL FRAME

$V_{ALL} = 5,096^{\#}$



SHEAR WALL #9

ROOF: $V_R = (9')[(5')(10.6^{psf}) + (5')(10.6^{psf})] = 954^{\#}$

$l = 3' + 3' = 6^{ft}$

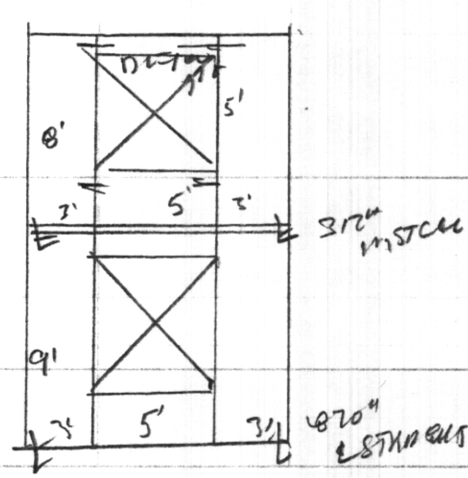
$q = 954^{\#}/6' = 159^{plf}$

FLOOR:

$V_F = 936^{\#} + (4')(10')(10.6^{psf}) = 1,360^{\#}$

$l = 3' + 3' = 6^{ft}$

$q = 1,360^{\#}/6' = 227^{plf}$



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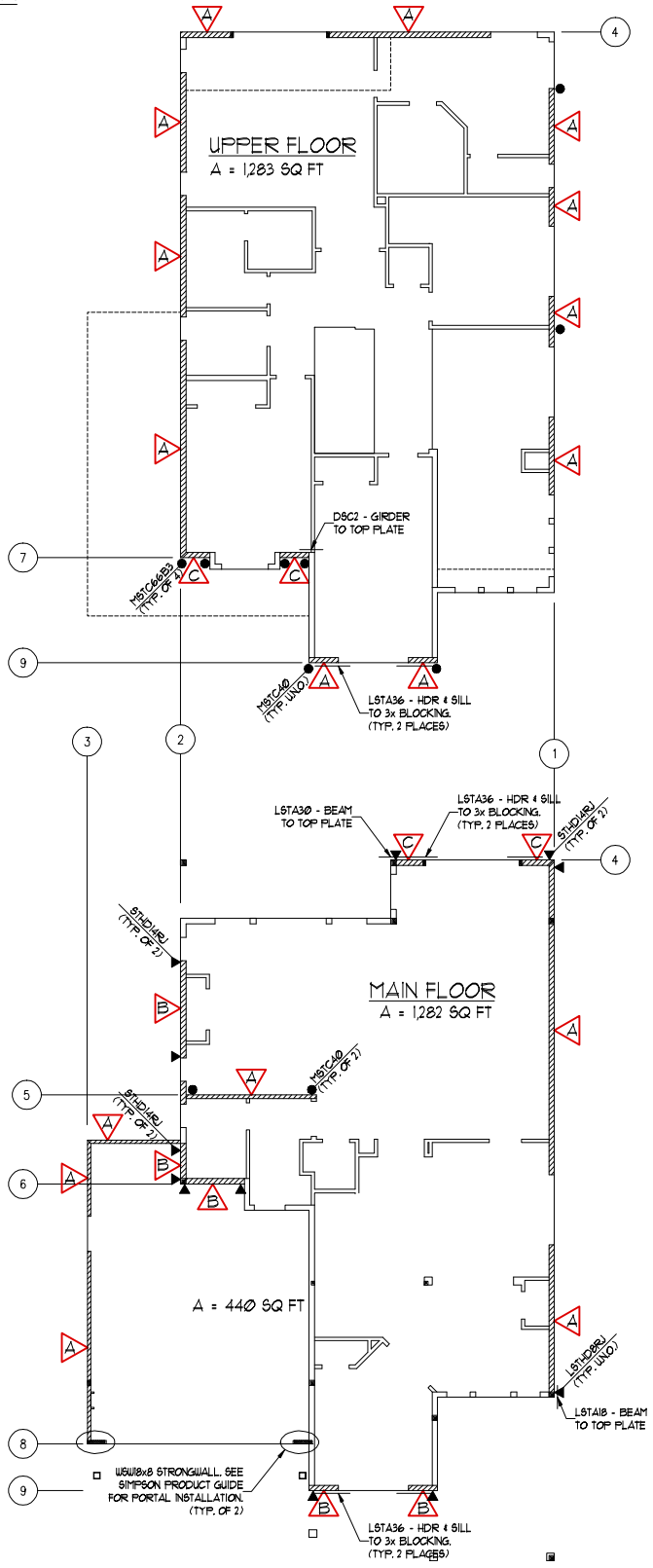
SHEAR WALL KEY PLAN



SHEAR WALL SCHEDULE

Mark	Minimum Sheathing (1)	Sheathing Nailing (1)	Anchor Bolts (3)	Remarks (4)
A	$^1/_2$" OSB or CDX	8d @ 6" o.c.	$^5/_8$" @ 60" o.c.	Qall = 230 plf
B	$^1/_2$" OSB or CDX	8d @ 4" o.c.	$^5/_8$" @ 32" o.c.	Qall = 350 plf
C	$^1/_2$" OSB or CDX	8d @ 2" o.c.	$^5/_8$" @ 16" o.c.	Qall = 600 plf Use minimum 3x studs at all panel edges and stagger nails.

Notes:

1) All walls designated " ▷ " are shear walls. Exterior walls shall be sheathed with rated sheathing (24/0, OSB or CDX) and nailed at all panel edges (Blocked) per schedule (uno). Nailing at intermediate framing to be at 12" oc. Nailing not called out shall be per IBC Table 2304.10.1.

2) Holdowns and other framing hardware by Simpson or equal to be used per plan. Ends of shear walls shall use double studs minimum (UNO).

3) Use minimum of (2) bolts per sill piece with one bolt located not more than 12" nor less than 5" from each end of the piece. Embed bolts a minimum of 7" into concrete.

4) Allowable loads are permitted to be increased by 40% for wind design in accordance with AF&PA SDPWS Table 4.3A.