



MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

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CALCULATION PACKAGE

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Prepared By:

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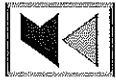
Staff Engineer

Richard J. Zabel, P.E.

Project Manager + Director of Engineering



Signature, Seal & Date



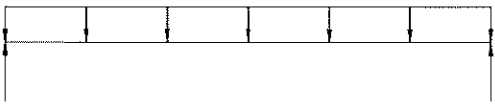
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: TYPICAL EXT. HEADER B1

PARAMETERS:

$D = 230$
 $S = 387$

L = 1.5 FT
W = 0.567 KLF
P = 0 K



ANALYSIS:

$R_{MAX} = 2.13$ K $V_D =$ [] K < $V_{ALL} = 4.47$ K ADEQUATE
 $M_{MAX} = 3.99$ K-FT < $M_{ALL} = 5.17$ K-FT ADEQUATE
 $\Delta_{TL} = 0.109$ IN. $L/823 < L/240$ ADEQUATE

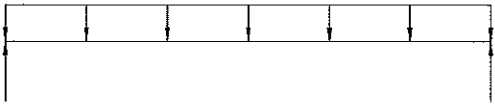
4 x 10 DF-L NO. 2

BEAM DESCRIPTION: FLUSH BEAM AT COV'D PATIO - UPPER FLR B2

PARAMETERS:

$D = 83 + 334$
 $L = 220$
 $S = 343$

L = 21 FT
W = 0.839 KLF
P = 0 K



ANALYSIS:

$R_{MAX} = 8.81$ K $V_D =$ [] K < $V_{ALL} = 24.68$ K ADEQUATE
 $M_{MAX} = 46.25$ K-FT < $M_{ALL} = 78.32$ K-FT ADEQUATE
 $\Delta_{TL} = 0.626$ IN. $L/405 < L/240$ ADEQUATE

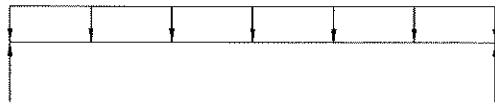
6-3/4"x18" GLB

BEAM DESCRIPTION: HEADER AT GREAT RM S.G.D. - UPPER FLR B3

PARAMETERS:

$D = 206$
 $L = 550$

L = 15 FT
W = 0.756 KLF
P = 0 K



ANALYSIS:

$R_{MAX} = 5.67$ K $V_D =$ [] K < $V_{ALL} = 16.03$ K ADEQUATE
 $M_{MAX} = 21.26$ K-FT < $M_{ALL} = 49.66$ K-FT ADEQUATE
 $\Delta_{TL} = 0.232$ IN. $L/775 < L/240$ ADEQUATE

5 1/2" x 16 1/2" GLB



BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: FLUSH BEAM AT STAIR - UPPER FLR

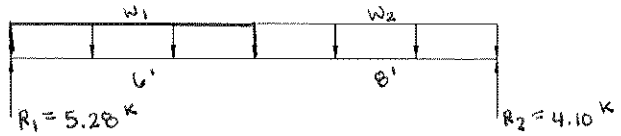
B4

PARAMETERS:

L = 14 FT

W₁ = 0.866 KLF W₂ = 0.523 KLF

P = 0 K



ANALYSIS:

R_{MAX} = 5.28 K V_o = [] K < V_{ALL} = 11.13 K ADEQUATE

M_{MAX} = 16.07 K-FT < M_{ALL} = 37.80 K-FT ADEQUATE

$\frac{315}{I}$

Δ_{TL} = 0.185 IN. L/ 907 < L/240 ADEQUATE

3 1/2" x 18" GLB

BEAM DESCRIPTION: DROPPED BEAM AT GREAT RM - UPPER FLR

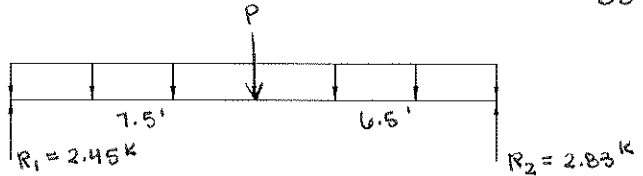
B5

PARAMETERS:

L = 14 FT

W = 0 KLF

P = 5.28 K (B4)



ANALYSIS:

R_{MAX} = 2.83 K V_o = [] K < V_{ALL} = 11.66 K ADEQUATE

M_{MAX} = 18.38 K-FT < M_{ALL} = 26.40 K-FT ADEQUATE

$\frac{288}{I}$

Δ_{TL} = 0.364 IN. L/ 462 < L/240 ADEQUATE

5 1/2" x 12" GLB

BEAM DESCRIPTION: DROPPED BEAM AT FOYER - UPPER FLR

B6

PARAMETERS:

L = 5 FT

D = 90
L = 240

W = 0.330 KLF

P = 0 K



ANALYSIS:

R_{MAX} = 0.83 K V_o = [] K < V_{ALL} = 3.89 K ADEQUATE

M_{MAX} = 1.03 K-FT < M_{ALL} = 4.49 K-FT ADEQUATE

Δ_{TL} = 0.013 IN. L/ 999+ < L/240 ADEQUATE

4 x 10 DF-L No. 2



BEAM & HEADER CALCULATIONS

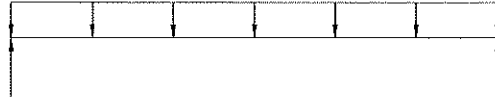
BEAM DESCRIPTION: FLUSH BEAM AT GARAGE - UPPER FLR

B7

PARAMETERS:

D=143+100
L=380

L = 10.75 FT
W = 0.623 KLF
P = 0 K



ANALYSIS:

$R_{MAX} = 3.35$ K $V_o =$ [] K $< V_{ALL} = 11.13$ K ADEQUATE
 $M_{MAX} = 9.00$ K-FT $< M_{ALL} = 37.80$ K-FT ADEQUATE
 $\Delta_{TL} = 0.061$ IN. $L/999^+$ $< L/240$ ADEQUATE

$\frac{104}{I}$

3 1/2" x 18" GLB

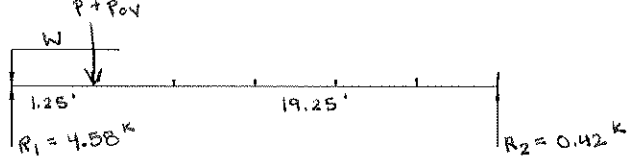
BEAM DESCRIPTION: FLUSH BEAM AT GARAGE - UPPER FLR

B8

PARAMETERS:

D=98+100
S=144

L = 20.5 FT
W = 0.342 KLF
P = 3.85 K (B7)



ANALYSIS:

$R_{MAX} = 4.58$ K $V_o =$ [] K $< V_{ALL} =$ [] K ADEQUATE
 $M_{MAX} = 5.47$ K-FT $< M_{ALL} =$ [] K-FT ADEQUATE
 $\Delta_{TL} = 0.104$ IN. $L/999^+$ $< L/240$ ADEQUATE

3 1/2" x 18" GLB

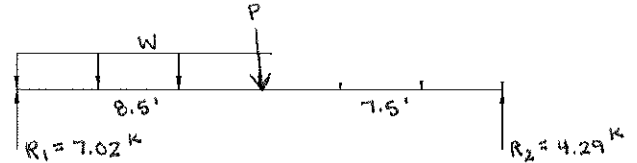
BEAM DESCRIPTION: HEADER AT GARAGE DOOR - UPPER FLR

B9

PARAMETERS:

D=180+100
L=480

L = 16 FT
W = 0.760 KLF
P = 4.85 K (B8)

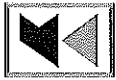


ANALYSIS:

$R_{MAX} = 7.02$ K $V_o =$ [] K $< V_{ALL} = 14.58$ K ADEQUATE
 $M_{MAX} = 32.18$ K-FT $< M_{ALL} = 41.17$ K-FT ADEQUATE
 $\Delta_{TL} = 0.533$ IN. $L/360$ $< L/240$ ADEQUATE

$\frac{824}{I}$

5 1/2" x 15" GLB



BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION:

FLUSH BEAM AT ADU FOYER - UPPER FLR.

B10

PARAMETERS:

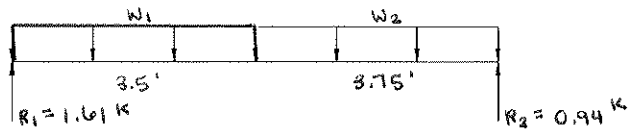
D = 148
L = 398

L = 7.25 FT

W₁ = 0.543 KLF

W₂ = 0.172 KLF

P = 0 K



ANALYSIS:

R_{MAX} = 1.61 K V_D = [] K < V_{ALL} = 11.13 K ADEQUATE

M_{MAX} = 2.39 K-FT < M_{ALL} = 37.80 K-FT ADEQUATE

Δ_{TL} = 0.007 IN. L / 999+ < L / 240 ADEQUATE

3 1/2" x 18" GLB.

BEAM DESCRIPTION:

FLUSH BEAM AT COV'D PORCH - UPPER FLR

B11

PARAMETERS:

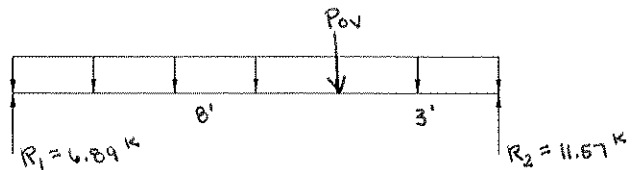
D = 34+351
L = 90
S = 369.

L = 11 FT

W = 0.754 KLF

P = OVERSTRENGTH K

(SEE ENERCALC)



ANALYSIS:

R_{MAX} = 11.57 K V_D = [] K < V_{ALL} = [] K ADEQUATE

M_{MAX} = 31.35 K-FT < M_{ALL} = [] K-FT ADEQUATE

Δ_{TL} = 0.201 IN. L / 657 < L / 240 ADEQUATE

3 1/2" x 18" GLB

BEAM DESCRIPTION:

FLUSH BEAM AT COV'D PORCH - UPPER FLR

B12

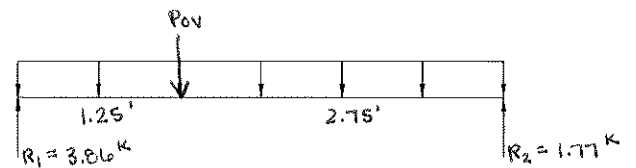
PARAMETERS:

L = 4 FT

W = 0 KLF

P = OVERSTRENGTH K

(SEE ENERCALC)



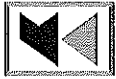
ANALYSIS:

R_{MAX} = 3.86 K V_D = [] K < V_{ALL} = [] K ADEQUATE

M_{MAX} = 4.81 K-FT < M_{ALL} = [] K-FT ADEQUATE

Δ_{TL} = 0.004 IN. L / 999+ < L / 240 ADEQUATE

3 1/2" x 18" GLB




BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: FLUSH BOTTOM BEAM AT FRONT - ROOF B13

PARAMETERS:

L = 4.5 FT
 W = 0.299 KLF
 P = 0 K

D = 121
S = 178



ANALYSIS:

$R_{MAX} = 0.67$ K $V_o =$ [] K < $V_{ALL} = 2.66$ K ADEQUATE
 $M_{MAX} = 0.76$ K-FT < $M_{ALL} = 1.98$ K-FT ADEQUATE
 $\Delta_{TL} = 0.036$ IN. $L/999^+$ < L/240 ADEQUATE

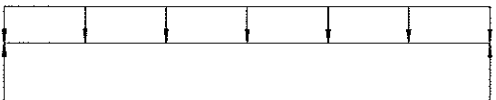
4 x 6 DF-L No. 2

BEAM DESCRIPTION: FLUSH BOTTOM AT GARAGE - UPPER FLR B14

PARAMETERS:

L = 11 FT
 W = 0.680 KLF
 P = 0 K

D = 188
L = 500



ANALYSIS:

$R_{MAX} = 3.78$ K $V_o =$ [] K < $V_{ALL} = 10.20$ K ADEQUATE
 $M_{MAX} = 10.41$ K-FT < $M_{ALL} = 20.22$ K-FT ADEQUATE
 $\Delta_{TL} = 0.237$ IN. $L/566$ < L/240 ADEQUATE

$\frac{126}{I}$

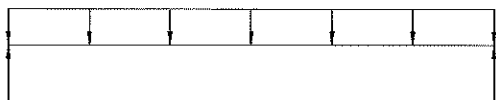
5 1/2" x 10 1/2" GLB

BEAM DESCRIPTION: WORST CASE INT. HEADER B15

PARAMETERS:

L = 2.67 FT
 W = 0.908 KLF
 P = 0 K

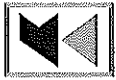
D = 248
L = 660



ANALYSIS:

$R_{MAX} = 1.21$ K $V_o =$ [] K < $V_{ALL} = 3.89$ K ADEQUATE
 $M_{MAX} = 0.81$ K-FT < $M_{ALL} = 4.49$ K-FT ADEQUATE
 $\Delta_{TL} = 0.003$ IN. $L/999^+$ < L/240 ADEQUATE

4 x 10 DF-L No. 2



BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: FLUSH BEAM AT COV'D PORCH - UPPER FLR

B16

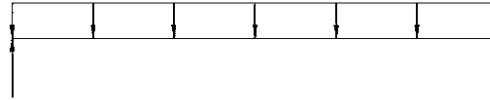
PARAMETERS:

D=25
S=63

L = 13.5 FT

W = 0.088 KLF

P = 0 K



ANALYSIS:

R_{MAX} = 0.59 K V_D = [] K < V_{ALL} = 3.95 K ADEQUATE

M_{MAX} = 2.00 K-FT < M_{ALL} = 8.91 K-FT ADEQUATE

Δ_{TL} = 0.134 IN. L / 999+ < L/240 ADEQUATE

1 3/4" x 11 7/8" LVL (1-PLY)

BEAM DESCRIPTION: FLUSH BEAM AT CRAWL - MAIN FLR

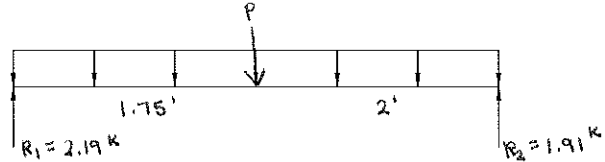
B17

PARAMETERS:

L = 3.75 FT

W = 0 KLF

P = 4.10 K (B4)



ANALYSIS:

R_{MAX} = 2.19 K V_D = [] K < V_{ALL} = 3.95 K ADEQUATE

M_{MAX} = 3.82 K-FT < M_{ALL} = 8.91 K-FT ADEQUATE

Δ_{TL} = 0.016 IN. L / 999+ < L/240 ADEQUATE

4/I

1 3/4" x 11 7/8" LVL (1-PLY)

BEAM DESCRIPTION: 2-SPAN CONT. FLUSH BEAM AT CRAWL - MAIN FLR

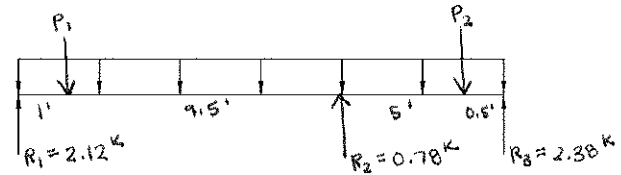
B18

PARAMETERS:

L = 16 FT

W = 0 KLF

P₁ = 2.45 K (B5)
P₂ = 2.83 K (B5)



ANALYSIS:

R_{MAX} = 2.38 K V_D = [] K < V_{ALL} = 3.95 K ADEQUATE

M_{MAX} = 2.11 K-FT < M_{ALL} = 8.91 K-FT ADEQUATE

Δ_{TL} = 0.039 IN. L / 999+ < L/240 ADEQUATE

1 3/4" x 11 7/8" LVL (1-PLY)



BEAM & HEADER CALCULATIONS

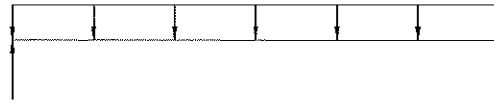
BEAM DESCRIPTION: TYPICAL DROPPED BEAM AT CRAWL - MAIN FLR

B19

PARAMETERS:

D = 135
L = 540

L = 5.33 FT
W = 0.675 KLF
P = ∅ K



ANALYSIS:

R_{MAX} = 1.80 K V_D = [] K < V_{ALL} = 3.89 K ADEQUATE
M_{MAX} = 2.40 K-FT < M_{ALL} = 4.49 K-FT ADEQUATE
Δ_{TL} = 0.033 IN. L/999+ < L/240 ADEQUATE

4 x 10 DF-L No. 2

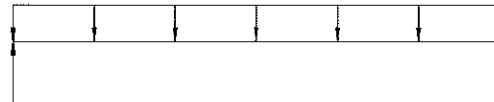
BEAM DESCRIPTION: DROPPED BEAM W/ B.W.A. - MAIN FLR

B20

PARAMETERS:

D = 150 + 220 + 330 + 119
L = 600 + 320
S = 337 + 175

L = 4.25 FT
W = 1.893 KLF
P = ∅ K



ANALYSIS:

R_{MAX} = 4.02 K V_D = [] K < V_{ALL} = 4.47 K ADEQUATE
M_{MAX} = 4.27 K-FT < M_{ALL} = 5.17 K-FT ADEQUATE
Δ_{TL} = 0.036 IN. L/999+ < L/240 ADEQUATE

4 x 10 DF-L No. 2

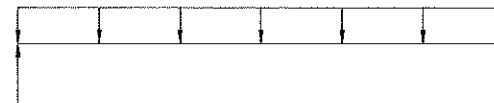
BEAM DESCRIPTION: DROPPED BEAM W/ OFFSET B.W.A. - MAIN FLR

B21

PARAMETERS:

D = 125 + 125
L = 500 + 143

L = 5.13 FT
W = 0.893 KLF
P = ∅ K



ANALYSIS:

R_{MAX} = 2.29 K V_D = [] K < V_{ALL} = 3.89 K ADEQUATE
M_{MAX} = 2.94 K-FT < M_{ALL} = 4.49 K-FT ADEQUATE
Δ_{TL} = 0.038 IN. L/999+ < L/240 ADEQUATE

4 x 10 DF-L No. 2

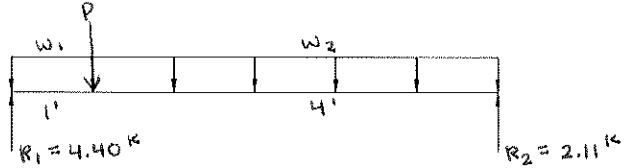


BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: DROPPED BEAM AT CRAWL W/ P.A. - MAIN FLR 822

PARAMETERS:

L = FT
 $W_1 =$ KLF $W_2 = 0.625$ KLF
P = K (B10)



ANALYSIS:

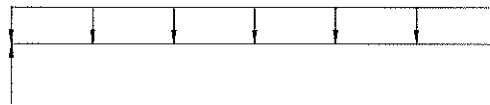
$R_{MAX} =$ K $V_0 =$ K $< V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT $< M_{ALL} =$ K-FT ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ $< L/240$ ADEQUATE

4 x 10 DF-L No. 2

BEAM DESCRIPTION:

PARAMETERS:

L = FT
W = KLF
P = K



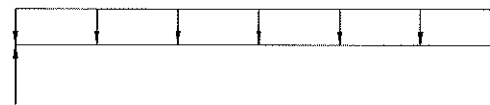
ANALYSIS:

$R_{MAX} =$ K $V_0 =$ K $< V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT $< M_{ALL} =$ K-FT ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ $< L/240$ ADEQUATE

BEAM DESCRIPTION:

PARAMETERS:

L = FT
W = KLF
P = K



ANALYSIS:

$R_{MAX} =$ K $V_0 =$ K $< V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT $< M_{ALL} =$ K-FT ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ $< L/240$ ADEQUATE



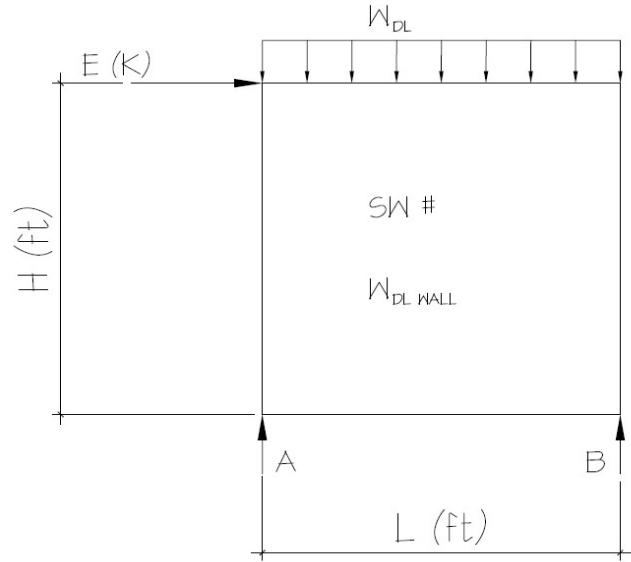
OVERSTRENGTH CALCULATIONS

WALL DESCRIPTION/SW #:

202

PARAMETERS:

L = 41.3 FT
H = 9.0 FT
E = 3.65 K
W_{DL WALL} = 0.10 KLF
W_{DL} = 0.089 KLF
Ω₀ = 2.5 (ASCE TABLE 12.2.1 FOOTNOTE G)
SDS = 1.142



ANALYSIS:

$E_{MH} = \Omega_0 * E = 9.13$ K
 $E_v = 0.2 * SDS * DL = 1.783$ K
 $E_M = E_{MH} + E_v = 10.908$ K
 $E_M = E_{MH} - E_v = 7.342$ K

$E_M (MAX) = \sum M_A = 0 = 10.91(9.0) + 0.189(41.3)(20.65) - R_B(41.3)$ $R_B = 3.9DL + 2.4E$
 $R_A = 3.9DL - 2.4E$
 $E_M (MIN) = \sum M_A = 0 = 7.34(9.0) + 0.189(41.3)(20.65) - R_B(41.3)$ $R_B = 3.9DL + 1.6E$
 $R_A = 3.9DL - 1.6E$

CHECK BEAMS FOR AXIAL FORCES SHOWN USING LOAD COMBOS PER SECTION 12.4.3.1 (ASD)

ALLOWABLE STRESS PERMITTED TO BE INCREASED BY 1.2

SEE FOLLOWING BEAM
CALCS FOR LOAD
APPLICATION



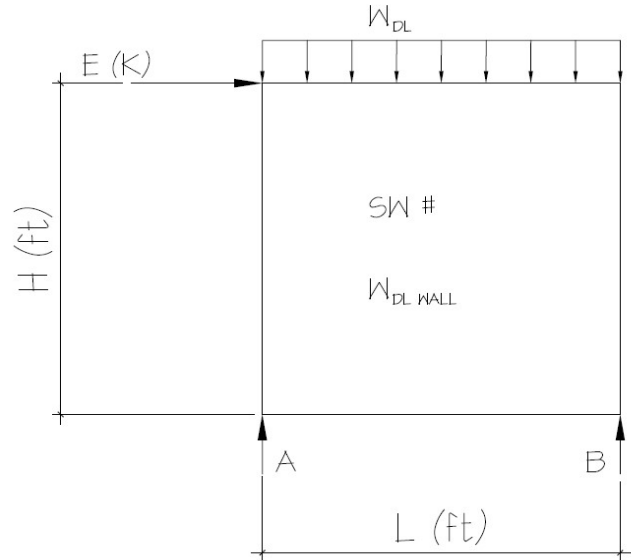
OVERSTRENGTH CALCULATIONS

WALL DESCRIPTION/SW #:

204

PARAMETERS:

- L = 56.4 FT
- H = 9.0 FT
- E = 2.00 K
- W_{DLWALL} = 0.10 KLF
- W_{DL} = 0.238 KLF
- Ω_0 = 2.5 (ASCE TABLE 12.2.1 FOOTNOTE G)
- SDS = 1.142



ANALYSIS:

$E_{MH} = \Omega_0 * E = 5.00$ K $E_v = 0.2 * SDS * DL = 4.354$ K
 $E_M = E_{MH} + E_v = 9.354$ K
 $E_M = E_{MH} - E_v = 0.646$ K

$E_M (MAX) = \sum M_A = 0 = 9.35(9.0) + 0.338(56.4)(28.2) - R_B(56.4)$ $R_B = 9.5DL + 1.5E$
 $R_A = 9.5DL - 1.5E$

$E_M (MIN) = \sum M_A = 0 = 0.65(9.0) + 0.338(56.4)(28.2) - R_B(56.4)$ $R_B = 9.5DL + 0.1E$
 $R_A = 9.5DL - 0.1E$

CHECK BEAMS FOR AXIAL FORCES SHOWN USING LOAD COMBOS PER SECTION 12.4.3.1 (ASD)

ALLOWABLE STRESS PERMITTED TO BE INCREASED BY 1.2

SEE FOLLOWING BEAM
CALCS FOR LOAD
APPLICATION



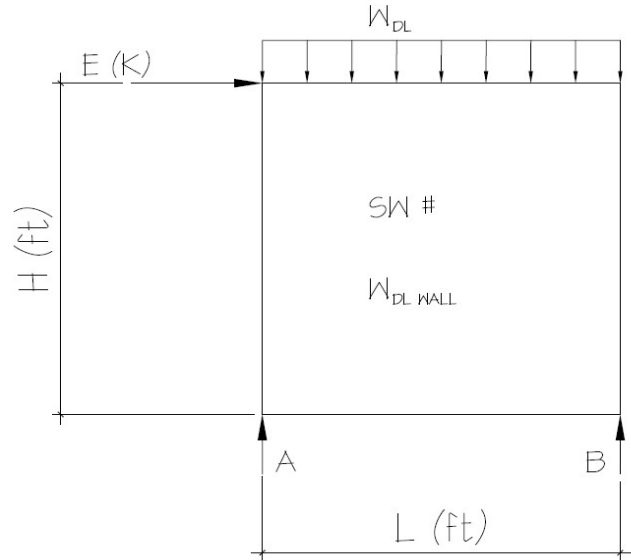
OVERSTRENGTH CALCULATIONS

WALL DESCRIPTION/SW #:

206

PARAMETERS:

L = 11.3 FT
H = 9.0 FT
E = 0.75 K
W_{DL WALL} = 0.10 KLF
W_{DL} = 0.000 KLF
Ω₀ = 2.5 (ASCE TABLE 12.2.1 FOOTNOTE G)
SDS = 1.142



ANALYSIS:

$E_{MH} = \Omega_0 * E = 1.88$ K
 $E_v = 0.2 * SDS * DL = 0.258$ K
 $E_M = E_{MH} + E_v = 2.133$ K
 $E_M = E_{MH} - E_v = 1.617$ K

$E_M (MAX) = \sum M_A = 0 = 2.13(9.0) + 0.1(11.3)(5.65) - R_B(11.3)$ $R_B = 0.6DL + 1.7E$
 $R_A = 0.6DL - 1.7E$

$E_M (MIN) = \sum M_A = 0 = 1.62(9.0) + 0.1(11.3)(5.65) - R_B(11.3)$ $R_B = 0.6DL + 1.3E$
 $R_A = 0.6DL - 1.3E$

CHECK BEAMS FOR AXIAL FORCES SHOWN USING LOAD COMBOS PER SECTION 12.4.3.1 (ASD)

ALLOWABLE STRESS PERMITTED TO BE INCREASED BY 1.2

SEE FOLLOWING BEAM
CALCS FOR LOAD
APPLICATION

Title Block Line 1
 You can change this area
 using the "Settings" menu item
 and then using the "Printing &
 Title Block" selection.
 Title Block Line 6

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Printed: 23 FEB 2022, 8:46AM

Wood Beam

File: beam calcs with overstrength.ec6
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MULHERN & KULP STRUCTURAL ENGINEERING INC

Lic. # : KW-06004787

DESCRIPTION: B8 - Flush Beam at Garage

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values		
			M	V	C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv
Length = 20.50 ft	1	0.085	0.022	1.15	1.000	1.00	1.00	1.00	1.00	1.00	4.42	280.91	3312.00	0.34	8.12	365.70
+D+0.60W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.50 ft	1	0.035	0.011	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.55	162.00	4608.00	0.24	5.80	508.80
+D+0.750Lr+0.750L+0.450W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.50 ft	1	0.060	0.016	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.35	275.89	4608.00	0.34	8.02	508.80
+D+0.750L+0.750S+0.450W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.50 ft	1	0.061	0.016	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.42	280.91	4608.00	0.34	8.12	508.80
+0.60D+0.60W+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.50 ft	1	0.021	0.007	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.53	97.20	4608.00	0.15	3.48	508.80
+D+0.70E+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.50 ft	1	0.054	0.015	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.95	250.58	4608.00	0.32	7.53	508.80
+D-0.70E+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.50 ft	1	0.018	0.008	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.34	85.18	4608.00	0.17	4.07	508.80
+D+0.750L+0.750S+0.5250E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.50 ft	1	0.075	0.019	1.60	1.000	1.00	1.00	1.00	1.00	1.00	5.47	347.35	4608.00	0.40	9.41	508.80
+D+0.750L+0.750S-0.5250E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.50 ft	1	0.047	0.013	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.38	214.48	4608.00	0.29	6.82	508.80

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S+0.5250E+H	1	0.1037	8.978		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	4.579	0.416
Overall MINimum	1.596	0.104
+D+H	2.173	0.264
+D+L+H	4.089	0.388
+D+Lr+H	2.173	0.264
+D+S+H	2.348	0.269
+D+0.750Lr+0.750L+H	3.610	0.357
+D+0.750L+0.750S+H	3.741	0.361
+D+0.60W+H	2.173	0.264
+D+0.750Lr+0.750L+0.450W+H	3.610	0.357
+D+0.750L+0.750S+0.450W+H	3.741	0.361
+0.60D+0.60W+0.60H	1.304	0.158
+D+0.70E+0.60H	3.291	0.337
+D+0.750L+0.750S+0.5250E+H	4.579	0.416
+0.60D+0.70E+H	2.422	0.231
D Only	2.173	0.264
L Only	1.916	0.124
S Only	0.175	0.005
E Only	1.596	0.104
H Only		

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Project Title:
 Engineer:
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Wood Beam

Lic. #: KW-06004787

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 MULHERN & KULP STRUCTURAL ENGINEERING INC

DESCRIPTION: B11 - Flush Beam at Cov'd Porch

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

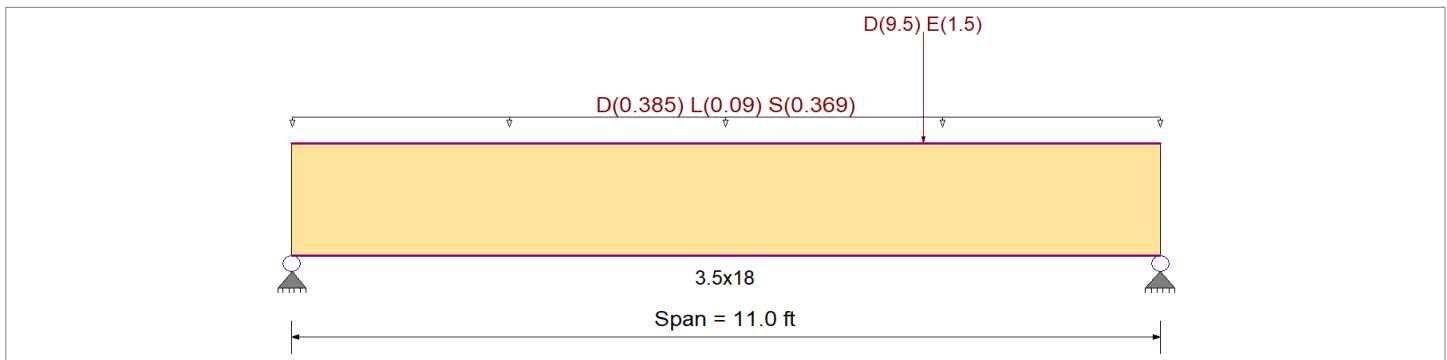
Material Properties

Analysis Method : Allowable Stress Design
 Load Combination : ASCE 7-16

Wood Species : DF/DF
 Wood Grade : 24F - V4

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb + : 2,880.0 psi
 Fb - : 2,220.0 psi
 Fc - Prll : 1,980.0 psi
 Fc - Perp : 780.0 psi
 Fv : 318.0 psi
 Ft : 1,320.0 psi
 E : Modulus of Elasticity
 Ebend- xx : 1,800.0 ksi
 Eminbend - xx : 950.0 ksi
 Ebend- yy : 1,600.0 ksi
 Eminbend - yy : 850.0 ksi
 Density : 31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Uniform Load : D = 0.3850, L = 0.090, S = 0.3690, Tributary Width = 1.0 ft

Point Load : D = 9.50, E = 1.50 k @ 8.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.624	1	Maximum Shear Stress Ratio	=	0.708	1
Section used for this span		3.5x18		Section used for this span		3.5x18	
fb: Actual	=	1,618.64	psi	fv: Actual	=	202.61	psi
Fb: Allowable	=	2,592.00	psi	Fv: Allowable	=	286.20	psi
Load Combination		+D+H		Load Combination		+D+H	
Location of maximum on span	=	7.989	ft	Location of maximum on span	=	9.515	ft
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.040	in	Ratio =		3305	>=360
Max Upward Transient Deflection		0.000	in	Ratio =		0	<360
Max Downward Total Deflection		0.201	in	Ratio =		657	>=300
Max Upward Total Deflection		0.000	in	Ratio =		0	<300

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios										Moment Values			Shear Values								
			M	V	C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v							
+D+H	Length = 11.0 ft	1	0.624	0.708	0.90	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	25.49	1,618.64	2592.00	0.00	0.00	0.00	0.00	202.61	286.20	
+D+L+H	Length = 11.0 ft	1	0.586	0.664	1.00	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	26.58	1,687.37	2880.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
+D+Lr+H	Length = 11.0 ft	1	0.450	0.510	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	25.49	1,618.64	3600.00	0.00	0.00	0.00	0.00	202.61	397.50	
+D+S+H	Length = 11.0 ft	1	0.574	0.650	1.15	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	29.93	1,900.43	3312.00	0.00	0.00	0.00	0.00	237.88	365.70	
+D+0.750Lr+0.750L+H	Length = 11.0 ft	1	0.464	0.526	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	26.31	1,670.19	3600.00	0.00	0.00	0.00	0.00	209.06	397.50	
+D+0.750L+0.750S+H	Length = 11.0 ft	1	0.568	0.644	1.15	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	29.63	1,881.53	3312.00	0.00	0.00	0.00	0.00	235.51	365.70	

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Wood Beam

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Lic. #: KW-06004787

DESCRIPTION: B11 - Flush Beam at Cov'd Porch

Load Combination Segment Length	Span #	Max Stress Ratios		C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	Moment Values			Shear Values			
		M	V								M	fb	F'b	V	fv	F'v	
+D+0.60W+H Length = 11.0 ft	1	0.351	0.398	1.60	1.000	1.00	1.00	1.00	1.00	1.00	25.49	1,618.64	4608.00	0.00	0.00	0.00	0.00
+D+0.750Lr+0.750L+0.450W+H Length = 11.0 ft	1	0.362	0.411	1.60	1.000	1.00	1.00	1.00	1.00	1.00	26.31	1,670.19	4608.00	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+0.450W+H Length = 11.0 ft	1	0.408	0.463	1.60	1.000	1.00	1.00	1.00	1.00	1.00	29.63	1,881.53	4608.00	0.00	0.00	0.00	0.00
+0.60D+0.60W+0.60H Length = 11.0 ft	1	0.211	0.239	1.60	1.000	1.00	1.00	1.00	1.00	1.00	15.30	971.19	4608.00	0.00	0.00	0.00	0.00
+D+0.70E+0.60H Length = 11.0 ft	1	0.383	0.434	1.60	1.000	1.00	1.00	1.00	1.00	1.00	27.78	1,763.90	4608.00	0.00	0.00	0.00	0.00
+D-0.70E+0.60H Length = 11.0 ft	1	0.320	0.362	1.60	1.000	1.00	1.00	1.00	1.00	1.00	23.21	1,473.39	4608.00	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+0.5250E+H Length = 11.0 ft	1	0.432	0.490	1.60	1.000	1.00	1.00	1.00	1.00	1.00	31.35	1,990.47	4608.00	0.00	0.00	0.00	0.00
+D+0.750L+0.750S-0.5250E+H Length = 11.0 ft	1	0.385	0.436	1.60	1.000	1.00	1.00	1.00	1.00	1.00	27.92	1,772.59	4608.00	0.00	0.00	0.00	0.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S+0.5250E+H	1	0.2007	5.901		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	6.892	11.568
Overall MINimum	0.409	1.091
+D+H	4.784	9.102
+D+L+H	5.279	9.597
+D+Lr+H	4.784	9.102
+D+S+H	6.813	11.131
+D+0.750Lr+0.750L+H	5.155	9.473
+D+0.750L+0.750S+H	6.677	10.995
+D+0.60W+H	4.784	9.102
+D+0.750Lr+0.750L+0.450W+H	5.155	9.473
+D+0.750L+0.750S+0.450W+H	6.677	10.995
+0.60D+0.60W+0.60H	2.870	5.461
+D+0.70E+0.60H	5.070	9.865
+D+0.750L+0.750S+0.5250E+H	6.892	11.568
+0.60D+0.70E+H	3.156	6.225
D Only	4.784	9.102
L Only	0.495	0.495
S Only	2.030	2.030
E Only	0.409	1.091
H Only		

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Wood Beam

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DESCRIPTION: B12 - Flush Beam at Cov'd Porch

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values		
			M	V	C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv
Length = 4.0 ft	1	0.046	0.057	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.37	213.87	4608.00	1.23	29.18	508.80
+D+0.750Lr+0.750L+0.450W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 4.0 ft	1	0.046	0.057	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.37	213.87	4608.00	1.23	29.18	508.80
+D+0.750L+0.750S+0.450W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 4.0 ft	1	0.046	0.057	1.60	1.000	1.00	1.00	1.00	1.00	1.00	3.37	213.87	4608.00	1.23	29.18	508.80
+0.60D+0.60W+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 4.0 ft	1	0.028	0.034	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.02	128.32	4608.00	0.74	17.51	508.80
+D+0.70E+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 4.0 ft	1	0.066	0.082	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.81	305.35	4608.00	1.75	41.68	508.80
+D-0.70E+0.60H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 4.0 ft	1	0.027	0.033	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.93	122.38	4608.00	0.70	16.68	508.80
+D+0.750L+0.750S+0.5250E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 4.0 ft	1	0.061	0.076	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.45	282.48	4608.00	1.62	38.56	508.80
+D+0.750L+0.750S-0.5250E+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 4.0 ft	1	0.032	0.039	1.60	1.000	1.00	1.00	1.00	1.00	1.00	2.29	145.25	4608.00	0.83	19.81	508.80

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.70E+0.60H	1	0.0035	1.810		0.0000	0.000

Vertical Reactions

Load Combination	Support notation : Far left is #1		Values in KIPS	
	Support 1	Support 2		
Overall MAXimum	3.864	1.771		
Overall MINimum	1.650	0.750		
+D+H	2.709	1.246		
+D+L+H	2.709	1.246		
+D+Lr+H	2.709	1.246		
+D+S+H	2.709	1.246		
+D+0.750Lr+0.750L+H	2.709	1.246		
+D+0.750L+0.750S+H	2.709	1.246		
+D+0.60W+H	2.709	1.246		
+D+0.750Lr+0.750L+0.450W+H	2.709	1.246		
+D+0.750L+0.750S+0.450W+H	2.709	1.246		
+0.60D+0.60W+0.60H	1.625	0.748		
+D+0.70E+0.60H	3.864	1.771		
+D+0.750L+0.750S+0.5250E+H	3.575	1.640		
+0.60D+0.70E+H	2.780	1.273		
D Only	2.709	1.246		
E Only	1.650	0.750		
H Only				

JAYMARC HOMES
4537 90TH AVE SE

MERCER ISLAND, WASHINGTON

SHEAR WALL CALCULATIONS - SEISMIC

REVIEWED BY: LGH

FEBRUARY 28, 2022

PARAMETERS:

SINGLE FAMILY HOME

DESIGN WIND SPEED: 100 MPH

WIND EXPOSURE CATEGORY: B

SEISMIC DESIGN CATEGORY: D

CODE & DESIGN STANDARD: 2018 IBC CH. 1609, ASCE 7-16 CH. 26-30



MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

SEISMIC CALCULATION - ASCE 7-16

SEISMIC DESIGN CATEGORY:

USER INPUTS:

SITE CLASS	D
SPECTRAL RESPONSE ACCELERATION 0.2 SEC, S_B	1.428
SPECTRAL RESPONSE ACCELERATION 1.0 SEC, S₁	0.496
OCCUPANCY CATEGORY	II

VARIABLES:

SITE COEFFICIENT, F _A	1.20
SITE COEFFICIENT, F _V	1.80

CALCULATED VALUES:

MAXIMUM SPECTRAL RESPONSE ACCELERATION, S_{M8}	1.714
MAXIMUM SPECTRAL RESPONSE ACCELERATION, S_{M1}	0.895
DESIGN SPECTRAL RESPONSE ACCELERATION, S_{D8}	1.142
DESIGN SPECTRAL RESPONSE ACCELERATION, S_{D1}	0.597
SEISMIC DESIGN CATEGORY (SHORT TERM)	D
SEISMIC DESIGN CATEGORY (1.0 SECOND TERM)	D

BUILDING PERIOD DETERMINATION:

USER INPUTS:

BUILDING PERIOD COEFFICIENT, C _T	0.020
LONG-PERIOD TRANS PERIOD, T _L (SEC)	6
HT. ABV BASE TO HIGHEST LEVEL, h _N	21

CALCULATED VALUES:

APPROXIMATE FUNDAMENTAL PERIOD, T _A	0.193
T ₀	0.104
T _B	0.522
SPECTRAL RESPONSE ACC., S _A (G)	1.142

SITE CLASS ASSUMPTION

YES PER ASCE 7-16 SECTION 11.4.3 THE SITE CLASS MAY BE ASSUMED TO BE D

EQUIVALENT LATERAL FORCE PROCEDURE

DEAD LOAD CALCULATION:

LEVEL	STORY HT. (FT.)	AREA (FT ²)	DEAD LOAD (PSF)	DL OF EXT WALL TRIB. TO LEVEL (KIPS)	TOTAL LEVEL DL
1	11.5	2762	15	12.3	54 K
2	9.0	2360	17	5.4	46 K
3	0.0	0	0	0.0	0 K
4	0.0	0	0	0.0	0 K
5	0.0	0	0	0.0	0 K
6	0.0	0	0	0.0	0 K
7	0.0	0	0	0.0	0 K
8	0.0	0	0	0.0	0 K
9	0.0	0	0	0.0	0 K
10	0.0	0	0	0.0	0 K
11	0.0	0	0	0.0	0 K
12	0.0	0	0	0.0	0 K
13	0.0	0	0	0.0	0 K
14	0.0	0	0	0.0	0 K
15	0.0	0	0	0.0	0 K
16	0.0	0	0	0.0	0 K
17	0.0	0	0	0.0	0 K
18	0.0	0	0	0.0	0 K
19	0.0	0	0	0.0	0 K
20	0.0	0	0	0.0	0 K

TOTAL DEAD LOAD OF STRUCTURE 99 KIPS

SEISMIC RESPONSE COEFFICIENT:

	TRANSVERSE	LONGITUDINAL
RESPONSE MODIFICATION FACTOR, R	6.5	6.5
OCCUPANCY IMPORTANCE FACTOR, I _e	1.00	1.00
SEISMIC RESPONSE COEFFICIENT, C _s	0.176	0.176

BASE SHEARS:

ULTIMATE LOADS

x 0.7 =

ALLOWABLE LOADS

TRANSVERSE	LONGITUDINAL	TRANSVERSE	LONGITUDINAL
17 K	17 K	12.2 K	12.2 K

STORY SHEAR CALCULATION:

DISTRIBUTION EXPONENT, **1.00**

ULTIMATE LOADS

x 0.7 =

ALLOWABLE LOADS

LEVEL	VERT. DIST. FACTOR, C _{vk}	TRANSVERSE		LONGITUDINAL		TRANSVERSE		LONGITUDINAL	
		STORY SHEAR, F _v	STORY SHEAR, F _v	STORY SHEAR, F _v	STORY SHEAR, F _v	STORY SHEAR, F _v	STORY SHEAR, F _v	STORY SHEAR, F _v	STORY SHEAR, F _v
1	0.398	6.9 K	6.9 K	4.9 K	4.9 K	12.2 K	12.2 K	4.9 K	4.9 K
2	0.602	10.5 K	10.5 K	7.3 K	7.3 K	7.3 K	7.3 K	7.3 K	7.3 K
3	0.000	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
4	0.000	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
5	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
6	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
7	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
8	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
9	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
10	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
11	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
12	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
13	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
14	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
15	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
16	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
17	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
18	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
19	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K
20	0.00	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K	0.0 K



7525 SE 24th St., 487
Mercer Island, WA
98040
425.266.9100

4537 90th AVE SE
Mercer Island, WA
Job Number:

plan name: -
marketing name: XXXXXX
plan number:
mark sys. number:-

Conditions not specifically represented graphically or in writing or which conflict with the current International Residential Code (IRC) or those of the local municipality then the current standards and requirements of each respectively shall govern.

The drawings in this set are instruments of service and shall remain the property of JayMarc Homes, LLC.

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06.15.21
Submittal Date

Sheet Title/Description

JAYMARC HOMES
Design Firm

R.R.
Drawn by:

R.R./S.K.
Checked by:

Primary Scale

A5
of .

MAIN FLOOR PLAN NOTES

PLAN SPECIFIC 2018 WSEC SECTION R606

R406.2 ADDITIONAL ENERGY EFFICIENCY REQUIREMENTS (MANDATORY). THIS RESIDENTIAL DWELLING SHALL COMPLY W/SUFFICIENT OPTIONS FROM TABLE R406.2 TO ACHIEVE THE FOLLOWING MIN. NUMBER OF CREDITS: 6 FOR A 1501sf TO 4,999sf HOME.

CREDITS PROVIDED IN THIS HOME AS FOLLOWS:
EFFICIENT BUILDING ENVELOPE OPT. 1.3: 0.5 CREDITS

PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 WITH FOLLOWING MODIFICATIONS:
VERTICAL FENESTRATION U = 0.28 WINDOWS
FLOORS TO BE R-38 and SLAB ON GRADE TO BE R-10 PERIMETER and UNDER ENTIRE SLAB BELOW GRADE.

AIRLEAKAGE & EFFICIENT VENTILATION OPT. 2.1: 0.5 CREDITS
REDUCE THE TESTED AIR LEAKAGE TO 3.0 AIR CHANGES PER HOUR MAXIMUM @ 50 PASCALS AND ALL WHOLE HOUSE VENTILATION REQUIREMENTS AS DETERMINED BY SECTION M507.3 OF THE IRC, OR SECTION 404.8 OF THE IMC SHALL BE MET WITH A HIGH EFFICIENCY FAN(S) (MAXIMUM OF 0.35 WATTS/CFM) NOT INTERLOCKED WITH THE FURNACE FAN (IF PRESENT). VENTILATION SYSTEMS USING A FURNACE INCLUDING AN EMC MOTOR ARE ALLOWED, PROVIDED THAT THEY ARE CONTROLLED TO OPERATE AT LOW SPEED IN THE VENTILATION ONLY MODE.

HIGH EFFICIENCY HVAC EQUIPMENT OPT. 3.5a: 1.5 CREDITS
HVAC EQUIPMENT AND ASSOCIATED DUCT SYSTEM(S) INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF SECTION R403.3.1. LOCATING SYSTEM COMPONENTS IN CONDITIONED GRAVEL SPACE IS NOT PERMITTED UNDER THIS OPTION. ELECTRIC RESISTANCE HEAT AND DUCTLESS HEAT PUMPS ARE NOT PERMITTED UNDER THIS OPTION. DIRECT COMBUSTION HEATING EQUIPMENT WITH AFUE LESS THAN 80% IS NOT PERMITTED UNDER THIS OPTION.

HIGH EFFICIENCY HVAC DISTRIBUTION OPT. 4.2: 1.0 CREDITS
HVAC EQUIPMENT AND ASSOCIATED DUCT SYSTEM(S) SHALL COMPLY WITH THE REQUIREMENTS OF SECT R403.3.1. LOCATING SYSTEM COMPONENTS IN CONDITIONED GRAVEL SPACES IS NOT PERMITTED UNDER THIS OPTION. ELECTRIC RESISTANCE HEAT AND DUCTLESS HEAT PUMPS ARE NOT PERMITTED UNDER THIS OPTION. DIRECT COMBUSTION HEATING EQUIPMENT WITH AFUE LESS THAN 80% IS NOT PERMITTED UNDER THIS OPTION.

EFFICIENT WATER HEATING 5.5: 2.0 CREDITS
WATER HEATING SYSTEMS SHALL INCLUDE ONE OF THE FOLLOWING: ELECTRIC HEAT PUMP WATER HEATER MEETING THE STANDARDS FOR TIER III OF NEEA'S ADVANCED WATER HEATING SPECIFICATION. IF ONE WATER HEATER IS SERVING MORE THAN ONE DWELLING UNIT, ALL OF WATER SUPPLY AND RE-CIRCULATION PIPING SHALL BE INSULATED WITH R-8 MINIMUM PIPE INSULATION.

WHOLE HOUSE VENTILATION

PROVIDE WHOLE HOUSE VENTILATION per 2018 IRC, M505.4.3(1) and IMC R403.8. THE WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM SHALL PROVIDE OUTDOOR AIR AT A CONTINUOUS RATE AS DETERMINED IN ACCORDANCE WITH TABLE M505.4.3(1) OR EQUATION 15.

SYMBOL	LOCATION	MIN. FAN REQUIREMENTS (ALL FANS VENT TO OUTSIDE)
BATH #	BATH #	Min. 50cfm. INTERMITTENT at .025mg per TABLE M507.4
KITCHEN	KITCHEN	Min. 100cfm. INTERMITTENT at .025mg per TBL. M507.4
RANGE HOOD OR DOWN DRAFT EXHAUST FAN	RANGE HOOD OR DOWN DRAFT EXHAUST FAN RATED at min. 100cfm. at 0.10mg may be used FOR EXHAUST FAN REQUIR. EXHAUST HOODS IN EXCESS OF 4000cfm. SHALL BE INTERLOCKED AND PROVIDE MAKE UP AIR per M505.4	
LAUNDRY ROOM	LAUNDRY ROOM	MIN. 360cfm. INTERMITTENT at .025mg TO FUNCTION AS WHOLE HOUSE FAN (WHF)

MECHANICAL CONTRACTOR TO SIZE WHF, FAN AND SET OPERATING TIMER per TABLE M507.3(3) FOR A 4501-5000sf. DWELLING w/ 5 OR MORE BEDRMS. TO OPERATE INTERMITTENTLY and CONTINUOUSLY per TABLE M507.3(2)
PROVIDE CONTROLS FOR WHF per M507.3.2 AFFIX LABEL TO CONTROLS THAT READS "WHOLE HOUSE VENTILATION - SEE OPERATING INSTRUCTIONS"

SQUARE FOOTAGE SUMMARY

MAIN FLOOR AREA + GARAGE	2,346 S.F.
UPPER FLOOR AREA	2,182 S.F.
TOTAL AREA	4,528 S.F.
COVERED PATIO	250 S.F.
COVERED PORCH	87 S.F.
TOTAL AREA UNDER ROOF	4,865 S.F.

OVERALL WIDTH 60'-0"
OVERALL DEPTH 49'-5"

Method for Calculating Square Footage - ANSI Z165-2019 except; no separate distinction of above-grade or below-grade areas and each level is measured to the outside of studs not the exterior finished surface.
Updated: 1/10/2018

Source: Footing calculations for this house were made based on nine observations (all) not one.

1st Level
12.8k (Wind)
12.2k (Seismic) →
16.4k (Wind)
12.2k (Seismic) ↑

MAIN FLOOR PLAN

1/4" = 1'-0"

SEE FRAMING PLANS FOR DIAPHRAGM AND WALL OPENING STRAPPING AS REQ'D

25% WIND
25% SEISMIC →

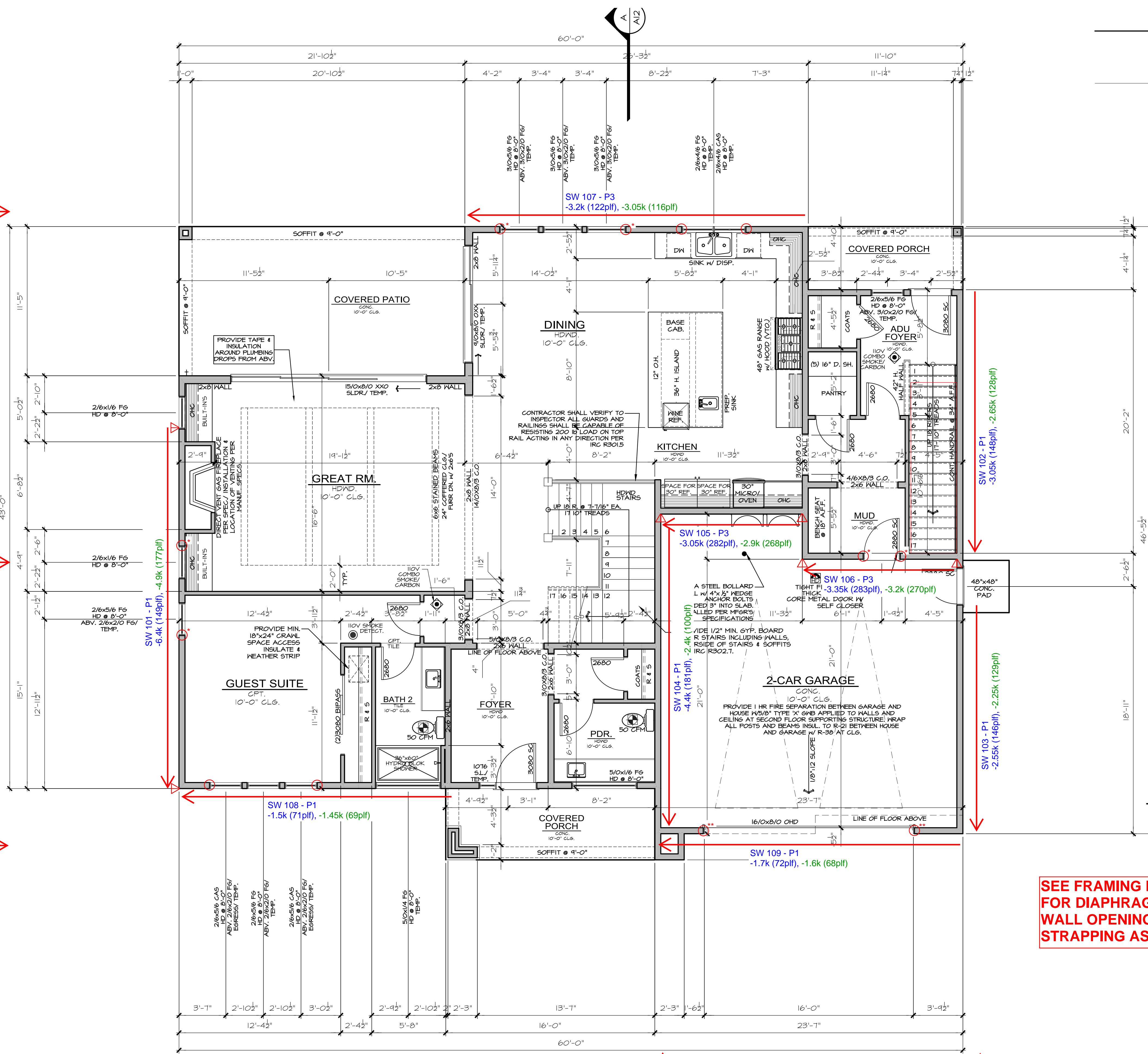
50% WIND
50% SEISMIC →

25% WIND
25% SEISMIC →

39% WIND
40% SEISMIC ↑

27% WIND
(51% story)
20% SEISMIC
(50% story) ↑

34% WIND
40% SEISMIC ↑



Sheet Title/Description



7525 SE 24th St., 487
Mercer Island, WA
98040
425.266.9100

Issue Issue Date By
Description

4537 90th AVE SE
Mercer Island, WA.
Job Number:

plan name: -
marketing name: XXXXXX
plan number:
mark sys. number: -

Conditions not specifically represented graphically or in writing or which conflict with the current International Residential Code (IRC) or those of the local municipality then the current standards and requirements of each respectively shall govern.

The drawings in this set are instruments of service and shall remain the property of JayMarc Homes, LLC.

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06.15.21
Submittal Date

Sheet Title/Description

JAYMARC HOMES
Design Firm

R.R.
Drawn by:

R.R./S.K.
Checked by:

Primary Scale

A7
of .

UPPER FLOOR PLAN NOTES:

PLAN SPECIFIC 2018 WSEC, SECTION R06
R406.2 ADDITIONAL ENERGY EFFICIENCY REQUIREMENTS (MANDATORY). THIS RESIDENTIAL DWELLING SHALL COMPLY w/SUFFICIENT OPTIONS FROM TABLE R406.2 TO ACHIEVE THE FOLLOWING MIN. NUMBER OF CREDITS:
• FOR a 1501sf to 4,999sf HOME:
CREDITS PROVIDED IN THIS HOME AS FOLLOWS:
EFFICIENT BUILDING ENVELOPE OPT. 1.3: 0.5 CREDITS
PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1J with FOLLOWING MODIFICATIONS:
VERTICAL FENESTRATION U = 0.28 WINDOWS
FLOORS TO BE R-30 and SLAB ON GRADE TO BE R-10 PERIMETER and UNDER ENTIRE SLAB BELOW GRADE.
AIRLEAKAGE & EFFICIENT VENTILATION OPT. 2.1: 0.5 CREDITS
REDUCE THE TESTED AIR LEAKAGE TO 3.0 AIR CHANGES PER HOUR MAXIMUM @ 50 PASCALS and ALL WHOLE HOUSE VENTILATION REQUIREMENTS AS DETERMINED BY SECTION M507.3 OF THE I.R.C. OR SECTION 404.B OF THE IMC SHALL BE MET WITH A HIGH EFFICIENCY FAN(S) (MAXIMUM) OF 0.35 WATTS/CFM, NOT INTERLOCKED WITH THE FURNACE FAN (IF PRESENT). VENTILATION SYSTEMS USING A FURNACE INCLUDING AN EMC MOTOR ARE ALLOWED, PROVIDED THAT THEY ARE CONTROLLED TO OPERATE AT LOW SPEED IN THE VENTILATION ONLY MODE.
HIGH EFFICIENCY HVAC EQUIPMENT OPT. 3.5a: 1.5 CREDITS
HVAC EQUIPMENT AND ASSOCIATED DUCT SYSTEM(S) INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF SECTION R403.3.1. LOCATING SYSTEM COMPONENTS IN CONDITIONED GRAINL SPACE IS NOT PERMITTED UNDER THIS OPTION. ELECTRIC RESISTANCE HEAT AND DUCTLESS HEAT PUMPS ARE NOT PERMITTED UNDER THIS OPTION. DIRECT COMBUSTION HEATING EQUIPMENT WITH AFUE LESS THAN 80% IS NOT PERMITTED UNDER THIS OPTION.
HIGH EFFICIENCY HVAC DISTRIBUTION OPT. 4.2: 1.0 CREDITS
HVAC EQUIPMENT AND ASSOCIATED DUCT SYSTEM(S) SHALL COMPLY WITH THE REQUIREMENTS OF SECT R403.3.1. LOCATING SYSTEM COMPONENTS IN CONDITIONED GRAINL SPACES IS NOT PERMITTED UNDER THIS OPTION. ELECTRIC RESISTANCE HEAT AND DUCTLESS HEAT PUMPS ARE NOT PERMITTED UNDER THIS OPTION. DIRECT COMBUSTION HEATING EQUIPMENT WITH AFUE LESS THAN 80% IS NOT PERMITTED UNDER THIS OPTION.
EFFICIENT WATER HEATING 5.5: 2.0 CREDITS
WATER HEATING SYSTEMS SHALL INCLUDE ONE OF THE FOLLOWING:
ELECTRIC HEAT PUMP WATER HEATER MEETING THE STANDARDS FOR TIER III OF NEEA'S ADVANCED WATER HEATING SPECIFICATION. IF ONE WATER HEATER IS SERVING MORE THAN ONE DWELLING UNIT, ALL OF WATER SUPPLY AND RE-CIRCULATION PIPING SHALL BE INSULATED WITH R-8 MINIMUM PIPE INSULATION.

WHOLE HOUSE VENTILATION
PROVIDE WHOLE HOUSE VENTILATION per 2018 IRC, M505.4.3(1) and IMC R403.3. THE WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM SHALL PROVIDE OUTDOOR AIR AT A CONTINUOUS RATE AS DETERMINED IN ACCORDANCE WITH TABLE M505.4.3(1) OR EQUATION 15.

SYMBOL	LOCATION	MIN. FAN REQUIREMENTS (ALL FANS VENT TO OUTSIDE)
BATH #1	BATH #1	Min. 50cfm, INTERMITTENT at .025mg per TABLE M507.4
KITCHEN	KITCHEN	Min. 100cfm, INTERMITTENT at .025mg per TBL. M507.4
LAUNDRY ROOM	LAUNDRY ROOM	MIN. 360cfm, INTERMITTENT at .025mg TO FUNCTION AS WHOLE HOUSE FAN (WHF)

RANGE HOOD or DOWN DRAFT EXHAUST FAN RATED at min. 100cfm, at 0.10mg MAY BE USED FOR EXHAUST FAN REQUIR. EXHAUST HOODS IN EXCESS OF 400cfm, SHALL BE INTERLOCKED AND PROVIDE MAKE UP AIR per M505.4.
MECHANICAL CONTRACTOR TO SIZE WHF, FAN and SET OPERATING TIMER per TABLE M507.3(3) FOR A 4501-5,000sf. DWELLING w/ 5 OR MORE BEDRMS. TO OPERATE INTERMITTENTLY and CONTINUOUSLY per TABLE M507.3(2)
PROVIDE CONTROLS FOR WHF, per M507.3.2 AFFIX LABEL TO CONTROLS THAT READS "WHOLE HOUSE VENTILATION - SEE OPERATING INSTRUCTIONS"

2nd Level
6.4k (Wind) →
7.3k (Seismic) →
7.7k (Wind) ↑
7.3k (Seismic) ↑

UPPER FLOOR PLAN

1/4" = 1'-0"

SQUARE FOOTAGE SUMMARY

MAIN FLOOR AREA + GARAGE	2,346 S.F.
UPPER FLOOR AREA	2,182 S.F.
TOTAL AREA	4,528 S.F.
COVID PATIO	250 S.F.
COVID PORCH	87 S.F.
TOTAL AREA UNDER ROOF	4,865 S.F.

OVERALL WIDTH: 60'-0"
OVERALL DEPTH: 44'-5"
Updated: 1/02/2018
Method for Calculating Square Footage - ANSI Z365-2013 (except, no separate distinction of "above-grade" or "below-grade" areas and each level is measured to the outside of studs not the exterior finished surface.)
Square Footage calculations for this house were made based on plan dimensions only and not on

SEE FRAMING PLANS FOR DIAPHRAGM AND WALL OPENING STRAPPING AS REQ'D

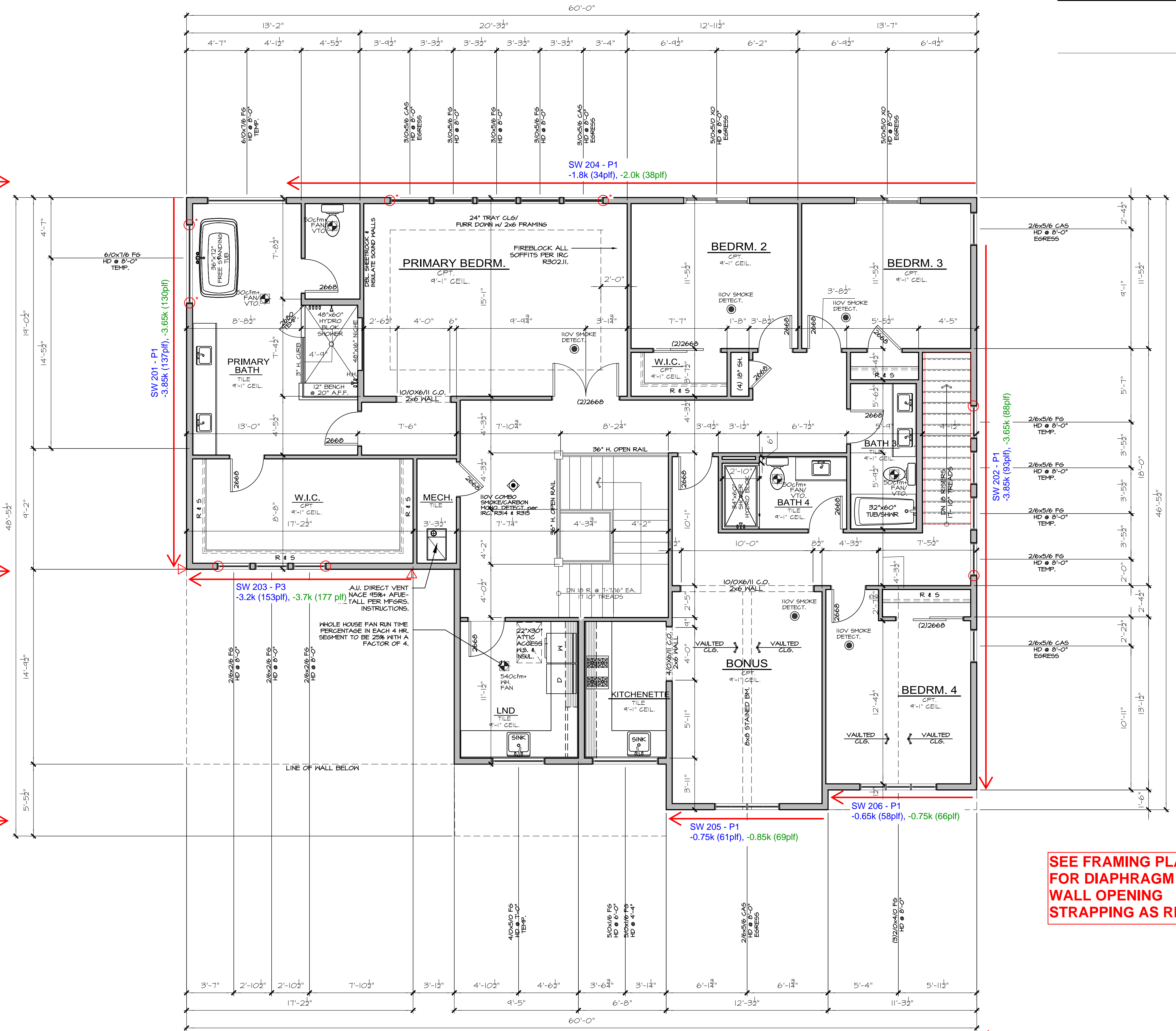
28% WIND
27% SEISMIC →

50% WIND
51% SEISMIC →

22% WIND
22% SEISMIC →

50% WIND
50% SEISMIC ↑

50% WIND
50% SEISMIC ↑



Sheet Title/Description



SHEARWALL DESIGN SUMMARY

SHEARWALL 201: 2ND - PRIMARY BATH/WIC SIDE EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 202: 2ND - BED 3/4 SIDE EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 203: 2ND - WIC/LAUNDRY FRONT EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="9.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="2.5"/>	FT.		
WALL LENGTH, L	<input type="text" value="17.1"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="8.9"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P3"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="3700"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="4005"/>	LBS
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SHEARWALL ASSEMBLY SPECIFICATION

P3 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 3"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL	<input type="text" value="338"/>	PLF	OVERTURNING MOMENT	<input type="text" value="33.3"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="484"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="422"/>	LBS	RESISTIVE MOMENT	<input type="text" value="25.0"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="1705"/>	LBS

HOLD-DOWN SPECIFICATION

SIMPSON GS16 STRAP TIE (14" END LENGTH)

SHEARWALL 204: 2ND - REAR EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="9.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="7.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="52.5"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="26.3"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P1"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="2000"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="6274"/>	LBS
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SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL	<input type="text" value="338"/>	PLF	OVERTURNING MOMENT	<input type="text" value="18.0"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="0"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="468"/>	LBS	RESISTIVE MOMENT	<input type="text" value="215.9"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 205: 2ND - BONUS FRONT EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 206: 2ND - BED 4 FRONT EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL XXX: - NOT USED

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS ALLOWABLE SHEARWALL CAPACITY LBS
###

SHEARWALL ASSEMBLY SPECIFICATION

PO - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - UNBLOCKED
#DIV/0!

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 101: 1ST - LEFT SIDE EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

SIMPSON STHD14RJ HOLDOWN



SHEARWALL DESIGN SUMMARY

SHEARWALL 102: 1ST - STAIR SIDE EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 103: 1ST - GARAGE SIDE EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 104: 1ST - GARAGE LEFT INT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 105: 1ST - GARAGE REAR INT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P3 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 3"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

SIMPSON STHD14RJ HOLDOWN



SHEARWALL DESIGN SUMMARY

SHEARWALL 106: 1ST - GARAGE REAR INT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="10.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="8.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="11.8"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="9.2"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P3"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="3200"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="4131"/>	LBS
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SHEARWALL ASSEMBLY SPECIFICATION

P3 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 3"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL	<input type="text" value="393"/>	PLF	OVERTURNING MOMENT	<input type="text" value="32.0"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="1506"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="400"/>	LBS	RESISTIVE MOMENT	<input type="text" value="14.2"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="3695"/>	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STDH14RJ HOLDOWN

SHEARWALL 107: 1ST - DINING/KITCHEN REAR EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="10.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="7.5"/>	FT.		
WALL LENGTH, L	<input type="text" value="26.3"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="11.6"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P3"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="3050"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="5119"/>	LBS
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SHEARWALL ASSEMBLY SPECIFICATION

P3 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 3"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL	<input type="text" value="581"/>	PLF	OVERTURNING MOMENT	<input type="text" value="30.5"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="0"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="1200"/>	LBS	RESISTIVE MOMENT	<input type="text" value="102.2"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 108: 1ST - GUEST SUITE FRONT EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6" O.C. PANEL EDGES & 12" O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLD DOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLD DOWN REQUIRED

SHEARWALL 109: 1ST - GARAGE FRONT EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6" O.C. PANEL EDGES & 12" O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLD DOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLD DOWN REQUIRED

JAYMARC HOMES
4537 90TH AVE SE

MERCER ISLAND, WASHINGTON

SHEAR WALL CALCULATIONS - WIND

REVIEWED BY: LGH

FEBRUARY 28, 2022

PARAMETERS:

SINGLE FAMILY HOME

DESIGN WIND SPEED: 100 MPH

WIND EXPOSURE CATEGORY: B

SEISMIC DESIGN CATEGORY: D

CODE & DESIGN STANDARD: 2018 IBC CH. 1609, ASCE 7-16 CH. 26-30



MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

WIND DESIGN SUMMARY PER ASCE 7-16

PARAMETERS:		ROOF GEOMETRY:		BUILDING GEOMETRY:	
WIND SPEED	100	TRANS. ROOF PITCH	5.0 :12	LENGTH	60 FT
EXPOSURE CATEGORY	B	LONG. ROOF PITCH	5.0 :12	WIDTH	47 FT
RISK CATEGORY	II	MEAN ROOF HEIGHT, H	28.00 FT	NUMBER OF STORIES	2
WIND DIRECTIONALITY FACTOR, K_D	0.85				
TOPOGRAPHIC FACTOR, K_{ZT}	1.60				
GUST FACTOR, G	0.85				
GROUND ELEV. ABOVE SEA LEVEL (FT)	0				
DESIGN TYPE	ASD 0.60				

TRANSVERSE DIRECTION (PERPENDICULAR TO MAIN RIDGE LINE)						
DIAPHRAGM LEVEL	FLOOR-TO-FLOOR HEIGHT	SURFACE	SECTION			sq ft
			A	O	B	
2	9 FT	Roof Surface	0	427	0	sq ft
		Wall surface	0	269	0	sq ft
1	11.5 FT	Roof Surface	0	0	0	sq ft
		Wall surface	0	612	0	sq ft
FND		Roof Surface	0	0	0	sq ft
		Wall surface	0	0	0	sq ft

TRIBUTARY DESIGN LOADS: (0.6W)				
	SECTION			kips
	A	O	B	
Story Shear	0.00	7.67	0.00	kips
Total Shear	0.00	7.67	0.00	kips
	7.67			kips
Story Shear	0.00	8.73	0.00	kips
Total Shear	0.00	16.40	0.00	kips
	16.40			kips
Story Shear	0.00	0.00	0.00	kips
Total Shear	0.00	16.40	0.00	kips
	16.40			kips

LONGITUDINAL DIRECTION (PARALLEL TO MAIN RIDGE LINE)						
DIAPHRAGM LEVEL	FLOOR-TO-FLOOR HEIGHT	SURFACE	SECTION			sq ft
			A	O	B	
2	9 FT	Roof Surface	0	179	0	sq ft
		Wall surface	0	332	0	sq ft
1	11.5 FT	Roof Surface	0	0	0	sq ft
		Wall surface	0	470	0	sq ft
FND		Roof Surface	0	0	0	sq ft
		Wall surface	0	0	0	sq ft

TRIBUTARY DESIGN LOADS: (0.6W)				
	SECTION			kips
	A	O	B	
Story Shear	0.00	6.38	0.00	kips
Total Shear	0.00	6.38	0.00	kips
	6.38			kips
Story Shear	0.00	6.39	0.00	kips
Total Shear	0.00	12.76	0.00	kips
	12.76			kips
Story Shear	0.00	0.00	0.00	kips
Total Shear	0.00	12.76	0.00	kips
	12.76			kips



7525 SE 24th St., 487
Mercer Island, WA
98040
425.266.9100

4537 90th AVE SE
Mercer Island, WA
Job Number:

plan name: -
marketing name: XXXXXX
plan number:
mark sys. number: -

Conditions not specifically represented graphically or in writing or which conflict with the current International Residential Code (IRC) or those of the local municipality then the current standards and requirements of each respectively shall govern.

The drawings in this set are instruments of service and shall remain the property of JayMarc Homes, LLC.

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06.15.21
Submission Date

Sheet Title/Description

JAYMARC HOMES
Design Firm

R.R.
Drawn by:

R.R./S.K.
Checked by:

Primary Scale

A5
of .

MAIN FLOOR PLAN NOTES

PLAN SPECIFIC 2018 WSEC SECTION R606

R406.2 ADDITIONAL ENERGY EFFICIENCY REQUIREMENTS (MANDATORY). THIS RESIDENTIAL DWELLING SHALL COMPLY W/SUFFICIENT OPTIONS FROM TABLE R406.2 TO ACHIEVE THE FOLLOWING MIN. NUMBER OF CREDITS: 6 FOR A 1501sf TO 4,999sf HOME.

CREDITS PROVIDED IN THIS HOME AS FOLLOWS:
EFFICIENT BUILDING ENVELOPE OPT. 1.3: 0.5 CREDITS

PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 WITH FOLLOWING MODIFICATIONS:
VERTICAL FENESTRATION U = 0.28 WINDOWS
FLOORS TO BE R-38 and SLAB ON GRADE TO BE R-10 PERIMETER and UNDER ENTIRE SLAB BELOW GRADE.

AIRLEAKAGE & EFFICIENT VENTILATION OPT. 2.1: 0.5 CREDITS
REDUCE THE TESTED AIR LEAKAGE TO 3.0 AIR CHANGES PER HOUR MAXIMUM @ 50 PASCALS AND ALL WHOLE HOUSE VENTILATION REQUIREMENTS AS DETERMINED BY SECTION M507.3 OF THE IRC, OR SECTION 404.8 OF THE IMC SHALL BE MET WITH A HIGH EFFICIENCY FAN(S) (MAXIMUM OF 0.35 WATTS/CFM) NOT INTERLOCKED WITH THE FURNACE FAN (IF PRESENT). VENTILATION SYSTEMS USING A FURNACE INCLUDING AN EMC MOTOR ARE ALLOWED, PROVIDED THAT THEY ARE CONTROLLED TO OPERATE AT LOW SPEED IN THE VENTILATION ONLY MODE.

HIGH EFFICIENCY HVAC EQUIPMENT OPT. 3.5a: 1.5 CREDITS
HVAC EQUIPMENT AND ASSOCIATED DUCT SYSTEM(S) INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF SECTION R403.3.1. LOCATING SYSTEM COMPONENTS IN CONDITIONED GRAVEL SPACE IS NOT PERMITTED UNDER THIS OPTION. ELECTRIC RESISTANCE HEAT AND DUCTLESS HEAT PUMPS ARE NOT PERMITTED UNDER THIS OPTION. DIRECT COMBUSTION HEATING EQUIPMENT WITH AFUE LESS THAN 80% IS NOT PERMITTED UNDER THIS OPTION.

HIGH EFFICIENCY HVAC DISTRIBUTION OPT. 4.2: 1.0 CREDITS
HVAC EQUIPMENT AND ASSOCIATED DUCT SYSTEM(S) SHALL COMPLY WITH THE REQUIREMENTS OF SECT R403.3.1. LOCATING SYSTEM COMPONENTS IN CONDITIONED GRAVEL SPACES IS NOT PERMITTED UNDER THIS OPTION. ELECTRIC RESISTANCE HEAT AND DUCTLESS HEAT PUMPS ARE NOT PERMITTED UNDER THIS OPTION. DIRECT COMBUSTION HEATING EQUIPMENT WITH AFUE LESS THAN 80% IS NOT PERMITTED UNDER THIS OPTION.

EFFICIENT WATER HEATING 5.5: 2.0 CREDITS
WATER HEATING SYSTEMS SHALL INCLUDE ONE OF THE FOLLOWING: ELECTRIC HEAT PUMP WATER HEATER MEETING THE STANDARDS FOR TIER III OF NEEA'S ADVANCED WATER HEATING SPECIFICATION. IF ONE WATER HEATER IS SERVING MORE THAN ONE DWELLING UNIT, ALL OF WATER SUPPLY AND RE-CIRCULATION PIPING SHALL BE INSULATED WITH R-8 MINIMUM PIPE INSULATION.

WHOLE HOUSE VENTILATION

PROVIDE WHOLE HOUSE VENTILATION per 2018 IRC, M505.4.3(1) and IMC R403.8. THE WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM SHALL PROVIDE OUTDOOR AIR AT A CONTINUOUS RATE AS DETERMINED IN ACCORDANCE WITH TABLE M505.4.3(1) OR EQUATION 15.

SYMBOL	LOCATION	MIN. FAN REQUIREMENTS (ALL FANS VENT TO OUTSIDE)
BATH #	BATH #	Min. 50cfm. INTERMITTENT at .025mg per TABLE M507.4
KITCHEN	KITCHEN	Min. 100cfm. INTERMITTENT at .025mg per TBL. M507.4
RANGE HOOD OR DOWN DRAFT EXHAUST FAN	RANGE HOOD OR DOWN DRAFT EXHAUST FAN RATED at min. 100cfm. at 0.10mg may be used FOR EXHAUST FAN REQUIR. EXHAUST HOODS IN EXCESS OF 4000cfm. SHALL BE INTERLOCKED AND PROVIDE MAKE UP AIR per M505.4	
LAUNDRY ROOM	LAUNDRY ROOM	MIN. 360cfm. INTERMITTENT at .025mg TO FUNCTION AS WHOLE HOUSE FAN (WHF)

MECHANICAL CONTRACTOR TO SIZE WHF, FAN AND SET OPERATING TIMER per TABLE M507.3(3) FOR A 4501-5000sf. DWELLING w/ 5 OR MORE BEDRMS. TO OPERATE INTERMITTENTLY and CONTINUOUSLY per TABLE M507.3(2)
PROVIDE CONTROLS FOR WHF per M507.3.2 AFFIX LABEL TO CONTROLS THAT READS "WHOLE HOUSE VENTILATION - SEE OPERATING INSTRUCTIONS"

SQUARE FOOTAGE SUMMARY

MAIN FLOOR AREA + GARAGE	2,346 S.F.
UPPER FLOOR AREA	2,182 S.F.
TOTAL AREA	4,528 S.F.
COVERED PATIO	250 S.F.
COVERED PORCH	87 S.F.
TOTAL AREA UNDER ROOF	4,865 S.F.

OVERALL WIDTH 60'-0"
OVERALL DEPTH 49'-5"

Method for Calculating Square Footage - ANSI Z165-2019 except: no separate distinction of above-grade or below-grade areas and each level is measured to the outside of studs not the exterior finished surface.
Updated: 1/10/2018
Source Footing calculations for this house were made based on nine elevations (all) not two.

1st Level
12.8k (Wind)
12.2k (Seismic) →
16.4k (Wind)
12.2k (Seismic) ↑

MAIN FLOOR PLAN

1/4" = 1'-0"

SEE FRAMING PLANS FOR DIAPHRAGM AND WALL OPENING STRAPPING AS REQ'D

25% WIND
25% SEISMIC →

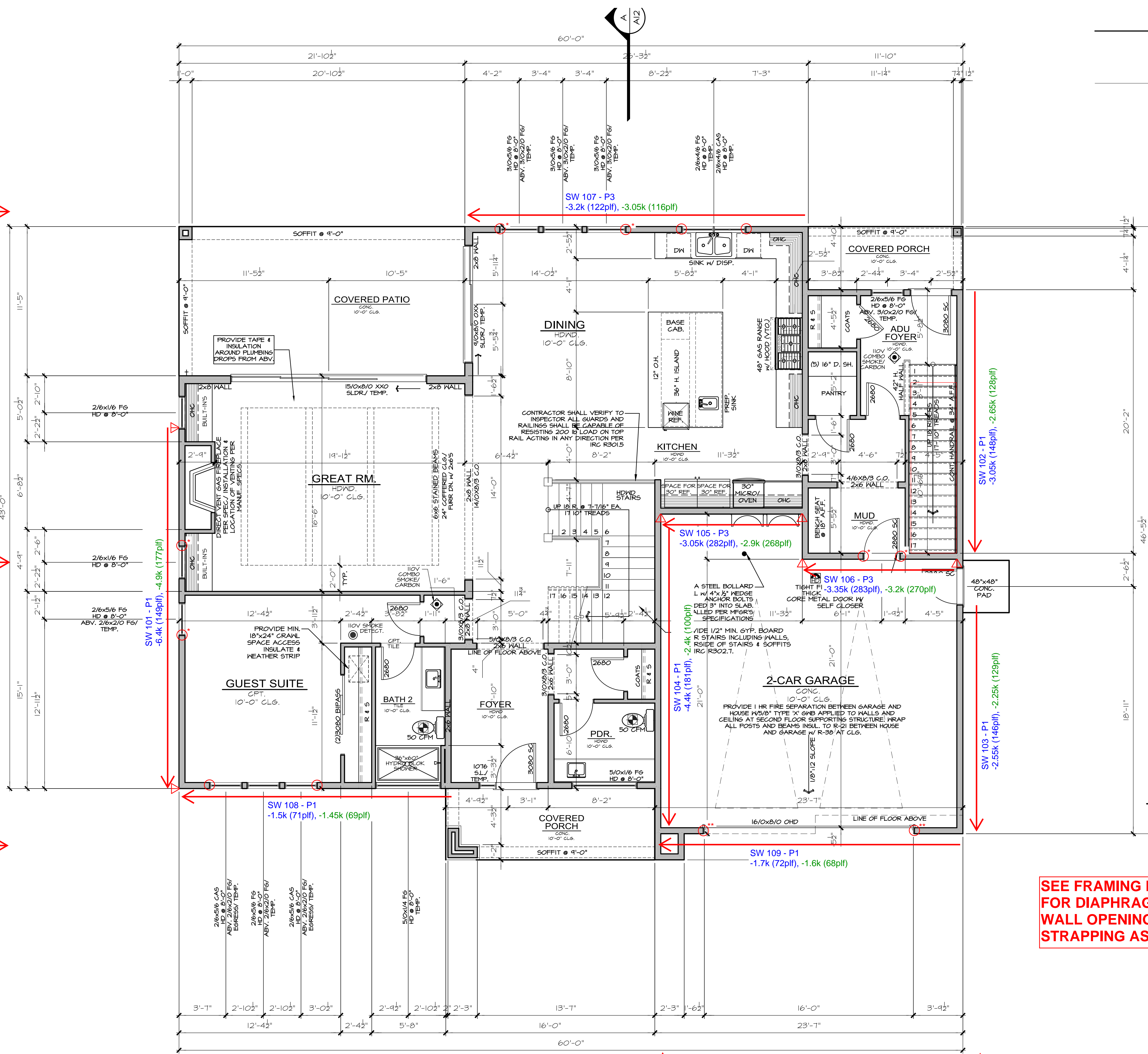
50% WIND
50% SEISMIC →

25% WIND
25% SEISMIC →

39% WIND
40% SEISMIC ↑

27% WIND
(51% story)
20% SEISMIC
(50% story) ↑

34% WIND
40% SEISMIC ↑



Sheet Title/Description



7525 SE 24th St., 487
Mercer Island, WA
98040
425.266.9100

Issue Issue Date By
Description

4537 90th AVE SE
Mercer Island, WA.
Job Number:

plan name: -
marketing name: XXXXXX
plan number:
mark sys. number: -

Conditions not specifically represented graphically or in writing or which conflict with the current International Residential Code (IRC) or those of the local municipality then the current standards and requirements of each respectively shall govern.

The drawings in this set are instruments of service and shall remain the property of JayMarc Homes, LLC.

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06.15.21
Submittal Date

Sheet Title/Description

JAYMARC HOMES
Design Firm

R.R.
Drawn by:

R.R./S.K.
Checked by:

Primary Scale

A7
of .

UPPER FLOOR PLAN NOTES:

PLAN SPECIFIC 2018 WSEC, SECTION R06

R406.2 ADDITIONAL ENERGY EFFICIENCY REQUIREMENTS (MANDATORY). THIS RESIDENTIAL DWELLING SHALL COMPLY w/SUFFICIENT OPTIONS FROM TABLE R406.2 TO ACHIEVE THE FOLLOWING MIN. NUMBER OF CREDITS:

• FOR A 1501sf to 4,999sf HOME:
CREDITS PROVIDED IN THIS HOME AS FOLLOWS:

EFFICIENT BUILDING ENVELOPE OPT. 1.3: 0.5 CREDITS
PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1J WITH FOLLOWING MODIFICATIONS:
VERTICAL FENESTRATION U = 0.28 WINDOWS
FLOORS TO BE R-30 AND SLAB ON GRADE TO BE R-10 PERIMETER AND UNDER ENTIRE SLAB BELOW GRADE.

AIRLEAKAGE & EFFICIENT VENTILATION OPT. 2.1: 0.5 CREDITS
REDUCE THE TESTED AIR LEAKAGE TO 3.0 AIR CHANGES PER HOUR MAXIMUM @ 50 PASCALS AND ALL WHOLE HOUSE VENTILATION REQUIREMENTS AS DETERMINED BY SECTION M507.3 OF THE I.R.C. OR SECTION 404.B OF THE IMC SHALL BE MET WITH A HIGH EFFICIENCY FAN(S) (MAXIMUM) OF 0.35 WATTS/CFM, NOT INTERLOCKED WITH THE FURNACE FAN (IF PRESENT). VENTILATION SYSTEMS USING A FURNACE INCLUDING AN EMC MOTOR ARE ALLOWED, PROVIDED THAT THEY ARE CONTROLLED TO OPERATE AT LOW SPEED IN THE VENTILATION ONLY MODE.

HIGH EFFICIENCY HVAC EQUIPMENT OPT. 3.5a: 1.5 CREDITS
HVAC EQUIPMENT AND ASSOCIATED DUCT SYSTEM(S) INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF SECTION R403.3.1. LOCATING SYSTEM COMPONENTS IN CONDITIONED GRAINL SPACE IS NOT PERMITTED UNDER THIS OPTION. ELECTRIC RESISTANCE HEAT AND DUCTLESS HEAT PUMPS ARE NOT PERMITTED UNDER THIS OPTION. DIRECT COMBUSTION HEATING EQUIPMENT WITH AFUE LESS THAN 80% IS NOT PERMITTED UNDER THIS OPTION.

HIGH EFFICIENCY HVAC DISTRIBUTION OPT. 4.2: 1.0 CREDITS
HVAC EQUIPMENT AND ASSOCIATED DUCT SYSTEM(S) SHALL COMPLY WITH THE REQUIREMENTS OF SECT R403.3.1. LOCATING SYSTEM COMPONENTS IN CONDITIONED GRAINL SPACES IS NOT PERMITTED UNDER THIS OPTION. ELECTRIC RESISTANCE HEAT AND DUCTLESS HEAT PUMPS ARE NOT PERMITTED UNDER THIS OPTION. DIRECT COMBUSTION HEATING EQUIPMENT WITH AFUE LESS THAN 80% IS NOT PERMITTED UNDER THIS OPTION.

EFFICIENT WATER HEATING 5.5: 2.0 CREDITS
WATER HEATING SYSTEMS SHALL INCLUDE ONE OF THE FOLLOWING:
ELECTRIC HEAT PUMP WATER HEATER MEETING THE STANDARDS FOR TIER III OF NEEA'S ADVANCED WATER HEATING SPECIFICATION. IF ONE WATER HEATER IS SERVING MORE THAN ONE DWELLING UNIT, ALL OF WATER SUPPLY AND RE-CIRCULATION PIPING SHALL BE INSULATED WITH R-8 MINIMUM PIPE INSULATION.

WHOLE HOUSE VENTILATION
PROVIDE WHOLE HOUSE VENTILATION per 2018 IRC, M505.4.3(1) and IMC R403.3. THE WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM SHALL PROVIDE OUTDOOR AIR AT A CONTINUOUS RATE AS DETERMINED IN ACCORDANCE WITH TABLE M505.4.3(1) OR EQUATION 15.

SYMBOL LOCATION MIN. FAN REQUIREMENTS (ALL FANS VENT TO OUTSIDE)
BATH #1 POWDER Min. 50cfm, INTERMITTENT at .025mg per TABLE M507.4
KITCHEN Min. 100cfm, INTERMITTENT at .025mg per TBL. M507.4

RANGE HOOD or DOWN DRAFT EXHAUST FAN RATED at min. 100cfm, at 0.10mg MAY BE USED FOR EXHAUST FAN REQUIR. EXHAUST HOODS IN EXCESS OF 400cfm, SHALL BE INTERLOCKED AND PROVIDE MAKE UP AIR per M505.4.
LAUNDRY ROOM Min. 360cfm, INTERMITTENT at .025mg TO FUNCTION AS WHOLE HOUSE FAN (WHF).

MECHANICAL CONTRACTOR TO SIZE WHF, FAN AND SET OPERATING TIMER per TABLE M507.3(3) FOR A 4501-5,000sf. DWELLING w/ 5 OR MORE BEDRMS. TO OPERATE INTERMITTENTLY AND CONTINUOUSLY per TABLE M507.3(2)
PROVIDE CONTROLS FOR WHF, per M507.3.2 AFFIX LABEL TO CONTROLS THAT READS "WHOLE HOUSE VENTILATION - SEE OPERATING INSTRUCTIONS"

2nd Level
6.4k (Wind) →
7.3k (Seismic) →
7.7k (Wind) ↑
7.3k (Seismic) ↑

UPPER FLOOR PLAN

1/4" = 1'-0"

SQUARE FOOTAGE SUMMARY

MAIN FLOOR AREA + GARAGE	2,346 S.F.
UPPER FLOOR AREA	2,182 S.F.
TOTAL AREA	4,528 S.F.
COVID PATIO	250 S.F.
COVID PORCH	87 S.F.
TOTAL AREA UNDER ROOF	4,865 S.F.

OVERALL WIDTH 60'-0"
OVERALL DEPTH 44'-5"

Method for Calculating Square Footage - ANSI Z365-2013 (except, no separate distinction of "above-grade" or "below-grade" areas and each level is measured to the outside of studs not the exterior finished surface.)
Square Footage calculations for this house were made based on plan dimensions only and not on

SEE FRAMING PLANS FOR DIAPHRAGM AND WALL OPENING STRAPPING AS REQ'D

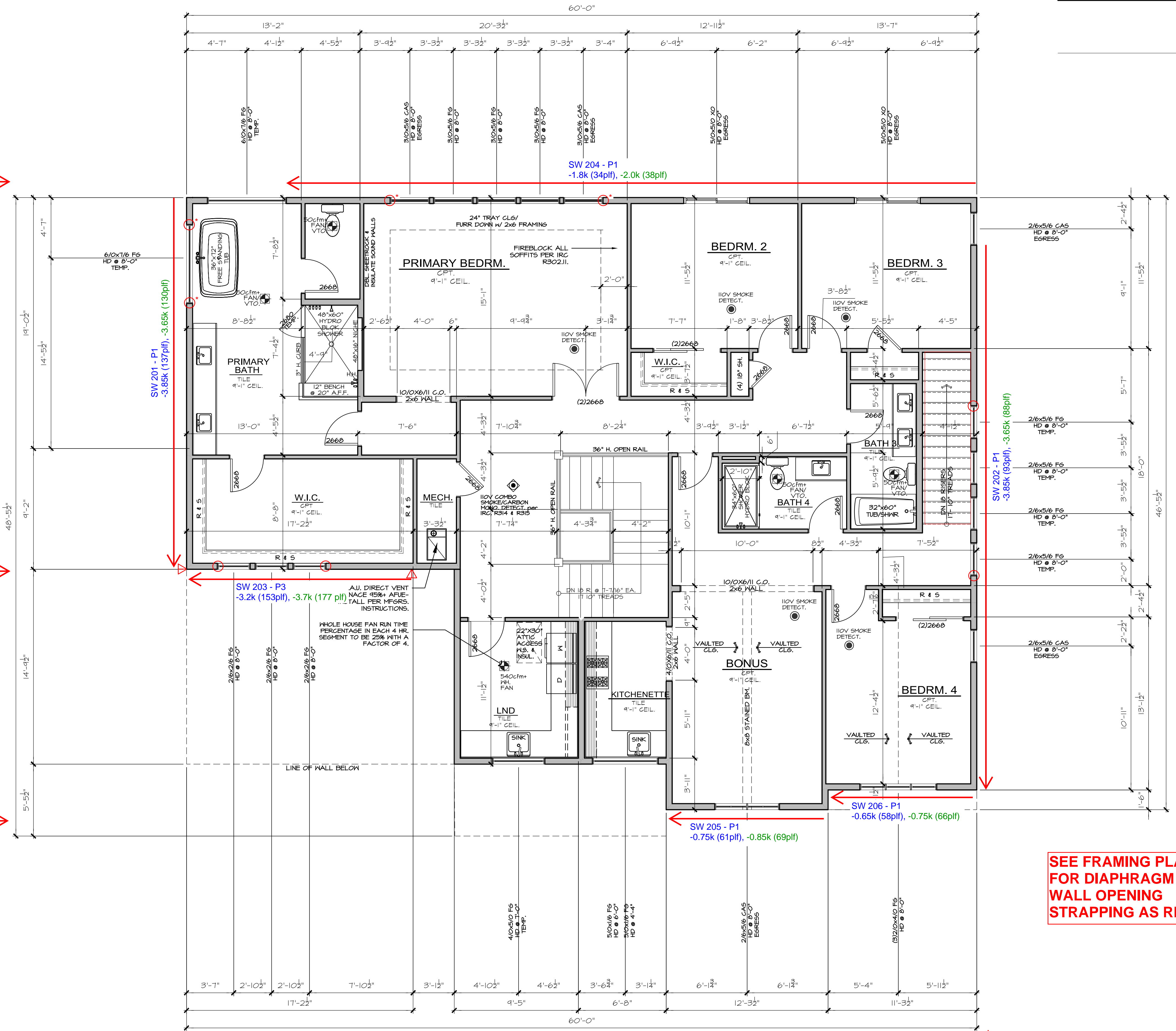
28% WIND
27% SEISMIC →

50% WIND
51% SEISMIC →

22% WIND
22% SEISMIC →

50% WIND
50% SEISMIC ↑

50% WIND
50% SEISMIC ↑



SW 201 - P1
-3.85k (137plf), -3.65k (130plf)

SW 204 - P1
-1.8k (34plf), -2.0k (38plf)

SW 203 - P3
-3.2k (153plf), -3.7k (177 plf)

SW 205 - P1
-0.75k (61plf), -0.85k (69plf)

SW 206 - P1
-0.65k (58plf), -0.75k (66plf)

SW 202 - P1
-3.85k (93plf), -3.65k (88plf)



SHEARWALL DESIGN SUMMARY

SHEARWALL 201: 2ND - PRIMARY BATH/WIC SIDE EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="9.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="7.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="28.2"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="22.2"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P1"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="3850"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="7323"/>	LBS
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SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL	<input type="text" value="117"/>	PLF	OVERTURNING MOMENT	<input type="text" value="34.7"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="0"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="1005"/>	LBS	RESISTIVE MOMENT	<input type="text" value="44.8"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 202: 2ND - BED 3/4 SIDE EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="9.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="5.5"/>	FT.		
WALL LENGTH, L	<input type="text" value="41.3"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="25.8"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P1"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="3850"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="8679"/>	LBS
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SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL	<input type="text" value="189"/>	PLF	OVERTURNING MOMENT	<input type="text" value="34.7"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="0"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="468"/>	LBS	RESISTIVE MOMENT	<input type="text" value="108.5"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 203: 2ND - WIC/LAUNDRY FRONT EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="9.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="2.5"/>	FT.		
WALL LENGTH, L	<input type="text" value="17.1"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="8.9"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P3"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="3200"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="5594"/>	LBS
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SHEARWALL ASSEMBLY SPECIFICATION

P3 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 3"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL	<input type="text" value="338"/>	PLF	OVERTURNING MOMENT	<input type="text" value="28.8"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="0"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="422"/>	LBS	RESISTIVE MOMENT	<input type="text" value="34.1"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 204: 2ND - REAR EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="9.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="7.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="52.5"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="26.3"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P1"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="1800"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="8820"/>	LBS
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SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL	<input type="text" value="338"/>	PLF	OVERTURNING MOMENT	<input type="text" value="16.2"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="0"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="468"/>	LBS	RESISTIVE MOMENT	<input type="text" value="294.4"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 205: 2ND - BONUS FRONT EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 206: 2ND - BED 4 FRONT EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL XXX: - NOT USED

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS ALLOWABLE SHEARWALL CAPACITY LBS
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SHEARWALL ASSEMBLY SPECIFICATION

PO - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - UNBLOCKED
#DIV/0!

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 101: 1ST - LEFT SIDE EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

SIMPSON STHD14RJ HOLDOWN



SHEARWALL DESIGN SUMMARY

SHEARWALL 102: 1ST - STAIR SIDE EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 103: 1ST - GARAGE SIDE EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 104: 1ST - GARAGE LEFT INT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 105: 1ST - GARAGE REAR INT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P3 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 3"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

SIMPSON STHD14RJ HOLDOWN



SHEARWALL DESIGN SUMMARY

SHEARWALL 106: 1ST - GARAGE REAR INT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P3 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 3"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLD DOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

SIMPSON STDH14RJ HOLDOWN

SHEARWALL 107: 1ST - DINING/KITCHEN REAR EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P3 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 3"O.C. PANEL EDGES & 12"O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLD DOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 108: 1ST - GUEST SUITE FRONT EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6" O.C. PANEL EDGES & 12" O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 109: 1ST - GARAGE FRONT EXT. WALL

SHEARWALL PROPERTIES:

WALL HEIGHT, H FT. MAX WALL OPENING HT, H_c FT.
WALL LENGTH, L FT. QUALIFYING WALL LENGTH, L FT. SHEARWALL ASSEMBLY

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL LBS < ALLOWABLE SHEARWALL CAPACITY LBS

SHEARWALL ASSEMBLY SPECIFICATION

P1 - 1-SIDE 7/16" OSB
FASTENED W/ 8D NAILS AT 6" O.C. PANEL EDGES & 12" O.C. PANEL FIELD - EDGES BLOCKED
ADEQUATE

OVERTURNING EVALUATION:

RESISTIVE DL PLF OVERTURNING MOMENT K-FT HOLD DOWN DESIGN LOAD LBS
DL AT ENDS OF WALL LBS RESISTIVE MOMENT K-FT HOLDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED