



MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

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CALCULATION PACKAGE

September 13, 2022

Design Built Homes Lot 1 86th Ave SE

Mercer Island, WA

MULHERN & KULP STRUCTURAL ENGINEERING, INC.

Prepared By:

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Staff Engineer

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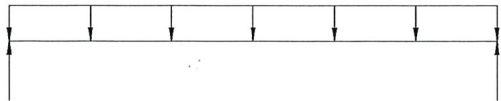




BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: RF FRMG - TYP EXT HDR - WORST CASE B1

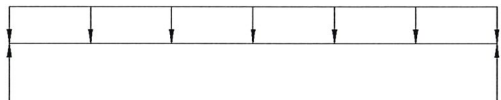
PARAMETERS:
 L = FT
 W = KLF
 P = K



ANALYSIS:
 $R_{MAX} =$ K $V_D =$ K < $V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT < $M_{ALL} =$ K-FT ($C_D=1.15$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ < $L/240$ ADEQUATE

BEAM DESCRIPTION: RF FRMG - TYP INT HDR - WORST CASE B2

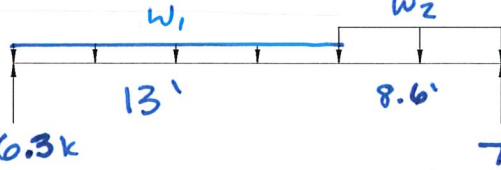
PARAMETERS:
 L = FT
 W = KLF
 P = K



ANALYSIS:
 $R_{MAX} =$ K $V_D =$ K < $V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT < $M_{ALL} =$ K-FT ($C_D=1.0$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ < $L/240$ ADEQUATE

BEAM DESCRIPTION: RF FRMG - FLUSH TOP BM @ MASTER BEDROOM B3

PARAMETERS:
 L = FT
 $W_1 =$ KLF $W_2 = 0.7$
 P = K



ANALYSIS:
 $R_{MAX} =$ K $V_D =$ K < $V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT < $M_{ALL} =$ K-FT ($C_D=1.15$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ < $L/240$ ADEQUATE



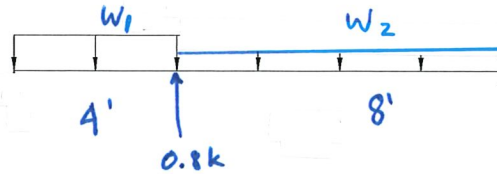
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: RF FRMG - STRUCTURAL FASCIA CANT'D @ STAIRS

B4

PARAMETERS:

L = 12 FT
W₁ = 0.15 KLF W₂ = 0.035
P = — K



ANALYSIS:

R_{MAX} = 0.8 K V_D = [] K < V_{ALL} = 1.54 K ADEQUATE
M_{MAX} = 1.2 K-FT < M_{ALL} = 10.26 K-FT (C_D=1.15) ADEQUATE
Δ_{TL} = 0.062 IN. 2L/999+ < L/240 ADEQUATE

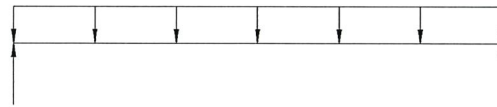
1 3/4 x 11 7/8 LVL

BEAM DESCRIPTION: 2ND FLR FRMG - TYP EXT HDR - WORST CASE

B5

PARAMETERS:

L = 5 FT
W = 1.0 KLF
P = — K



ANALYSIS:

R_{MAX} = 2.5 K V_D = [] K < V_{ALL} = 3.89 K ADEQUATE
M_{MAX} = 3.13 K-FT < M_{ALL} = 4.49 K-FT (C_D=1.0) ADEQUATE
Δ_{TL} = 0.038 IN. L/999+ < L/240 ADEQUATE

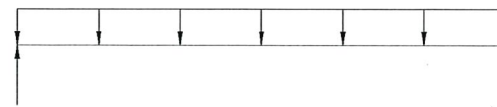
4 x 10

BEAM DESCRIPTION: 2ND FLR FRMG - TYP INT HDR - WORST CASE

B6

PARAMETERS:

L = 3 FT
W = 1.9 KLF
P = — K



ANALYSIS:

R_{MAX} = 2.85 K V_D = [] K < V_{ALL} = 3.89 K ADEQUATE
M_{MAX} = 2.14 K-FT < M_{ALL} = 4.49 K-FT (C_D= 1.0) ADEQUATE
Δ_{TL} = 0.009 IN. L/999+ < L/240 ADEQUATE

4 x 10



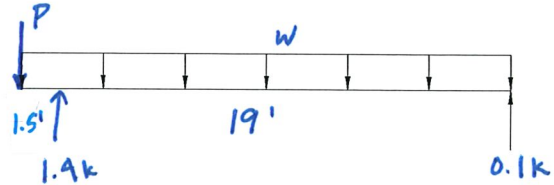
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: RF FRMG - FLUSH BM CANT'D @ STAIRS

B7

PARAMETERS:

L = 20.5 FT
W = 0.047 KLF
P = 0.8 K



ANALYSIS:

$R_{MAX} = 1.4$ K $V_D =$ [] K < $V_{ALL} = 4.54$ K ADEQUATE
 $M_{MAX} = 1.15$ K-FT < $M_{ALL} = 10.26$ K-FT ($C_D=1.15$) ADEQUATE
 $\Delta_{TL} = 0.045$ IN. $2 L / 792 < L/240$ ADEQUATE

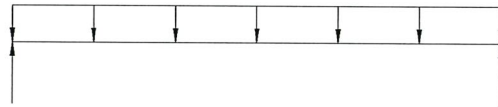
1 3/4 x 1 1/8 LVL

BEAM DESCRIPTION: 2ND FLR FRMG - EXT HDR @ OFFICE / DINING / KITCHEN / GUEST SUITE

B8

PARAMETERS:

L = 8 FT
W = 1.07 KLF
P = - K



ANALYSIS:

$R_{MAX} = 4.28$ K $V_D =$ [] K < $V_{ALL} = 7.17$ K ADEQUATE
 $M_{MAX} = 8.56$ K-FT < $M_{ALL} = 8.84$ K-FT ($C_D=1.0$) ADEQUATE
 $\Delta_{TL} = 0.109$ IN. $L / 882 < L/240$ ADEQUATE

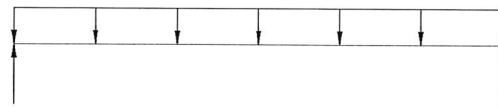
6x12

BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH TOP BM @ DECK

B9

PARAMETERS:

L = 19.5 FT
W = 0.68 KLF
P = - K



ANALYSIS:

$R_{MAX} = 6.63$ K $V_D =$ [] K < $V_{ALL} = 14.89$ K ADEQUATE
 $M_{MAX} = 32.32$ K-FT < $M_{ALL} = 65.0$ K-FT ($C_D=1.0$) ADEQUATE
 $\Delta_{TL} = 0.305$ IN. $L / 767 < L/240$ ADEQUATE

3 1/2 x 2A GLB



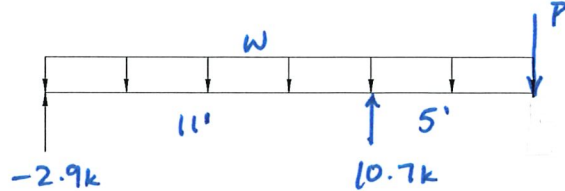
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH TOP BM CANT'D @ DECK

B10

PARAMETERS:

L = FT
W = KLF
P = K



ANALYSIS:

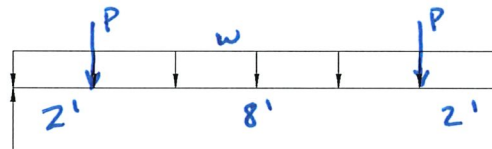
$R_{MAX} =$ K $V_D =$ K $< V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT $< M_{ALL} =$ K-FT ($C_D=1.0$) ADEQUATE
 $\Delta_{TL} =$ IN. $2L/$ $< L/240$ ADEQUATE

BEAM DESCRIPTION: 2ND FLR FRMG - EXT SGD HDR @ GREAT ROOM

B11

PARAMETERS:

L = FT
W = KLF
P = K



ANALYSIS:

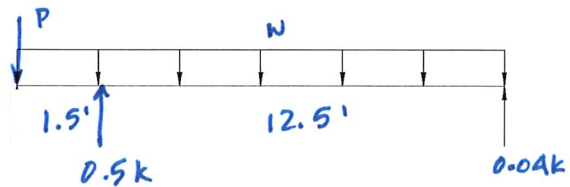
$R_{MAX} =$ K $V_D =$ K $< V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT $< M_{ALL} =$ K-FT ($C_D=1.0$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ $< L/240$ ADEQUATE

BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH BM CANT'D @ ENTRY FRONT

B12

PARAMETERS:

L = FT
W = KLF
P = K



ANALYSIS:

$R_{MAX} =$ K $V_D =$ K $< V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT $< M_{ALL} =$ K-FT ($C_D=1.45$) ADEQUATE
 $\Delta_{TL} =$ IN. $2L/$ $< L/240$ ADEQUATE



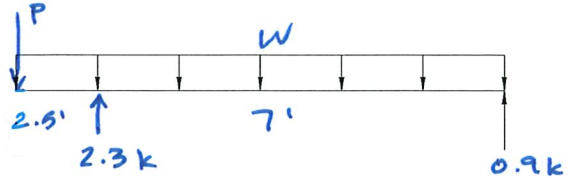
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH BM CANT'D @ ENTRY SIDE

B13

PARAMETERS:

L = FT
W = KLF
P = K



ANALYSIS:

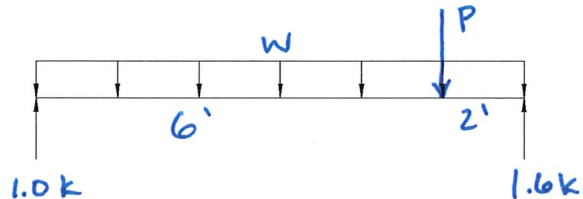
$R_{MAX} =$ K $V_D =$ K $< V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT $< M_{ALL} =$ K-FT ($C_D=1.15$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ $< L/240$ ADEQUATE

BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH BM @ STAIRS

B14

PARAMETERS:

L = FT
W = KLF
P = K



ANALYSIS:

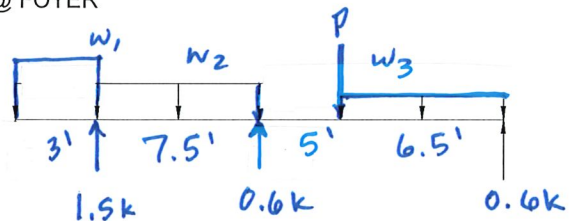
$R_{MAX} =$ K $V_D =$ K $< V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT $< M_{ALL} =$ K-FT ($C_D=1.0$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ $< L/240$ ADEQUATE

BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH BM @ FOYER

B15

PARAMETERS:

L = FT
 $W_1 =$ KLF $W_2=0.21$
 $W_3=0.035$
P = K



ANALYSIS:

$R_{MAX} =$ K $V_D =$ K $< V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT $< M_{ALL} =$ K-FT ($C_D=1.15$) ADEQUATE
 $\Delta_{TL} =$ IN. $2 L/$ $< L/240$ ADEQUATE



BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH BM @ DINING

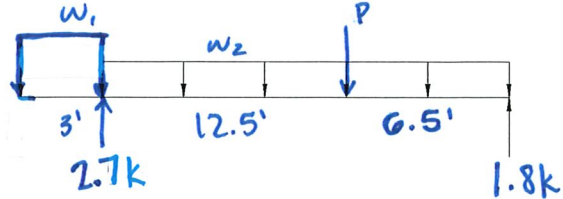
B16

PARAMETERS:

L = 22 FT

$W_1 = 0.14$ KLF $W_2 = 0.073$

P = 1.6 K



ANALYSIS:

$R_{MAX} = 2.7$ K $V_D =$ K $< V_{ALL} = 12.8$ K

ADEQUATE

$M_{MAX} = 10.2$ K-FT $< M_{ALL} = 43.47$ K-FT ($C_D = 1.15$)

ADEQUATE

$\Delta_{TL} = 0.009$ IN. $L/999+$ $< L/240$

ADEQUATE

3 1/2 x 18 GLB

BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH BM @ GREAT ROOM

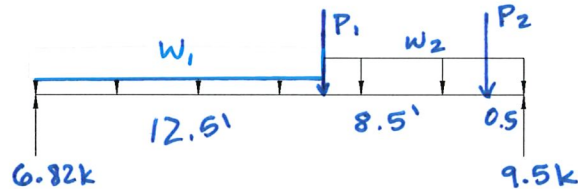
B17

PARAMETERS:

L = 21.5 FT

$W_1 = 0.578$ KLF $W_2 = 0.743$

$P_1 = 0.6$ K $P_2 = 1.8$ K



ANALYSIS:

$R_{MAX} = 9.5$ K $V_D =$ K $< V_{ALL} = 21.5$ K

ADEQUATE

$M_{MAX} = 40.24$ K-FT $< M_{ALL} = 67.9$ K-FT ($C_D = 1.0$)

ADEQUATE

$\Delta_{TL} = 0.567$ IN. $L/455$ $< L/240$

ADEQUATE

6 3/4 x 18 GLB

BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH BTM BM @ MUD

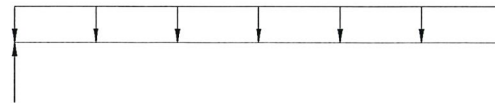
B18

PARAMETERS:

L = 13 FT

W = 1.6 KLF

P = — K



ANALYSIS:

$R_{MAX} = 10.4$ K $V_D =$ K $< V_{ALL} = 12.8$ K

ADEQUATE

$M_{MAX} = 33.8$ K-FT $< M_{ALL} = 43.3$ K-FT ($C_D = 1.0$)

ADEQUATE

$\Delta_{TL} = 0.336$ IN. $L/465$ $< L/240$

ADEQUATE

3 1/2 x 18 GLB

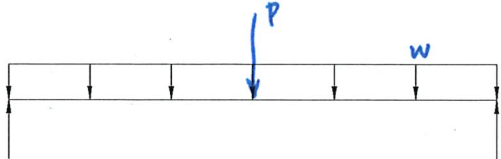


BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: 2ND FLR FRMG - INT DR HDR @ GARAGE B19

PARAMETERS:

L = FT
W = KLF
P = K



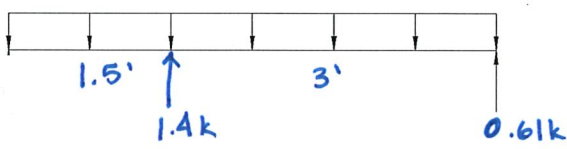
ANALYSIS:

$R_{MAX} =$ K $V_D =$ K $< V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT $< M_{ALL} =$ K-FT ($C_D = 1.15$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ $< L/240$ ADEQUATE

BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH BTM BM CANT'D @ GARAGE B20

PARAMETERS:

L = FT
W = KLF
P = K



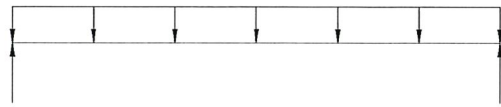
ANALYSIS:

$R_{MAX} =$ K $V_D =$ K $< V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT $< M_{ALL} =$ K-FT ($C_D = 1.15$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ $< L/240$ ADEQUATE

BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH BM @ GUEST BATH B21

PARAMETERS:

L = FT
W = KLF
P = K



ANALYSIS:

$R_{MAX} =$ K $V_D =$ K $< V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT $< M_{ALL} =$ K-FT ($C_D = 1.15$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ $< L/240$ ADEQUATE



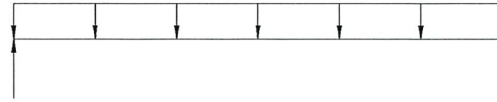
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH BM @ GARAGE SIDE

B22

PARAMETERS:

L = 25.5 FT
W = 0.74 KLF
P = / K



ANALYSIS:

R_{MAX} = 9.4A K V_D = [] K < V_{ALL} = 32.91 K
M_{MAX} = 60.15 K-FT < M_{ALL} = 142.49 K-FT (C_D=1.15)
Δ_{TL} = 0.503 IN. L/ 608 < L/240

ADEQUATE
 ADEQUATE
 ADEQUATE

6 3/4 x 24 GLB

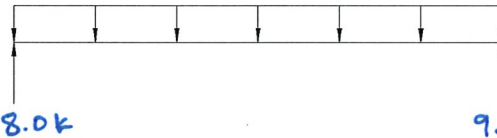
BEAM DESCRIPTION: 2ND FLR FRMG - FLUSH BM @ GARAGE FRONT

B23

PARAMETERS:

L = 22.5 FT
W = [] KLF
P = [] K

SEE ENERCALC OUTPUT



ANALYSIS:

R_{MAX} = [] K V_D = [] K < V_{ALL} = [] K
M_{MAX} = [] K-FT < M_{ALL} = [] K-FT (C_D=)
Δ_{TL} = [] IN. L/ [] < L/240

ADEQUATE
 ADEQUATE
 ADEQUATE

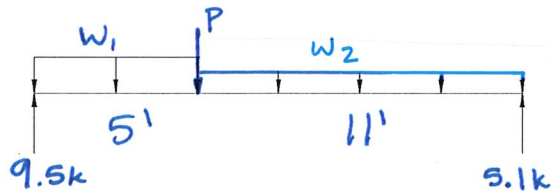
5 1/2 x 24 GLB

BEAM DESCRIPTION: 2ND FLR FRMG - EXT LARGE GARAGE DR HDR

B24

PARAMETERS:

L = 16 FT
W₁ = 0.52 KLF W₂ = 0.24
P = 9.3 K



ANALYSIS:

R_{MAX} = 9.5 K V_D = [] K < V_{ALL} = 20.11 K
M_{MAX} = 41.6 K-FT < M_{ALL} = 66.93 K-FT (C_D=1.15)
Δ_{TL} = 0.399 IN. L/ 482 < L/240

ADEQUATE
 ADEQUATE
 ADEQUATE

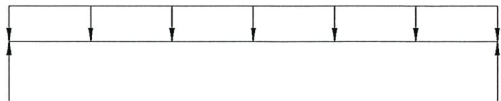
5 1/2 x 18 GLB



BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: 2ND FLR FRMG - EXT **SHORT** GARAGE DR HDR B25

PARAMETERS:
 L = FT
 W = KLF
 P = K



ANALYSIS:
 $R_{MAX} =$ K $V_D =$ K < $V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT < $M_{ALL} =$ K-FT ($C_D=1.15$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ < $L/240$ ADEQUATE

4x10

BEAM DESCRIPTION: 1ST FLR FRMG - TYP DECK JOIST B26

PARAMETERS:
 L = FT
 W = KLF
 P = K

ANALYSIS:
 $R_{MAX} =$ K $V_D =$ K < $V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT < $M_{ALL} =$ K-FT ($C_D=1.0$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ < $L/240$ ADEQUATE

2 x 10 P.T. @ 16" O.C.

BEAM DESCRIPTION: 1ST FLR FRMG - TYP DECK GRDR - WORST CASE B27

PARAMETERS:
 L = FT
 W = KLF
 P = K

ANALYSIS:
 $R_{MAX} =$ K $V_D =$ K < $V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT < $M_{ALL} =$ K-FT ($C_D=1.0$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ < $L/240$ ADEQUATE

4x10 P.T.



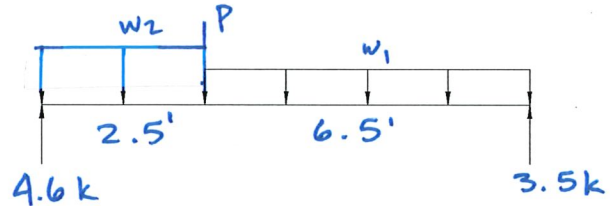
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: 1ST FLR FRMG - FLUSH BM @ BRG

B28

PARAMETERS:

L = FT
 $w_1 =$ KLF $w_2 = 0.88$
P = K



ANALYSIS:

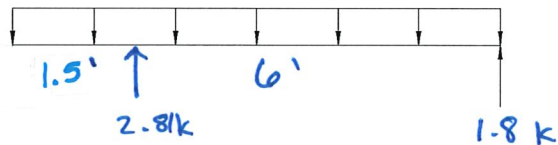
$R_{MAX} =$ K $V_D =$ K < $V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT < $M_{ALL} =$ K-FT ($C_D = 1.15$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ < $L/240$ ADEQUATE

BEAM DESCRIPTION: 1ST FLR FRMG - TYP CRAWL GRDR @ NO BRG

B29

PARAMETERS:

L = FT
W = KLF
P = K



ANALYSIS:

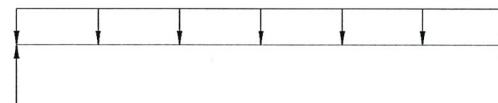
$R_{MAX} =$ K $V_D =$ K < $V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT < $M_{ALL} =$ K-FT ($C_D = 1.0$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ < $L/240$ ADEQUATE

BEAM DESCRIPTION: 1ST FLR FRMG - TYP CRAWL GRDR @ BRG

B30

PARAMETERS:

L = FT
W = KLF
P = K



ANALYSIS:

$R_{MAX} =$ K $V_D =$ K < $V_{ALL} =$ K ADEQUATE
 $M_{MAX} =$ K-FT < $M_{ALL} =$ K-FT ($C_D = 1.0$) ADEQUATE
 $\Delta_{TL} =$ IN. $L/$ < $L/240$ ADEQUATE



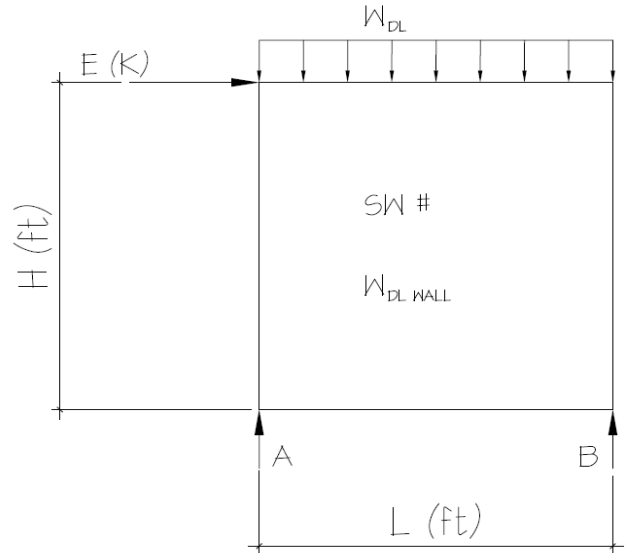
OVERSTRENGTH CALCULATIONS

WALL DESCRIPTION/SW #:

206

PARAMETERS:

- L = 26.5 FT
- H = 9.1 FT
- E = 0.60 K
- W_{DLWALL} = 0.10 KLF
- W_{DL} = 0.070 KLF
- Ω₀ = 2.5 (ASCE TABLE 12.2.1 FOOTNOTE G)
- SDS = 1.150



ANALYSIS:

$$E_{MH} = \Omega_0 * E = 1.50 \text{ K} \quad E_v = 0.2 * SDS * DL = 1.036 \text{ K}$$

$$E_M = E_{MH} + E_v = 2.536 \text{ K}$$

$$E_M = E_{MH} - E_v = 0.464 \text{ K}$$

$$E_M \text{ (MAX)} = \sum M_A = 0 = 2.54(9.1) + 0.17(26.5)(13.25) - R_B(26.5) \quad R_B = 2.3DL + 0.9E$$

$$R_A = 2.3DL - 0.9E$$

$$E_M \text{ (MIN)} = \sum M_A = 0 = 0.46(9.1) + 0.17(26.5)(13.25) - R_B(26.5) \quad R_B = 2.3DL + 0.2E$$

$$R_A = 2.3DL - 0.2E$$

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

Wood Beam

Project File: beam calcs with overstrength.ec6

LIC# : KW-06017913, Build:20.22.8.17

MULHERN & KULP STRUCTURAL ENGINEERING INC

(c) ENERCALC INC 1983-2022

DESCRIPTION: B23 - 2ND FLR FRMG - FLUSH BM @ GARAGE FRONT

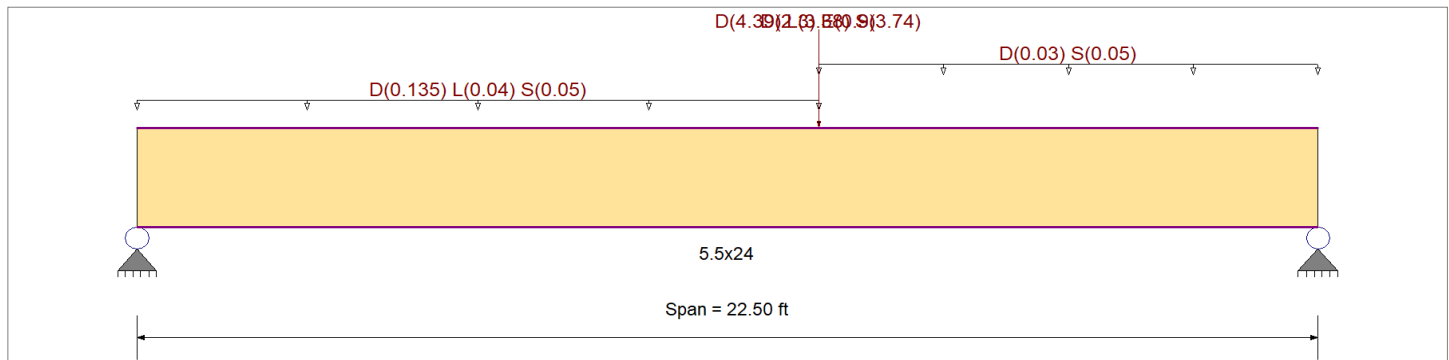
CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design	Fb +	2,880.0 psi	E : Modulus of Elasticity	
Load Combination : ASCE 7-16	Fb -	2,220.0 psi	Ebend- xx	1,800.0ksi
	Fc - Prll	1,980.0 psi	Eminbend - xx	950.0ksi
Wood Species : DF/DF	Fc - Perp	780.0 psi	Ebend- yy	1,600.0ksi
Wood Grade : 24F - V4	Fv	318.0 psi	Eminbend - yy	850.0ksi
	Ft	1,320.0 psi	Density	31.210pcf
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling				



Applied Loads

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

Beam self weight calculated and added to loading

Load for Span Number 1

Uniform Load : D = 0.1350, L = 0.040, S = 0.050 k/ft, Extent = 0.0 -->> 13.0 ft, Tributary Width = 1.0 ft

Uniform Load : D = 0.030, S = 0.050 k/ft, Extent = 13.0 -->> 22.50 ft, Tributary Width = 1.0 ft

Point Load : D = 4.390, L = 3.380, S = 3.740 k @ 13.0 ft

Point Load : D = 2.30, E = 0.90 k @ 13.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.572	1	Maximum Shear Stress Ratio	=	0.259	: 1
Section used for this span		5.5x24		Section used for this span		5.5x24	
fb: Actual	=	1,742.50psi		fv: Actual	=	94.88 psi	
Fb: Allowable	=	3,047.36psi		Fv: Allowable	=	365.70 psi	
Load Combination		+D+0.750L+0.750S		Load Combination		+D+0.750L+0.750S	
Location of maximum on span	=	12.974ft		Location of maximum on span	=	20.529ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.156 in	Ratio =	1727	>=360	Span: 1 : S Only	
Max Upward Transient Deflection		0 in	Ratio =	0	<360	n/a	
Max Downward Total Deflection		0.556 in	Ratio =	485	>=300	Span: 1 : +1.090D+0.750L+0.750S+0.5250E	
Max Upward Total Deflection		0 in	Ratio =	0	<300	n/a	

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 Only	Length = 22.50 ft	1	0.420	0.191	0.90	0.920	1.00	1.00	1.00	1.00	1.00	1.00	1.00	44.03	1,000.60	2384.89	0.00	4.80	54.59	286.20
+D+L	Length = 22.50 ft	1	0.549	0.247	1.00	0.920	1.00	1.00	1.00	1.00	1.00	1.00	1.00	63.97	1,453.94	2649.88	0.00	6.91	78.48	318.00
+D+Lr	Length = 22.50 ft	1	0.302	0.137	1.25	0.920	1.00	1.00	1.00	1.00	1.00	1.00	1.00	44.03	1,000.60	3312.35	0.00	4.80	54.59	397.50
+D+S	Length = 22.50 ft	1	0.504	0.231	1.15	0.920	1.00	1.00	1.00	1.00	1.00	1.00	1.00	67.60	1,536.46	3047.36	0.00	7.43	84.41	365.70
+D+0.750Lr+0.750L						0.920	1.00	1.00	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	0.00

Wood Beam

Project File: beam calcs with overstrength.ec6

LIC# : KW-06017913, Build:20.22.8.17

MULHERN & KULP STRUCTURAL ENGINEERING INC

(c) ENERCALC INC 1983-2022

DESCRIPTION: B23 - 2ND FLR FRMG - FLUSH BM @ GARAGE FRONT

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
Length = 22.50 ft	1	0.405	0.182	1.25	0.920	1.00	1.00	1.00	1.00	1.00	1.00	58.99	1,340.60	3312.35	6.38	72.51	397.50
+D+0.750L+0.750S					0.920	1.00	1.00	1.00	1.00	1.00			0.00		0.00	0.00	0.00
Length = 22.50 ft	1	0.572	0.259	1.15	0.920	1.00	1.00	1.00	1.00	1.00	1.00	76.67	1,742.50	3047.36	8.35	94.88	365.70
+D+0.60W					0.920	1.00	1.00	1.00	1.00	1.00			0.00		0.00	0.00	0.00
Length = 22.50 ft	1	0.236	0.107	1.60	0.920	1.00	1.00	1.00	1.00	1.00	1.00	44.03	1,000.60	4239.81	4.80	54.59	508.80
+1.126D+0.70E					0.920	1.00	1.00	1.00	1.00	1.00			0.00		0.00	0.00	0.00
Length = 22.50 ft	1	0.284	0.129	1.60	0.920	1.00	1.00	1.00	1.00	1.00	1.00	53.02	1,205.11	4239.81	5.77	65.60	508.80
+1.126D-0.70E					0.920	1.00	1.00	1.00	1.00	1.00			0.00		0.00	0.00	0.00
Length = 22.50 ft	1	0.247	0.113	1.60	0.920	1.00	1.00	1.00	1.00	1.00	1.00	46.12	1,048.24	4239.81	5.04	57.33	508.80
+D+0.750Lr+0.750L+0.450W					0.920	1.00	1.00	1.00	1.00	1.00			0.00		0.00	0.00	0.00
Length = 22.50 ft	1	0.316	0.143	1.60	0.920	1.00	1.00	1.00	1.00	1.00	1.00	58.99	1,340.60	4239.81	6.38	72.51	508.80
+D+0.750L+0.750S+0.450W					0.920	1.00	1.00	1.00	1.00	1.00			0.00		0.00	0.00	0.00
Length = 22.50 ft	1	0.411	0.186	1.60	0.920	1.00	1.00	1.00	1.00	1.00	1.00	76.67	1,742.50	4239.81	8.35	94.88	508.80
+1.090D+0.750L+0.750S+0.5					0.920	1.00	1.00	1.00	1.00	1.00			0.00		0.00	0.00	0.00
Length = 22.50 ft	1	0.446	0.202	1.60	0.920	1.00	1.00	1.00	1.00	1.00	1.00	83.22	1,891.38	4239.81	9.05	102.90	508.80
+1.090D+0.750L+0.750S-0.5z					0.920	1.00	1.00	1.00	1.00	1.00			0.00		0.00	0.00	0.00
Length = 22.50 ft	1	0.418	0.190	1.60	0.920	1.00	1.00	1.00	1.00	1.00	1.00	78.04	1,773.73	4239.81	8.51	96.69	508.80
+0.60D+0.60W					0.920	1.00	1.00	1.00	1.00	1.00			0.00		0.00	0.00	0.00
Length = 22.50 ft	1	0.142	0.064	1.60	0.920	1.00	1.00	1.00	1.00	1.00	1.00	26.42	600.36	4239.81	2.88	32.75	508.80
+0.470D+0.70E					0.920	1.00	1.00	1.00	1.00	1.00			0.00		0.00	0.00	0.00
Length = 22.50 ft	1	0.129	0.059	1.60	0.920	1.00	1.00	1.00	1.00	1.00	1.00	24.14	548.72	4239.81	2.62	29.79	508.80
+0.470D-0.70E					0.920	1.00	1.00	1.00	1.00	1.00			0.00		0.00	0.00	0.00
Length = 22.50 ft	1	0.092	0.042	1.60	0.920	1.00	1.00	1.00	1.00	1.00	1.00	17.24	391.85	4239.81	1.89	21.52	508.80

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+1.090D+0.750L+0.750S+0.5250E	1	0.5556	11.661		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	8.009	9.255
Overall MINimum	0.380	0.520
D Only	4.455	4.919
+D+L	6.252	7.022
+D+Lr	4.455	4.919
+D+S	6.596	7.642
+D+0.750Lr+0.750L	5.802	6.496
+D+0.750L+0.750S	7.409	8.539
+D+0.60W	4.455	4.919
+1.126D+0.70E	5.282	5.903
+D+0.750Lr+0.750L+0.450W	5.802	6.496
+D+0.750L+0.750S+0.450W	7.409	8.539
+1.090D+0.750L+0.750S+0.5250E	8.009	9.255
+0.60D+0.60W	2.673	2.951
+0.470D+0.70E	2.360	2.676
D Only	4.455	4.919
L Only	1.797	2.103
S Only	2.142	2.723
E Only	0.380	0.520
H Only		

DESIGN BUILT HOMES

86TH AVE SE

MERCER ISLAND, WA

SHEAR WALL CALCULATIONS - WIND

REVIEWED BY: RJZ

SEPTEMBER 7, 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



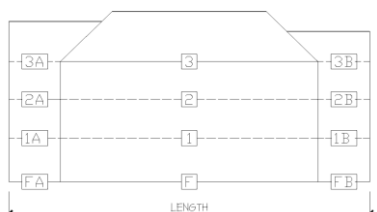
MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

WIND DESIGN SUMMARY PER ASCE 7-16

PARAMETERS:		ROOF GEOMETRY:		BUILDING GEOMETRY:	
WIND SPEED	100	TRANS. ROOF PITCH	0.3 : 12	LENGTH	78 FT
EXPOSURE CATEGORY	B	LONG. ROOF PITCH	0.3 : 12	WIDTH	42 FT
RISK CATEGORY	II	MEAN ROOF HEIGHT, H	23.00 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)

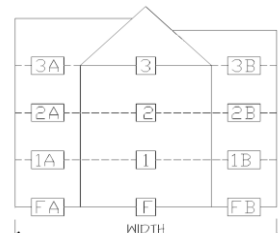
DIAPHRAGM LEVEL	FLOOR-TO-FLOOR HEIGHT	SURFACE	SECTION			sq ft
			A	O	B	
2	9.1 FT	Roof Surface	0	0	0	sq ft
		Wall surface	0	440	0	sq ft
1	1.2 FT	Roof Surface	0	0	0	sq ft
		Wall surface	0	840	0	sq ft
FND		Roof Surface	0	0	0	sq ft
		Wall surface	0	0	0	sq ft



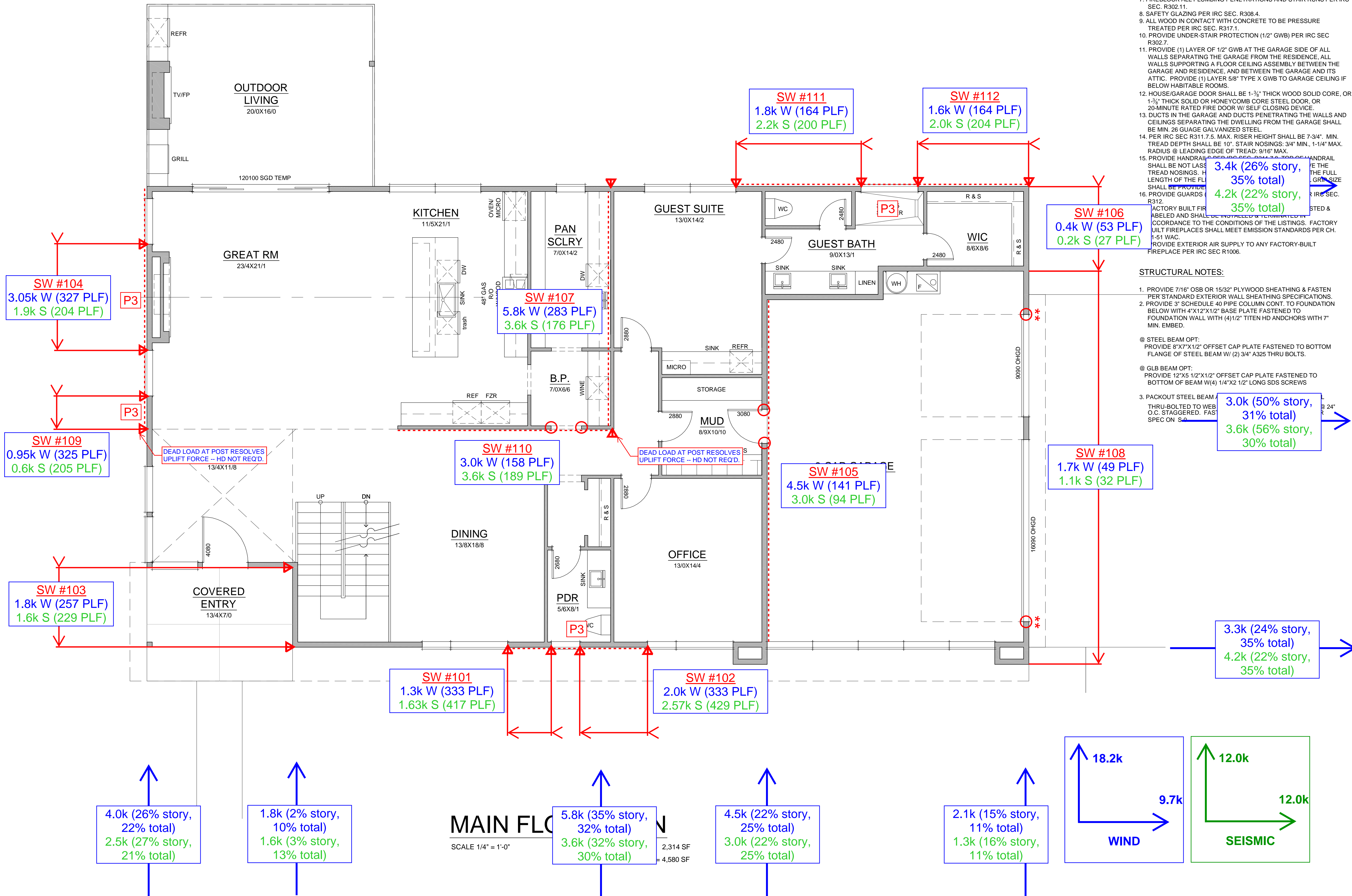
	SECTION			kips
	A	O	B	
Story Shear	0.00	6.50	0.00	kips
Total Shear	0.00	6.50	0.00	kips
	6.50			kips
Story Shear	0.00	11.70	0.00	kips
Total Shear	0.00	18.20	0.00	kips
	18.20			kips
Story Shear	0.00	0.00	0.00	kips
Total Shear	0.00	18.20	0.00	kips
	18.20			kips

LONGITUDINAL DIRECTION (PARALLEL TO MAIN RIDGE LINE)

DIAPHRAGM LEVEL	FLOOR-TO-FLOOR HEIGHT	SURFACE	SECTION			sq ft
			A	O	B	
2	9.1 FT	Roof Surface	0	0	0	sq ft
		Wall surface	0	288	0	sq ft
1	1.2 FT	Roof Surface	0	0	0	sq ft
		Wall surface	0	500	0	sq ft
FND		Roof Surface	0	0	0	sq ft
		Wall surface	0	0	0	sq ft



	SECTION			kips
	A	O	B	
Story Shear	0.00	3.68	0.00	kips
Total Shear	0.00	3.68	0.00	kips
	3.68			kips
Story Shear	0.00	5.98	0.00	kips
Total Shear	0.00	9.66	0.00	kips
	9.66			kips
Story Shear	0.00	0.00	0.00	kips
Total Shear	0.00	9.66	0.00	kips
	9.66			kips



GENERAL NOTES:

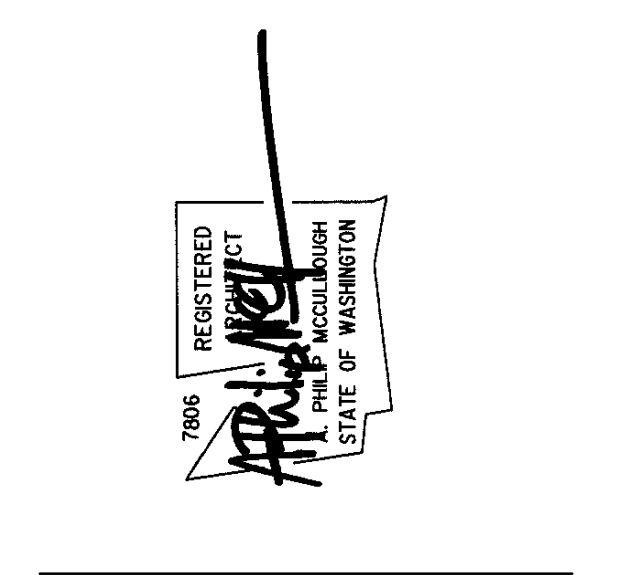
1. PLATE HEIGHT @ CLERESTORY IS 15'-1", U.N.O.
PLATE HEIGHT @ MAIN FLOOR IS 11'-0", U.N.O.
PLATE HEIGHT @ LOWER FLOOR IS 10'-1" U.N.P.
2. DIMENSION LINES ARE TO FACE OF STUD U.N.O.
3. WINDOW SIZES & ROUGH OPENINGS TO BE VERIFIED BY CONTRACTOR.
4. WINDOW HEAD HEIGHT AT MAIN FLOOR IS 8'-0" ABOVE SUBFLOOR, U.N.O. IF NOMINAL DOOR AND WINDOW HEIGHTS ARE SIMILAR, COORDINATE WITH DOOR AND WINDOW SPEC'S TO LOCATE FINAL ELEVATION OF THE HEAD HEIGHTS SO THAT ALL DOOR AND WINDOW TRIM ALIGN.
5. WINDOW AND DOOR SIZES ARE DIMENSIONED IN FEET AND INCHES (E.G. 2828= 2'-8" W X 2'-8" H)
6. EXTERIOR WALLS TO BE 2X6 STUDS AT 16" O.C., INTERIOR WALLS TO BE 2X4 STUDS AT 16" O.C., U.N.O.
7. FIREBLOCK ALL PLUMBING PENETRATIONS AND STAIR RUNS PER IRC SEC. R302.11.
8. SAFETY GLAZING PER IRC SEC. R308.4.
9. ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED PER IRC SEC. R317.1.
10. PROVIDE UNDER-STAIR PROTECTION (1/2" GWB) PER IRC SEC. R302.7.
11. PROVIDE (1) LAYER OF 1/2" GWB AT THE GARAGE SIDE OF ALL WALLS SEPARATING THE GARAGE FROM THE RESIDENCE, ALL WALLS SUPPORTING A FLOOR CEILING ASSEMBLY BETWEEN THE GARAGE AND RESIDENCE, AND BETWEEN THE GARAGE AND ITS ATTIC. PROVIDE (1) LAYER 5/8" TYPE X GWB TO GARAGE CEILING IF BELOW HABITABLE ROOMS.
12. HOUSE/GARAGE DOOR SHALL BE 1-3/4" THICK WOOD SOLID CORE, OR 1-3/4" THICK SOLID OR HONEYCOMB CORE STEEL DOOR, OR 20-MINUTE RATED FIRE DOOR W/ SELF CLOSING DEVICE.
13. DUCTS IN THE GARAGE AND DUCTS PENETRATING THE WALLS AND CEILING'S SEPARATING THE DWELLING FROM THE GARAGE SHALL BE MIN. 26 GAUGE GALVANIZED STEEL.
14. PER IRC SEC R311.7.5. MAX. RISER HEIGHT SHALL BE 7-3/4". MIN. TREAD DEPTH SHALL BE 10". STAIR NOSINGS: 3/4" MIN., 1-1/4" MAX. RADIUS @ LEADING EDGE OF TREAD: 9/16" MAX.
15. PROVIDE HANDRAILS TO THE FULL GRIP SIZE AND THE FULL LENGTH OF THE FLIGHT. HANDRAIL SHALL BE NOT LESS THAN 1-1/2" DIA. HANDRAIL SHALL BE PROVIDED TO THE FULL LENGTH OF THE FLIGHT. HANDRAIL SHALL BE PROVIDED TO THE FULL LENGTH OF THE FLIGHT.
16. PROVIDE GUARDS PER IRC SEC. R312.
17. FACTORY BUILT FIREPLACES SHALL BE INSTALLED ACCORDANCE TO THE CONDITIONS OF THE LISTINGS. FACTORY BUILT FIREPLACES SHALL MEET EMISSION STANDARDS PER CH. 15-1 WAC. PROVIDE EXTERIOR AIR SUPPLY TO ANY FACTORY-BUILT FIREPLACE PER IRC SEC R1006.

STRUCTURAL NOTES:

1. PROVIDE 7/16" OSB OR 15/32" PLYWOOD SHEATHING & FASTEN PER STANDARD EXTERIOR WALL SHEATHING SPECIFICATIONS.
2. PROVIDE 3" SCHEDULE 40 PIPE COLUMN CONT. TO FOUNDATION BELOW WITH 4"x12"x1/2" BASE PLATE FASTENED TO FOUNDATION WALL WITH (4) 1/2" TITEN HD ANCHORS WITH 7" MIN. EMBED.
3. STEEL BEAM OPT: PROVIDE 8"x7"x1/2" OFFSET CAP PLATE FASTENED TO BOTTOM FLANGE OF STEEL BEAM W/ (2) 3/4" A325 THRU BOLTS.
4. GLB BEAM OPT: PROVIDE 12"x5 1/2"x1/2" OFFSET CAP PLATE FASTENED TO BOTTOM OF BEAM W/ (4) 1/4"x2 1/2" LONG SDS SCREWS
5. PACKOUT STEEL BEAM THRU-BOLTED TO WEB O.C. STAGGERED. FASTEN TO FOUNDATION WALL WITH (4) 1/2" TITEN HD ANCHORS WITH 7" MIN. EMBED.

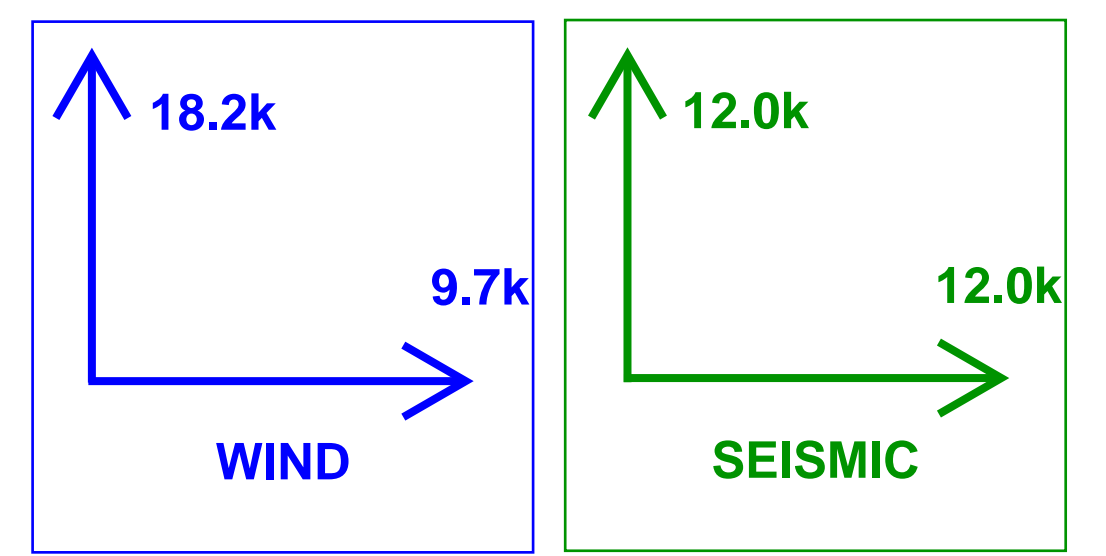
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Revisions: 00.00.2022 X
 Comment
 08.25.2022
 Job No: xx-xxx
 Project No: 00000
 Drawn: BAK
 Approved: APM
 Owner: Design Built Homes

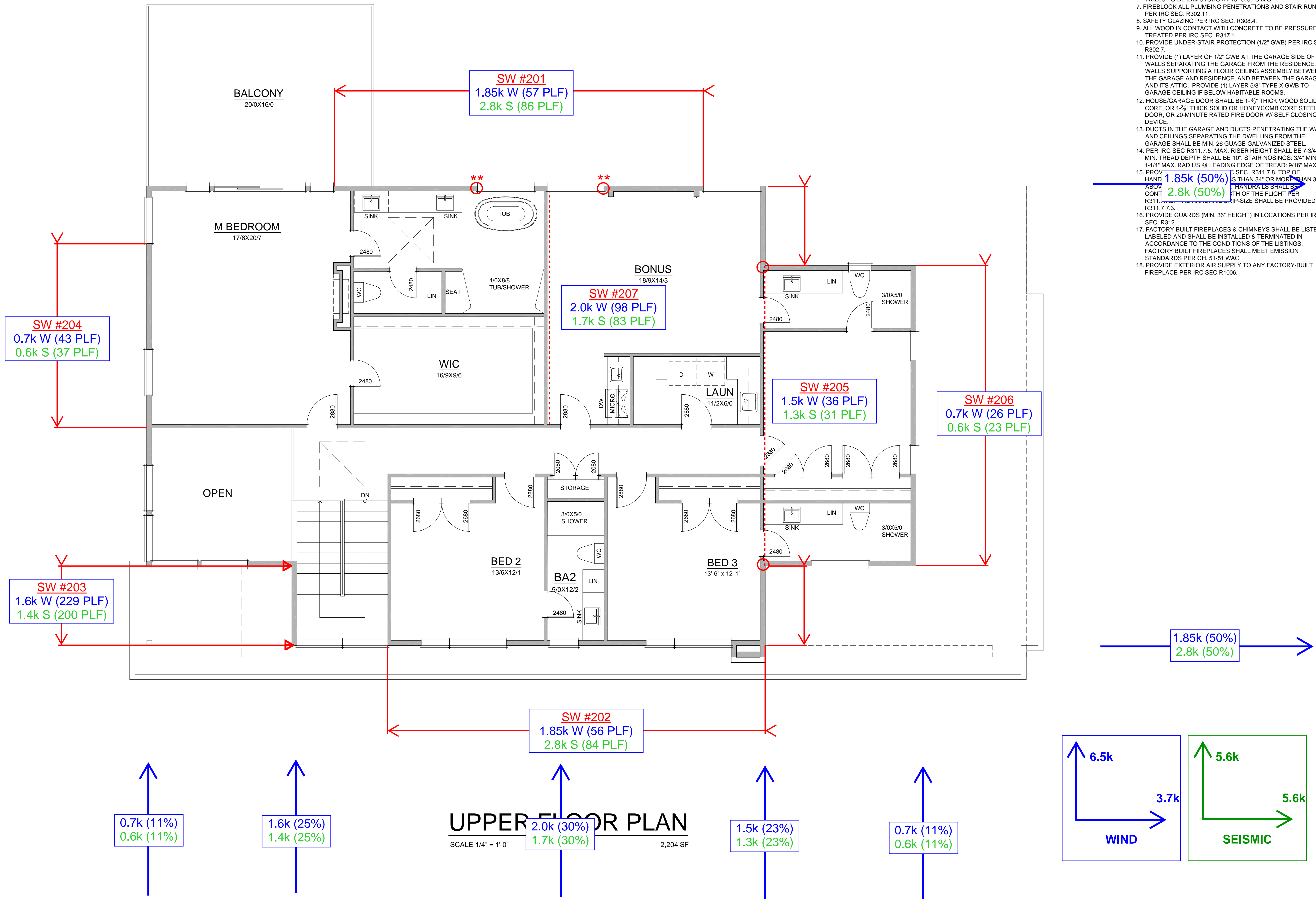


Lot 1-86th Ave SE
 Mercer Island, Washington

Permit Documents
 Main Floor Plan
A5



MAIN FLOOR
 SCALE 1/4" = 1'-0"
 2,314 SF
 4,580 SF

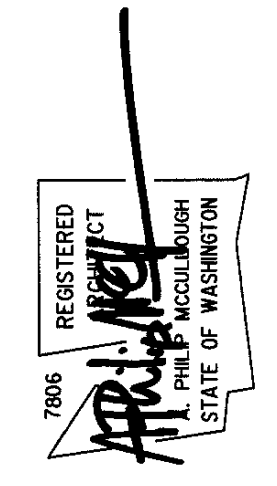


- GENERAL NOTES:**
1. PLATE HEIGHT @ CLERESTORY IS 15'-1", U.N.O.
PLATE HEIGHT @ MAIN FLOOR IS 11'-0", U.N.O.
PLATE HEIGHT @ LOWER FLOOR IS 10'-1" U.N.P.
 2. DIMENSION LINES ARE TO FACE OF STUD U.N.O.
 3. WINDOW SIZES & ROUGH OPENINGS TO BE VERIFIED BY CONTRACTOR.
 4. WINDOW HEAD HEIGHT AT MAIN FLOOR IS 8'-0" ABOVE SUBFLOOR, U.N.O. IF NOMINAL DOOR AND WINDOW HEIGHTS ARE SIMILAR, COORDINATE WITH DOOR AND WINDOW SPECS TO LOCATE FINAL ELEVATION OF THE HEAD HEIGHTS SO THAT ALL DOOR AND WINDOW TRIM ALIGN.
 5. WINDOW AND DOOR SIZES ARE DIMENSIONED IN FEET AND INCHES
(E.G. 2828= 2'-8" W X 2'-8" H)
 6. EXTERIOR WALLS TO BE 2X6 STUDS AT 16" O.C., INTERIOR WALLS TO BE 2X4 STUDS AT 16" O.C., U.N.O.
 7. FIREBLOCK ALL PLUMBING PENETRATIONS AND STAIR RUNS PER IRC SEC. R302.11.
 8. SAFETY GLAZING PER IRC SEC. R308.4.
 9. ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED PER IRC SEC. R317.1.
 10. PROVIDE UNDER-STAIR PROTECTION (1/2" GWB) PER IRC SEC R302.7.
 11. PROVIDE (1) LAYER OF 1/2" GWB AT THE GARAGE SIDE OF ALL WALLS SEPARATING THE GARAGE FROM THE RESIDENCE. ALL WALLS SUPPORTING A FLOOR CEILING ASSEMBLY BETWEEN THE GARAGE AND RESIDENCE AND BETWEEN THE GARAGE AND ITS ATTIC. PROVIDE (1) LAYER 5/8" TYPE X GWB TO GARAGE CEILING IF BELOW HABITABLE ROOMS.
 12. HOUSE/GARAGE DOOR SHALL BE 1-3/8" THICK WOOD SOLID CORE, OR 1-3/8" THICK SOLID OR HONEYCOMB CORE STEEL DOOR, OR 20-MINUTE RATED FIRE DOOR W/ SELF CLOSING DEVICE.
 13. DUCTS IN THE GARAGE AND DUCTS PENETRATING THE WALLS AND CEILINGS SEPARATING THE DWELLING FROM THE GARAGE SHALL BE MIN. 26 GAUGE GALVANIZED STEEL.
 14. PER IRC SEC R311.7.5. MAX. RISER HEIGHT SHALL BE 7-3/4". MIN. TREAD DEPTH SHALL BE 10". STAIR NOSINGS: 3/4" MIN., 1-1/4" MAX. RADIUS @ LEADING EDGE OF TREAD: 9/16" MAX.
 15. PROVIDE HANDRAILS PER IRC SEC. R311.7.8. TOP OF HANDRAIL SHALL BE 34" TO 38" ABOVE FINISHED FLOOR. CONTIGUOUS HANDRAILS SHALL BE 1-1/2" MIN. CLEARANCE FROM THE FACE OF THE FLIGHT PER R311.7.7.3. RAIL SIZE SHALL BE PROVIDED PER R311.7.7.3.
 16. PROVIDE GUARDS (MIN. 36" HEIGHT) IN LOCATIONS PER IRC SEC. R312.
 17. FACTORY BUILT FIREPLACES & CHIMNEYS SHALL BE LISTED & LABELED AND SHALL BE INSTALLED & TERMINATED IN ACCORDANCE TO THE CONDITIONS OF THE LISTINGS. FACTORY BUILT FIREPLACES SHALL MEET EMISSION STANDARDS PER CH. 51-51 WAC.
 18. PROVIDE EXTERIOR AIR SUPPLY TO ANY FACTORY-BUILT FIREPLACE PER IRC SEC R1006.

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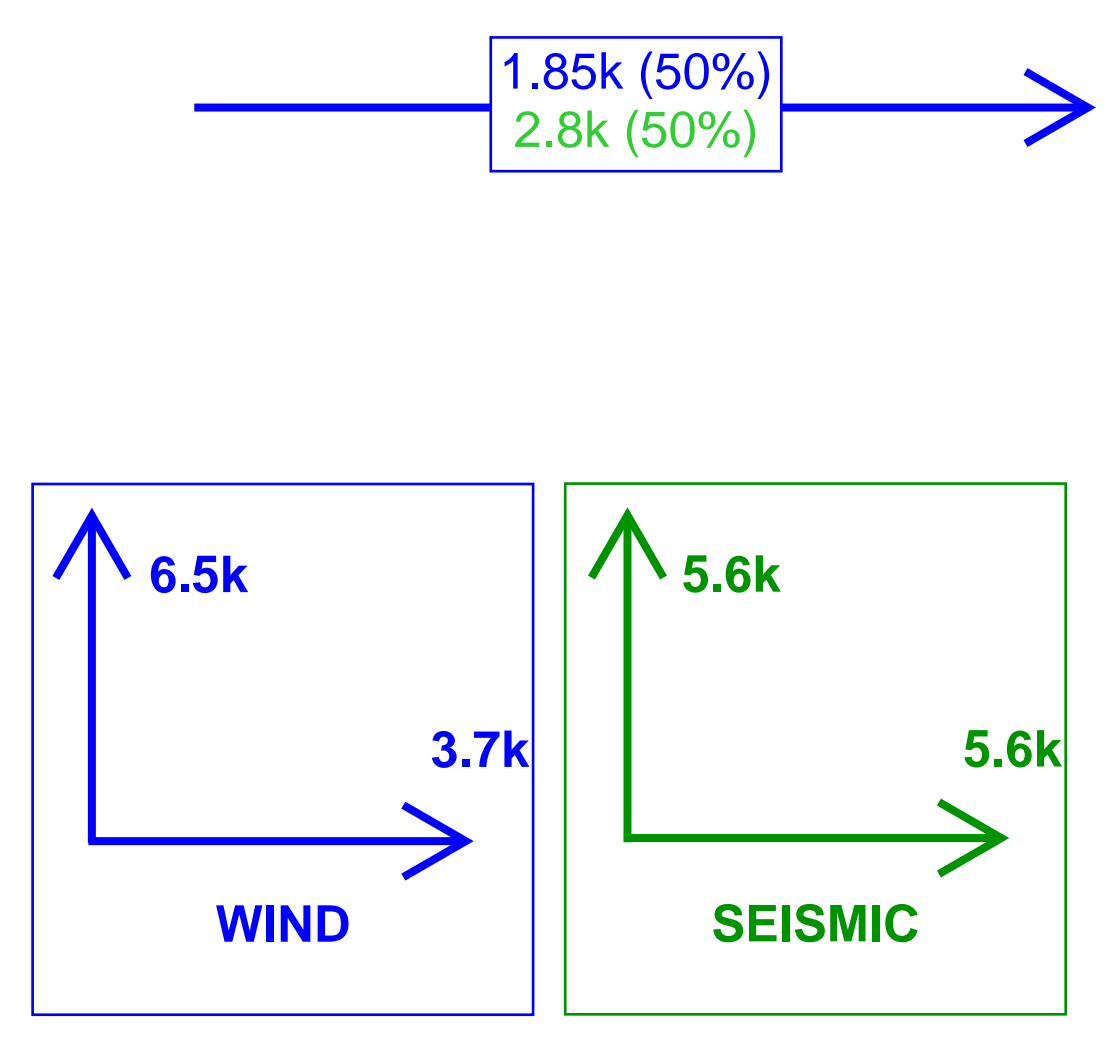
Revisions	Comment
00.00.2022	X

Date: 08.25.2022
 Job No: xx-xxx
 Project No: 00000
 Drawn: BAK
 Approved: APM
 Owner: Design Built Homes



Lot 1-86th Ave SE
 Mercer Island, Washington

Permit Documents
 Upper Floor Plan
A7





SHEARWALL DESIGN SUMMARY

SHEARWALL 201: 2ND - REAR EXT BONUS / MASTER

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 - FRONT EXT BED 2 / 3

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 - SIDE EXT STAIRS

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 CS16 STRAP TIE (14" END LENGTH)

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 DESIGN SUMMARY

SHEARWALL 204: 2ND - SIDE EXT MASTER BEDROOM

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 205: 2ND - SIDE EXT/INT BONUS TO BED 3

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 206: 2ND - SIDE EXT BED 4

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 207: 2ND - SIDE INT BONUS

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
#DIV/0!

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 - FRONT EXT DINING / PDR

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 102: 1ST - FRONT EXT PDR / OFFICE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="10.1"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="0.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="6.0"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="6.0"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P3"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="2000"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="3781"/>	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="450"/>	PLF	OVERTURNING MOMENT	<input type="text" value="20.2"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="2137"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="700"/>	LBS	RESISTIVE MOMENT	<input type="text" value="7.4"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="4935"/>	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STDH14RJ HOLDOWN

SHEARWALL 103: 1ST - SIDE EXT STAIRS

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="10.1"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="0.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="7.0"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="7.0"/>	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="2351"/>	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="294"/>	PLF	OVERTURNING MOMENT	<input type="text" value="18.2"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="1260"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="1200"/>	LBS	RESISTIVE MOMENT	<input type="text" value="9.4"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="4935"/>	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STDH14RJ HOLDOWN



SHEARWALL DESIGN SUMMARY

SHEARWALL 104: 1ST - SIDE EXT GREAT ROOM F.P.

SHEARWALL PROPERTIES:

WALL HEIGHT, H	10.1	FT.	MAX WALL OPENING HT, H _c	0.0	FT.		
WALL LENGTH, L	9.3	FT.	QUALIFYING WALL LENGTH, L	9.3	FT.	SHEARWALL ASSEMBLY	P3

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL ALLOWABLE SHEARWALL CAPACITY
3050 LBS < 5880 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	249	PLF	OVERTURNING MOMENT	30.8	K-FT	HOLD DOWN DESIGN LOAD	2305	LBS
DL AT ENDS OF WALL	500	LBS	RESISTIVE MOMENT	9.3	K-FT	HOLD DOWN CAPACITY	4935	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STD14RJ HOLDOWN

SHEARWALL 105: 1ST - SIDE INT GARAGE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	10.1	FT.	MAX WALL OPENING HT, H _c	8.0	FT.		
WALL LENGTH, L	30.0	FT.	QUALIFYING WALL LENGTH, L	27.0	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL ALLOWABLE SHEARWALL CAPACITY
4500 LBS < 9067 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	294	PLF	OVERTURNING MOMENT	45.5	K-FT	HOLD DOWN DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	1200	LBS	RESISTIVE MOMENT	101.0	K-FT	HOLD DOWN CAPACITY	0	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 106: 1ST - SIDE EXT GUEST WIC

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 107: 1ST - SIDE INT B.P. / PAN

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 108: 1ST - SIDE EXT GARAGE

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 - SIDE EXT GREAT ROOM / FOYER

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 110: 1ST - FRONT INT DINING

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 111: 1ST - REAR EXT GUEST BATH

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 112: 1ST - REAR EXT GUEST WIC

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 STD14RJ HOLDOWN

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

DESIGN BUILT HOMES

86TH AVE SE

MERCER ISLAND, WA

SHEAR WALL CALCULATIONS - SEISMIC

REVIEWED BY: RJZ

SEPTEMBER 7, 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_s	1.437
SPECTRAL RESPONSE ACCELERATION 1.0 SEC, S₁	0.499
OCCUPANCY CATEGORY	II

VARIABLES:

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

CALCULATED VALUES:

MAXIMUM SPECTRAL RESPONSE ACCELERATION, S_{M0}	1.724
MAXIMUM SPECTRAL RESPONSE ACCELERATION, S_{M1}	0.899
DESIGN SPECTRAL RESPONSE ACCELERATION, S_{D0}	1.150
DESIGN SPECTRAL RESPONSE ACCELERATION, S_{D1}	0.599
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	0.197
T ₀	0.104
T _s	0.521
SPECTRAL RESPONSE ACC., S _a (g)	1.150

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	12.0	3322	15	14.6	64 K
2	9.1	2567	10	6.8	32 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 97 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	0.177	0.177

BASE SHEARS:

ULTIMATE LOADS

x 0.7 =

ALLOWABLE LOADS

TRANSVERSE	LONGITUDINAL	TRANSVERSE	LONGITUDINAL
17 K	17 K	12.0 K	12.0 K

STORY SHEAR CALCULATION:

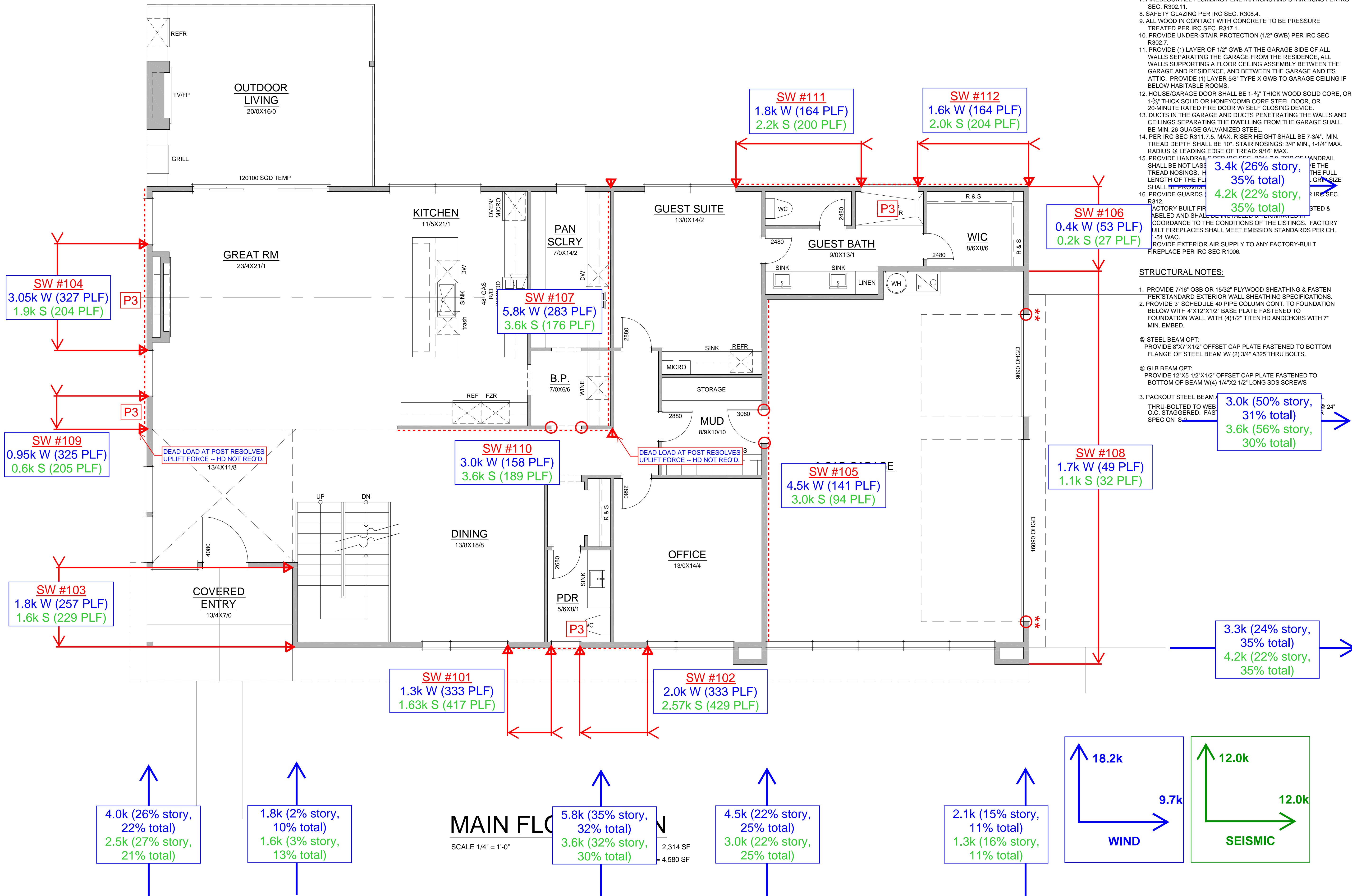
DISTRIBUTION EXPONENT, **1.00**

ULTIMATE LOADS

x 0.7 =

ALLOWABLE LOADS

LEVEL	VERT. DIST. FACTOR, C _{vk}	TRANSVERSE		LONGITUDINAL		TRANSVERSE		LONGITUDINAL	
		STORY SHEAR, F _x	STORY SHEAR, F _y	STORY SHEAR, F _x	STORY SHEAR, F _y	STORY SHEAR, F _x	STORY SHEAR, F _y	STORY SHEAR, F _x	STORY SHEAR, F _y
1	0.530	9.1	9.1	6.4	12.0	6.4	12.0	6.4	12.0
2	0.470	8.1	8.1	5.6	5.6	5.6	5.6	5.6	5.6
3	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



GENERAL NOTES:

- PLATE HEIGHT @ CLERESTORY IS 15'-1", U.N.O.
- PLATE HEIGHT @ MAIN FLOOR IS 11'-0", U.N.O.
- PLATE HEIGHT @ LOWER FLOOR IS 10'-1" U.N.P.
- DIMENSION LINES ARE TO FACE OF STUD U.N.O.
- WINDOW SIZES & ROUGH OPENINGS TO BE VERIFIED BY CONTRACTOR.
- WINDOW HEAD HEIGHT AT MAIN FLOOR IS 8'-0" ABOVE SUBFLOOR, U.N.O. IF NOMINAL DOOR AND WINDOW HEIGHTS ARE SIMILAR, COORDINATE WITH DOOR AND WINDOW SPEC'S TO LOCATE FINAL ELEVATION OF THE HEAD HEIGHTS SO THAT ALL DOOR AND WINDOW TRIM ALIGN.
- WINDOW AND DOOR SIZES ARE DIMENSIONED IN FEET AND INCHES (E.G. 2828= 2'-8" W X 2'-8" H).
- EXTERIOR WALLS TO BE 2X6 STUDS AT 16" O.C., INTERIOR WALLS TO BE 2X4 STUDS AT 16" O.C., U.N.O.
- FIREBLOCK ALL PLUMBING PENETRATIONS AND STAIR RUNS PER IRC SEC. R302.11.
- SAFETY GLAZING PER IRC SEC. R308.4.
- ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED PER IRC SEC. R317.1.
- PROVIDE UNDER-STAIR PROTECTION (1/2" GWB) PER IRC SEC. R302.7.
- PROVIDE (1) LAYER OF 1/2" GWB AT THE GARAGE SIDE OF ALL WALLS SEPARATING THE GARAGE FROM THE RESIDENCE, ALL WALLS SUPPORTING A FLOOR CEILING ASSEMBLY BETWEEN THE GARAGE AND RESIDENCE, AND BETWEEN THE GARAGE AND ITS ATTIC. PROVIDE (1) LAYER 5/8" TYPE X GWB TO GARAGE CEILING IF BELOW HABITABLE ROOMS.
- HOUSE/GARAGE DOOR SHALL BE 1-3/4" THICK WOOD SOLID CORE, OR 1-3/4" THICK SOLID OR HONEYCOMB CORE STEEL DOOR, OR 20-MINUTE RATED FIRE DOOR W/ SELF CLOSING DEVICE.
- DUCTS IN THE GARAGE AND DUCTS PENETRATING THE WALLS AND CEILING SEPARATING THE DWELLING FROM THE GARAGE SHALL BE MIN. 26 GAUGE GALVANIZED STEEL.
- PER IRC SEC R311.7.5. MAX. RISER HEIGHT SHALL BE 7-3/4". MIN. TREAD DEPTH SHALL BE 10". STAIR NOSINGS: 3/4" MIN., 1-1/4" MAX. RADIUS @ LEADING EDGE OF TREAD: 9/16" MAX.
- PROVIDE HANDRAILS TO THE FULL GRIP SIZE PER IRC SEC. R312.
- FACTORY BUILT FIREplaces SHALL BE INSTALLED ACCORDANCE TO THE CONDITIONS OF THE LISTINGS. FACTORY BUILT FIREPLACES SHALL MEET EMISSION STANDARDS PER CH. 15-1 WAC. PROVIDE EXTERIOR AIR SUPPLY TO ANY FACTORY-BUILT FIREPLACE PER IRC SEC R1006.

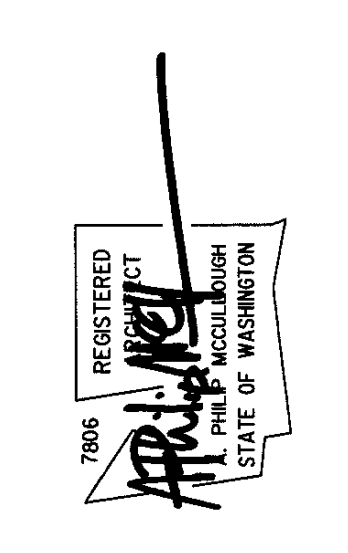
STRUCTURAL NOTES:

- PROVIDE 7/16" OSB OR 15/32" PLYWOOD SHEATHING & FASTEN PER STANDARD EXTERIOR WALL SHEATHING SPECIFICATIONS.
- PROVIDE 3" SCHEDULE 40 PIPE COLUMN CONT. TO FOUNDATION BELOW WITH 4"x12"x1/2" BASE PLATE FASTENED TO FOUNDATION WALL WITH (4) 1/2" TITEN HD ANCHORS WITH 7" MIN. EMBED.
- STEEL BEAM OPT: PROVIDE 8"x7"x1/2" OFFSET CAP PLATE FASTENED TO BOTTOM FLANGE OF STEEL BEAM W/ (2) 3/4" A325 THRU BOLTS.
- GLB BEAM OPT: PROVIDE 12"x5 1/2"x1/2" OFFSET CAP PLATE FASTENED TO BOTTOM OF BEAM W/ (4) 1/4"x2 1/2" LONG SDS SCREWS
- PACKOUT STEEL BEAM THRU-BOLTED TO WEB O.C. STAGGERED. FASTEN PER SPEC ON S.

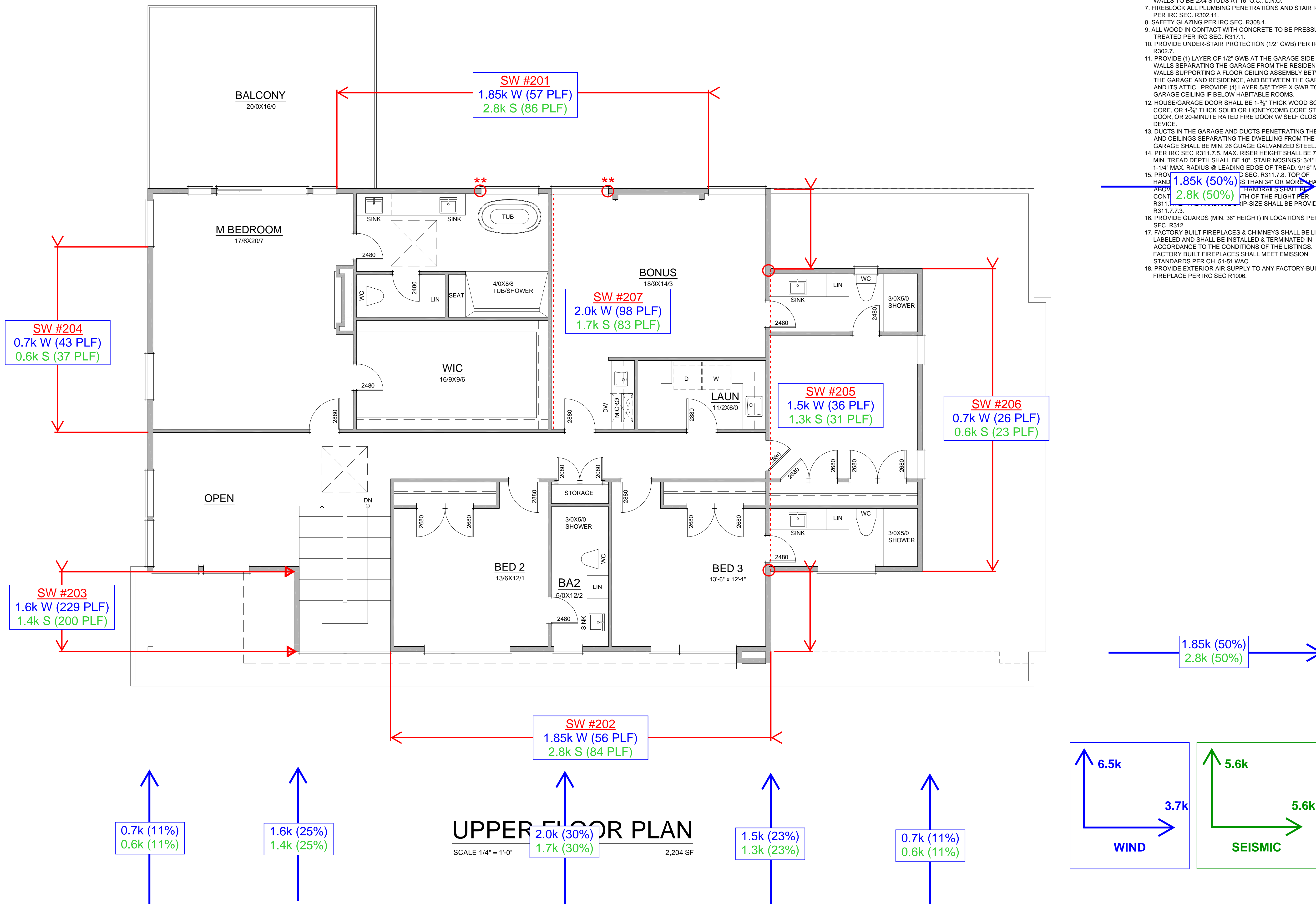
Revisions
00.00.2022 X

Date: 08.25.2022
Job No: xx-xxx
Project No: 00000
Drawn: BAK
Approved: APM

Owner: Design Built Homes



Lot 1-86th Ave SE
Mercer Island, Washington



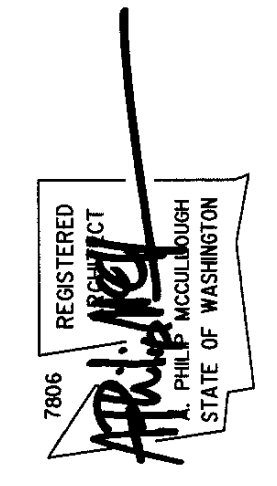
GENERAL NOTES:

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- PER IRC SEC R311.7.5. MAX. RISER HEIGHT SHALL BE 7-3/4". MIN. TREAD DEPTH SHALL BE 10". STAIR NOSINGS: 3/4" MIN., 1-1/4" MAX. RADIUS @ LEADING EDGE OF TREAD: 9/16" MAX.
- PROVIDE HANDRAILS PER IRC SEC. R311.7.8. TOP OF HANDRAILS SHALL BE 34" TO 38" ABOVE CONTIGUOUS SURFACE. GRIP-SIZE SHALL BE PROVIDED PER R311.7.7.3.
- PROVIDE GUARDS (MIN. 36" HEIGHT) IN LOCATIONS PER IRC SEC. R312.
- FACTORY BUILT FIREPLACES & CHIMNEYS SHALL BE LISTED & LABELED AND SHALL BE INSTALLED & TERMINATED IN ACCORDANCE TO THE CONDITIONS OF THE LISTINGS. FACTORY BUILT FIREPLACES SHALL MEET EMISSION STANDARDS PER CH. 51-51 WAC.
- PROVIDE EXTERIOR AIR SUPPLY TO ANY FACTORY-BUILT FIREPLACE PER IRC SEC R1006.

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UNPUBLISHED WORK
2021 © McCullough Architects

Revisions	Comment
08.25.2022 xx-xxx 00000	X
00.00.2022	X

Date: 08.25.2022
Job No: xx-xxx
Project No: 00000
Drawn: BAK
Approved: APM
Owner: Design Built Homes



Lot 1-86th Ave SE
Mercer Island, Washington

Permit Documents
Upper Floor Plan
A7



SHEARWALL DESIGN SUMMARY

SHEARWALL 201: 2ND - REAR EXT BONUS / MASTER

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 - FRONT EXT BED 2 / 3

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 - SIDE EXT STAIRS

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 HOLDDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

SIMPSON CS16 STRAP TIE (14" END LENGTH)

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 HOLDDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 204: 2ND - SIDE EXT MASTER BEDROOM

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 205: 2ND - SIDE EXT/INT BONUS TO BED 3

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 206: 2ND - SIDE EXT BED 4

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="9.1"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="5.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="26.5"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="21.5"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P1"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="600"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="5157"/>	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="170"/>	PLF	OVERTURNING MOMENT	<input type="text" value="5.5"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="0"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="400"/>	LBS	RESISTIVE MOMENT	<input type="text" value="31.6"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 207: 2ND - SIDE INT BONUS

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="9.1"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="0.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="20.5"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="20.5"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P1"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="1700"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="4917"/>	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="134"/>	PLF	OVERTURNING MOMENT	<input type="text" value="15.5"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="0"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="600"/>	LBS	RESISTIVE MOMENT	<input type="text" value="18.2"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	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
#DIV/0!

SHEARWALL ASSEMBLY SPECIFICATION

P0 - 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 - FRONT EXT DINING / PDR

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 102: 1ST - FRONT EXT PDR / OFFICE

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 103: 1ST - SIDE EXT STAIRS

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

SIMPSON STDH14RJ HOLDOWN



SHEARWALL DESIGN SUMMARY

SHEARWALL 104: 1ST - SIDE EXT GREAT ROOM F.P.

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 STDH14RJ HOLDOWN

SHEARWALL 105: 1ST - SIDE INT GARAGE

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 106: 1ST - SIDE EXT GUEST WIC

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 107: 1ST - SIDE INT B.P. / PAN

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 108: 1ST - SIDE EXT GARAGE

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 - SIDE EXT GREAT ROOM / FOYER

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 110: 1ST - FRONT INT DINING

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 111: 1ST - REAR EXT GUEST BATH

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 112: 1ST - REAR EXT GUEST WIC

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 HOLDDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

SIMPSON STD14RJ HOLDOWN

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 HOLDDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED