



CALCULATION PACKAGE

December 21, 2021

JayMarc Homes
Luke Residence – 4533 90th Ave. SE

Mercer Island, WA

MULHERN & KULP STRUCTURAL ENGINEERING, INC.

Prepared By:

Nicholas J. Dastalfo

Project Engineer

Richard J. Zabel, P.E.

Project Manager

Nicholas J. Martignetti, P.E.

Associate Owner + San Diego Office Director



Signature, Seal & Date



BEAM & HEADER CALCULATIONS

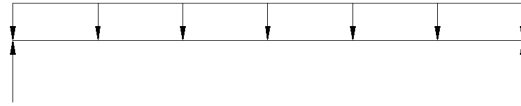
BEAM DESCRIPTION:

TYP. EXTERIOR HDR - WORST CASE LOAD

B1

PARAMETERS:

L = 4.5 FT
W = 1.27 KLF
P = - K



ANALYSIS:

$R_{MAX} = 2.86$ K $V_D = -$ K $< V_{ALL} = 4.47$ K ADEQUATE
 $M_{MAX} = 3.21$ K-FT $< M_{ALL} = 5.16$ K-FT ADEQUATE
 $\Delta_{TL} = 0.03$ IN. $L/939.0 < L/240$ ADEQUATE

4 x 10

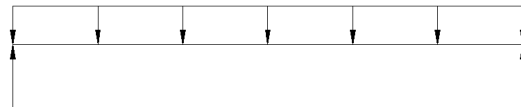
BEAM DESCRIPTION:

TYP. EXTERIOR HDR - WORST CASE SPAN

B1

PARAMETERS:

L = 9.0 FT
W = 0.200 KLF
P = - K



ANALYSIS:

$R_{MAX} = 0.90$ K $V_D = -$ K $< V_{ALL} = 4.47$ K ADEQUATE
 $M_{MAX} = 2.03$ K-FT $< M_{ALL} = 5.16$ K-FT ADEQUATE
 $\Delta_{TL} = 0.08$ IN. $L/1000+ < L/240$ ADEQUATE

4 x 10

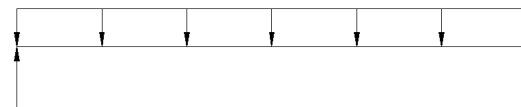
BEAM DESCRIPTION:

ROOF FRMG - HDR AT OWNER'S SUITE

B2

PARAMETERS:

L = 6.0 FT
W = 0.485 KLF
P = - K



ANALYSIS:

$R_{MAX} = 1.46$ K $V_D = -$ K $< V_{ALL} = 3.50$ K ADEQUATE
 $M_{MAX} = 2.18$ K-FT $< M_{ALL} = 3.44$ K-FT ADEQUATE
 $\Delta_{TL} = 0.08$ IN. $L/900.0 < L/240$ ADEQUATE

4 x 8



BEAM & HEADER CALCULATIONS

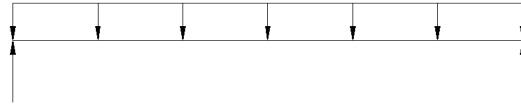
BEAM DESCRIPTION:

ROOF FRMG - HDR AT BONUS ROOM

B3

PARAMETERS:

L = 5.25 FT
W = 0.3 KLF
P = - K



ANALYSIS:

$R_{MAX} = 0.79$ K $V_D = -$ K $< V_{ALL} = 3.50$ K ADEQUATE
 $M_{MAX} = 1.03$ K-FT $< M_{ALL} = 3.44$ K-FT ADEQUATE
 $\Delta_{TL} = 0.03$ IN. $L/1000+$ $< L/240$ ADEQUATE

4 x 8

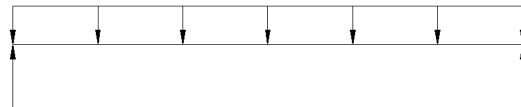
BEAM DESCRIPTION:

ROOF FRMG - 3' HDR AT BD#4 (SIM. AT OWNER'S SUITE)

B4

PARAMETERS:

L = 3.25 FT
W = 0.34 KLF
P = - K



ANALYSIS:

$R_{MAX} = 0.55$ K $V_D = -$ K $< V_{ALL} = 3.50$ K ADEQUATE
 $M_{MAX} = 0.45$ K-FT $< M_{ALL} = 3.44$ K-FT ADEQUATE
 $\Delta_{TL} = 0.01$ IN. $L/1000+$ $< L/240$ ADEQUATE

4 x 8

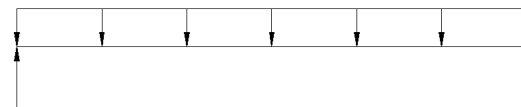
BEAM DESCRIPTION:

ROOF FRMG - HDR AT BD#2 CLOSET

B5

PARAMETERS:

L = 8.0 FT
W = 0.25 KLF
P = - K



ANALYSIS:

$R_{MAX} = 1.0$ K $V_D = -$ K $< V_{ALL} = 3.50$ K ADEQUATE
 $M_{MAX} = 2.0$ K-FT $< M_{ALL} = 3.44$ K-FT ADEQUATE
 $\Delta_{TL} = 0.13$ IN. $L/738$ $< L/240$ ADEQUATE

4 x 8



BEAM & HEADER CALCULATIONS

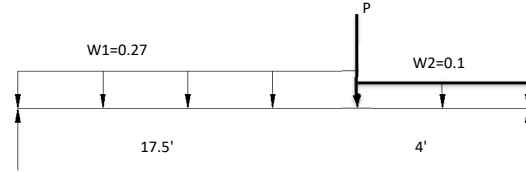
BEAM DESCRIPTION:

2ND FLR FRMG - BM ABOVE KITCHEN (SIM. AT GARAGE)

B6

PARAMETERS:

L = 21.50 FT
W = SHOWN KLF
P = - K



ANALYSIS:

SEE OVERSTRENGTH CALCS FOR MORE INFORMATION

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

3 1/2" x 18" GLB

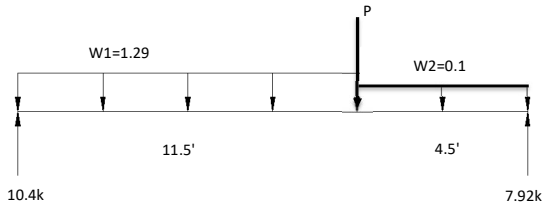
BEAM DESCRIPTION:

2ND FLR FRMG - GARAGE DOOR HDR

B7

PARAMETERS:

L = 16.00 FT
W = SHOWN KLF
P = 3.03 K



ANALYSIS:

$R_{MAX} = 10.40 K$ $V_D = - K < V_{ALL} = 20.11 K$ ADEQUATE
 $M_{MAX} = 41.92 K\text{-FT} < M_{ALL} = 68.31 K\text{-FT}$ ADEQUATE
 $\Delta_{TL} = 0.40 \text{IN.}$ $L/ 480.00 < L/240$ ADEQUATE

5 1/2" x 18" GLB

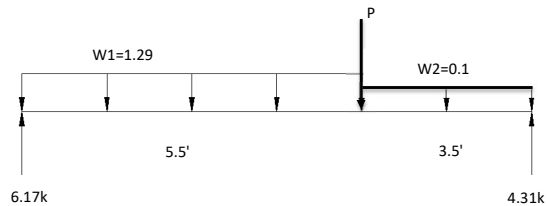
BEAM DESCRIPTION:

2ND FLR FRMG - SGD HDR AT REAR OF KITCHEN

B8

PARAMETERS:

L = 9.00 FT
W = SHOWN KLF
P = 3.03 K



ANALYSIS:

$R_{MAX} = 6.17 K$ $V_D = - K < V_{ALL} = 8.53 K$ ADEQUATE
 $M_{MAX} = 14.76 K\text{-FT} < M_{ALL} = 19.32 K\text{-FT}$ ADEQUATE
 $\Delta_{TL} = 0.237 \text{IN.}$ $L/ 455.00 < L/240$ ADEQUATE

4 x 8



BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION:

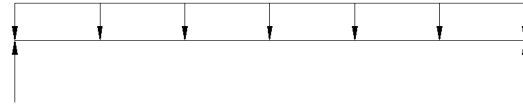
2ND FLR FRMG - CONT. DROPPED BM AT GREAT RM/DINING

B9

PARAMETERS:

L = FT
W = KLF
P = K

SEE OUTPUT FOR SPAN AND LOADING CONDITIONS



ANALYSIS:

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

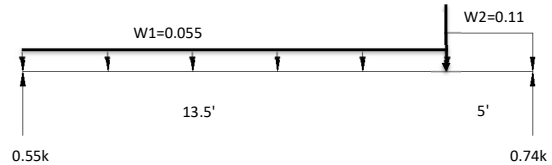
BEAM DESCRIPTION:

2ND FLR FRMG - BM / GT AT STAIRS

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

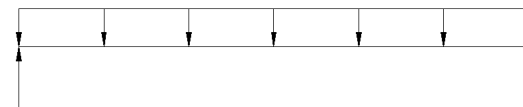
BEAM DESCRIPTION:

2ND FLR FRMG - FLUSH BM ABOVE LIVING RM

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

Wood Beam

Lic. #: KW-06004787

File: Bm Checks.ec6
 Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24
MULHERN & KULP STRUCTURAL ENGINEERING INC

DESCRIPTION: B9 - Dropped Beam at Great Rm / Dining

CODE REFERENCES

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

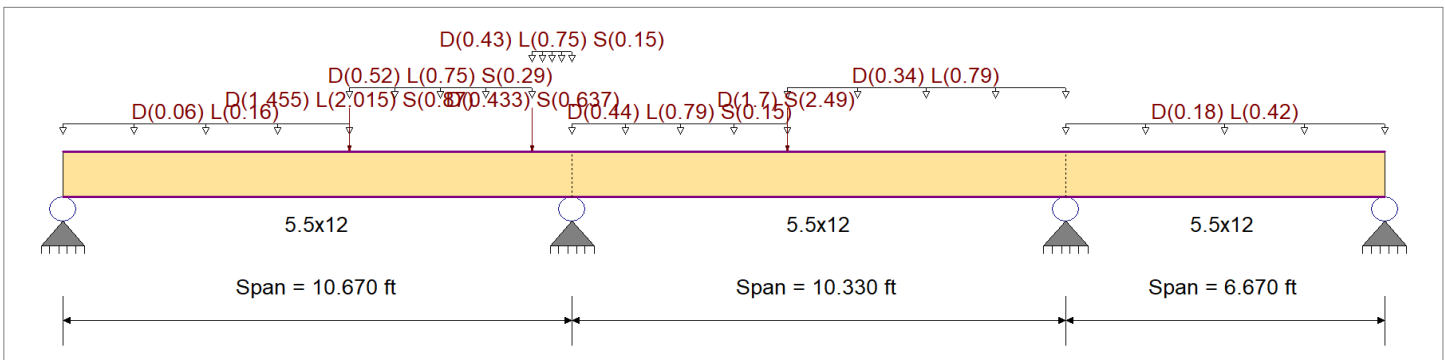
Material Properties

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 +	2,400.0 psi	E : Modulus of Elasticity	
Fb -	1,850.0 psi	Ebend- xx	1,800.0ksi
Fc - Prll	1,650.0 psi	Eminbend - xx	950.0ksi
Fc - Perp	650.0 psi	Ebend- yy	1,600.0ksi
Fv	265.0 psi	Eminbend - yy	850.0ksi
Ft	1,100.0 psi	Density	31.210pcf



Applied Loads

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

Load for Span Number 1

- Uniform Load : D = 0.060, L = 0.160 k/ft, Extent = 0.0 -->> 6.0 ft, Tributary Width = 1.0 ft
- Point Load : D = 1.455, L = 2.015, S = 0.870 k @ 6.0 ft
- Uniform Load : D = 0.520, L = 0.750, S = 0.290 k/ft, Extent = 6.0 -->> 9.830 ft, Tributary Width = 1.0 ft
- Point Load : D = 0.4330, S = 0.6370 k @ 9.830 ft
- Uniform Load : D = 0.430, L = 0.750, S = 0.150 k/ft, Extent = 9.830 -->> 10.670 ft, Tributary Width = 1.0 ft

Load for Span Number 2

- Uniform Load : D = 0.440, L = 0.790, S = 0.150 k/ft, Extent = 0.0 -->> 4.50 ft, Tributary Width = 1.0 ft
- Uniform Load : D = 0.340, L = 0.790 k/ft, Extent = 4.50 -->> 10.330 ft, Tributary Width = 1.0 ft
- Point Load : D = 1.70, S = 2.490 k @ 4.50 ft

Load for Span Number 3

- Uniform Load : D = 0.180, L = 0.420, Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.818 < 1	Maximum Shear Stress Ratio	=	0.620 < 1
Section used for this span		5.5x12	Section used for this span		5.5x12
fb: Actual	=	1,513.60psi	fv: Actual	=	164.37 psi
Fb: Allowable	=	1,850.00psi	Fv: Allowable	=	265.00 psi
Load Combination		+D+L+H, LL Comb Run (LL*)	Load Combination		+D+L+H, LL Comb Run (LL*)
Location of maximum on span	=	10.670ft	Location of maximum on span	=	9.684 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection		0.096 in	Ratio =		1334 >=360
Max Upward Transient Deflection		-0.041 in	Ratio =		3055 >=360
Max Downward Total Deflection		0.132 in	Ratio =		970 >=300
Max Upward Total Deflection		-0.024 in	Ratio =		3298 >=300

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios									Moment Values			Shear Values							
			M	V	C _d	C _{FV}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v					
+D+H	Length = 10.670 ft	1	0.386	0.288	0.90	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	7.07	643.05	1665.00	0.00	0.00	0.00	3.03	68.78	238.50

Wood Beam

Lic. #: KW-06004787

DESCRIPTION: B9 - Dropped Beam at Great Rm / Dining

Load Combination	Support notation : Far left is #1				Values in KIPS
	Support 1	Support 2	Support 3	Support 4	
+D+Lr+H, LL Comb Run (L**)	0.795	7.252	3.290	0.126	
+D+Lr+H, LL Comb Run (L*L)	0.795	7.252	3.290	0.126	
+D+Lr+H, LL Comb Run (LL*)	0.795	7.252	3.290	0.126	
+D+Lr+H, LL Comb Run (LLL)	0.795	7.252	3.290	0.126	
+D+S+H	1.091	11.900	4.523	-0.142	
+D+0.750Lr+0.750L+H, LL Comb Run (*)	0.812	7.145	4.542	1.066	
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.521	10.491	7.033	-0.460	
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.538	10.384	8.284	0.479	
+D+0.750Lr+0.750L+H, LL Comb Run (L	2.150	11.292	2.559	0.320	
+D+0.750Lr+0.750L+H, LL Comb Run (L	2.167	11.186	3.810	1.259	
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.876	14.531	6.302	-0.266	
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.893	14.424	7.553	0.673	
+D+0.750L+0.750S+H, LL Comb Run (**	1.034	10.632	5.466	0.864	
+D+0.750L+0.750S+H, LL Comb Run (*L	0.743	13.977	7.958	-0.662	
+D+0.750L+0.750S+H, LL Comb Run (*L	0.760	13.870	9.209	0.277	
+D+0.750L+0.750S+H, LL Comb Run (L*	2.372	14.779	3.484	0.119	
+D+0.750L+0.750S+H, LL Comb Run (L*	2.389	14.672	4.735	1.058	
+D+0.750L+0.750S+H, LL Comb Run (LL	2.098	18.017	7.226	-0.468	
+D+0.750L+0.750S+H, LL Comb Run (LL	2.115	17.911	8.478	0.471	
+D+0.60W+H	0.795	7.252	3.290	0.126	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.812	7.145	4.542	1.066	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.521	10.491	7.033	-0.460	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.538	10.384	8.284	0.479	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	2.150	11.292	2.559	0.320	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	2.167	11.186	3.810	1.259	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.876	14.531	6.302	-0.266	
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.893	14.424	7.553	0.673	
+D+0.750L+0.750S+0.450W+H, LL Comb	1.034	10.632	5.466	0.864	
+D+0.750L+0.750S+0.450W+H, LL Comb	0.743	13.977	7.958	-0.662	
+D+0.750L+0.750S+0.450W+H, LL Comb	0.760	13.870	9.209	0.277	
+D+0.750L+0.750S+0.450W+H, LL Comb	2.372	14.779	3.484	0.119	
+D+0.750L+0.750S+0.450W+H, LL Comb	2.389	14.672	4.735	1.058	
+D+0.750L+0.750S+0.450W+H, LL Comb	2.098	18.017	7.226	-0.468	
+D+0.750L+0.750S+0.450W+H, LL Comb	2.115	17.911	8.478	0.471	
+0.60D+0.60W+0.60H	0.477	4.351	1.974	0.076	
+D+0.70E+0.60H	0.795	7.252	3.290	0.126	
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.034	10.632	5.466	0.864	
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.743	13.977	7.958	-0.662	
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.760	13.870	9.209	0.277	
+D+0.750L+0.750S+0.5250E+H, LL Comb	2.372	14.779	3.484	0.119	
+D+0.750L+0.750S+0.5250E+H, LL Comb	2.389	14.672	4.735	1.058	
+D+0.750L+0.750S+0.5250E+H, LL Comb	2.098	18.017	7.226	-0.468	
+D+0.750L+0.750S+0.5250E+H, LL Comb	2.115	17.911	8.478	0.471	
+0.60D+0.70E+H	0.477	4.351	1.974	0.076	
D Only	0.795	7.252	3.290	0.126	
L Only, LL Comb Run (**L)	0.023	-0.142	1.669	1.252	
L Only, LL Comb Run (*L*)	-0.366	4.318	4.990	-0.782	
L Only, LL Comb Run (*LL)	-0.343	4.176	6.659	0.470	
L Only, LL Comb Run (L**)	1.807	5.387	-0.975	0.259	
L Only, LL Comb Run (L*L)	1.829	5.245	0.694	1.511	
L Only, LL Comb Run (LL*)	1.441	9.706	4.015	-0.524	
L Only, LL Comb Run (LLL)	1.464	9.563	5.684	0.728	
S Only	0.296	4.648	1.233	-0.269	
H Only					



BEAM & HEADER CALCULATIONS

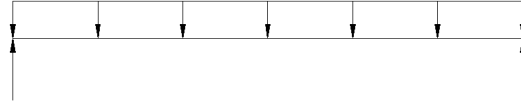
BEAM DESCRIPTION:

2ND FLR FRMG - BM AT FIREPLACE

B12

PARAMETERS:

L = 6.00 FT
W = 0.55 KLF
P = - K



ANALYSIS:

$R_{MAX} = 1.65$ K $V_D = -$ K $< V_{ALL} = 5.99$ K ADEQUATE
 $M_{MAX} = 2.48$ K-FT $< M_{ALL} = 19.38$ K-FT ADEQUATE
 $\Delta_{TL} = 0.01$ IN. $L/1000.00 < L/240$ ADEQUATE

1 3/4" x 18" LVL

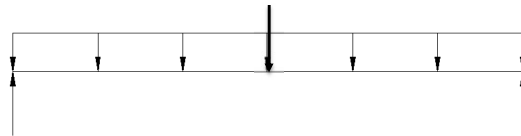
BEAM DESCRIPTION:

2ND FLR FRMG - HDR @ GARAGE SIDE MAN DOOR

B13

PARAMETERS:

L = 3.00 FT
W = 0.35 KLF
P = 0.780 K



ANALYSIS:

$R_{MAX} = 0.92$ K $V_D = -$ K $< V_{ALL} = 3.50$ K ADEQUATE
 $M_{MAX} = 0.99$ K-FT $< M_{ALL} = 3.44$ K-FT ADEQUATE
 $\Delta_{TL} = 0.01$ IN. $L/1000+ < L/240$ ADEQUATE

4 x 8

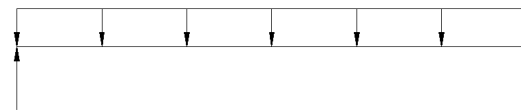
BEAM DESCRIPTION:

2ND FLR FRMG - HDR AT ADU (SIM. AT POWDER RM)

B14

PARAMETERS:

L = 3.00 FT
W = 0.665 KLF
P = - K



ANALYSIS:

$R_{MAX} = 4.19$ K $V_D = -$ K $< V_{ALL} = 3.50$ K ADEQUATE
 $M_{MAX} = 1.00$ K-FT $< M_{ALL} = 3.44$ K-FT ADEQUATE
 $\Delta_{TL} = 0.010$ IN. $L/1000+ < L/240$ ADEQUATE

4 x 8



BEAM & HEADER CALCULATIONS

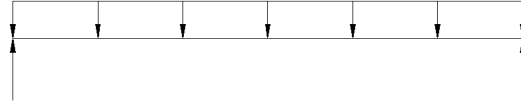
BEAM DESCRIPTION:

2ND FLR FRMG - FRONT PORCH BEAM

B15

PARAMETERS:

L = 12.00 FT
W = 0.17 KLF
P = - K



ANALYSIS:

$R_{MAX} = 1.02$ K $V_D = -$ K $< V_{ALL} = 4.47$ K ADEQUATE
 $M_{MAX} = 3.06$ K-FT $< M_{ALL} = 5.17$ K-FT ADEQUATE
 $\Delta_{TL} = 0.215$ IN. $L/670.00 < L/240$ ADEQUATE

4 X 10

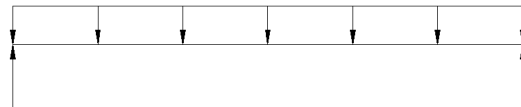
BEAM DESCRIPTION:

2ND FLR FRMG - GREAT RM SIDE SGD HDR

B16

PARAMETERS:

L = 9.00 FT
W = 0.72 KLF
P = - K



ANALYSIS:

$R_{MAX} = 3.24$ K $V_D = -$ K $< V_{ALL} = 8.73$ K ADEQUATE
 $M_{MAX} = 7.29$ K-FT $< M_{ALL} = 10.17$ K-FT ADEQUATE
 $\Delta_{TL} = 0.10$ IN. $L/1000+ < L/240$ ADEQUATE

6 X 12

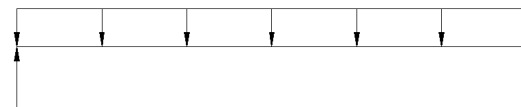
BEAM DESCRIPTION:

2ND FLR FRMG - DROPPED BM AT REAR COVERED PATIO

B17

PARAMETERS:

L = 16.67 FT
W = 0.300 KLF
P = - K



ANALYSIS:

$R_{MAX} = 2.50$ K $V_D = -$ K $< V_{ALL} = 13.41$ K ADEQUATE
 $M_{MAX} = 10.42$ K-FT $< M_{ALL} = 30.36$ K-FT ADEQUATE
 $\Delta_{TL} = 0.366$ IN. $L/547.00 < L/240$ ADEQUATE

5 1/2" X 12" GLB



BEAM & HEADER CALCULATIONS

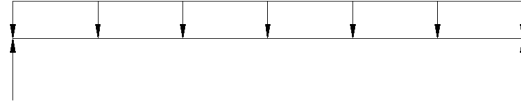
BEAM DESCRIPTION:

2ND FLR FRMG - BM AT REAR COVERED PATIO BY FP

B18

PARAMETERS:

L = 4.00 FT
W = 0.30 KLF
P = - K



ANALYSIS:

$R_{MAX} = 0.60$ K $V_D = -$ K $< V_{ALL} = 5.43$ K ADEQUATE
 $M_{MAX} = 0.60$ K-FT $< M_{ALL} = 7.00$ K-FT ADEQUATE
 $\Delta_{TL} = 0.100$ IN. $L/1000.00 < L/240$ ADEQUATE

4 X 12

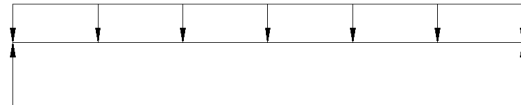
BEAM DESCRIPTION:

1ST FLR FRMG - DROPPED BM BELOW BRG WALL AT STAIRS

B19

PARAMETERS:

L = 5.75 FT
W = 1.05 KLF
P = - K



ANALYSIS:

$R_{MAX} = 3.02$ K $V_D = -$ K $< V_{ALL} = 3.89$ K ADEQUATE
 $M_{MAX} = 4.34$ K-FT $< M_{ALL} = 4.49$ K-FT ADEQUATE
 $\Delta_{TL} = 0.07$ IN. $L/985.00 < L/240$ ADEQUATE

4 X 10

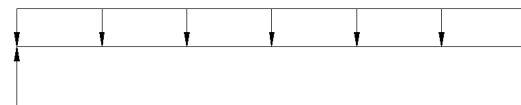
BEAM DESCRIPTION:

1ST FLR FRMG - DROPPED BM BELOW DINING

B20

PARAMETERS:

L = 7.00 FT
W = 0.630 KLF
P = - K



ANALYSIS:

$R_{MAX} = 2.21$ K $V_D = -$ K $< V_{ALL} = 3.89$ K ADEQUATE
 $M_{MAX} = 3.86$ K-FT $< M_{ALL} = 4.49$ K-FT ADEQUATE
 $\Delta_{TL} = 0.092$ IN. $L/911.00 < L/240$ ADEQUATE

4 X 10



BEAM & HEADER CALCULATIONS

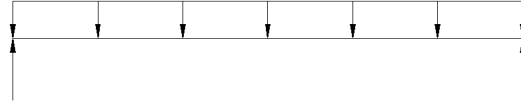
BEAM DESCRIPTION:

1ST FLR FRMG - BM BELOW GREAT RM/DINING

B21

PARAMETERS:

L = 5.00 FT
W = 0.70 KLF
P = - K



ANALYSIS:

$R_{MAX} = 1.75$ K $V_D = -$ K $< V_{ALL} = 3.89$ K ADEQUATE
 $M_{MAX} = 2.19$ K-FT $< M_{ALL} = 4.49$ K-FT ADEQUATE
 $\Delta_{TL} = 0.030$ IN. $L/1000.00 < L/240$ ADEQUATE

4 X 10

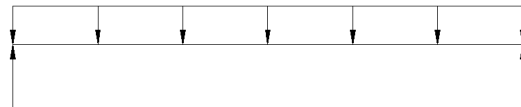
BEAM DESCRIPTION:

1ST FLR FRMG - DROPPED BM BELOW PANTRY

B22

PARAMETERS:

L = 6.50 FT
W = 0.69 KLF
P = - K



ANALYSIS:

$R_{MAX} = 2.24$ K $V_D = -$ K $< V_{ALL} = 3.89$ K ADEQUATE
 $M_{MAX} = 3.64$ K-FT $< M_{ALL} = 4.49$ K-FT ADEQUATE
 $\Delta_{TL} = 0.075$ IN. $L/1000+ < L/240$ ADEQUATE

4 X 10

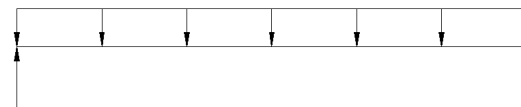
BEAM DESCRIPTION:

1ST FLR FRMG - DROPPED BM BELOW GATH RM/KITCHEN

B23

PARAMETERS:

L = 7.00 FT
W = 0.640 KLF
P = - K



ANALYSIS:

$R_{MAX} = 2.24$ K $V_D = -$ K $< V_{ALL} = 3.89$ K ADEQUATE
 $M_{MAX} = 3.92$ K-FT $< M_{ALL} = 4.49$ K-FT ADEQUATE
 $\Delta_{TL} = 0.094$ IN. $L/897.00 < L/240$ ADEQUATE

4 X 10



BEAM & HEADER CALCULATIONS

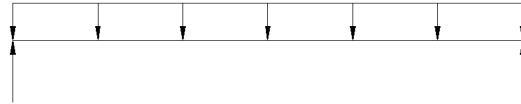
BEAM DESCRIPTION:

DROPPED BEAM AT SHED ROOF (WORST CASE)

B24

PARAMETERS:

L = 16.00 FT
W = 0.120 KLF
P = - K



ANALYSIS:

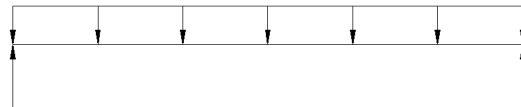
$R_{MAX} = 0.96$ K $V_D = -$ K $< V_{ALL} = 3.89$ K ADEQUATE
 $M_{MAX} = 3.84$ K-FT $< M_{ALL} = 4.49$ K-FT ADEQUATE
 $\Delta_{TL} = 0.480$ IN. $L/400.00 < L/240$ ADEQUATE

4 X 10

BEAM DESCRIPTION:

PARAMETERS:

L = FT
W = KLF
P = K



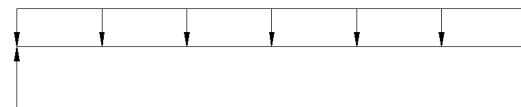
ANALYSIS:

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

BEAM DESCRIPTION:

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



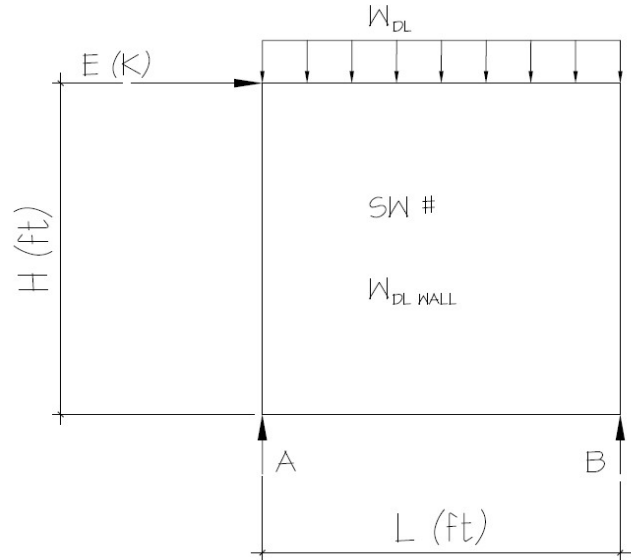
OVERSTRENGTH CALCULATIONS

WALL DESCRIPTION/SW #:

204

PARAMETERS:

- L = 18.0 FT
- H = 9.1 FT
- E = 1.78 K
- W_{DLWALL} = 0.10 KLF
- W_{DL} = 0.034 KLF
- Ω_0 = 2.5 (ASCE TABLE 12.2.1 FOOTNOTE G)
- SDS = 0.952



ANALYSIS:

$E_{MH} = \Omega_0 * E = 4.44$ K $E_v = 0.2 * SDS * DL = 0.459$ K
 $E_M = E_{MH} + E_v = 4.897$ K
 $E_M = E_{MH} - E_v = 3.978$ K

$E_M (MAX) = \sum M_A = 0 = 4.90(9.1) + 0.134(18)(9) - R_B(18)$ $R_B = 1.2DL + 2.5E$
 $R_A = 1.2DL - 2.5E$
 $E_M (MIN) = \sum M_A = 0 = 3.98(9.1) + 0.134(18)(9) - R_B(18)$ $R_B = 1.2DL + 2.0E$
 $R_A = 1.2DL - 2.0E$

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



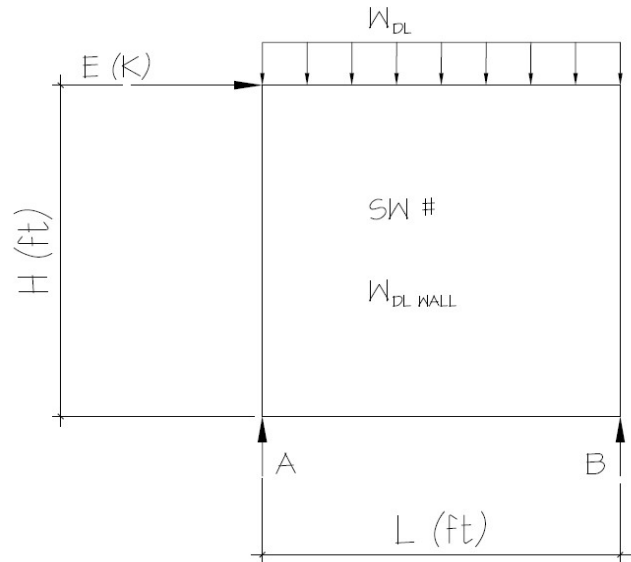
OVERSTRENGTH CALCULATIONS

WALL DESCRIPTION/SW #:

205

PARAMETERS:

- L = 16.7 FT
- H = 9.1 FT
- E = 1.63 K
- W_{DLWALL} = 0.10 KLF
- W_{DL} = 0.034 KLF
- Ω_0 = 2.5 (ASCE TABLE 12.2.1 FOOTNOTE G)
- SDS = 0.952



ANALYSIS:

$E_{MH} = \Omega_0 * E = 4.06$ K $E_v = 0.2 * SDS * DL = 0.425$ K

$E_M = E_{MH} + E_v = 4.488$ K

$E_M = E_{MH} - E_v = 3.637$ K

$E_M (MAX) = \sum M_A = 0 = 4.49(9.1) + 0.134(16.67)(8.335) - R_B(16.67)$ $R_B = 1.1DL + 2.4E$

$R_A = 1.1DL - 2.4E$

$E_M (MIN) = \sum M_A = 0 = 3.64(9.1) + 0.134(16.67)(8.335) - R_B(16.67)$ $R_B = 1.1DL + 2.0E$

$R_A = 1.1DL - 2.0E$

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

File: beam calcs with overstrength.ec6
 Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24
MULHERN & KULP STRUCTURAL ENGINEERING INC

Lic. #: KW-06004787

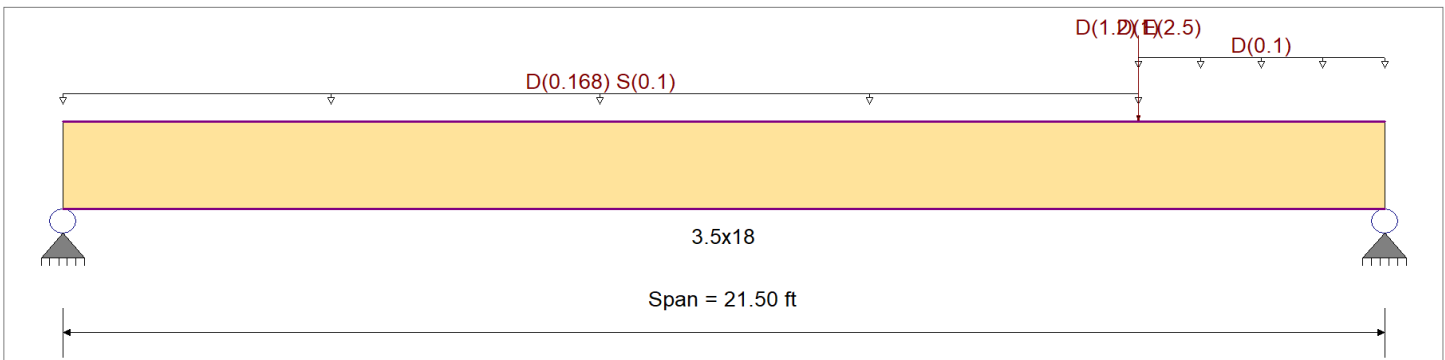
DESCRIPTION: B6 - Bm Above Kitchen (Sim at Garage)

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 +	3,456.0 psi	E : Modulus of Elasticity
Load Combination : ASCE 7-16	Fb -	2,664.0 psi	Ebend- xx
	Fc - Prll	2,376.0 psi	Eminbend - xx
Wood Species : DF/DF	Fc - Perp	936.0 psi	Ebend- yy
Wood Grade : 24F - V4	Fv	381.0 psi	Eminbend - yy
	Ft	1,584.0 psi	Density
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling			



Applied Loads

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

Load for Span Number 1
 Uniform Load : D = 0.1680, S = 0.10 k/ft, Extent = 0.0 --> 17.50 ft, Tributary Width = 1.0 ft
 Point Load : D = 1.20, E = 2.50 k @ 17.50 ft
 Uniform Load : D = 0.10 k/ft, Extent = 17.50 --> 21.50 ft, Tributary Width = 1.0 ft
 Point Load : D = 1.0 k @ 17.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.312	1	Maximum Shear Stress Ratio	=	0.222	: 1
Section used for this span		3.5x18		Section used for this span		3.5x18	
fb: Actual	=	1,234.13	psi	fv: Actual	=	76.21	psi
Fb: Allowable	=	3,955.52	psi	Fv: Allowable	=	342.90	psi
Load Combination		+D+S+H		Load Combination		+D+H	
Location of maximum on span	=	12.005	ft	Location of maximum on span	=	20.009	ft
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.160	in	Ratio =		1617	>=360
Max Upward Transient Deflection		0.000	in	Ratio =		0	<360
Max Downward Total Deflection		0.586	in	Ratio =		439	>=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 _{FV}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v	
+D+H	Length = 21.50 ft	1	0.293	0.222	0.90	0.995	1.00	1.00	1.00	1.00	1.00	1.00	14.27	906.29	3095.62	0.00	0.00	0.00
+D+L+H	Length = 21.50 ft	1	0.263	0.200	1.00	0.995	1.00	1.00	1.00	1.00	1.00	1.00	14.27	906.29	3439.58	0.00	0.00	0.00
+D+Lr+H	Length = 21.50 ft	1	0.211	0.160	1.25	0.995	1.00	1.00	1.00	1.00	1.00	1.00	14.27	906.29	4299.47	0.00	0.00	0.00
+D+S+H	Length = 21.50 ft	1	0.312	0.213	1.15	0.995	1.00	1.00	1.00	1.00	1.00	1.00	19.44	1,234.13	3955.52	3.91	93.17	438.15
+D+0.750Lr+0.750L+H	Length = 21.50 ft	1	0.211	0.160	1.25	0.995	1.00	1.00	1.00	1.00	1.00	1.00	14.27	906.29	4299.47	3.20	76.21	476.25

Wood Beam

File: beam calcs with overstrength.ec6
 Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24
MULHERN & KULP STRUCTURAL ENGINEERING INC

Lic. # : KW-06004787

DESCRIPTION: B6 - Bm Above Kitchen (Sim at Garage)

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+0.750L+0.750S+H Length = 21.50 ft	1	0.291	0.203	1.15	0.995	1.00	1.00	1.00	1.00	1.00	18.13	1,151.09	3955.52	0.00	0.00	0.00	0.00
+D+0.60W+H Length = 21.50 ft	1	0.165	0.125	1.60	0.995	1.00	1.00	1.00	1.00	1.00	14.27	906.29	5503.33	0.00	0.00	0.00	0.00
+D+0.750Lr+0.750L+0.450W+H Length = 21.50 ft	1	0.165	0.125	1.60	0.995	1.00	1.00	1.00	1.00	1.00	14.27	906.29	5503.33	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+0.450W+H Length = 21.50 ft	1	0.209	0.146	1.60	0.995	1.00	1.00	1.00	1.00	1.00	18.13	1,151.09	5503.33	0.00	0.00	0.00	0.00
+0.60D+0.60W+0.60H Length = 21.50 ft	1	0.099	0.075	1.60	0.995	1.00	1.00	1.00	1.00	1.00	8.56	543.78	5503.33	0.00	0.00	0.00	0.00
+D+0.70E+0.60H Length = 21.50 ft	1	0.217	0.181	1.60	0.995	1.00	1.00	1.00	1.00	1.00	18.83	1,195.79	5503.33	0.00	0.00	0.00	0.00
+D-0.70E+0.60H Length = 21.50 ft	1	0.119	0.069	1.60	0.995	1.00	1.00	1.00	1.00	1.00	10.35	656.85	5503.33	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+0.5250E+H Length = 21.50 ft	1	0.245	0.188	1.60	0.995	1.00	1.00	1.00	1.00	1.00	21.24	1,348.26	5503.33	0.00	0.00	0.00	0.00
+D+0.750L+0.750S+0.5250E+H Length = 21.50 ft	1	0.176	0.104	1.60	0.995	1.00	1.00	1.00	1.00	1.00	15.27	969.50	5503.33	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	0.5864	11.299		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	3.228	4.952
Overall MINimum	0.465	2.035
+D+H	2.190	3.350
+D+L+H	2.190	3.350
+D+Lr+H	2.190	3.350
+D+S+H	3.228	4.062
+D+0.750Lr+0.750L+H	2.190	3.350
+D+0.750L+0.750S+H	2.968	3.884
+D+0.60W+H	2.190	3.350
+D+0.750Lr+0.750L+0.450W+H	2.190	3.350
+D+0.750L+0.750S+0.450W+H	2.968	3.884
+0.60D+0.60W+0.60H	1.314	2.010
+D+0.70E+0.60H	2.516	4.774
+D+0.750L+0.750S+0.5250E+H	3.213	4.952
+0.60D+0.70E+H	1.640	3.434
D Only	2.190	3.350
S Only	1.038	0.712
E Only	0.465	2.035
H Only		

JAYMARC HOMES
4533 90TH AVE SE

MERCER ISLAND, WA

SHEAR WALL CALCULATIONS - WIND

REVIEWED BY: NJM

DECEMBER 14, 2021

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



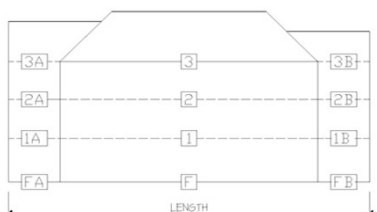
MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

WIND DESIGN SUMMARY PER ASCE 7-16

PARAMETERS:		ROOF GEOMETRY:		BUILDING GEOMETRY:	
WIND SPEED	100	TRANS. ROOF PITCH	4.0 :12	LENGTH	58 FT
EXPOSURE CATEGORY	B	LONG. ROOF PITCH	8.0 :12	WIDTH	46 FT
RISK CATEGORY	II	MEAN ROOF HEIGHT, H	30.00 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				

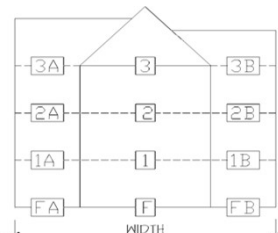
TRANSVERSE DIRECTION (PERPENDICULAR TO MAIN RIDGE LINE)						
DIAPHRAGM LEVEL	FLOOR-TO-FLOOR HEIGHT	SURFACE	SECTION			sq ft
			A	O	B	
2	9 FT	Roof Surface	0	236	0	sq ft
		Wall surface	0	424	0	sq ft
1	10 FT	Roof Surface	0	59	0	sq ft
		Wall surface	0	530	0	sq ft
FND		Roof Surface	0	0	0	sq ft
		Wall surface	0	0	0	sq ft

TRIBUTARY DESIGN LOADS: (0.6W)				
	SECTION			kips
	A	O	B	
Story Shear	0.00	8.02	0.00	kips
Total Shear	0.00	8.02	0.00	kips
	8.02			kips
Story Shear	0.00	8.04	0.00	kips
Total Shear	0.00	16.06	0.00	kips
	16.06			kips
Story Shear	0.00	0.00	0.00	kips
Total Shear	0.00	16.06	0.00	kips
	16.06			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	228	0	sq ft
		Wall surface	0	419	0	sq ft
1	10 FT	Roof Surface	0	0	0	sq ft
		Wall surface	0	593	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	8.48	0.00	kips
Total Shear	0.00	8.48	0.00	kips
	8.48			kips
Story Shear	0.00	8.14	0.00	kips
Total Shear	0.00	16.63	0.00	kips
	16.63			kips
Story Shear	0.00	0.00	0.00	kips
Total Shear	0.00	16.63	0.00	kips
	16.63			kips



Issue	Issue Date	By	Description

4531 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.

© 2017 JayMarc Homes, LLC; All rights reserved.

06.15.21
Submittal Date

Sheet Title/Description
JAYMARC HOMES
Design Firm

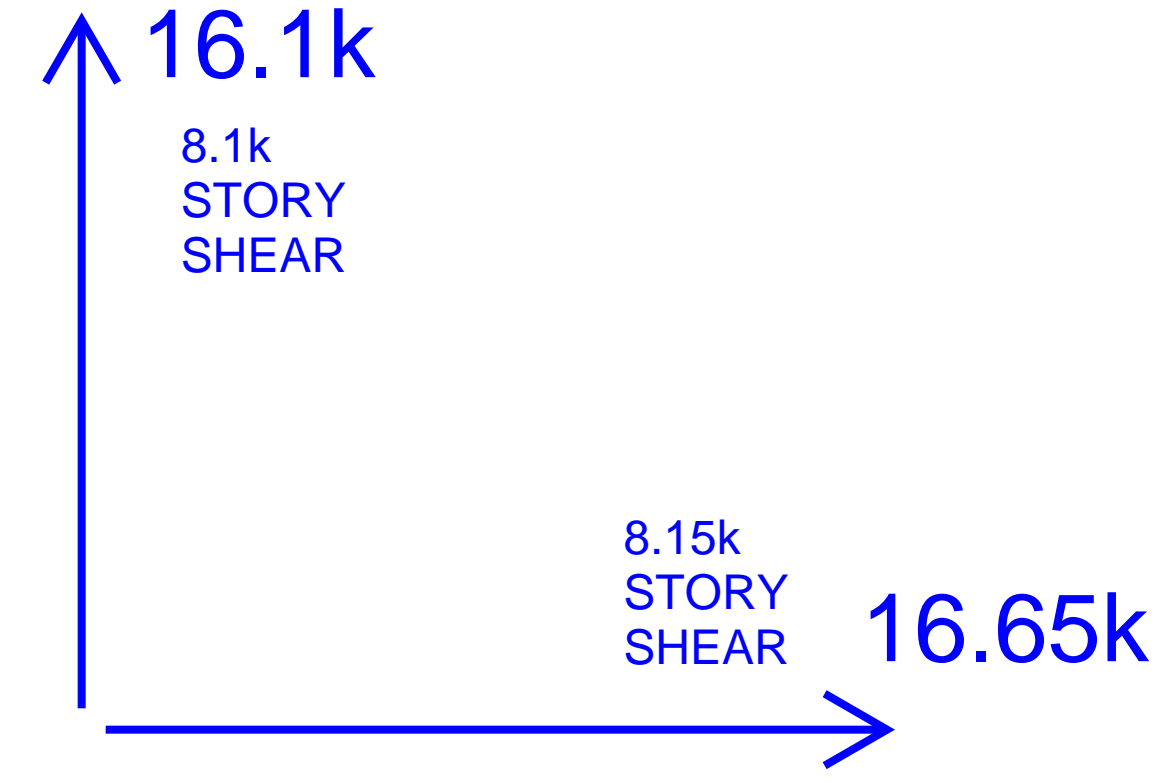
R.R.
Drawn by:

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

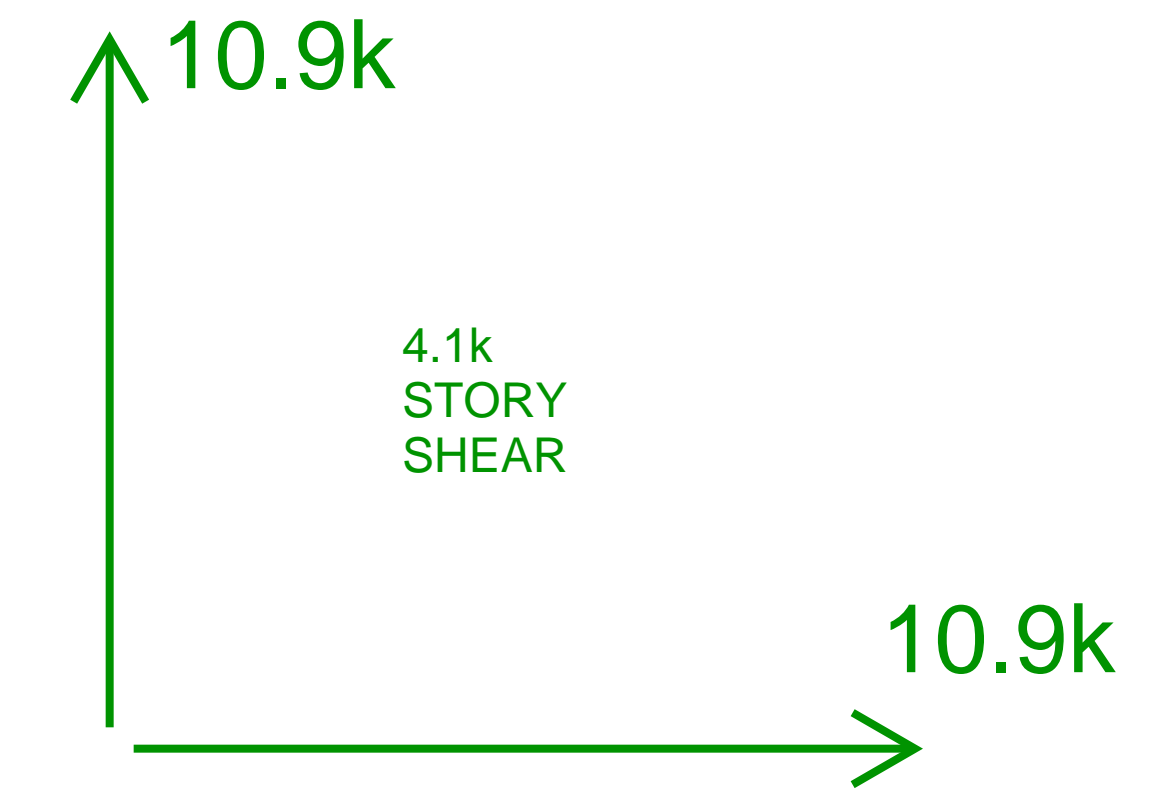
Primary Scale

A5
of .

WIND DESIGN: Exp. B, Kzt=1.6

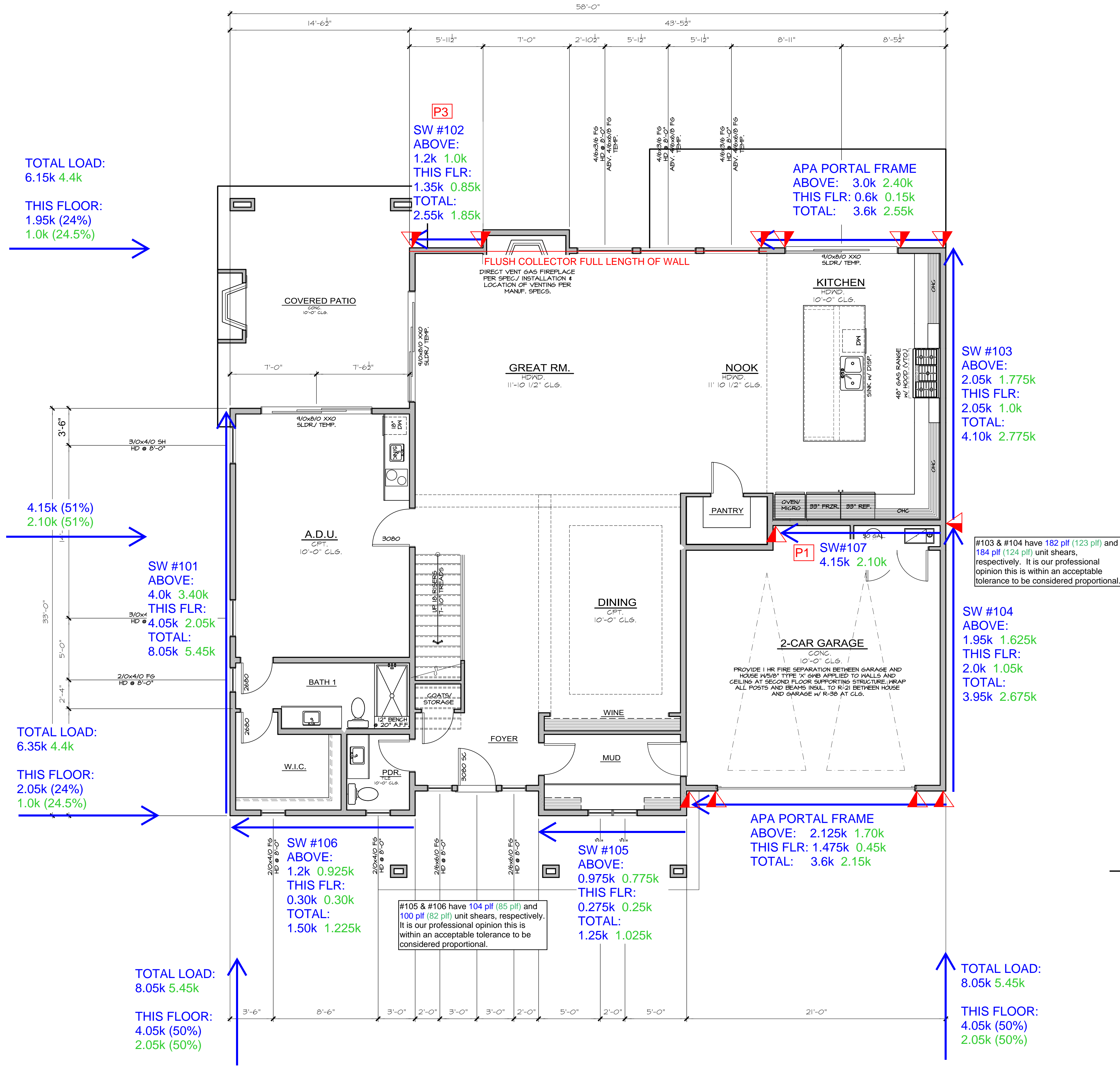


SEISMIC DESIGN: SDC:D



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

MAIN FLOOR PLAN
1/4" = 1'-0"



Sheet Title/Description

Issue	Issue Date	By	Description

4531 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 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.

© 2017 JayMarc Homes, LLC; All rights reserved.

06.15.21
 Submittal Date

Sheet Title/Description
 JAYMARC HOMES
 Design Firm

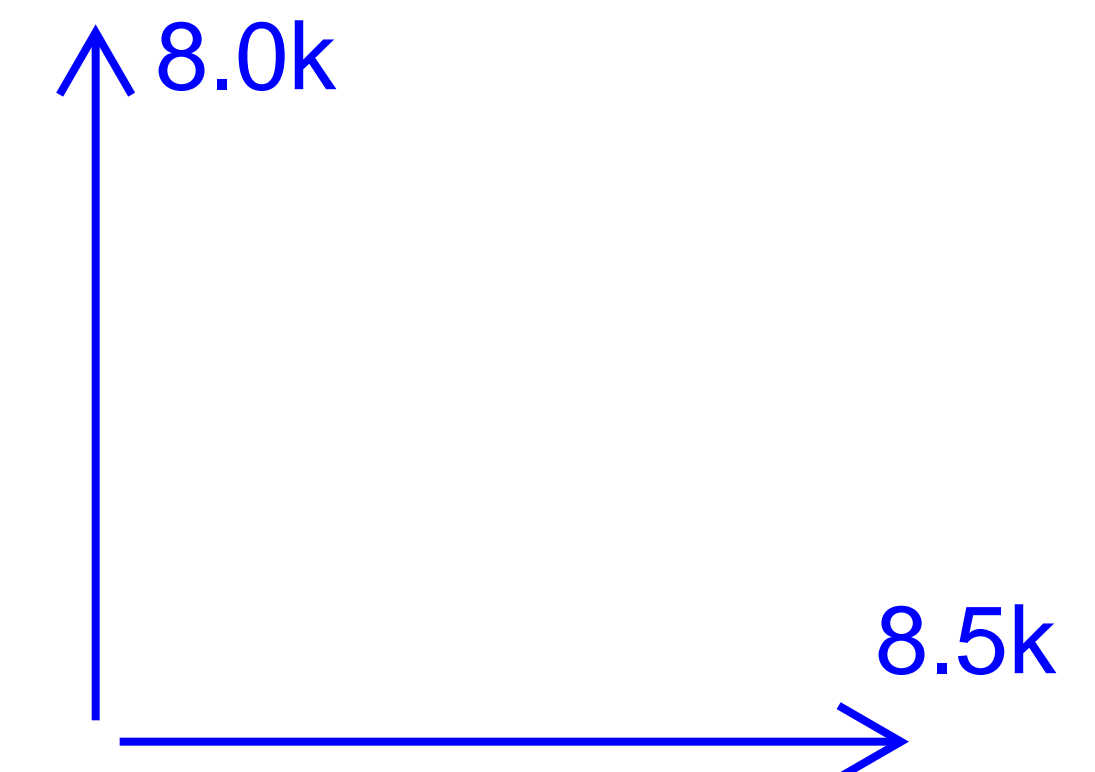
R.R.
 Drawn by:

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

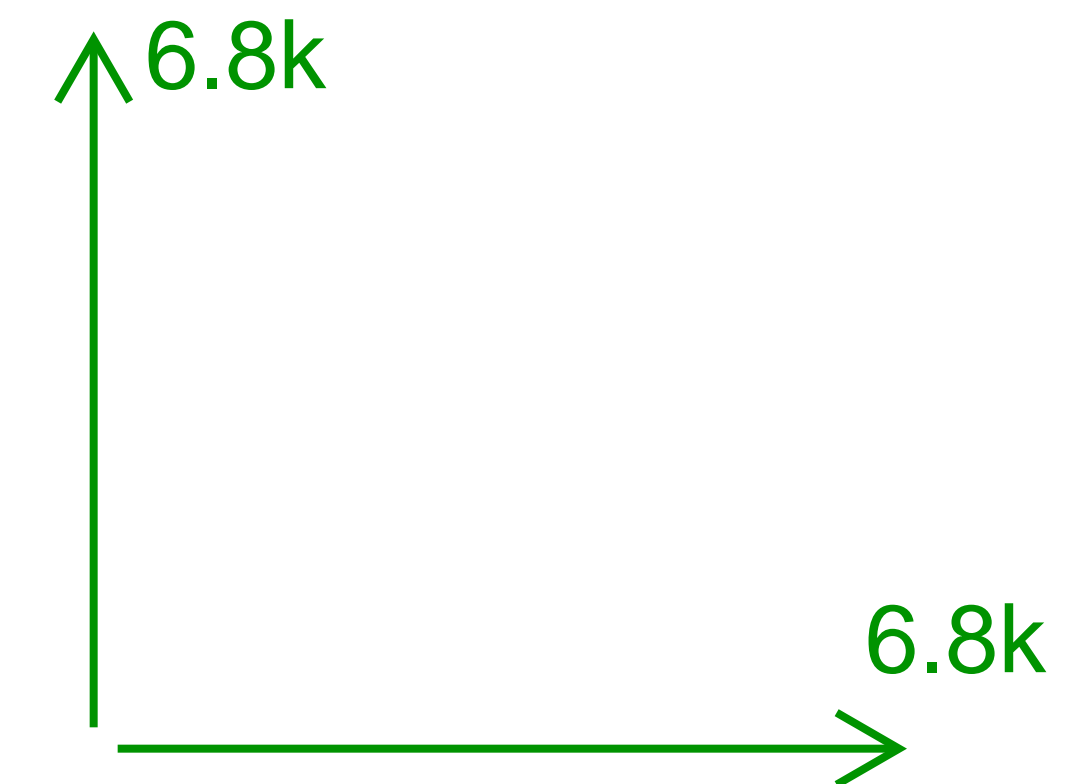
Primary Scale

A7
 of .

WIND DESIGN: Exp. B, Kzt=1.6

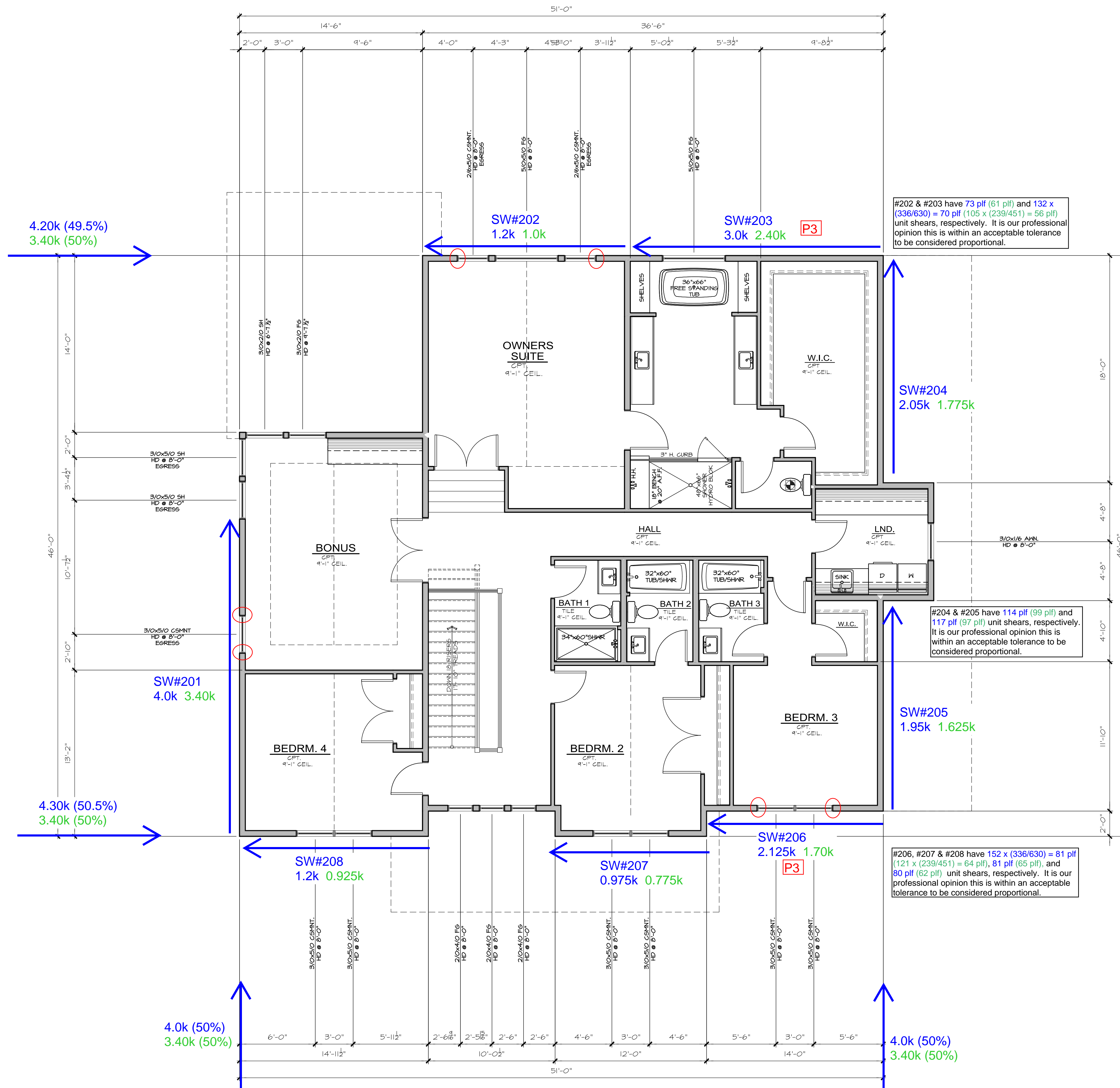


SEISMIC DESIGN: SDC:D



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

UPPER FLOOR PLAN
 1/4" = 1'-0"



Sheet Title/Description



SHEARWALL DESIGN SUMMARY

SHEARWALL 201: 2ND - SIDE EXT. WALL OF BD#4/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 202: 2ND - REAR EXT. WALL OF MASTER BD

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 - REAR EXT. WALL OF MASTER BATH/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

NO HOLDOWN REQUIRED

SHEARWALL 204: 2ND - SIDE EXT. WALL OF MASTER 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 DESIGN SUMMARY

SHEARWALL 205: 2ND - SIDE EXT. WALL OF BD#3

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="16.7"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="16.7"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P1"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="1950"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="5601"/>	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	<input type="text" value="134"/>	PLF	OVERTURNING MOMENT	<input type="text" value="17.7"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="0"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="800"/>	LBS	RESISTIVE MOMENT	<input type="text" value="19.2"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 206: 2ND - FRONT EXT. WALL OF BD#3

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="14.0"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="8.0"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P3"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="2125"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="5040"/>	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	<input type="text" value="475"/>	PLF	OVERTURNING MOMENT	<input type="text" value="19.3"/>	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="31.3"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 207: 2ND - FRONT EXT. WALL OF BD#2

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 208: 2ND - FRONT EXT. WALL OF BD#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 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 - SIDE EXT. WALL OF ADU

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 102: 1ST - REAR EXT. WALL OF GREAT ROOM

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="11.9"/>	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="2550"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="3780"/>	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	<input type="text" value="385"/>	PLF	OVERTURNING MOMENT	<input type="text" value="30.3"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="4114"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="400"/>	LBS	RESISTIVE MOMENT	<input type="text" value="5.6"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="4935"/>	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STDH14RJ HOLDOWN

SHEARWALL 103: 1ST - SIDE EXT. WALL OF KITCHEN

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="10.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="0.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="22.5"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="22.5"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P1"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="4100"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="7560"/>	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	<input type="text" value="150"/>	PLF	OVERTURNING MOMENT	<input type="text" value="41.0"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="570"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="400"/>	LBS	RESISTIVE MOMENT	<input type="text" value="28.2"/>	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. WALL OF GARAGE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="11.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="0.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="21.5"/>	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="3950"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="7224"/>	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	<input type="text" value="150"/>	PLF	OVERTURNING MOMENT	<input type="text" value="43.5"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="813"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="400"/>	LBS	RESISTIVE MOMENT	<input type="text" value="26.0"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="4935"/>	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STDH14RJ HOLDOWN

SHEARWALL 105: 1ST - FRONT EXT. WALL OF MUD ROOM

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="10.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="4.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="12.0"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="8.0"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P1"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="1250"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="2688"/>	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	<input type="text" value="280"/>	PLF	OVERTURNING MOMENT	<input type="text" value="12.5"/>	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="15.0"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 106: 1ST - FRONT EXT. WALL OF ADU

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

NO HOLDDOWN REQUIRED

SHEARWALL 107: 1ST - REAR INT. WALL OF 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 HOLDDOWN CAPACITY LBS

HOLD-DOWN SPECIFICATION

SIMPSON STHD14RJ HOLDOWN

JAYMARC HOMES
4533 90TH AVE SE

MERCER ISLAND, WA

SHEAR WALL CALCULATIONS - SEISMIC

REVIEWED BY: NJM

DECEMBER 14, 2021

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	1.428
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_{MS}	1.714
MAXIMUM SPECTRAL RESPONSE ACCELERATION, S_{M1}	0.895
DESIGN SPECTRAL RESPONSE ACCELERATION, S_{DS}	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)	8
HT. ABV BASE TO HIGHEST LEVEL, h _N	19

CALCULATED VALUES:

APPROXIMATE FUNDAMENTAL PERIOD, T _A	0.182
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	10.0	2423	15	10.9	47 K
2	9.0	2130	17	5.1	41 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 89 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
16 K	16 K	10.9 K	10.9 K

STORY SHEAR CALCULATION:

DISTRIBUTION EXPONENT, **1.00**

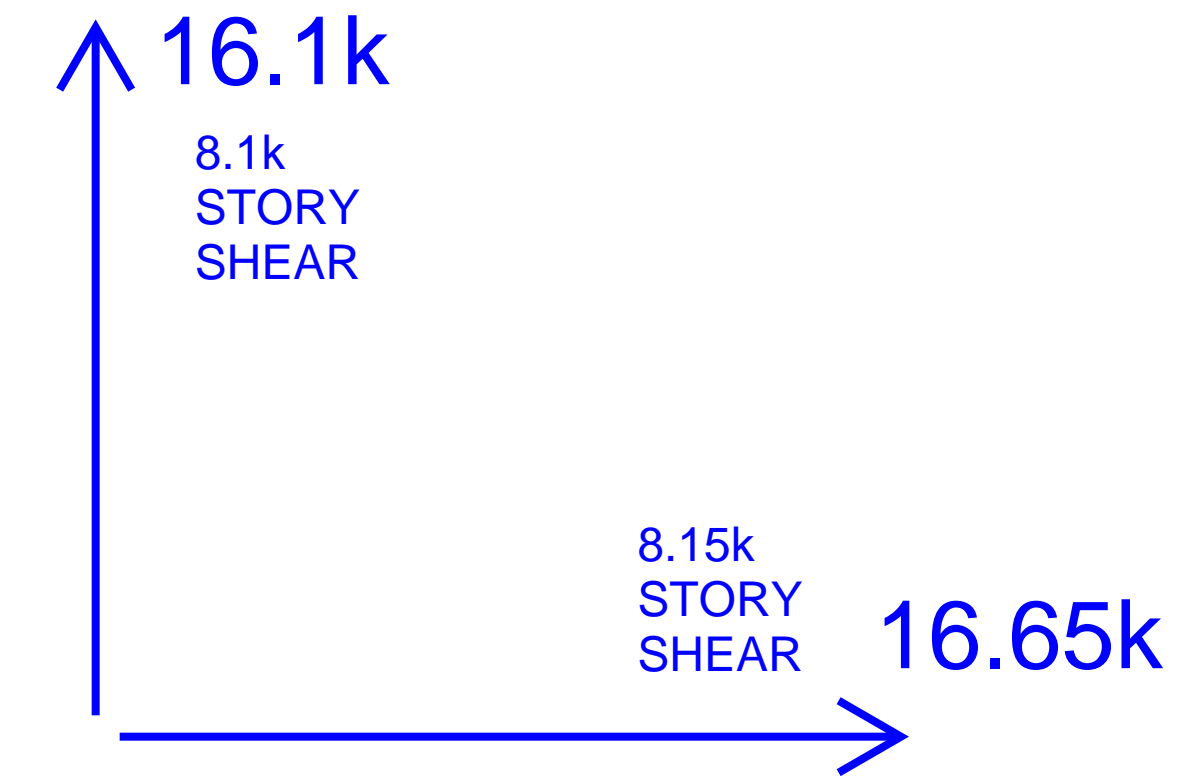
ULTIMATE LOADS

x 0.7 =

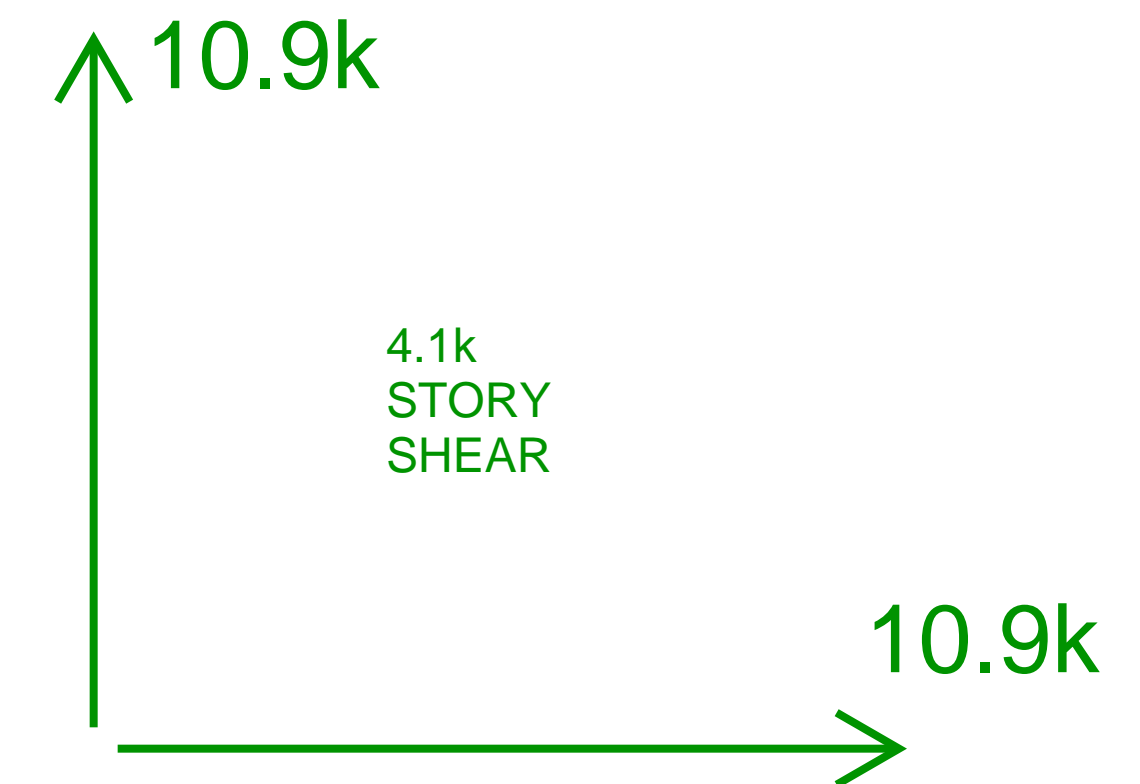
ALLOWABLE LOADS

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	0.376	5.8 K	5.8 K	4.1 K	10.9 K	4.1 K	10.9 K		
2	0.624	9.7 K	9.7 K	6.8 K	6.8 K	6.8 K	6.8 K		
3	0.000	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		
5	0.00	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		
7	0.00	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		
9	0.00	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		
11	0.00	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		
13	0.00	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		
15	0.00	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		
17	0.00	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		
19	0.00	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		

WIND DESIGN: Exp. B, Kzt=1.6

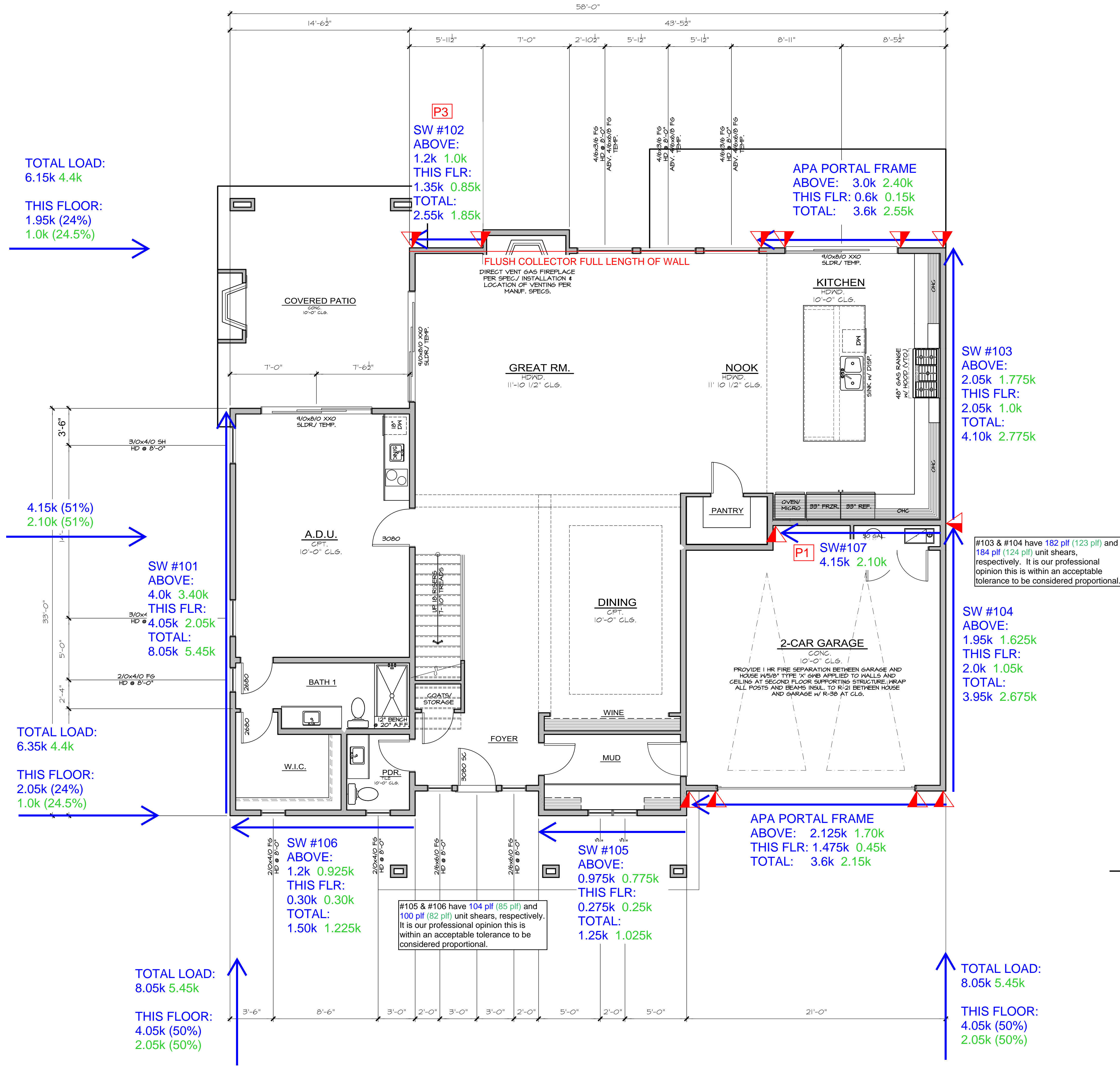


SEISMIC DESIGN: SDC:D



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

MAIN FLOOR PLAN
 1/4" = 1'-0"



Issue	Issue Date	By	Description

4531 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.

© 2017 JayMarc Homes, LLC; All rights reserved.

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 .

Sheet Title/Description

Issue	Issue Date	By	Description

4531 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 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.

© 2017 JayMarc Homes, LLC; All rights reserved.

06.15.21
Submittal Date

Sheet Title/Description
JAYMARC HOMES
Design Firm

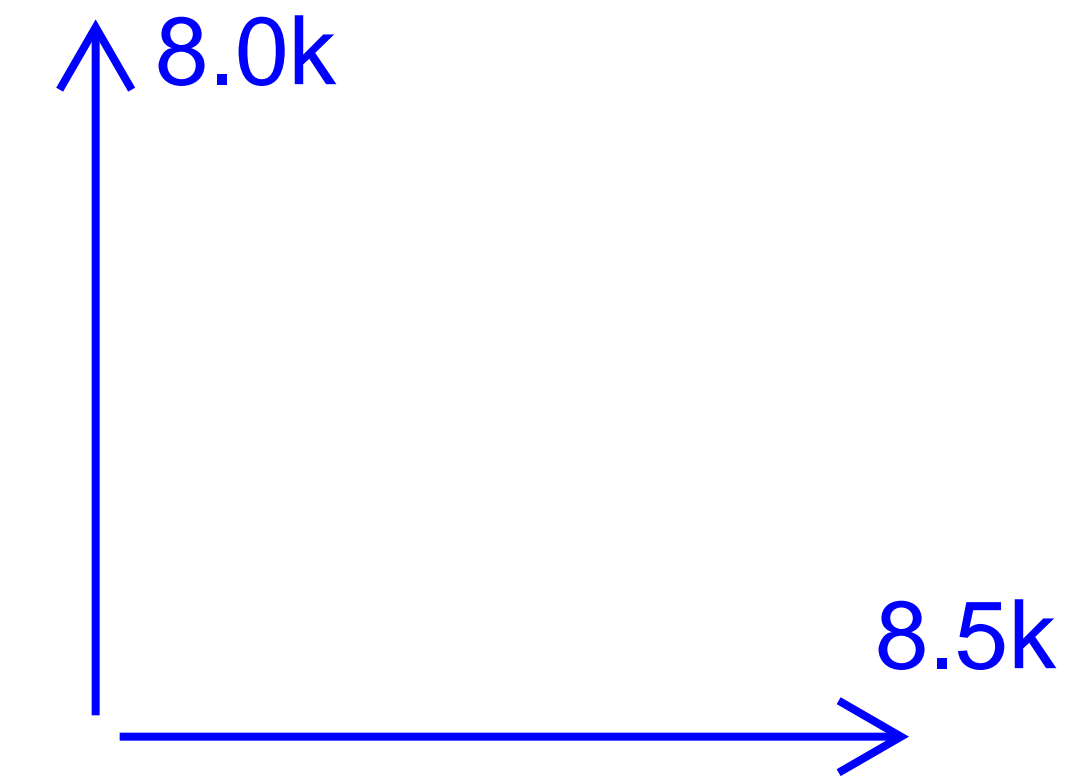
R.R.
Drawn by:

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

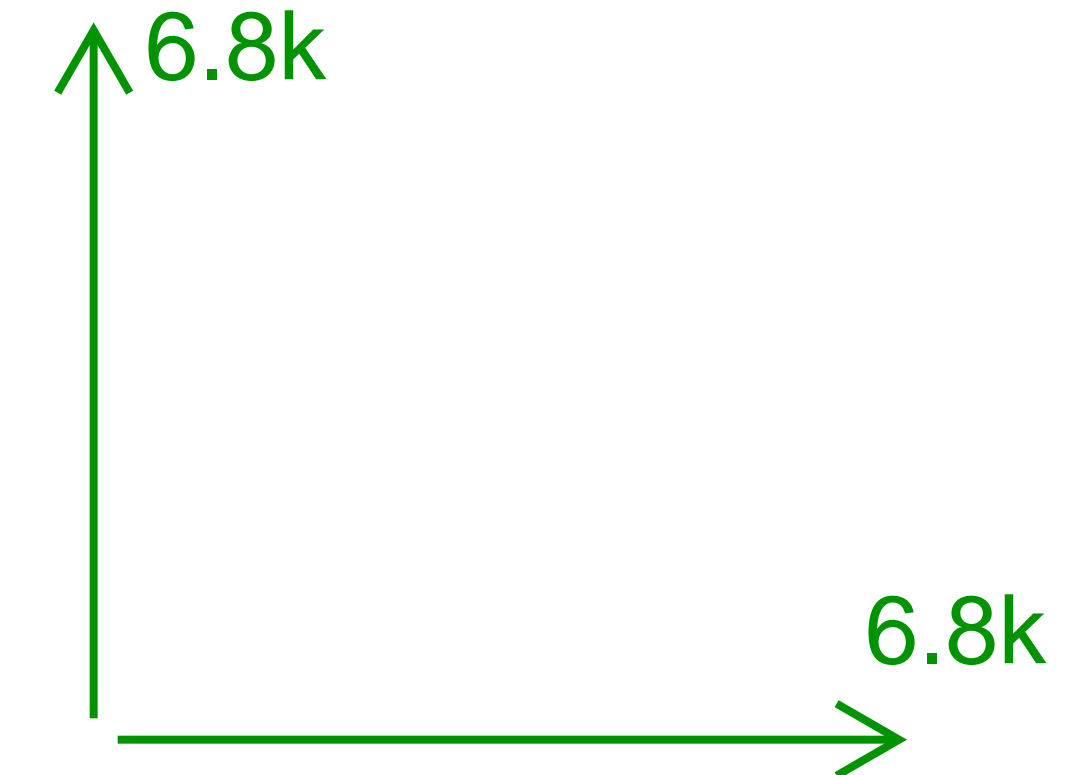
Primary Scale

A7
of .

WIND DESIGN: Exp. B, Kzt=1.6

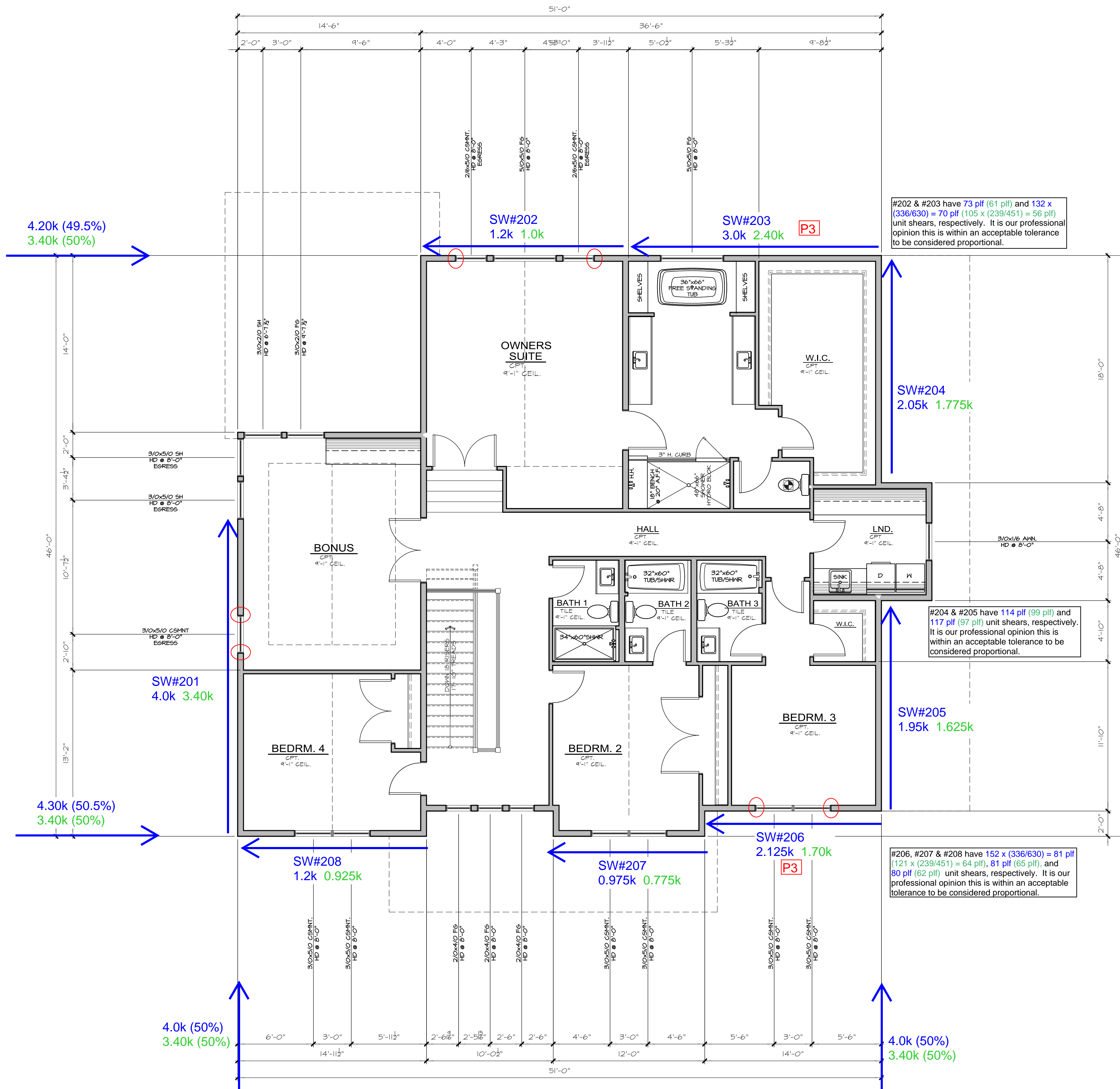


SEISMIC DESIGN: SDC:D



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

UPPER FLOOR PLAN
1/4" = 1'-0"



Sheet Title/Description



SHEARWALL DESIGN SUMMARY

SHEARWALL 201: 2ND - SIDE EXT. WALL OF BD#4/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 202: 2ND - REAR EXT. WALL OF MASTER BD

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 - REAR EXT. WALL OF MASTER BATH/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

NO HOLDOWN REQUIRED

SHEARWALL 204: 2ND - SIDE EXT. WALL OF MASTER 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 DESIGN SUMMARY

SHEARWALL 205: 2ND - SIDE EXT. WALL OF BD#3

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="16.7"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="16.7"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P1"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="1625"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="3984"/>	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	<input type="text" value="134"/>	PLF	OVERTURNING MOMENT	<input type="text" value="14.8"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="0"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="800"/>	LBS	RESISTIVE MOMENT	<input type="text" value="14.9"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 206: 2ND - FRONT EXT. WALL OF BD#3

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="14.0"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="8.0"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P3"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="1700"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="3608"/>	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	<input type="text" value="475"/>	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="400"/>	LBS	RESISTIVE MOMENT	<input type="text" value="24.3"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 207: 2ND - FRONT EXT. WALL OF BD#2

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 208: 2ND - FRONT EXT. WALL OF BD#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 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 - SIDE EXT. WALL OF ADU

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 102: 1ST - REAR EXT. WALL OF GREAT ROOM

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="11.9"/>	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="1850"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="2706"/>	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	<input type="text" value="385"/>	PLF	OVERTURNING MOMENT	<input type="text" value="22.0"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="2936"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="400"/>	LBS	RESISTIVE MOMENT	<input type="text" value="4.4"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="3695"/>	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STDH14RJ HOLDOWN

SHEARWALL 103: 1ST - SIDE EXT. WALL OF KITCHEN

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="10.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="0.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="22.5"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="22.5"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P1"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="2775"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="5378"/>	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	<input type="text" value="150"/>	PLF	OVERTURNING MOMENT	<input type="text" value="27.8"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="259"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="400"/>	LBS	RESISTIVE MOMENT	<input type="text" value="21.9"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="3695"/>	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STDH14RJ HOLDOWN



SHEARWALL DESIGN SUMMARY

SHEARWALL 104: 1ST - SIDE EXT. WALL OF GARAGE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="11.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="0.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="21.5"/>	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="2675"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="5139"/>	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	<input type="text" value="150"/>	PLF	OVERTURNING MOMENT	<input type="text" value="29.4"/>	K-FT	HOLD DOWN DESIGN LOAD	<input type="text" value="429"/>	LBS
DL AT ENDS OF WALL	<input type="text" value="400"/>	LBS	RESISTIVE MOMENT	<input type="text" value="20.2"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="3695"/>	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STDH14RJ HOLDOWN

SHEARWALL 105: 1ST - FRONT EXT. WALL OF MUD ROOM

SHEARWALL PROPERTIES:

WALL HEIGHT, H	<input type="text" value="10.0"/>	FT.	MAX WALL OPENING HT, H _c	<input type="text" value="4.0"/>	FT.		
WALL LENGTH, L	<input type="text" value="12.0"/>	FT.	QUALIFYING WALL LENGTH, L	<input type="text" value="8.0"/>	FT.	SHEARWALL ASSEMBLY	<input type="text" value="P1"/>

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL	<input type="text" value="1025"/>	LBS	<	ALLOWABLE SHEARWALL CAPACITY	<input type="text" value="1912"/>	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	<input type="text" value="280"/>	PLF	OVERTURNING MOMENT	<input type="text" value="10.3"/>	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="11.6"/>	K-FT	HOLD DOWN CAPACITY	<input type="text" value="0"/>	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED



SHEARWALL DESIGN SUMMARY

SHEARWALL 106: 1ST - FRONT EXT. WALL OF ADU

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 - REAR INT. WALL OF 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

SIMPSON STHD14RJ HOLDOWN