MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

7220 Trade Street, Suite 350, San Diego, CA 92121 ▸ p 619-650-0010 ▸ *mulhernkulp.com*

CALCULATION PACKAGE

April 13, 2021

JayMarc Homes

6515 SE 30th St

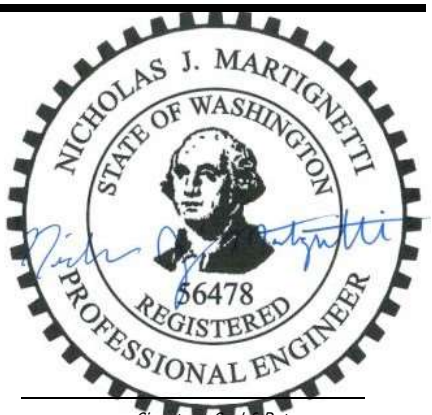
Mercer Island, Washington

MULHERN & KULP STRUCTURAL ENGINEERING, INC.

Prepared By:

Riley J. Denis, E.I.T. *Staff Engineer*

Nick J. Martignetti, P.E. *Associate Owner + San Diego Office Director*



Signature, Seal & Date

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

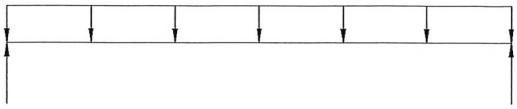
PROJECT NAME: 6515 SE 30TH
JAYMARC HOMES
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-MAR-21

BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: ROOF FRAMING - TYP. HDR (WORST CASE) B1

PARAMETERS:

L = 8 FT
W = 0.42 KLF
P = - K



ANALYSIS:

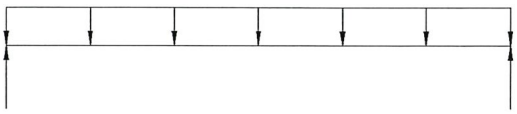
R_{MAX} =	1.7 K	V_D =	- K	< V_{ALL} =	4.5 K	✓	ADEQUATE
M_{MAX} =	3.4 K-FT	< M_{ALL} =	5.2 K-FT			✓	ADEQUATE
Δ_{TL} =	0.11 IN.	L/	872	< L/240		✓	ADEQUATE

4x10 DF #2

BEAM DESCRIPTION: ROOF FRAMING - HDR @ INTERIOR BRG. B2

PARAMETERS:

L = 5 FT
W = 0.25 KLF
P = - K



ANALYSIS:

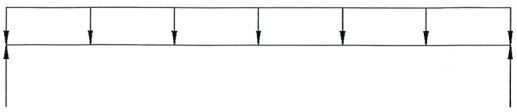
R_{MAX} =	0.6 K	V_D =	- K	< V_{ALL} =	4.5 K	✓	ADEQUATE
M_{MAX} =	0.8 K-FT	< M_{ALL} =	5.2 K-FT			✓	ADEQUATE
Δ_{TL} =	0.01 IN.	L/	1000+	< L/240		✓	ADEQUATE

4x10 DF #2

BEAM DESCRIPTION: UPPER FLOOR FRAMING - PORCH BM B3

PARAMETERS:

L = 7.5 FT
W = 0.11 KLF
P = - K



ANALYSIS:

R_{MAX} =	0.4 K	V_D =	- K	< V_{ALL} =	4.5 K	✓	ADEQUATE
M_{MAX} =	0.77 K-FT	< M_{ALL} =	5.2 K-FT			✓	ADEQUATE
Δ_{TL} =	0.02 IN.	L/	1000+	< L/240		✓	ADEQUATE

4x10 DF #2

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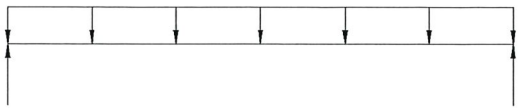
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: UPPER FLOOR FRAMING - DECK ROOF BM — B4

PARAMETERS:

L =	13	FT
W =	0.28	KLF
P =	-	K



ANALYSIS:

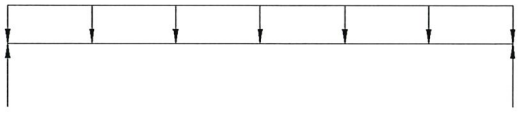
R_{MAX} =	1.8	K	V_D =	-	K	< V_{ALL} = 5.4 K	✓ ADEQUATE
M_{MAX} =	5.9	K-FT	< M_{ALL} =	7.0	K-FT		✓ ADEQUATE
Δ_{TL} =	0.27	IN.	L/	577	< L/240		✓ ADEQUATE

4x12 DF#2

BEAM DESCRIPTION: UPPER FLOOR FRAMING - TYP HDR — B5

PARAMETERS:

L =	4	FT
W =	0.79	KLF
P =	-	K



ANALYSIS:

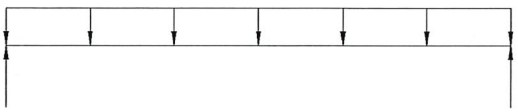
R_{MAX} =	1.6	K	V_D =	-	K	< V_{ALL} = 3.9 K	✓ ADEQUATE
M_{MAX} =	1.6	K-FT	< M_{ALL} =	4.5	K-FT		✓ ADEQUATE
Δ_{TL} =	0.01	IN.	L/	1000+	< L/240		✓ ADEQUATE

4x10 DF#2

BEAM DESCRIPTION: UPPER FLOOR FRAMING - BM @ CHIMNEY — B6

PARAMETERS:

L =	6	FT
W =	0.7	KLF
P =	-	K



ANALYSIS:

R_{MAX} =	2.1	K	V_D =	-	K	< V_{ALL} = 12.8 K	✓ ADEQUATE
M_{MAX} =	7.1	K-FT	< M_{ALL} =	43.5	K-FT		✓ ADEQUATE
Δ_{TL} =	0.015	IN.	L/	1000+	< L/240		✓ ADEQUATE

3½" x 18" GLB

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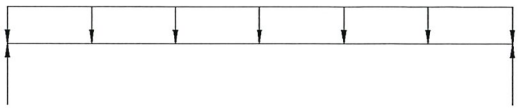
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: UPPER FLOOR FRAMING - REAR SCULLERY HDR B7

PARAMETERS:

L = 6 FT
W = 0.27 KLF
P = - K



ANALYSIS:

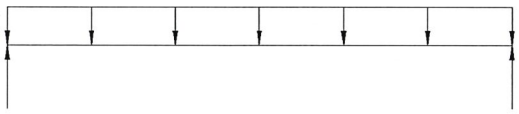
R_{MAX} =	0.8 K	V_D =	- K	< V_{ALL} =	5.4 K	☑	ADEQUATE
M_{MAX} =	1.2 K-FT	< M_{ALL} =	7.0 K-FT			☑	ADEQUATE
Δ_{TL} =	0.01 IN.	L/	1000+	< L/240		☑	ADEQUATE

4x12 DF#2

BEAM DESCRIPTION: UPPER FLOOR FRAMING - COV'D DECK BM @ WALL ABOVE (SIDE TO SIDE) B8 (CANT'D)

PARAMETERS:

L = 24 FT
W = KLF — SEE ENERCALC OUTPUT
P = K



ANALYSIS:

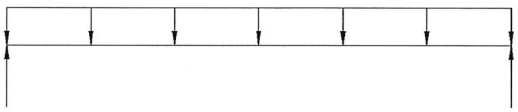
R_{MAX} =	K	V_D =	K	< V_{ALL} =	K	☑	ADEQUATE
M_{MAX} =	K-FT	< M_{ALL} =	K-FT			☑	ADEQUATE
Δ_{TL} =	IN.	L/		< L/240		☑	ADEQUATE

5½" x 24" GLB

BEAM DESCRIPTION: UPPER FLOOR FRAMING - KITCHEN SLIDER HDR B9

PARAMETERS:

L = 15 FT
W = KLF — SEE ENERCALC OUTPUT
P = K



ANALYSIS:

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

5½" x 16½" GLB

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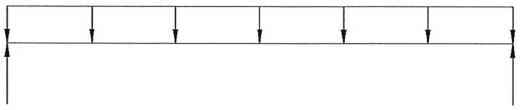
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: UPPER FLOOR FRAMING - BM @ OWNERS SUITE WALL ABOVE — B10

PARAMETERS:

L =	17	FT
W =		KLF
P =		K

SEE ENERCALC OUTPUT



ANALYSIS:

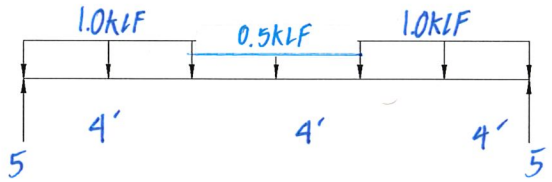
R_{MAX} =		K	V_D =		K	< V_{ALL} =	K	☑ ADEQUATE
M_{MAX} =		K-FT	< M_{ALL} =		K-FT			☑ ADEQUATE
Δ_{TL} =		IN.	L/		< L/240			☑ ADEQUATE

5½" x 18" GLB

BEAM DESCRIPTION: UPPER FLOOR FRAMING - NOOK / HALL BM — B11

PARAMETERS:

L =	12	FT
W =	-	KLF
P =	-	K



ANALYSIS:

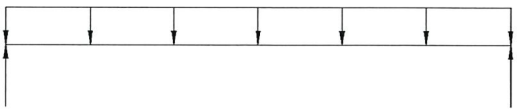
R_{MAX} =	5	K	V_D =	-	K	< V_{ALL} =	10.2	K	☑ ADEQUATE
M_{MAX} =	13	K-FT	< M_{ALL} =	20.2	K-FT				☑ ADEQUATE
Δ_{TL} =	0.35	IN.	L/	410	< L/240				☑ ADEQUATE

5½" x 10½" GLB

BEAM DESCRIPTION: UPPER FLOOR FRAMING - REAR HALL HDR (PORTAL) — B12

PARAMETERS:

L =	5	FT
W =	0.13	KLF
P =	-	K



ANALYSIS:

R_{MAX} =	0.3	K	V_D =	-	K	< V_{ALL} =	4.7	K	☐ ADEQUATE
M_{MAX} =	0.4	K-FT	< M_{ALL} =	6.1	K-FT				☐ ADEQUATE
Δ_{TL} =	0.003	IN.	L/	1000+	< L/240				☐ ADEQUATE

4x12 DF#2

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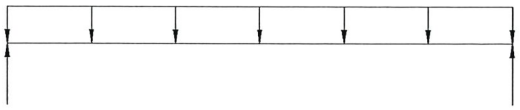
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: UPPER FLOOR FRAMING - HALL SLIDER HDR — B13

PARAMETERS:

L = 10 FT
W = .13 KLF
P = - K



ANALYSIS:

R_{MAX} =	6.7 K	V_D =	- K	< V_{ALL} =	3.9 K	✓	ADEQUATE
M_{MAX} =	1.6 K-FT	< M_{ALL} =	4.5 K-FT			✓	ADEQUATE
Δ_{TL} =	0.08 IN.	L/	1000+	< L/240		✓	ADEQUATE

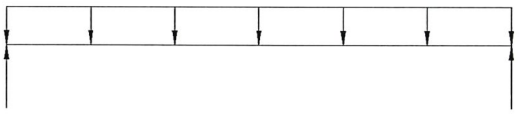
4x10 DF#2

BEAM DESCRIPTION: UPPER FLOOR FRAMING - GARAGE BM @ WALL ABOVE (CANT'D) — B14

PARAMETERS:

L = 25.5 FT
W = KLF
P = K

SEE ENERCALC OUTPUT



ANALYSIS:

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

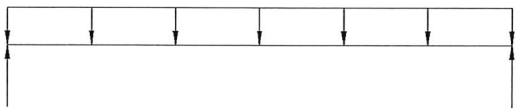
(4) 1 3/4" x 18" LVL

BEAM DESCRIPTION: UPPER FLOOR FRAMING - GARAGE HDR — B15

PARAMETERS:

L = 16 FT
W = KLF
P = K

SEE ENERCALC OUTPUT



ANALYSIS:

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

3 1/2" x 16 1/2" GLB

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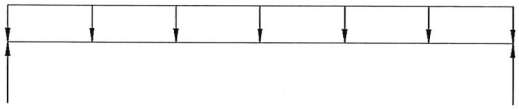
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: VPPER FLOOR FRAMING - TYP INT. BRG

B16

PARAMETERS:

L = 4 FT
W = 1.0 KLF
P = - K



ANALYSIS:

R_{MAX} =	2.0 K	V_D =	- K	< V_{ALL} =	3.9 K	✓	ADEQUATE
M_{MAX} =	2.0 K-FT	< M_{ALL} =	4.5 K-FT			✓	ADEQUATE
Δ_{TL} =	0.016 IN.	L/	1000+	< L/240		✓	ADEQUATE

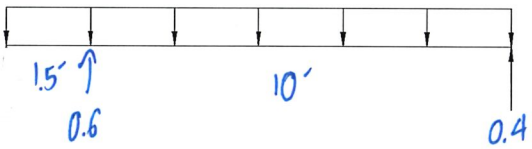
4x10 DF#2

BEAM DESCRIPTION: MAIN FLOOR FRAMING - DECK JOISTS

B17

PARAMETERS:

L = 11.5 FT
W = 0.09 KLF
P = - K



ANALYSIS:

R_{MAX} =	0.6 K	V_D =	- K	< V_{ALL} =	1.6 K	✓	ADEQUATE
M_{MAX} =	1.4 K-FT	< M_{ALL} =	1.6 K-FT			✓	ADEQUATE
Δ_{TL} =	0.18 IN.	L/	666	< L/240		✓	ADEQUATE

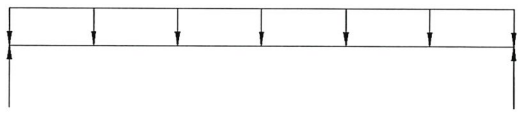
P.T. 2x10 #2 @16" O.C.

BEAM DESCRIPTION: MAIN FLOOR FRAMING - DECK BM

B18

PARAMETERS:

L = 6 FT
W = 0.5 KLF
P = - K



ANALYSIS:

R_{MAX} =	1.5 K	V_D =	- K	< V_{ALL} =	3.8 K	✓	ADEQUATE
M_{MAX} =	2.3 K-FT	< M_{ALL} =	4.0 K-FT			✓	ADEQUATE
Δ_{TL} =	0.05 IN.	L/	1000+	< L/240		✓	ADEQUATE

P.T. 4x10 #2

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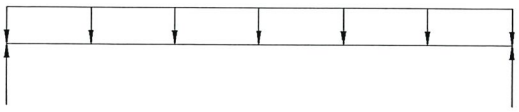
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: MAIN FLOOR FRAMING - TYP CRAWL BM @ BRG — B19

PARAMETERS:

L = 5 FT
W = 1.5 KLF
P = - K



ANALYSIS:

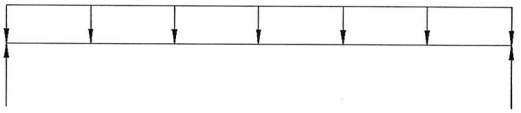
R_{MAX} =	3.8 K	V_D =	- K	< V_{ALL} =	4.5 K	✓	ADEQUATE
M_{MAX} =	4.7 K-FT	< M_{ALL} =	5.2 K-FT			✓	ADEQUATE
Δ_{TL} =	0.06 IN.	L/	1000	< L/240		✓	ADEQUATE

4x10 DF#2

BEAM DESCRIPTION: MAIN FLOOR FRAMING - TYP CRAWL BM — B20

PARAMETERS:

L = 6.5 FT
W = 0.75 KLF
P = - K



ANALYSIS:

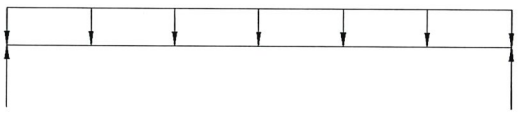
R_{MAX} =	2.4 K	V_D =	- K	< V_{ALL} =	3.9 K	✓	ADEQUATE
M_{MAX} =	3.96 K-FT	< M_{ALL} =	4.5 K-FT			✓	ADEQUATE
Δ_{TL} =	0.08 IN.	L/	975	< L/240		✓	ADEQUATE

4x10 DF#2

BEAM DESCRIPTION: MAIN FLOOR FRAMING - FLUSH BM @ DECK CANT. — B21

PARAMETERS:

L = 10 FT
W = 0.15 KLF
P = - K



ANALYSIS:

R_{MAX} =	0.75 K	V_D =	- K	< V_{ALL} =	3.2 K	✓	ADEQUATE
M_{MAX} =	1.9 K-FT	< M_{ALL} =	3.2 K-FT			✓	ADEQUATE
Δ_{TL} =	0.12 IN.	L/	1000	< L/240		✓	ADEQUATE

P.T.(2)2x10 #2

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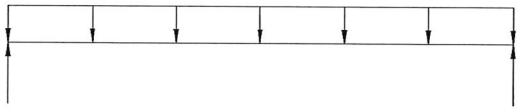
BEAM & HEADER CALCULATIONS

BEAM DESCRIPTION: MAIN FLOOR FRAMING - DROPPED BM @ DECK CANT. B22

PARAMETERS:

L = 10 FT
W = 0.28 KLF
P = - K



ANALYSIS:

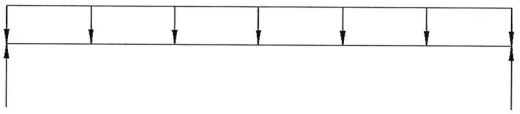
R_{MAX} =	1.4 K	V_D =	- K	< V_{ALL} =	3.9 K	☑	ADEQUATE
M_{MAX} =	3.5 K-FT	< M_{ALL} =	4.5 K-FT			☑	ADEQUATE
Δ_{TL} =	0.19 IN.	L/	630	< L/240		☑	ADEQUATE

P.T. 4x10 #2

BEAM DESCRIPTION:

PARAMETERS:

L = FT
W = KLF
P = K



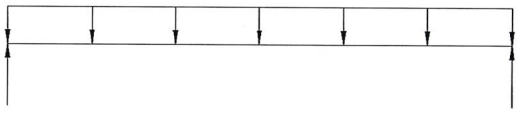
ANALYSIS:

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

BEAM DESCRIPTION:

PARAMETERS:

L = FT
W = KLF
P = K



ANALYSIS:

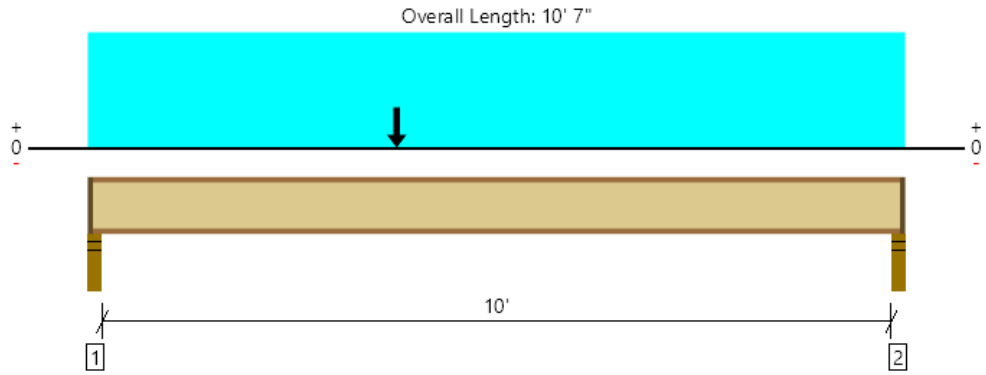
R_{MAX} =	K	V_D =	K	< V_{ALL} =	K	☐	ADEQUATE
M_{MAX} =	K-FT	< M_{ALL} =	K-FT			☐	ADEQUATE
Δ_{TL} =	IN.	L/		< L/240		☐	ADEQUATE

FORTE WEB

MEMBER REPORT

PASSED

Level, Floor: Joist
1 piece(s) 11 7/8" TJI® 210 @ 16" OC



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1119 @ 2 1/2"	1134 (2.25")	Passed (99%)	1.00	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1107 @ 3 1/2"	1655	Passed (67%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	3738 @ 4'	3795	Passed (98%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.145 @ 5' 7/8"	0.254	Passed (L/839)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.211 @ 5' 11/16"	0.508	Passed (L/578)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	63	35	Passed	--	--

System : Floor
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A structural analysis of the deck has not been performed.
- Deflection analysis is based on composite action with a single layer of 23/32" Weyerhaeuser Edge™ Panel (24" Span Rating) that is glued and nailed down.
- Additional considerations for the TJ-Pro™ Rating include: None.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Stud wall - SPF	3.50"	2.25"	2.19"	342	784	1126	1 1/4" Rim Board
2 - Stud wall - SPF	3.50"	2.25"	1.75"	232	581	813	1 1/4" Rim Board

• Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 7" o/c	
Bottom Edge (Lu)	10' 5" o/c	

•TJI joists are only analyzed using Maximum Allowable bracing solutions.
•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 10' 7"	16"	10.0	40.0	Default Load
2 - Point (PLF)	4'	16"	325.0	600.0	

Weyerhaeuser Notes

Weyerhaeuser warrants that the sizing of its products will be in accordance with Weyerhaeuser product design criteria and published design values. Weyerhaeuser expressly disclaims any other warranties related to the software. Use of this software is not intended to circumvent the need for a design professional as determined by the authority having jurisdiction. The designer of record, builder or framer is responsible to assure that this calculation is compatible with the overall project. Accessories (Rim Board, Blocking Panels and Squash Blocks) are not designed by this software. Products manufactured at Weyerhaeuser facilities are third-party certified to sustainable forestry standards. Weyerhaeuser Engineered Lumber Products have been evaluated by ICC-ES under evaluation reports ESR-1153 and ESR-1387 and/or tested in accordance with applicable ASTM standards. For current code evaluation reports, Weyerhaeuser product literature and installation details refer to www.weyerhaeuser.com/woodproducts/document-library.

The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Riley Denis Mulhern & Kulp Structural Engineers (215) 646-8001 rdenis@mulhernkulp.com	

Weyerhaeuser

4/12/2021 7:22:03 PM UTC
ForteWEB v3.1, Engine: V8.1.6.2, Data: V8.0.1.0
File Name: 6515 SE 30th

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING
7220 Trade Street, Suite 350 ▸ San Diego, CA 92121
p 619-650-0010 ▸ *mulhernkulp.com*

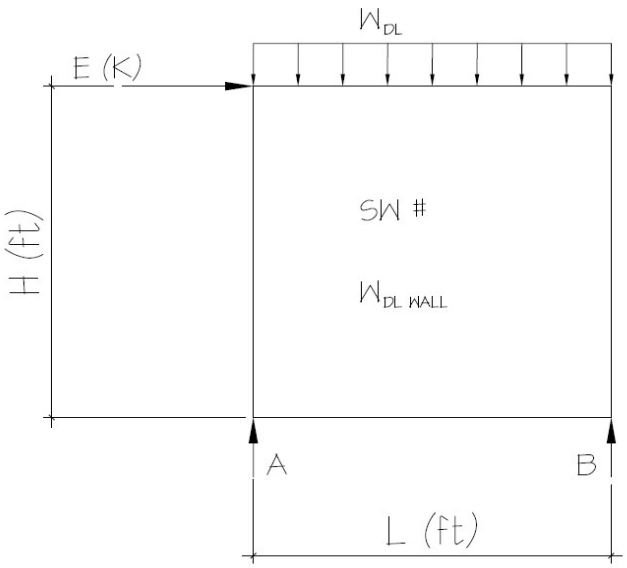
PROJECT NAME: JAYMARC
6515 SE 30TH
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 09-APR-21

OVERSTRENGTH CALCULATIONS

WALL DESCRIPTION/SW #: 201

PARAMETERS:

L =	14.4	FT
H =	9.0	FT
E =	2.85	K
W_{DLWALL} =	0.10	KLF
W_{DL} =	0.035	KLF
Ω_0 =	2.5	(ASCE TABLE 12.2.1 FOOTNOTE G)
SDS =	1.124	



ANALYSIS:

$E_{MH} = \Omega_0 * E$ =	7.13 K	$E_V = 0.2*SDS*DL$ =	0.437 K
$E_M = E_{MH} + E_V$		$E_M = E_{MH} + E_V$ =	7.562 K
$E_M = E_{MH} - E_V$		$E_M = E_{MH} - E_V$ =	6.688 K

E_M (MAX) $= \sum M_A = 0$ =	7.56(9.0) + 0.135(14.4)(7.2) - R_B(14.4)	R_B =	1.0DL + 4.7E
		R_A =	1.0DL - 4.7E
E_M (MIN) $= \sum M_A = 0$ =	6.69(9.0) + 0.135(14.4)(7.2) - R_B(14.4)	R_B =	1.0DL + 4.2E
		R_A =	1.0DL - 4.2E

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

ALLOWABLE STESS PERMITTED TO BE INCREASED BY 1.2

SEE FOLLOWING BEAM CALCS FOR LOAD APPLICATION

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p 619-650-0010 ▸ *mulhernkulp.com*

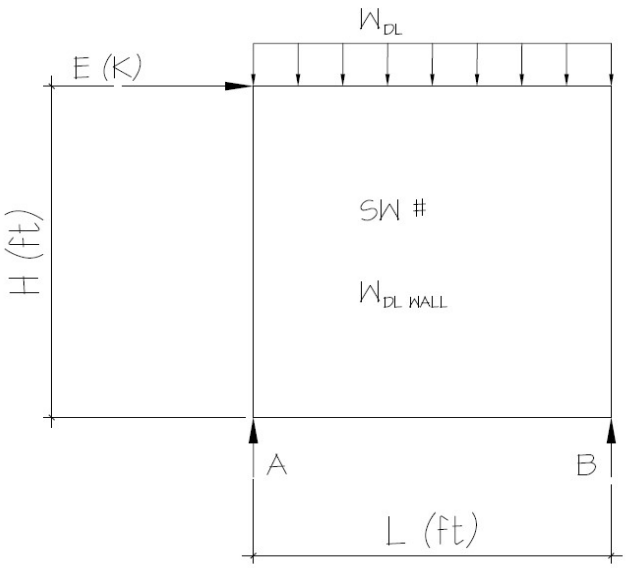
PROJECT NAME: JAYMARC
6515 SE 30TH
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 09-APR-21

OVERSTRENGTH CALCULATIONS

WALL DESCRIPTION/SW #: 202

PARAMETERS:

L =	14.0	FT
H =	9.0	FT
E =	2.25	K
W_{DLWALL} =	0.10	KLF
W_{DL} =	0.170	KLF
Ω_0 =	2.5	(ASCE TABLE 12.2.1 FOOTNOTE G)
SDS =	1.124	



ANALYSIS:

$E_{MH} = \Omega_0 * E$ =	5.63 K	$E_V = 0.2*SDS*DL$ =	0.850 K
$E_M = E_{MH} + E_V$		$E_M = E_{MH} + E_V$ =	6.475 K
$E_M = E_{MH} - E_V$		$E_M = E_{MH} - E_V$ =	4.775 K

E_M (MAX) $= \sum M_A = 0$ =	6.47(9.0) + 0.27(14)(7) - R_B(14)	R_B =	1.9DL + 4.2E
		R_A =	1.9DL - 4.2E
E_M (MIN) $= \sum M_A = 0$ =	4.78(9.0) + 0.27(14)(7) - R_B(14)	R_B =	1.9DL + 3.1E
		R_A =	1.9DL - 3.1E

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

ALLOWABLE STESS PERMITTED TO BE INCREASED BY 1.2

SEE FOLLOWING BEAM CALCS FOR LOAD APPLICATION

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING
7220 Trade Street, Suite 350 ▸ San Diego, CA 92121
p 619-650-0010 ▸ *mulhernkulp.com*

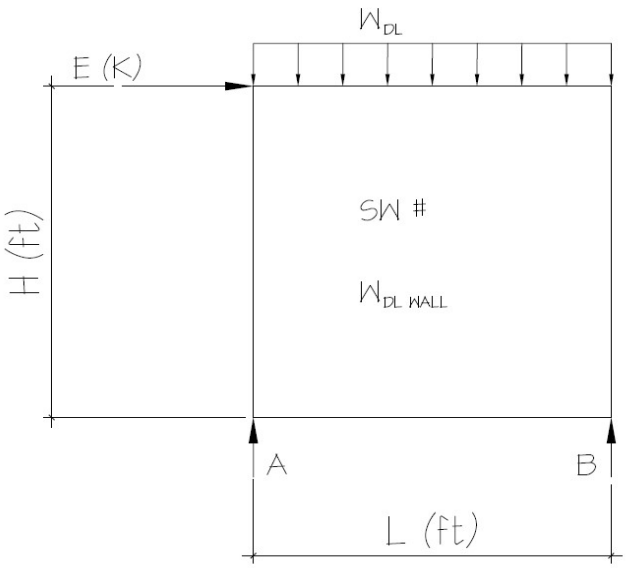
PROJECT NAME: JAYMARC
6515 SE 30TH
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 09-APR-21

OVERSTRENGTH CALCULATIONS

WALL DESCRIPTION/SW #: 208

PARAMETERS:

L =	21.0	FT
H =	9.0	FT
E =	3.80	K
W_{DLWALL} =	0.10	KLF
W_{DL} =	0.145	KLF
Ω_0 =	2.5	(ASCE TABLE 12.2.1 FOOTNOTE G)
SDS =	1.124	



ANALYSIS:

$E_{MH} = \Omega_0 * E$ =	9.50 K	$E_V = 0.2*SDS*DL$ =	1.157 K
$E_M = E_{MH} + E_V$		$E_M = E_{MH} + E_V$ =	10.657 K
$E_M = E_{MH} - E_V$		$E_M = E_{MH} - E_V$ =	8.343 K

E_M (MAX) $= \sum M_A = 0$ =	10.66(9.0) + 0.245(21)(10.5) - R_B(21)	R_B =	2.6DL + 4.6E
		R_A =	2.6DL - 4.6E
E_M (MIN) $= \sum M_A = 0$ =	8.34(9.0) + 0.245(21)(10.5) - R_B(21)	R_B =	2.6DL + 3.6E
		R_A =	2.6DL - 3.6E

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

ALLOWABLE STESS PERMITTED TO BE INCREASED BY 1.2

SEE FOLLOWING BEAM CALCS FOR LOAD APPLICATION

6515 SE 30th St
JayMarc Homes
154-21007
RJD
04-09-21

Wood Beam

File: beam calcs with overstrength.ec6

Lic. # : KW-06004787
MULHERN & KULP STRUCTURAL ENGINEERING INC

DESCRIPTION: BEAM B8

CODE REFERENCES

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

Material Properties

Analysis Method : Allowable Stress Design

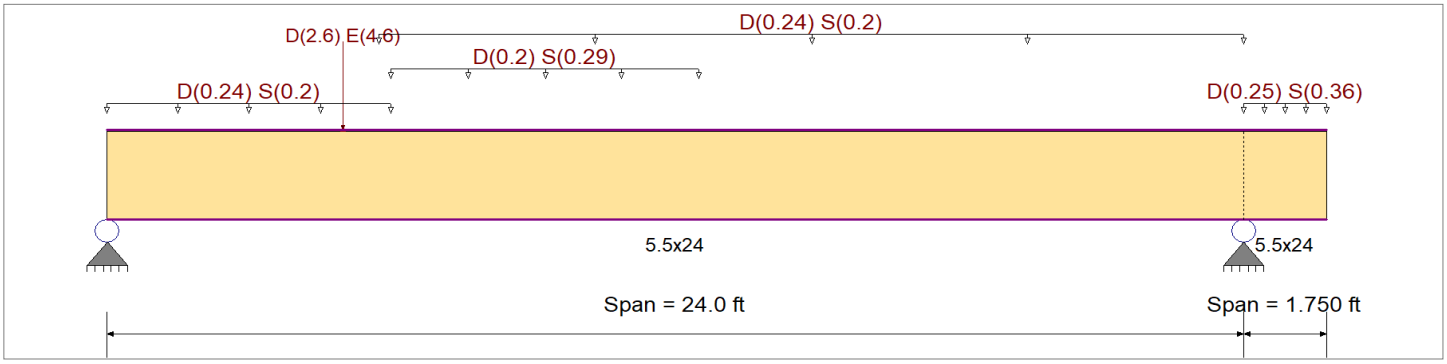
Wood Species : DF/DF
Wood Grade : 24F-V4

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

Fb +	2400 psi
Fb -	1850 psi
Fc - Prll	1650 psi
Fc - Perp	650 psi
Fv	265 psi
Ft	1100 psi

E : Modulus of Elasticity

Ebend- xx	1800 ksi
Eminbend - xx	950 ksi
Ebend- yy	1600 ksi
Eminbend - yy	850 ksi
Density	31.21 pcf



Applied Loads

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

Beam self weight calculated and added to loads
Load for Span Number 1
- Uniform Load : D = 0.240, S = 0.20 k/ft, Extent = 0.0 -->> 6.0 ft, Tributary Width = 1.0 ft
- Uniform Load : D = 0.20, S = 0.290 k/ft, Extent = 6.0 -->> 12.50 ft, Tributary Width = 1.0 ft
- Point Load : D = 2.60, E = 4.60 k @ 5.0 ft
- Uniform Load : D = 0.240, S = 0.20 k/ft, Extent = 5.750 -->> 24.0 ft, Tributary Width = 1.0 ft

Load for Span Number 2
- Uniform Load : D = 0.250, S = 0.360 k/ft, Extent = 0.0 -->> 1.750 ft, Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.505 : 1	Maximum Shear Stress Ratio	=	0.328 : 1
Section used for this span		5.5x24	Section used for this span		5.5x24
fb: Actual	=	1,274.21 psi	fv: Actual	=	100.02 psi
Fb: Allowable	=	2,523.13 psi	Fv: Allowable	=	304.75 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	10.324 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.205 in	Ratio =	1402 >=360
Max Upward Transient Deflection	-0.045 in	Ratio =	932 >=360
Max Downward Total Deflection	0.540 in	Ratio =	532 >=300
Max Upward Total Deflection	-0.116 in	Ratio =	360 >=300

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, L	1	0.5404	11.531		0.0000	0.000
	2	0.0000	11.531	+1.090D+0.750L+0.750S+0.5250E, L	-0.1160	1.750

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	11.250	8.578	
Overall MINimum	3.642	0.958	
D Only	6.108	4.786	

6515 SE 30th St
JayMarc Homes
154-21007
RJD
04-09-21

Wood Beam

File: beam calcs with overstrength.ec6

Lic. # : KW-06004787
MULHERN & KULP STRUCTURAL ENGINEERING INC

DESCRIPTION: BEAM B8

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
+D+L, LL Comb Run (*L)	6.108	4.786	
+D+L, LL Comb Run (L*)	6.108	4.786	
+D+L, LL Comb Run (LL)	6.108	4.786	
+D+Lr, LL Comb Run (*L)	6.108	4.786	
+D+Lr, LL Comb Run (L*)	6.108	4.786	
+D+Lr, LL Comb Run (LL)	6.108	4.786	
+D+S	9.681	8.578	
+D+0.750Lr+0.750L, LL Comb Run (*L)	6.108	4.786	
+D+0.750Lr+0.750L, LL Comb Run (L*)	6.108	4.786	
+D+0.750Lr+0.750L, LL Comb Run (LL)	6.108	4.786	
+D+0.750L+0.750S, LL Comb Run (*L)	8.788	7.630	
+D+0.750L+0.750S, LL Comb Run (L*)	8.788	7.630	
+D+0.750L+0.750S, LL Comb Run (LL)	8.788	7.630	
+D+0.60W	6.108	4.786	
+1.126D+0.70E	9.427	6.060	
+D+0.750Lr+0.750L+0.450W, LL Comb R	6.108	4.786	
+D+0.750Lr+0.750L+0.450W, LL Comb R	6.108	4.786	
+D+0.750Lr+0.750L+0.450W, LL Comb R	6.108	4.786	
+D+0.750L+0.750S+0.450W, LL Comb Ru	8.788	7.630	
+D+0.750L+0.750S+0.450W, LL Comb Ru	8.788	7.630	
+D+0.750L+0.750S+0.450W, LL Comb Ru	8.788	7.630	
+1.090D+0.750L+0.750S+0.5250E, LL C	11.250	8.564	
+1.090D+0.750L+0.750S+0.5250E, LL C	11.250	8.564	
+1.090D+0.750L+0.750S+0.5250E, LL C	11.250	8.564	
+0.60D+0.60W	3.665	2.872	
+0.470D+0.70E	5.420	2.920	
D Only	6.108	4.786	
S Only	3.573	3.792	
E Only	3.642	0.958	
H Only			

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04-09-21

Wood Beam

File: beam calcs with overstrength.ec6

Lic. # : KW-06004787
MULHERN & KULP STRUCTURAL ENGINEERING INC

DESCRIPTION: BEAM B9

CODE REFERENCES

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

Material Properties

Analysis Method : Allowable Stress Design

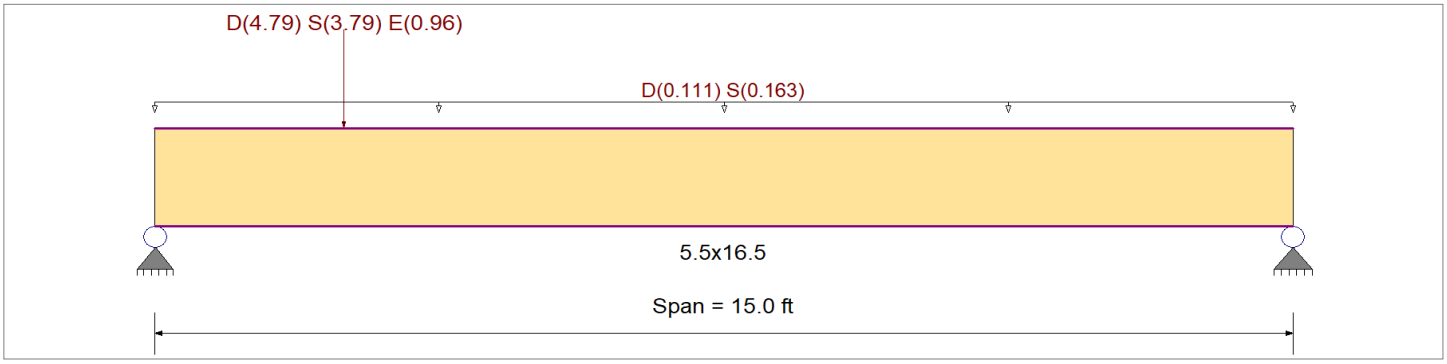
Wood Species : DF/DF
Wood Grade : 24F-V4

Fb +	2400 psi
Fb -	1850 psi
Fc - Prll	1650 psi
Fc - Perp	650 psi
Fv	265 psi
Ft	1100 psi

E : Modulus of Elasticity

Ebend- xx	1800 ksi
Eminbend - xx	950 ksi
Ebend- yy	1600 ksi
Eminbend - yy	850 ksi
Density	31.21 pcf

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 loads
Point Load : D = 4.790, S = 3.790, E = 0.960 k @ 2.50 ft, (FROM B8)
Uniform Load : D = 0.1110, S = 0.1630 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.393 : 1	Maximum Shear Stress Ratio	=	0.485 : 1
Section used for this span		5.5x16.5	Section used for this span		5.5x16.5
fb: Actual	=	1,080.26 psi	fv: Actual	=	147.94 psi
Fb: Allowable	=	2,745.52 psi	Fv: Allowable	=	304.75 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	2.628 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.111 in	Ratio =	1616 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.229 in	Ratio =	786 >=300
Max Upward Total Deflection	0.000 in	Ratio =	0 <300

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.2290	6.898		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	9.353	3.633
Overall MINimum	0.800	0.160
D Only	4.972	1.778
+D+L	4.972	1.778
+D+Lr	4.972	1.778
+D+S	9.353	3.633
+D+0.750Lr+0.750L	4.972	1.778
+D+0.750L+0.750S	8.257	3.169
+D+0.60W	4.972	1.778

6515 SE 30th St
JayMarc Homes
154-21007
RJD
04-09-21

Wood Beam

File: beam calcs with overstrength.ec6

Lic. # : KW-06004787
MULHERN & KULP STRUCTURAL ENGINEERING INC

DESCRIPTION: BEAM B9

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
+1.126D+0.70E	6.158	2.114
+D+0.750Lr+0.750L+0.450W	4.972	1.778
+D+0.750L+0.750S+0.450W	8.257	3.169
+1.090D+0.750L+0.750S+0.5250E	9.125	3.413
+0.60D+0.60W	2.983	1.067
+0.470D+0.70E	2.897	0.948
D Only	4.972	1.778
S Only	4.381	1.854
E Only	0.800	0.160
H Only		

6515 SE 30th St
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154-21007
RJD
04-09-21

Wood Beam

File: beam calcs with overstrength.ec6

Lic. # : KW-06004787
MULHERN & KULP STRUCTURAL ENGINEERING INC

DESCRIPTION: BEAM B10

CODE REFERENCES

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

Material Properties

Analysis Method : Allowable Stress Design

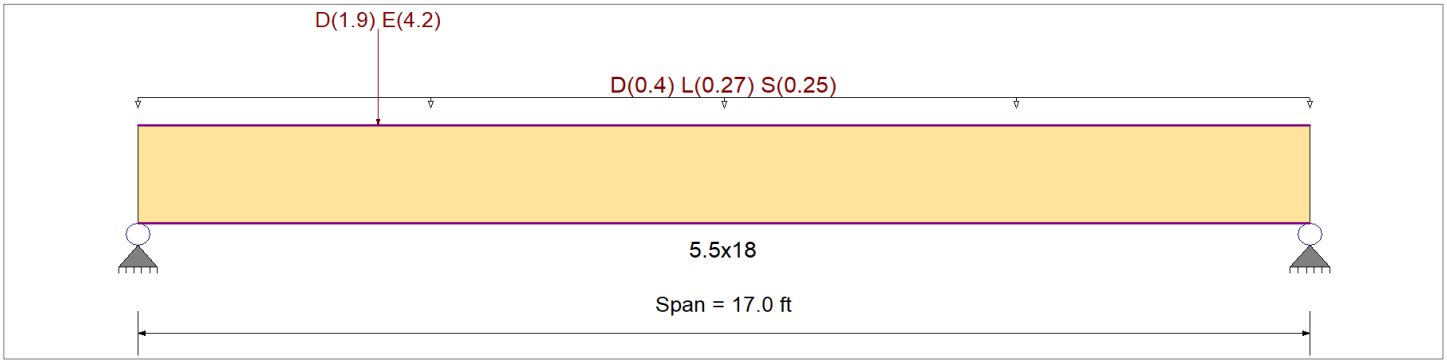
Wood Species : DF/DF
Wood Grade : 24F-V4

Fb +	2,400.0 psi
Fb -	1,850.0 psi
Fc - Prll	1,650.0 psi
Fc - Perp	650.0 psi
Fv	265.0 psi
Ft	1,100.0 psi

E : Modulus of Elasticity

Ebend- xx	1,800.0 ksi
Eminbend - xx	950.0 ksi
Ebend- yy	1,600.0 ksi
Eminbend - yy	850.0 ksi
Density	31.210 pcf

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 loads
Point Load : D = 1.90, E = 4.20 k @ 3.50 ft
Uniform Load : D = 0.40, L = 0.270, S = 0.250 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.492 : 1	Maximum Shear Stress Ratio	=	0.363 : 1
Section used for this span		5.5x18	Section used for this span		5.5x18
fb: Actual	=	1,322.55 psi	fv: Actual	=	96.31 psi
Fb: Allowable	=	2,687.88 psi	Fv: Allowable	=	265.00 psi
Load Combination		+D+0.750L+0.750S	Load Combination		+D+L
Location of maximum on span	=	8.004 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.106 in	Ratio =	1923 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.426 in	Ratio =	478 >=300
Max Upward Total Deflection	0.000 in	Ratio =	0 <300

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	0.4263	8.314		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	10.615	8.100
Overall MINimum	3.335	0.865
D Only	5.091	3.974
+D+L	7.386	6.269
+D+Lr	5.091	3.974
+D+S	7.216	6.099
+D+0.750Lr+0.750L	6.812	5.695
+D+0.750L+0.750S	8.406	7.289
+D+0.60W	5.091	3.974

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154-21007
RJD
04-09-21

Wood Beam

File: beam calcs with overstrength.ec6

Lic. # : KW-06004787
MULHERN & KULP STRUCTURAL ENGINEERING INC

DESCRIPTION: BEAM B10

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
+1.126D+0.70E	8.067	5.080
+D+0.750Lr+0.750L+0.450W	6.812	5.695
+D+0.750L+0.750S+0.450W	8.406	7.289
+1.090D+0.750L+0.750S+0.5250E	10.615	8.100
+0.60D+0.60W	3.055	2.384
+0.470D+0.70E	4.728	2.473
D Only	5.091	3.974
L Only	2.295	2.295
S Only	2.125	2.125
E Only	3.335	0.865
H Only		

6515 SE 30th St
JayMarc Homes
154-21007
RJD
04-09-21

Wood Beam

File: beam calcs with overstrength.ec6

Lic. # : KW-06004787
MULHERN & KULP STRUCTURAL ENGINEERING INC

DESCRIPTION: BEAM B14

CODE REFERENCES

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

Material Properties

Analysis Method : Allowable Stress Design

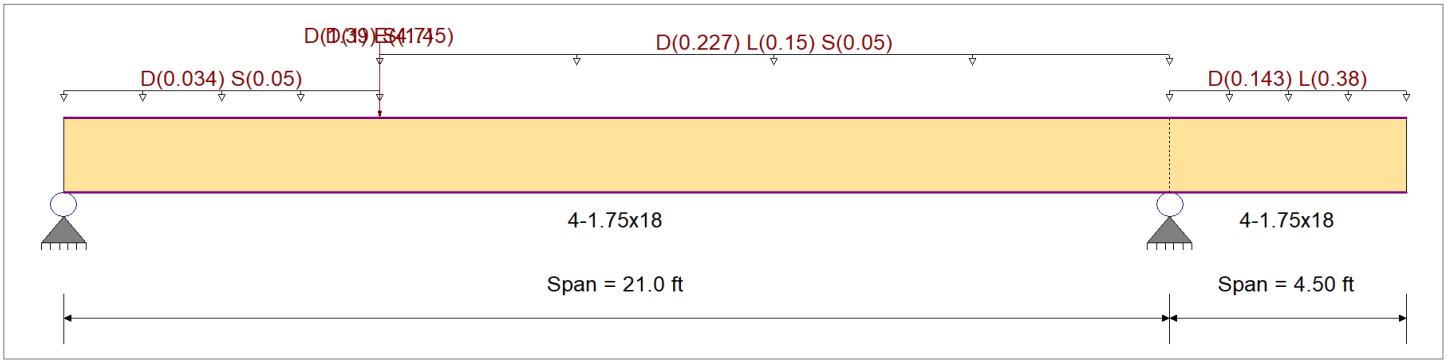
Wood Species : iLevel Truss Joist
Wood Grade : MicroLam LVL 2.0 E

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

Fb +	2600 psi
Fb -	2600 psi
Fc - Prll	2510 psi
Fc - Perp	750 psi
Fv	285 psi
Ft	1555 psi

E : Modulus of Elasticity

Ebend- xx	2000 ksi
Eminbend - xx	1016.535 ksi
Density	42.01 pcf



Applied Loads

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

Beam self weight calculated and added to loads
Load for Span Number 1
- Point Load : D = 1.0, E = 4.70 k @ 6.0 ft
- Uniform Load : D = 0.0340, S = 0.050 k/ft, Extent = 0.0 -->> 6.0 ft, Tributary Width = 1.0 ft
- Uniform Load : D = 0.2270, L = 0.150, S = 0.050 k/ft, Extent = 6.0 -->> 21.0 ft, Tributary Width = 1.0 ft
- Point Load : D = 1.390, S = 1.450 k @ 6.0 ft

Load for Span Number 2
- Uniform Load : D = 0.1430, L = 0.380 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.323 : 1	Maximum Shear Stress Ratio	=	0.185 : 1
Section used for this span		4-1.75x18	Section used for this span		4-1.75x18
fb: Actual	=	964.77 psi	fv: Actual	=	84.26 psi
Fb: Allowable	=	2,990.00 psi	Fv: Allowable	=	456.00 psi
Load Combination		+D+0.750L+0.750S, LL Comb Run (L*)	Load Combination		+1.090D+0.750L+0.750S+0.5250E, LL
Location of maximum on span	=	8.564 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.180 in	Ratio =	1399 >=360
Max Upward Transient Deflection	-0.104 in	Ratio =	1042 >=360
Max Downward Total Deflection	0.465 in	Ratio =	541 >=300
Max Upward Total Deflection	-0.288 in	Ratio =	374 >=300

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, L	1	0.4651	10.089		0.0000	0.000
	2	0.0000	10.089	+1.090D+0.750L+0.750S+0.5250E, L	-0.2880	4.500

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	7.239	8.473	
Overall MINimum	3.357	1.343	
D Only	3.397	4.182	

6515 SE 30th St
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154-21007
RJD
04-09-21

Wood Beam

File: beam calcs with overstrength.ec6

Lic. # : KW-06004787
MULHERN & KULP STRUCTURAL ENGINEERING INC

DESCRIPTION: BEAM B14

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
+D+L, LL Comb Run (*L)	3.214	6.076	
+D+L, LL Comb Run (L*)	4.201	5.629	
+D+L, LL Comb Run (LL)	4.018	7.522	
+D+Lr, LL Comb Run (*L)	3.397	4.182	
+D+Lr, LL Comb Run (L*)	3.397	4.182	
+D+Lr, LL Comb Run (LL)	3.397	4.182	
+D+S	4.958	5.122	
+D+0.750Lr+0.750L, LL Comb Run (*L)	3.260	5.602	
+D+0.750Lr+0.750L, LL Comb Run (L*)	4.000	5.267	
+D+0.750Lr+0.750L, LL Comb Run (LL)	3.863	6.687	
+D+0.750L+0.750S, LL Comb Run (*L)	4.430	6.307	
+D+0.750L+0.750S, LL Comb Run (L*)	5.171	5.972	
+D+0.750L+0.750S, LL Comb Run (LL)	5.033	7.392	
+D+0.60W	3.397	4.182	
+1.126D+0.70E	6.175	5.649	
+D+0.750Lr+0.750L+0.450W, LL Comb R	3.260	5.602	
+D+0.750Lr+0.750L+0.450W, LL Comb R	4.000	5.267	
+D+0.750Lr+0.750L+0.450W, LL Comb R	3.863	6.687	
+D+0.750L+0.750S+0.450W, LL Comb Ru	4.430	6.307	
+D+0.750L+0.750S+0.450W, LL Comb Ru	5.171	5.972	
+D+0.750L+0.750S+0.450W, LL Comb Ru	5.033	7.392	
+1.090D+0.750L+0.750S+0.5250E, LL C	6.499	7.388	
+1.090D+0.750L+0.750S+0.5250E, LL C	7.239	7.053	
+1.090D+0.750L+0.750S+0.5250E, LL C	7.101	8.473	
+0.60D+0.60W	2.038	2.509	
+0.470D+0.70E	3.947	2.906	
D Only	3.397	4.182	
L Only, LL Comb Run (*L)	-0.183	1.893	
L Only, LL Comb Run (L*)	0.804	1.446	
L Only, LL Comb Run (LL)	0.620	3.340	
S Only	1.561	0.939	
E Only	3.357	1.343	
H Only			

6515 SE 30th St
JayMarc Homes
154-21007
RJD
04-09-21

Wood Beam

File: beam calcs with overstrength.ec6

Lic. # : KW-06004787
MULHERN & KULP STRUCTURAL ENGINEERING INC

DESCRIPTION: BEAM B15

CODE REFERENCES

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

Material Properties

Analysis Method : Allowable Stress Design

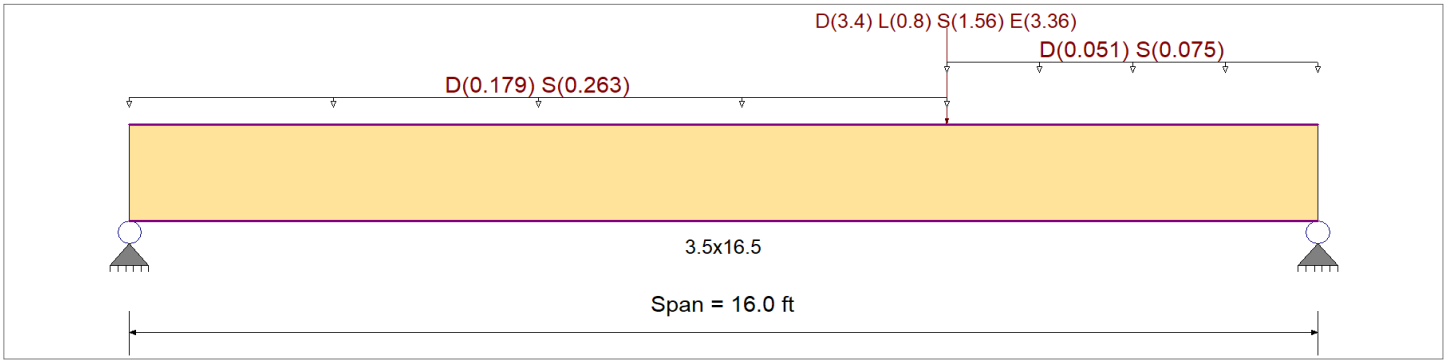
Wood Species : DF/DF
Wood Grade : 24F-V4

Fb +	2,400.0 psi
Fb -	1,850.0 psi
Fc - Prll	1,650.0 psi
Fc - Perp	650.0 psi
Fv	265.0 psi
Ft	1,100.0 psi

E : Modulus of Elasticity

Ebend- xx	1,800.0 ksi
Eminbend - xx	950.0 ksi
Ebend- yy	1,600.0 ksi
Eminbend - yy	850.0 ksi
Density	31.210 pcf

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 loads
Point Load : D = 3.40, L = 0.80, S = 1.560, E = 3.360 k @ 11.0 ft
Uniform Load : D = 0.1790, S = 0.2630 k/ft, Extent = 0.0 -->> 11.0 ft, Tributary Width = 1.0 ft
Uniform Load : D = 0.0510, S = 0.0750 k/ft, Extent = 11.0 -->> 16.0 ft, Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.735 : 1	Maximum Shear Stress Ratio	=	0.471 : 1
Section used for this span		3.5x16.5	Section used for this span		3.5x16.5
fb: Actual	=	2,027.87 psi	fv: Actual	=	143.56 psi
Fb: Allowable	=	2,760.00 psi	Fv: Allowable	=	304.75 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	10.861 ft	Location of maximum on span	=	14.657 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.220 in	Ratio =	874 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.590 in	Ratio =	325 >=300
Max Upward Total Deflection	0.000 in	Ratio =	0 <300

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	0.5897	8.467		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	5.291	7.042
Overall MINimum	1.050	2.310
D Only	2.495	3.330
+D+L	2.745	3.880
+D+Lr	2.495	3.330
+D+S	4.939	5.713
+D+0.750Lr+0.750L	2.682	3.742
+D+0.750L+0.750S	4.516	5.530

6515 SE 30th St
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04-09-21

Wood Beam

File: beam calcs with overstrength.ec6

Lic. # : KW-06004787
MULHERN & KULP STRUCTURAL ENGINEERING INC

DESCRIPTION: BEAM B15

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
+D+0.60W	2.495	3.330
+1.126D+0.70E	3.544	5.366
+D+0.750Lr+0.750L+0.450W	2.682	3.742
+D+0.750L+0.750S+0.450W	4.516	5.530
+1.090D+0.750L+0.750S+0.5250E	5.291	7.042
+0.60D+0.60W	1.497	1.998
+0.470D+0.70E	1.907	3.182
D Only	2.495	3.330
L Only	0.250	0.550
S Only	2.445	2.383
E Only	1.050	2.310
H Only		

JayMarc Homes

6515 SE 30th St

Mercer Island, WA

Shear Wall Calculations - Wind

Reviewed By: NJM

March 26, 2021

Parameters:

Single Family Home

Design Wind Speed: 100 MPH

wind Exposure Category: C

Seismic Design Category: D

Code & Design Standard: 2018 IBC Ch. 1609, ASCE 7-16 Ch. 26-30

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RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: 6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-MAR-21

WIND DESIGN SUMMARY PER ASCE 7-16

PARAMETERS:

WIND SPEED	100	
EXPOSURE CATEGORY	C	
RISK CATEGORY	II	
WIND DIRECTIONALITY FACTOR, K_D	0.85	
TOPOGRAPHIC FACTOR, K_{ZT}	1.00	
GUST FACTOR, G	0.85	
GROUND ELEV. ABOVE SEA LEVEL [FT]	0	
DESIGN TYPE	ASD	0.60

ROOF GEOMETRY:

TRANS. ROOF PITCH	6.0	:12
LONG. ROOF PITCH	15.0	:12
MEAN ROOF HEIGHT, H	26.50	FT

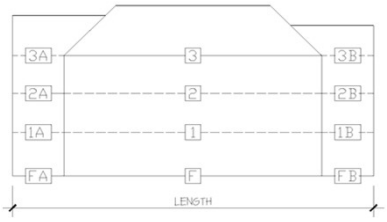
BUILDING GEOMETRY:

LENGTH	72	FT
WIDTH	44	FT
NUMBER OF STORIES	2	

TRANSVERSE DIRECTION (PERPENDICULAR TO MAIN RIDGE LINE)

TRIBUTARY DESIGN AREAS:

DIAPHRAGM LEVEL	FLOOR-TO-FLOOR HEIGHT		SECTION A	SECTION O	SECTION B	
2	9 FT	Roof Surface	0	365	0	sq ft
		Wall surface	0	372	0	sq ft
1	10 FT	Roof Surface	0	6	0	sq ft
		Wall surface	0	695	0	sq ft
FND		Roof Surface	0	0	0	sq ft
		Wall surface	0	0	0	sq ft



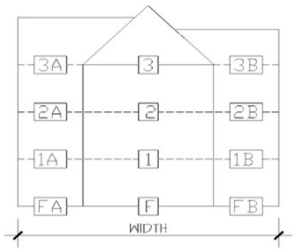
TRIBUTARY DESIGN LOADS: (0.6W)

	SECTION A	SECTION O	SECTION B	
Story Shear	0.00	7.93	0.00	kips
Total Shear	0.00	7.93	0.00	kips
		7.93		kips
Story Shear	0.00	8.98	0.00	kips
Total Shear	0.00	16.91	0.00	kips
		16.91		kips
Story Shear	0.00	0.00	0.00	kips
Total Shear	0.00	16.91	0.00	kips
		16.91		kips

LONGITUDINAL DIRECTION (PARALLEL TO MAIN RIDGE LINE)

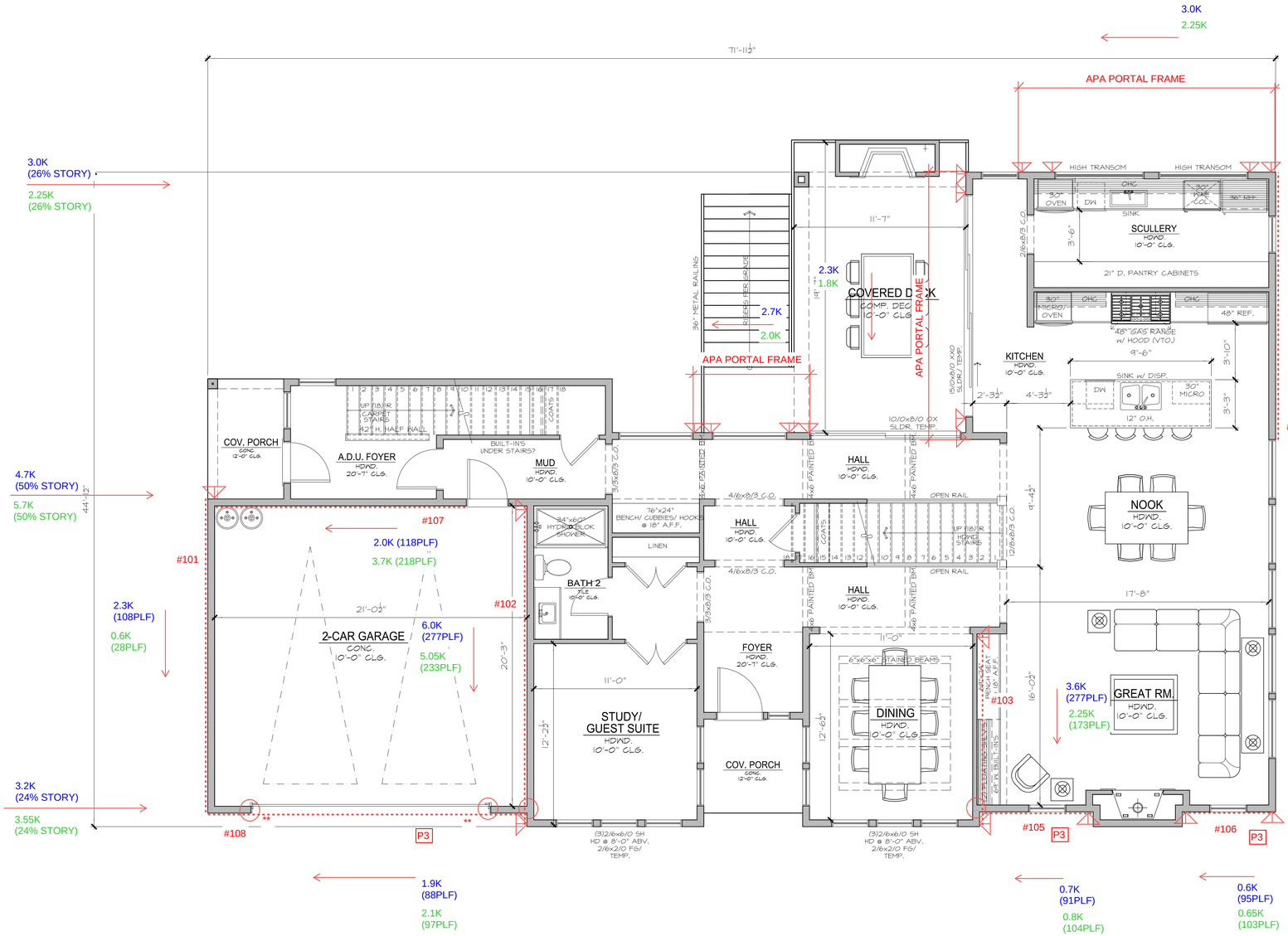
TRIBUTARY DESIGN AREAS:

DIAPHRAGM LEVEL	FLOOR-TO-FLOOR HEIGHT		SECTION A	SECTION O	SECTION B	
2	9 FT	Roof Surface	0	140	0	sq ft
		Wall surface	0	330	0	sq ft
1	10 FT	Roof Surface	0	0	0	sq ft
		Wall surface	0	465	0	sq ft
FND		Roof Surface	0	0	0	sq ft
		Wall surface	0	0	0	sq ft



TRIBUTARY DESIGN LOADS: (0.6W)

	SECTION A	SECTION O	SECTION B	
Story Shear	0.00	5.53	0.00	kips
Total Shear	0.00	5.53	0.00	kips
		5.53		kips
Story Shear	0.00	5.35	0.00	kips
Total Shear	0.00	10.87	0.00	kips
		10.87		kips
Story Shear	0.00	0.00	0.00	kips
Total Shear	0.00	10.87	0.00	kips
		10.87		kips



MAIN FLOOR PLAN

1/4" = 1'-0"

MAIN FLOOR PLAN NOTES

PLAN SPECIFIC 2015 WSEC, SECTION R06

R406.2 ADDITIONAL ENERGY EFFICIENCY REQUIREMENTS (MANDATORY).

THIS RESIDENTIAL DWELLING SHALL COMPLY W/SUFFICIENT OPTIONS FROM TABLE R406.2 TO ACHIEVE THE FOLLOWING MIN. NUMBER OF CREDITS:

3.5 FOR A 1,501sf to 4,999sf HOME.

CREDITS PROVIDED IN THIS HOME AS FOLLOWS:

EFFICIENT BUILDING ENVELOPE 1a: 0.5 CREDITS

PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 with FOLLOWING MODIFICATIONS:

VERTICAL FENESTRATION U = 0.28 WINDOWS

FLOORS TO BE R-38 and SLAB ON GRADE TO BE R-10 PERIMETER and UNDER ENTIRE SLAB BELOW GRADE.

HIGH EFFICIENCY HVAC EQUIPMENT 3a: 1.0 CREDITS

GAS FURNACE WITH MINIMUM AFUE OF 94%

EFFICIENT WATER HEATING 5a: 0.5 CREDITS

ALL SHOWERHEAD and KITCHEN SINK FAUCETS INSTALLED IN THE HOUSE SHALL BE RATED AT 1.75 GPM or LESS.

ALL OTHER LAVATORY FAUCETS SHALL BE RATED AT 1.0 GPM or LESS.

EFFICIENT WATER HEATING 5c: 1.5 CREDITS

WATER HEATING SYSTEM SHALL BE:
GAS WATER HEATER WITH A MINIMUM EF OF 0.91

WHOLE HOUSE VENTILATION

PROVIDE WHOLE HOUSE VENTILIATION per 2015 IRC, M1507 and IMC R403.8 USING LAUNDRY ROOM EXHAUST FAN INTEGRATED INTO FORCED AIR SYSTEM (FAU.) PROVIDE OUTDOOR FRESH AIR w/DUCTS CONNECTED TO THE RETURN SIDE OF THE AIR HANDLER.

SYMBOL	LOCATION	MIN. FAN REQUIREMENTS (ALL FANS VENT TO OUTDIDE)
50cfm+	BATH & POWDER	Min. 50cfm, INTERMITTENT at .025wg per TABLE M1507.4
	KITCHEN	Min. 100cfm, INTERMITTENT at .025wg per TBL. M1507.4
		RANGE HOOD or DOWN DRAFT EXHAUST FAN RATED at min. 100cfm, at 0.10wg MAY BE USED FOR EXHAUST FAN REQMT. EXHAUST HOODS IN EXCESS OF 400cfm, SHALL BE INTERLOCKED AND PROVIDE MAKE UP AIR per w/M1503.4
180cfm+ WHF.	LAUNDRY ROOM	MIN. 360cfm, INTERMITTENT at .025wg TO FUNCTION AS WHOLE HOUSE FAN (WHF.)

MECHANICAL CONTRACTOR TO SIZE WHF, FAN and SET OPERATING TIMER per TABLE M1507.3.3(1) FOR A 3,001-4,500sf, DWELLING w/4-5 BEDRMS. TO OPERATE INTERMITTENTLY and CONTINUOSLY per TABLE M1507.3.3(2)

PROVIDE CONTROLS FOR WHF, per M1507.3.2 AFFIX LABEL TO CONTROLS THAT READS "WHOLE HOUSE VENTILATION - SEE OPERATING INSTRUCTIONS"

SQUARE FOOTAGE SUMMARY

MAIN FLOOR AREA + GARAGE	2,255	S.F.
UPPER FLOOR AREA	1,794	S.F.
TOTAL AREA	4,049	S.F.
COV'D PATIO	235	S.F.
COV'D PORCH	40	S.F.
TOTAL AREA UNDER ROOF	4,324	S.F.
OVERALL WIDTH	71'-11½"	
OVERALL DEPTH	44'-1 1/2"	

Updated : 03/04/2018

Method for Calculating Square Footage - ANSI Z765-2013 except, no separate distinction of "above grade or habitable" areas and each level is measured to the

JAYMARC HOMES

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

Issue	Issue Date	By	Description

6515 SE 30th St.
Mercer Island, WA.
Job Number: --

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

04.15.21
Submittal Date

Sheet Title/Description

JAYMARC HOMES
Design Firm

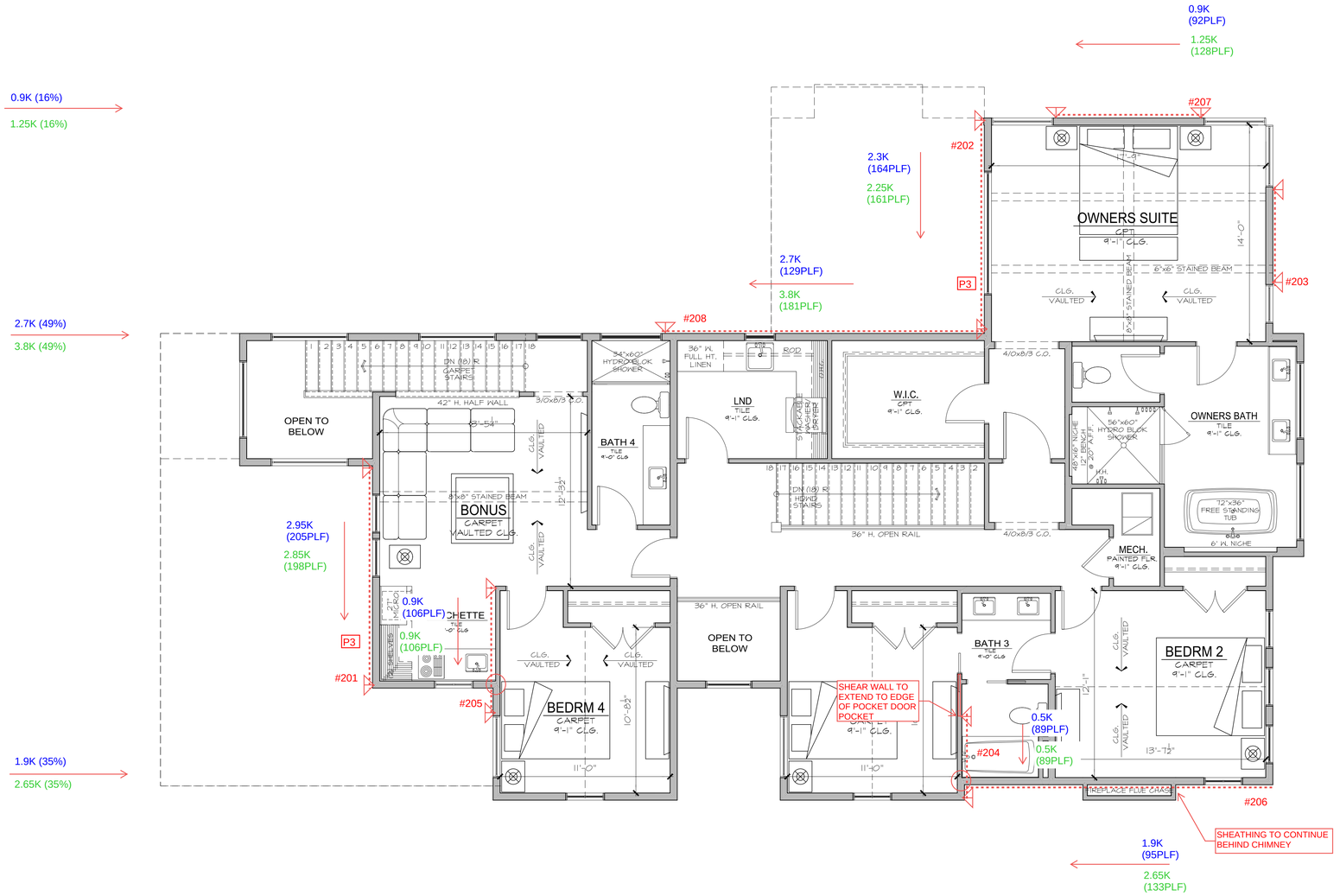
R.R.
Drawn by:

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

Primary Scale

A5
of: .

Sheet Title/Description



UPPER FLOOR PLAN

1/4" = 1'-0"

3.85K (49%)
3.75K (49%)

2.8K (35%)
2.75K (35%)

1.25K (16%)
1.2K (16%)

7.9K
WIND
5.5K

7.7K
SEISMIC
7.7K

P3 UNIT SHEAR:
630PLF/336PLF=1.88
89PLF*1.88 =167PLF
106PLF*1.88=199PLF

P3 UNIT SHEAR:
451PLF/239PLF=1.88
89PLF*1.88=167PLF
106PLF*1.88=199PLF

UPPER FLOOR PLAN NOTES:

PLAN SPECIFIC 2015 WSEC, SECTION R06

R406.2 ADDITIONAL ENERGY EFFICIENCY REQUIREMENTS (MANDATORY).

THIS RESIDENTIAL DWELLING SHALL COMPLY w/SUFFICIENT OPTIONS FROM TABLE R406.2 TO ACHIEVE THE FOLLOWING MIN. NUMBER OF CREDITS:

3.5 FOR a 1,501sf to 4,999sf HOME.

CREDITS PROVIDED IN THIS HOME AS FOLLOWS:

EFFICIENT BUILDING ENVELOPE 1a: 0.5 CREDITS

PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 with FOLLOWING MODIFICATIONS:

VERTICAL FENESTRATION U = 0.28 WINDOWS

FLOORS TO BE R-38 and SLAB ON GRADE TO BE R-10 PERIMETER and UNDER ENTIRE SLAB BELOW GRADE.

HIGH EFFICIENCY HVAC EQUIPMENT 3a: 1.0 CREDITS

GAS FURNACE WITH MINIMUM AFUE OF 94%

EFFICIENT WATER HEATING 5a: 0.5 CREDITS

ALL SHOWERHEAD and KITCHEN SINK FAUCETS INSTALLED IN THE HOUSE SHALL BE RATED AT 1.75 GPM or LESS.

ALL OTHER LAVATORY FAUCETS SHALL BE RATED AT 1.0 GPM or LESS.

EFFICIENT WATER HEATING 5c: 1.5 CREDITS

WATER HEATING SYSTEM SHALL BE:
GAS WATER HEATER WITH A MINIMUM EF OF 0.91

WHOLE HOUSE VENTILATION

PROVIDE WHOLE HOUSE VENTILIATION per 2015 IRC, M1507 and IMC R403.8 USING LAUNDRY ROOM EXHAUST FAN INTEGRATED INTO FORCED ARE SYSTEM (FAU) PROVIDE OUTDOOR FRESH AIR w/DUCTS CONNECTED TO THE RETURN SIDE OF THE AIR HANDLER.

SYMBOL	LOCATION	MIN. FAN REQUIREMENTS (ALL FANS VENT TO OUTDIDE)
(A) 50cfm+	BATH & POWDER	Min. 50cfm, INTERMITTENT at .025wg per TABLE M1507.4
(B) 100cfm+	KITCHEN	Min. 100cfm, INTERMITTENT at .025wg per TBL. M1507.4 RANGE HOOD or DOWN DRAFT EXHAUST FAN RATED at min. 100cfm, at 0.10wg MAY BE USED FOR EXHAUST FAN REQMT. EXHAUST HOODS IN EXCESS OF 400cfm, SHALL BE INTERLOCKED AND PROVIDE MAKE UP AIR per w/M1503.4
(C) 180cfm+ INRF.	LAUNDRY ROOM	MIN. 180cfm, INTERMITTENT at .025wg TO FUNCTION AS WHOLE HOUSE FAN (INRF.)

MECHANICAL CONTRACTOR TO SIZE INRF, FAN and SET OPERATING TIMER per TABLE M1507.3.3(1) FOR A 3,001-4,500sf. DWELLING w/4-5 BEDRMS. TO OPERATE INTERMITENTLY and CONTINUOSLY per TABLE M1507.3.3(2)

PROVIDE CONTROLS FOR INRF, per M1507.3.2 AFFIX LABEL TO CONTROLS THAT READS "WHOLE HOUSE VENTILATION - SEE OPERATING INSTRUCTIONS"

SQUARE FOOTAGE SUMMARY

MAIN FLOOR AREA + GARAGE	2,255 S.F.
UPPER FLOOR AREA	1,794 S.F.
TOTAL AREA	4,049 S.F.
COV'D PATIO	235 S.F.
COV'D PORCH	40 S.F.
TOTAL AREA UNDER ROOF	4,324 S.F.
OVERALL WIDTH	71'-11 ½"
OVERALL DEPTH	44'-1 1/2"

Updated : 03/09/2018

Method for Calculating Square Footage - ANSI Z765-2013 except: no separate distinction of 'above grade or habitable' areas and each level is measured to the

JAYMARC HOMES
7525 SE 24th St., 487
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98040
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Issue	Issue Date	By	Description
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6515 SE 30th St.
Mercer Island, WA.
Job Number: --

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

04.15.21
Submittal Date

Sheet Title/Description

JAYMARC HOMES
Design Firm

R.R.
Drawn by:

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

Primary Scale

A7
of: .

Sheet Title/Description

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

Project Name: JayMarc Homes
6515 SE 30th St
M&K Project #: 154-21007
Engineer: RJD
Date: 26-Mar-21

Shearwall Design Summary

Shearwall 201: 2nd - Side Exterior Bonus

Shearwall Properties:

Wall height, H	11.5	ft.	Max wall opening ht, H_c	3.5	ft.		
Wall Length, L	14.4	ft.	Qualifying Wall Length, L	9.3	ft.	Shearwall Assembly	P3

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
2950 lbs	<	5828 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	135	plf	Overturning Moment	33.9	k-ft	Hold Down Design Load	1533	lbs
DL at ends of wall	400	lbs	Resistive Moment	11.9	k-ft	Holdown Capacity	1705	lbs

Hold-down Specification

SIMPSON CS16 STRAP TIE (14" END LENGTH)

Shearwall 202: 2nd - Side Exterior Owners Suite @ Deck

Shearwall Properties:

Wall height, H	9.0	ft.	Max wall opening ht, Hc	1.0	ft.		
Wall Length, L	14.0	ft.	Qualifying Wall Length, L	6.0	ft.	Shearwall Assembly	P3

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
2300 lbs	<	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	270	plf	Overturning Moment	20.7	k-ft	Hold Down Design Load	303	lbs
DL at ends of wall	70	lbs	Resistive Moment	16.5	k-ft	Holdown Capacity	1705	lbs

Hold-down Specification

SIMPSON CS16 STRAP TIE (14" END LENGTH)

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

Project Name: JayMarc Homes
6515 SE 30th St
M&K Project #: 154-21007
Engineer: RJD
Date: 26-Mar-21

Shearwall Design Summary

Shearwall 203: 2nd - Side Exterior Owners Suite

Shearwall Properties:

Wall height, H	9.0	ft.	Max wall opening ht, H_o	0.0	ft.		
Wall Length, L	6.3	ft.	Qualifying Wall Length, L	6.3	ft.	Shearwall Assembly	P1

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
1250 lbs	<	2100 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	270	plf	Overturning Moment	11.3	k-ft	Uplift Connector Design Load	1165	lbs
DL at ends of wall	215	lbs	Resistive Moment	4.0	k-ft	Holdown Capacity	1705	lbs

Hold-down Specification

SIMPSON CS16 STRAP TIE (14" END LENGTH)

Shearwall 204: 2nd - Side Interior/Exterior Bath 3

Shearwall Properties:

Wall height, H	9.0	ft.	Max wall opening ht, Hc	0.0	ft.		
Wall Length, L	5.6	ft.	Qualifying Wall Length, L	5.6	ft.	Shearwall Assembly	P1

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
500 lbs	<	1882 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	202	plf	Overturning Moment	4.5	k-ft	Hold Down Design Load	224	lbs
DL at ends of wall	400	lbs	Resistive Moment	3.2	k-ft	Holdown Capacity	1705	lbs

Hold-down Specification

SIMPSON CS16 STRAP TIE (14" END LENGTH)

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

Project Name: JayMarc Homes
6515 SE 30th St
M&K Project #: 154-21007
Engineer: RJD
Date: 26-Mar-21

Shearwall Design Summary

Shearwall 205: 2nd - Side Interior/Exterior Bed 4

Shearwall Properties:

Wall height, H	9.0	ft.	Max wall opening ht, H_c	0.0	ft.		
Wall Length, L	8.5	ft.	Qualifying Wall Length, L	8.5	ft.	Shearwall Assembly	P1

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
900 lbs	<	2856 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	202	plf	Overturning Moment	8.1	k-ft	Uplift Connector Design Load	396	lbs
DL at ends of wall	70	lbs	Resistive Moment	4.7	k-ft	Holdown Capacity	1705	lbs

Hold-down Specification

Simpson CS16 strap tie (14" end length)

Shearwall XXX: - Not Used

Shearwall Properties:

Wall height, H	0.0	ft.	Max wall opening ht, Hc	0.0	ft.		
Wall Length, L	0.0	ft.	Qualifying Wall Length, L	0.0	ft.	Shearwall Assembly	P0

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
0 lbs	####	#DIV/0! lbs

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	0	plf	Overturning Moment	#DIV/0!	k-ft	Hold Down Design Load	0	lbs
DL at ends of wall	0	lbs	Resistive Moment	0.0	k-ft	Holdown Capacity	0	lbs

Hold-down Specification

No Holdown Required

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: JAYMARC HOMES
6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-Mar-21

SHEARWALL DESIGN SUMMARY

SHEARWALL 206: 2ND - FRONT EXTERIOR BED2/BATH3

SHEARWALL PROPERTIES:

WALL HEIGHT, H	9.0	FT.	MAX WALL OPENING HT, H_o	6.0	FT.		
WALL LENGTH, L	20.0	FT.	QUALIFYING WALL LENGTH, L	17.5	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
1900 LBS	<	5796 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	350	PLF	OVERTURNING MOMENT	17.1	K-FT	UPLIFT CONNECTOR DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	200	LBS	RESISTIVE MOMENT	44.4	K-FT	HOLDOWN CAPACITY	0	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 207: 2ND - REAR EXTERIOR OWNERS SUITE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	12.0	FT.	MAX WALL OPENING HT, Hc	0.0	FT.		
WALL LENGTH, L	9.8	FT.	QUALIFYING WALL LENGTH, L	9.8	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
900 LBS	<	3276 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	135	PLF	OVERTURNING MOMENT	10.8	K-FT	HOLD DOWN DESIGN LOAD	671	LBS
DL AT ENDS OF WALL	70	LBS	RESISTIVE MOMENT	4.3	K-FT	HOLDOWN CAPACITY	1705	LBS

HOLD-DOWN SPECIFICATION

SIMPSON CS16 STRAP TIE (14" END LENGTH)

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: JAYMARC HOMES
6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-MAR-21

SHEARWALL DESIGN SUMMARY

SHEARWALL 208: 2ND - REAR EXTERIOR LND/WIC

SHEARWALL PROPERTIES:

WALL HEIGHT, H	9.0	FT.	MAX WALL OPENING HT, H_o	3.5	FT.		
WALL LENGTH, L	21.0	FT.	QUALIFYING WALL LENGTH, L	19.0	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
2700 LBS	<	6384 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	245	PLF	OVERTURNING MOMENT	24.3	K-FT	UPLIFT CONNECTOR DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	400	LBS	RESISTIVE MOMENT	37.5	K-FT	HOLDOWN CAPACITY	1705	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL XXX: - NOT USED

SHEARWALL PROPERTIES:

WALL HEIGHT, H	0.0	FT.	MAX WALL OPENING HT, Hc	0.0	FT.		
WALL LENGTH, L	0.0	FT.	QUALIFYING WALL LENGTH, L	0.0	FT.	SHEARWALL ASSEMBLY	P0

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
0 LBS	####	#DIV/0! LBS

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	0	PLF	OVERTURNING MOMENT	#DIV/0!	K-FT	HOLD DOWN DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	0	LBS	RESISTIVE MOMENT	0.0	K-FT	HOLDOWN CAPACITY	0	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: JAYMARC HOMES
6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-MAR-21

SHEARWALL DESIGN SUMMARY

SHEARWALL 101: 1ST - SIDE EXTERIOR GARAGE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	11.0	FT.	MAX WALL OPENING HT, H_o	0.0	FT.		
WALL LENGTH, L	21.2	FT.	QUALIFYING WALL LENGTH, L	21.2	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
2300 LBS	<	7123 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	135	PLF	OVERTURNING MOMENT	25.3	K-FT	UPLIFT CONNECTOR DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	800	LBS	RESISTIVE MOMENT	28.4	K-FT	HOLDOWN CAPACITY	0	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 102: 1ST - SIDE INTERIOR GARAGE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	10.0	FT.	MAX WALL OPENING HT, Hc	0.0	FT.		
WALL LENGTH, L	21.7	FT.	QUALIFYING WALL LENGTH, L	21.7	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
6000 LBS	<	7281 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	315	PLF	OVERTURNING MOMENT	68.6	K-FT	HOLD DOWN DESIGN LOAD	877	LBS
DL AT ENDS OF WALL	400	LBS	RESISTIVE MOMENT	49.6	K-FT	HOLDOWN CAPACITY	4935	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STHD14RJ HOLDOWN

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: JAYMARC HOMES
6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-Mar-21

SHEARWALL DESIGN SUMMARY

SHEARWALL 103: 1ST - SIDE INTERIOR GREAT RM

SHEARWALL PROPERTIES:

WALL HEIGHT, H	10.0	FT.	MAX WALL OPENING HT, H_o	0.0	FT.		
WALL LENGTH, L	13.0	FT.	QUALIFYING WALL LENGTH, L	13.0	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
3600 LBS	<	4368 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	535	PLF	OVERTURNING MOMENT	38.9	K-FT	UPLIFT CONNECTOR DESIGN LOAD	427	LBS
DL AT ENDS OF WALL	800	LBS	RESISTIVE MOMENT	33.4	K-FT	HOLDOWN CAPACITY	1705	LBS

HOLD-DOWN SPECIFICATION

SIMPSON CS16 STRAP TIE (14" END LENGTH)

SHEARWALL 104: 1ST - SIDE EXTERIOR KITCHEN/SCULLERY

SHEARWALL PROPERTIES:

WALL HEIGHT, H	10.0	FT.	MAX WALL OPENING HT, Hc	7.0	FT.		
WALL LENGTH, L	18.0	FT.	QUALIFYING WALL LENGTH, L	15.5	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
2600 LBS	<	5166 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	505	PLF	OVERTURNING MOMENT	26.0	K-FT	HOLD DOWN DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	470	LBS	RESISTIVE MOMENT	54.2	K-FT	HOLDOWN CAPACITY	0	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: JAYMARC HOMES
6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-MAR-21

SHEARWALL DESIGN SUMMARY

SHEARWALL XXX: - NOT USED

SHEARWALL PROPERTIES:

WALL HEIGHT, H	0.0	FT.	MAX WALL OPENING HT, H_c	0.0	FT.		
WALL LENGTH, L	0.0	FT.	QUALIFYING WALL LENGTH, L	0.0	FT.	SHEARWALL ASSEMBLY	P0

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
0 LBS	####	#DIV/0! LBS

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	0	PLF	OVERTURNING MOMENT	#DIV/0!	K-FT	UPLIFT CONNECTOR DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	0	LBS	RESISTIVE MOMENT	0.0	K-FT	HOLDOWN CAPACITY	0	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 105: 1ST - FRONT EXTERIOR GREAT RM @ DINING

SHEARWALL PROPERTIES:

WALL HEIGHT, H	10.0	FT.	MAX WALL OPENING HT, Hc	7.0	FT.		
WALL LENGTH, L	7.7	FT.	QUALIFYING WALL LENGTH, L	5.3	FT.	SHEARWALL ASSEMBLY	P3

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
700 LBS	<	2713 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	480	PLF	OVERTURNING MOMENT	7.0	K-FT	HOLD DOWN DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	800	LBS	RESISTIVE MOMENT	12.2	K-FT	HOLDOWN CAPACITY	4935	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: JAYMARC HOMES
6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-Mar-21

SHEARWALL DESIGN SUMMARY

SHEARWALL 106: 1ST - FRONT EXTERIO GREAT RM

SHEARWALL PROPERTIES:

WALL HEIGHT, H	10.0	FT.	MAX WALL OPENING HT, H_c	7.0	FT.		
WALL LENGTH, L	6.3	FT.	QUALIFYING WALL LENGTH, L	4.0	FT.	SHEARWALL ASSEMBLY	P3

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
600 LBS	<	2048 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	480	PLF	OVERTURNING MOMENT	6.0	K-FT	UPLIFT CONNECTOR DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	800	LBS	RESISTIVE MOMENT	8.7	K-FT	HOLDOWN CAPACITY	4935	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 107: 1ST - REAR INTERIOR GARAGE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	11.0	FT.	MAX WALL OPENING HT, Hc	0.0	FT.		
WALL LENGTH, L	17.0	FT.	QUALIFYING WALL LENGTH, L	17.0	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
2000 LBS	<	5712 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	440	PLF	OVERTURNING MOMENT	22.0	K-FT	HOLD DOWN DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	400	LBS	RESISTIVE MOMENT	42.2	K-FT	HOLDOWN CAPACITY	4935	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: JAYMARC HOMES
6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-MAR-21

SHEARWALL DESIGN SUMMARY

SHEARWALL 108: 1ST - FRONT EXTERIOR GARAGE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	10.0	FT.	MAX WALL OPENING HT, H_c	8.0	FT.		
WALL LENGTH, L	21.6	FT.	QUALIFYING WALL LENGTH, L	5.5	FT.	SHEARWALL ASSEMBLY	P3

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
1900 LBS	<	2945 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	280	PLF	OVERTURNING MOMENT	19.0	K-FT	UPLIFT CONNECTOR DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	400	LBS	RESISTIVE MOMENT	44.4	K-FT	HOLDOWN CAPACITY	0	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL XXX: - NOT USED

SHEARWALL PROPERTIES:

WALL HEIGHT, H	0.0	FT.	MAX WALL OPENING HT, Hc	0.0	FT.		
WALL LENGTH, L	0.0	FT.	QUALIFYING WALL LENGTH, L	0.0	FT.	SHEARWALL ASSEMBLY	P0

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
0 LBS	####	#DIV/0! LBS

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	0	PLF	OVERTURNING MOMENT	#DIV/0!	K-FT	HOLD DOWN DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	0	LBS	RESISTIVE MOMENT	0.0	K-FT	HOLDOWN CAPACITY	0	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

JayMarc Homes

6515 SE 30th St

Mercer Island, WA

Shear Wall Calculations - Seismic

Reviewed By: NJM

March 26, 2021

Parameters:

Single Family Home

Design Wind Speed: 100 MPH

wind Exposure Category: C

Seismic Design Category: D

Code & Design Standard: 2018 IBC Ch. 1609, ASCE 7-16 Ch. 26-30

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: 6515 SE 30TH ST
JAYMARC HOMES
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-MAR-21

SEISMIC CALCULATION - ASCE 7-16

SEISMIC DESIGN CATEGORY:

USER INPUTS:

Site Class	D
Spectral Response Acceleration 0.2 sec, **Ss**	1.405
Spectral Response Acceleration 1.0 sec, **S1**	0.489
Occupancy Category	II

VARIABLES:

Site coefficient, Fa	1.20
Site coefficient, Fv	1.81

CALCULATED VALUES:

Maximum spectral response acceleration, S_{MS}	1.686
Maximum spectral response acceleration, S_{M1}	0.886
Design spectral response acceleration, S_{DS}	1.124
Design spectral response acceleration, S_{D1}	0.590
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	19

CALCULATED VALUES:

Approximate Fundamental Period, T_A	0.182
T_0	0.105
T_S	0.525
Spectral Response Acc., S_A (g)	1.124

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	2000	15	15.4	45 k
2	9.0	2500	17	6.8	49 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 95 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	0.173	0.173

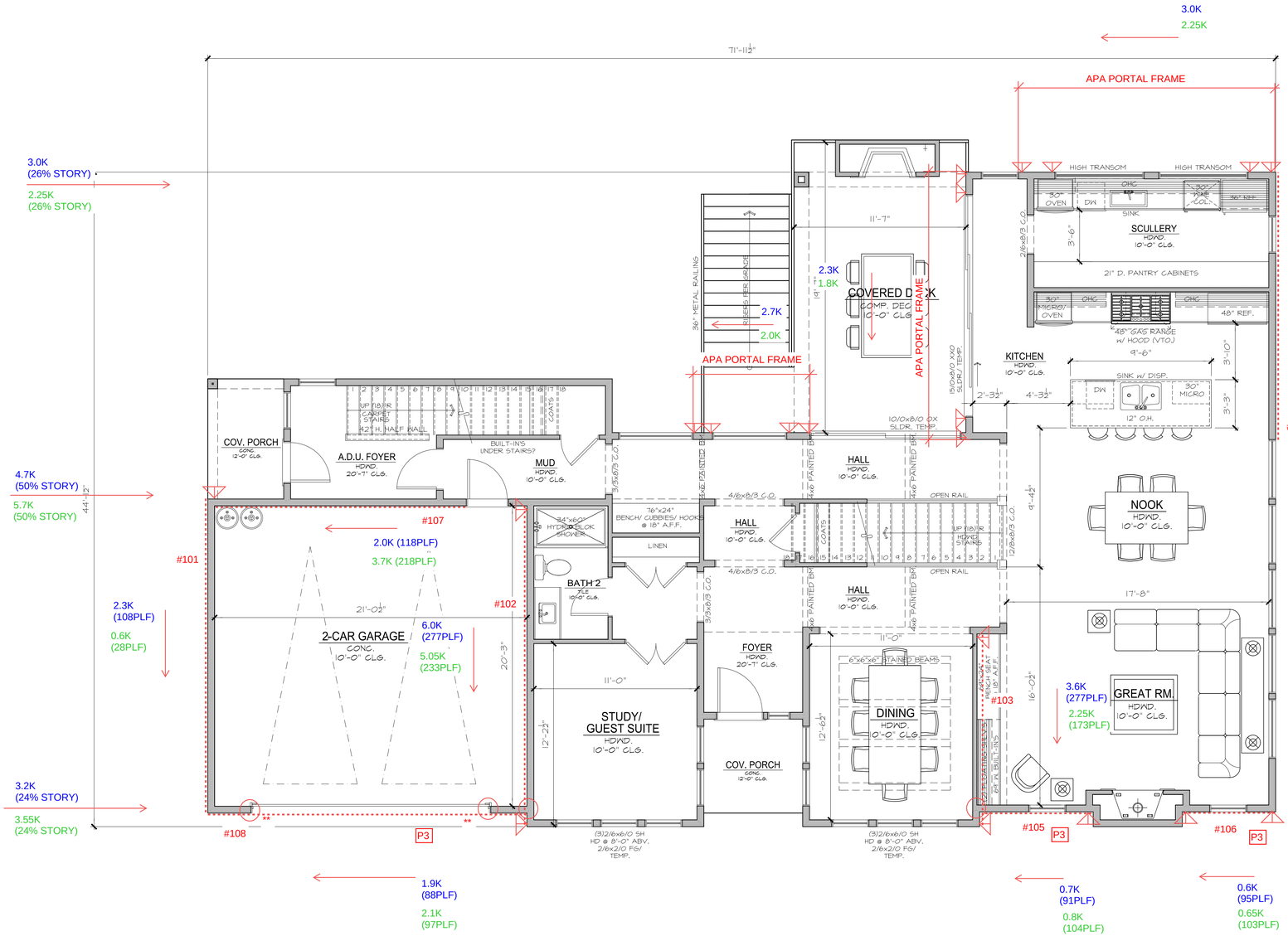
BASE SHEARS:

Ultimate Loads		x 0.7 =	Allowable Loads	
Transverse	Longitudinal		Transverse	Longitudinal
16 k	16 k		11.5 k	11.5 k

STORY SHEAR CALCULATION:

Distribution exponent, k: 1.00

		Ultimate Loads		x 0.7 =	Allowable Loads			
		Transverse	Longitudinal		Transverse		Longitudinal	
Level	Vert. Dist. Factor, C_{vx}	Story Shear, F_x	Story Shear, F_x		Story Shear, F_x	Σ Story Shear	Story Shear, F_x	Σ Story Shear
1	0.326	5.3 k	5.3 k		3.7 k	11.5 k	3.7 k	11.5 k
2	0.674	11.0 k	11.0 k		7.7 k	7.7 k	7.7 k	7.7 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



MAIN FLOOR PLAN

1/4" = 1'-0"

MAIN FLOOR PLAN NOTES

PLAN SPECIFIC 2015 WSEC, SECTION R06

R406.2 ADDITIONAL ENERGY EFFICIENCY REQUIREMENTS (MANDATORY).

THIS RESIDENTIAL DWELLING SHALL COMPLY W/SUFFICIENT OPTIONS FROM TABLE R406.2 TO ACHIEVE THE FOLLOWING MIN. NUMBER OF CREDITS:

3.5 FOR A 1,501sf to 4,999sf HOME.

CREDITS PROVIDED IN THIS HOME AS FOLLOWS:

EFFICIENT BUILDING ENVELOPE 1a: 0.5 CREDITS

PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 with FOLLOWING MODIFICATIONS:

VERTICAL FENESTRATION U = 0.28 WINDOWS

FLOORS TO BE R-38 and SLAB ON GRADE TO BE R-10 PERIMETER and UNDER ENTIRE SLAB BELOW GRADE.

HIGH EFFICIENCY HVAC EQUIPMENT 3a: 1.0 CREDITS

GAS FURNACE WITH MINIMUM AFUE OF 94%

EFFICIENT WATER HEATING 5a: 0.5 CREDITS

ALL SHOWERHEAD and KITCHEN SINK FAUCETS INSTALLED IN THE HOUSE SHALL BE RATED AT 1.75 GPM or LESS.

ALL OTHER LAVATORY FAUCETS SHALL BE RATED AT 1.0 GPM or LESS.

EFFICIENT WATER HEATING 5c: 1.5 CREDITS

WATER HEATING SYSTEM SHALL BE:
GAS WATER HEATER WITH A MINIMUM EF OF 0.91

WHOLE HOUSE VENTILATION

PROVIDE WHOLE HOUSE VENTILIATION per 2015 IRC, M1507 and IMC R403.8 USING LAUNDRY ROOM EXHAUST FAN INTEGRATED INTO FORCED AIR SYSTEM (FAU.) PROVIDE OUTDOOR FRESH AIR w/DUCTS CONNECTED TO THE RETURN SIDE OF THE AIR HANDLER.

SYMBOL	LOCATION	MIN. FAN REQUIREMENTS (ALL FANS VENT TO OUTDIDE)
50cfm+	BATH & POWDER	Min. 50cfm, INTERMITTENT at .025wg per TABLE M1507.4
	KITCHEN	Min. 100cfm, INTERMITTENT at .025wg per TBL. M1507.4
		RANGE HOOD or DOWN DRAFT EXHAUST FAN RATED at min. 100cfm, at 0.10wg MAY BE USED FOR EXHAUST FAN REQMT. EXHAUST HOODS IN EXCESS OF 400cfm, SHALL BE INTERLOCKED AND PROVIDE MAKE UP AIR per w/M1503.4
180cfm+ WHF.	LAUNDRY ROOM	MIN. 360cfm, INTERMITTENT at .025wg TO FUNCTION AS WHOLE HOUSE FAN (WHF.)

MECHANICAL CONTRACTOR TO SIZE WHF, FAN and SET OPERATING TIMER per TABLE M1507.3.3(1) FOR A 3,001-4,500sf, DWELLING w/4-5 BEDRMS. TO OPERATE INTERMITTENTLY and CONTINUOSLY per TABLE M1507.3.3(2)

PROVIDE CONTROLS FOR WHF, per M1507.3.2 AFFIX LABEL TO CONTROLS THAT READS "WHOLE HOUSE VENTILATION - SEE OPERATING INSTRUCTIONS"

SQUARE FOOTAGE SUMMARY

MAIN FLOOR AREA + GARAGE	2,255	S.F.
UPPER FLOOR AREA	1,794	S.F.
TOTAL AREA	4,049	S.F.
COV'D PATIO	235	S.F.
COV'D PORCH	40	S.F.
TOTAL AREA UNDER ROOF	4,324	S.F.
OVERALL WIDTH	71'-11½"	
OVERALL DEPTH	44'-1 1/2"	

Updated : 03/04/2018

Method for Calculating Square Footage - ANSI Z765-2013 except, no separate distinction of "above grade or habitable" areas and each level is measured to the

JAYMARC HOMES

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

Issue	Issue Date	By	Description

6515 SE 30th St.
Mercer Island, WA.
Job Number: --

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

04.15.21
Submittal Date

Sheet Title/Description

JAYMARC HOMES
Design Firm

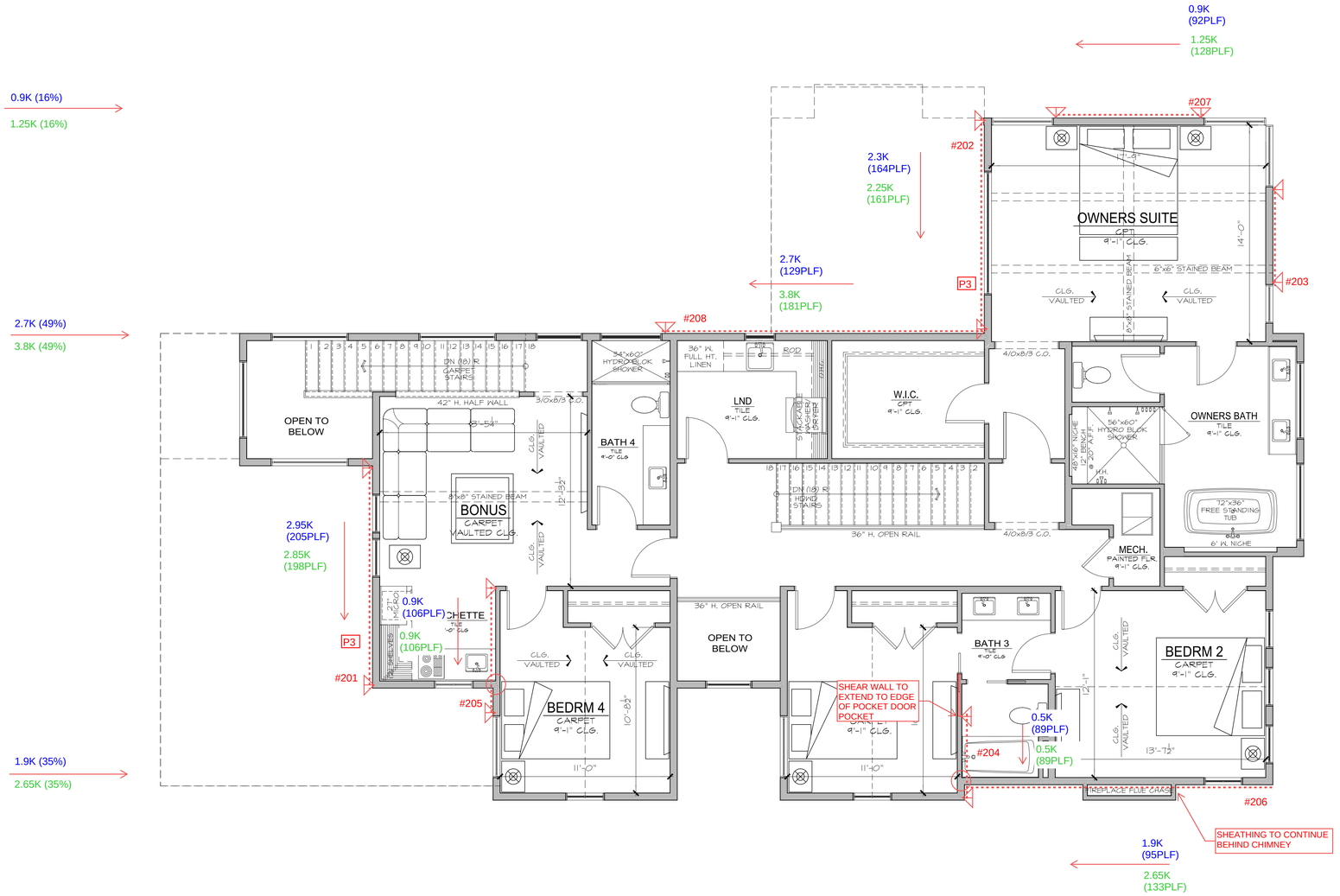
R.R.
Drawn by:

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

Primary Scale

A5
of: .

Sheet Title/Description



UPPER FLOOR PLAN

1/4" = 1'-0"

3.85K (49%)
3.75K (49%)

2.8K (35%)
2.75K (35%)

1.25K (16%)
1.2K (16%)

7.9K
WIND
5.5K

7.7K
SEISMIC
7.7K

P3 UNIT SHEAR:
630PLF/336PLF=1.88
89PLF*1.88 =167PLF
106PLF*1.88=199PLF

P3 UNIT SHEAR:
451PLF/239PLF=1.88
89PLF*1.88=167PLF
106PLF*1.88=199PLF

UPPER FLOOR PLAN NOTES:

PLAN SPECIFIC 2015 WSEC, SECTION R06

R406.2 ADDITIONAL ENERGY EFFICIENCY REQUIREMENTS (MANDATORY).

THIS RESIDENTIAL DWELLING SHALL COMPLY w/SUFFICIENT OPTIONS FROM TABLE R406.2 TO ACHIEVE THE FOLLOWING MIN. NUMBER OF CREDITS:

3.5 FOR a 1,501sf to 4,999sf HOME.

CREDITS PROVIDED IN THIS HOME AS FOLLOWS:

EFFICIENT BUILDING ENVELOPE 1a: 0.5 CREDITS

PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 with FOLLOWING MODIFICATIONS:

VERTICAL FENESTRATION U = 0.28 WINDOWS

FLOORS TO BE R-38 and SLAB ON GRADE TO BE R-10 PERIMETER and UNDER ENTIRE SLAB BELOW GRADE.

HIGH EFFICIENCY HVAC EQUIPMENT 3a: 1.0 CREDITS

GAS FURNACE WITH MINIMUM AFUE OF 94%

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ALL OTHER LAVATORY FAUCETS SHALL BE RATED AT 1.0 GPM or LESS.

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WATER HEATING SYSTEM SHALL BE:
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PROVIDE WHOLE HOUSE VENTILIATION per 2015 IRC, M1507 and IMC R403.8 USING LAUNDRY ROOM EXHAUST FAN INTEGRATED INTO FORCED ARE SYSTEM (FAU) PROVIDE OUTDOOR FRESH AIR w/DUCTS CONNECTED TO THE RETURN SIDE OF THE AIR HANDLER.

SYMBOL	LOCATION	MIN. FAN REQUIREMENTS (ALL FANS VENT TO OUTDIDE)
(A) 50cfm+	BATH & POWDER	Min. 50cfm, INTERMITTENT at .025wg per TABLE M1507.4
(B) 100cfm+	KITCHEN	Min. 100cfm, INTERMITTENT at .025wg per TBL. M1507.4 RANGE HOOD or DOWN DRAFT EXHAUST FAN RATED at min. 100cfm, at 0.10wg MAY BE USED FOR EXHAUST FAN REQMT. EXHAUST HOODS IN EXCESS OF 400cfm, SHALL BE INTERLOCKED AND PROVIDE MAKE UP AIR per w/M1503.4
(C) 180cfm+ INRF.	LAUNDRY ROOM	MIN. 180cfm, INTERMITTENT at .025wg TO FUNCTION AS WHOLE HOUSE FAN (INRF.)

MECHANICAL CONTRACTOR TO SIZE INRF, FAN and SET OPERATING TIMER per TABLE M1507.3.3(1) FOR A 3,001-4,500sf. DWELLING w/4-5 BEDRMS. TO OPERATE INTERMITENTLY and CONTINUOSLY per TABLE M1507.3.3(2)

PROVIDE CONTROLS FOR INRF, per M1507.3.2 AFFIX LABEL TO CONTROLS THAT READS "WHOLE HOUSE VENTILATION - SEE OPERATING INSTRUCTIONS"

SQUARE FOOTAGE SUMMARY

MAIN FLOOR AREA + GARAGE	2,255 S.F.
UPPER FLOOR AREA	1,794 S.F.
TOTAL AREA	4,049 S.F.
COV'D PATIO	235 S.F.
COV'D PORCH	40 S.F.
TOTAL AREA UNDER ROOF	4,324 S.F.
OVERALL WIDTH	71'-11 ½"
OVERALL DEPTH	44'-1 1/2"

Updated : 03/09/2018

Method for Calculating Square Footage - ANSI Z765-2013 except: no separate distinction of 'above grade or habitable' areas and each level is measured to the

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Issue	Issue Date	By	Description
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6515 SE 30th St.
Mercer Island, WA.
Job Number: --

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

04.15.21
Submittal Date

Sheet Title/Description

JAYMARC HOMES
Design Firm

R.R.
Drawn by:

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

Primary Scale

A7
of: .

Sheet Title/Description

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

Project Name: JayMarc Homes
6515 SE 30th St
M&K Project #: 154-21007
Engineer: RJD
Date: 26-Mar-21

Shearwall Design Summary

Shearwall 201: 2nd - Side Exterior Bonus

Shearwall Properties:

Wall height, H	11.5	ft.	Max wall opening ht, H_c	3.5	ft.		
Wall Length, L	14.4	ft.	Qualifying Wall Length, L	9.3	ft.	Shearwall Assembly	P3

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
2850 lbs	<	4172 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	135	plf	Overturning Moment	32.8	k-ft	Hold Down Design Load	1672	lbs
DL at ends of wall	400	lbs	Resistive Moment	8.7	k-ft	Holdown Capacity	1705	lbs

Hold-down Specification

SIMPSON CS16 STRAP TIE (14" END LENGTH)

Shearwall 202: 2nd - Side Exterior Owners Suite @ Deck

Shearwall Properties:

Wall height, H	9.0	ft.	Max wall opening ht, Hc	1.0	ft.		
Wall Length, L	14.0	ft.	Qualifying Wall Length, L	6.0	ft.	Shearwall Assembly	P3

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
2250 lbs	<	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	270	plf	Overturning Moment	20.3	k-ft	Hold Down Design Load	584	lbs
DL at ends of wall	70	lbs	Resistive Moment	12.1	k-ft	Holdown Capacity	1705	lbs

Hold-down Specification

SIMPSON CS16 STRAP TIE (14" END LENGTH)

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

Project Name: JayMarc Homes
6515 SE 30th St
M&K Project #: 154-21007
Engineer: RJD
Date: 26-Mar-21

Shearwall Design Summary

Shearwall 203: 2nd - Side Exterior Owners Suite

Shearwall Properties:

Wall height, H	9.0	ft.	Max wall opening ht, H_c	0.0	ft.		
Wall Length, L	6.3	ft.	Qualifying Wall Length, L	6.3	ft.	Shearwall Assembly	P1

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
1200 lbs	<	1494 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	270	plf	Overturning Moment	10.8	k-ft	Uplift Connector Design Load	1262	lbs
DL at ends of wall	215	lbs	Resistive Moment	2.9	k-ft	Holdown Capacity	1705	lbs

Hold-down Specification

SIMPSON CS16 STRAP TIE (14" END LENGTH)

Shearwall 204: 2nd - Side Interior/Exterior Bath 3

Shearwall Properties:

Wall height, H	9.0	ft.	Max wall opening ht, Hc	0.0	ft.		
Wall Length, L	5.6	ft.	Qualifying Wall Length, L	5.6	ft.	Shearwall Assembly	P1

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
500 lbs	<	1338 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	202	plf	Overturning Moment	4.5	k-ft	Hold Down Design Load	379	lbs
DL at ends of wall	400	lbs	Resistive Moment	2.4	k-ft	Holdown Capacity	1705	lbs

Hold-down Specification

SIMPSON CS16 STRAP TIE (14" END LENGTH)

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: JAYMARC HOMES
6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-MAR-21

SHEARWALL DESIGN SUMMARY

SHEARWALL 205: 2ND - SIDE INTERIOR/EXTERIOR BED 4

SHEARWALL PROPERTIES:

WALL HEIGHT, H	9.0	FT.	MAX WALL OPENING HT, H_c	0.0	FT.		
WALL LENGTH, L	8.5	FT.	QUALIFYING WALL LENGTH, L	8.5	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
900 LBS	<	2032 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	202	PLF	OVERTURNING MOMENT	8.1	K-FT	UPLIFT CONNECTOR DESIGN LOAD	544	LBS
DL AT ENDS OF WALL	70	LBS	RESISTIVE MOMENT	3.5	K-FT	HOLDOWN CAPACITY	1705	LBS

HOLD-DOWN SPECIFICATION

SIMPSON CS16 STRAP TIE (14" END LENGTH)

SHEARWALL XXX: - NOT USED

SHEARWALL PROPERTIES:

WALL HEIGHT, H	0.0	FT.	MAX WALL OPENING HT, Hc	0.0	FT.		
WALL LENGTH, L	0.0	FT.	QUALIFYING WALL LENGTH, L	0.0	FT.	SHEARWALL ASSEMBLY	P0

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
0 LBS	####	#DIV/0! LBS

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	0	PLF	OVERTURNING MOMENT	#DIV/0!	K-FT	HOLD DOWN DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	0	LBS	RESISTIVE MOMENT	0.0	K-FT	HOLDOWN CAPACITY	0	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: JAYMARC HOMES
6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-Mar-21

SHEARWALL DESIGN SUMMARY

SHEARWALL 206: 2ND - FRONT EXTERIOR BED2/BATH3

SHEARWALL PROPERTIES:

WALL HEIGHT, H	9.0	FT.	MAX WALL OPENING HT, H_o	6.0	FT.		
WALL LENGTH, L	20.0	FT.	QUALIFYING WALL LENGTH, L	17.5	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
2650 LBS	<	4123 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	350	PLF	OVERTURNING MOMENT	23.9	K-FT	UPLIFT CONNECTOR DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	200	LBS	RESISTIVE MOMENT	32.6	K-FT	HOLDOWN CAPACITY	0	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 207: 2ND - REAR EXTERIOR OWNERS SUITE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	12.0	FT.	MAX WALL OPENING HT, Hc	0.0	FT.		
WALL LENGTH, L	9.8	FT.	QUALIFYING WALL LENGTH, L	9.8	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
1250 LBS	<	2330 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	135	PLF	OVERTURNING MOMENT	15.0	K-FT	HOLD DOWN DESIGN LOAD	1218	LBS
DL AT ENDS OF WALL	70	LBS	RESISTIVE MOMENT	3.1	K-FT	HOLDOWN CAPACITY	1705	LBS

HOLD-DOWN SPECIFICATION

SIMPSON CS16 STRAP TIE (14" END LENGTH)

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: JAYMARC HOMES
6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-Mar-21

SHEARWALL DESIGN SUMMARY

SHEARWALL 208: 2ND - REAR EXTERIOR LND/WIC

SHEARWALL PROPERTIES:

WALL HEIGHT, H	9.0	FT.	MAX WALL OPENING HT, H_o	3.5	FT.		
WALL LENGTH, L	21.0	FT.	QUALIFYING WALL LENGTH, L	19.0	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
3800 LBS	<	4541 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	245	PLF	OVERTURNING MOMENT	34.2	K-FT	UPLIFT CONNECTOR DESIGN LOAD	321	LBS
DL AT ENDS OF WALL	400	LBS	RESISTIVE MOMENT	27.5	K-FT	HOLDOWN CAPACITY	1705	LBS

HOLD-DOWN SPECIFICATION

SIMPSON CS16 STRAP TIE (14" END LENGTH)

SHEARWALL XXX: - NOT USED

SHEARWALL PROPERTIES:

WALL HEIGHT, H	0.0	FT.	MAX WALL OPENING HT, Hc	0.0	FT.		
WALL LENGTH, L	0.0	FT.	QUALIFYING WALL LENGTH, L	0.0	FT.	SHEARWALL ASSEMBLY	P0

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
0 LBS	####	#DIV/0! LBS

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	0	PLF	OVERTURNING MOMENT	#DIV/0!	K-FT	HOLD DOWN DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	0	LBS	RESISTIVE MOMENT	0.0	K-FT	HOLDOWN CAPACITY	0	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: JAYMARC HOMES
6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-Mar-21

SHEARWALL DESIGN SUMMARY

SHEARWALL 101: 1ST - SIDE EXTERIOR GARAGE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	11.0	FT.	MAX WALL OPENING HT, H_c	0.0	FT.		
WALL LENGTH, L	21.2	FT.	QUALIFYING WALL LENGTH, L	21.2	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
600 LBS	<	5067 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	135	PLF	OVERTURNING MOMENT	6.6	K-FT	UPLIFT CONNECTOR DESIGN LOAD	0	LBS
DL AT ENDS OF WALL	800	LBS	RESISTIVE MOMENT	20.8	K-FT	HOLDOWN CAPACITY	0	LBS

HOLD-DOWN SPECIFICATION

NO HOLDOWN REQUIRED

SHEARWALL 102: 1ST - SIDE INTERIOR GARAGE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	10.0	FT.	MAX WALL OPENING HT, Hc	0.0	FT.		
WALL LENGTH, L	21.7	FT.	QUALIFYING WALL LENGTH, L	21.7	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
5050 LBS	<	5179 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	315	PLF	OVERTURNING MOMENT	62.3	K-FT	HOLD DOWN DESIGN LOAD	1197	LBS
DL AT ENDS OF WALL	400	LBS	RESISTIVE MOMENT	36.4	K-FT	HOLDOWN CAPACITY	3695	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STHD14RJ HOLDOWN

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

Project Name: JayMarc Homes
6515 SE 30th St
M&K Project #: 154-21007
Engineer: RJD
Date: 26-Mar-21

Shearwall Design Summary

Shearwall 103: 1st - Side Interior Great Rm

Shearwall Properties:

Wall height, H	10.0	ft.	Max wall opening ht, H_c	0.0	ft.		
Wall Length, L	13.0	ft.	Qualifying Wall Length, L	13.0	ft.	Shearwall Assembly	P1

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
2250 lbs	<	3107 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	535	plf	Overturning Moment	27.4	k-ft	Uplift Connector Design Load	228	lbs
DL at ends of wall	800	lbs	Resistive Moment	24.5	k-ft	Holdown Capacity	1705	lbs

Hold-down Specification

SIMPSON CS16 STRAP TIE (14" END LENGTH)

Shearwall 104: 1st - Side Exterior Kitchen/Scullery

Shearwall Properties:

Wall height, H	10.0	ft.	Max wall opening ht, Hc	7.0	ft.		
Wall Length, L	18.0	ft.	Qualifying Wall Length, L	15.5	ft.	Shearwall Assembly	P1

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
1800 lbs	<	3675 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	505	plf	Overturning Moment	18.0	k-ft	Hold Down Design Load	0	lbs
DL at ends of wall	470	lbs	Resistive Moment	39.7	k-ft	Holdown Capacity	0	lbs

Hold-down Specification

No Holdown Required

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

Project Name: JayMarc Homes
6515 SE 30th St
M&K Project #: 154-21007
Engineer: RJD
Date: 26-Mar-21

Shearwall Design Summary

Shearwall XXX: - Not Used

Shearwall Properties:

Wall height, H	0.0	ft.	Max wall opening ht, H_c	0.0	ft.		
Wall Length, L	0.0	ft.	Qualifying Wall Length, L	0.0	ft.	Shearwall Assembly	P0

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
0 lbs	####	#DIV/0! lbs

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	0	plf	Overturning Moment	#DIV/0!	k-ft	Uplift Connector Design Load	0	lbs
DL at ends of wall	0	lbs	Resistive Moment	0.0	k-ft	Holdown Capacity	0	lbs

Hold-down Specification

No Holdown Required

Shearwall 105: 1st - Front Exterior Great Rm @ Dining

Shearwall Properties:

Wall height, H	10.0	ft.	Max wall opening ht, Hc	7.0	ft.		
Wall Length, L	7.7	ft.	Qualifying Wall Length, L	5.3	ft.	Shearwall Assembly	P3

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
800 lbs	<	1942 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	480	plf	Overturning Moment	10.5	k-ft	Hold Down Design Load	202	lbs
DL at ends of wall	800	lbs	Resistive Moment	8.9	k-ft	Holdown Capacity	3695	lbs

Hold-down Specification

SIMPSON STHD14RJ HOLDOWN

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: JAYMARC HOMES
6515 SE 30TH ST
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-Mar-21

SHEARWALL DESIGN SUMMARY

SHEARWALL 106: 1ST - FRONT EXTERIO GREAT RM

SHEARWALL PROPERTIES:

WALL HEIGHT, H	10.0	FT.	MAX WALL OPENING HT, H_c	7.0	FT.		
WALL LENGTH, L	6.3	FT.	QUALIFYING WALL LENGTH, L	4.0	FT.	SHEARWALL ASSEMBLY	P3

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
650 LBS	<	1466 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	480	PLF	OVERTURNING MOMENT	8.5	K-FT	UPLIFT CONNECTOR DESIGN LOAD	335	LBS
DL AT ENDS OF WALL	800	LBS	RESISTIVE MOMENT	6.4	K-FT	HOLDOWN CAPACITY	3695	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STHD14RJ HOLDOWN

SHEARWALL 107: 1ST - REAR INTERIOR GARAGE

SHEARWALL PROPERTIES:

WALL HEIGHT, H	11.0	FT.	MAX WALL OPENING HT, Hc	0.0	FT.		
WALL LENGTH, L	17.0	FT.	QUALIFYING WALL LENGTH, L	17.0	FT.	SHEARWALL ASSEMBLY	P1

CAPACITY EVALUATION:

TOTAL SHEAR LOAD ON WALL		ALLOWABLE SHEARWALL CAPACITY
3700 LBS	<	4063 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	440	PLF	OVERTURNING MOMENT	40.7	K-FT	HOLD DOWN DESIGN LOAD	573	LBS
DL AT ENDS OF WALL	400	LBS	RESISTIVE MOMENT	31.0	K-FT	HOLDOWN CAPACITY	3695	LBS

HOLD-DOWN SPECIFICATION

SIMPSON STHD14RJ HOLDOWN

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

Project Name: JayMarc Homes
6515 SE 30th St
M&K Project #: 154-21007
Engineer: RJD
Date: 26-Mar-21

Shearwall Design Summary

Shearwall 108: 1st - Front Exterior Garage

Shearwall Properties:

Wall height, H	10.0	ft.	Max wall opening ht, H_c	8.0	ft.		
Wall Length, L	21.6	ft.	Qualifying Wall Length, L	5.5	ft.	Shearwall Assembly	P3

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
2100 lbs	<	2108 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	280	plf	Overturning Moment	21.0	k-ft	Uplift Connector Design Load	0	lbs
DL at ends of wall	400	lbs	Resistive Moment	32.5	k-ft	Holdown Capacity	0	lbs

Hold-down Specification

No Holdown Required

Shearwall XXX: - Not Used

Shearwall Properties:

Wall height, H	0.0	ft.	Max wall opening ht, Hc	0.0	ft.		
Wall Length, L	0.0	ft.	Qualifying Wall Length, L	0.0	ft.	Shearwall Assembly	P0

Capacity Evaluation:

Total Shear load on Wall		Allowable Shearwall Capacity
0 lbs	####	#DIV/0! lbs

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	0	plf	Overturning Moment	#DIV/0!	k-ft	Hold Down Design Load	0	lbs
DL at ends of wall	0	lbs	Resistive Moment	0.0	k-ft	Holdown Capacity	0	lbs

Hold-down Specification

No Holdown Required

MULHERN+KULP
RESIDENTIAL STRUCTURAL ENGINEERING

PROJECT NAME: 6515 SE 30TH - DECK
JAYMARC HOMES
M&K PROJECT #: 154-21007
ENGINEER: RJD
DATE: 26-MAR-21

SEISMIC CALCULATION - ASCE 7-16

SEISMIC DESIGN CATEGORY:

USER INPUTS:

Site Class	D
Spectral Response Acceleration 0.2 sec, S_S	1.405
Spectral Response Acceleration 1.0 sec, S_1	0.489
Occupancy Category	II

VARIABLES:

Site coefficient, Fa	1.20
Site coefficient, Fv	1.81

CALCULATED VALUES:

Maximum spectral response acceleration, S_{MS}	1.686
Maximum spectral response acceleration, S_{M1}	0.886
Design spectral response acceleration, S_{DS}	1.124
Design spectral response acceleration, S_{D1}	0.590
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	5

CALCULATED VALUES:

Approximate Fundamental Period, T_A	0.067
T_0	0.105
T_S	0.525
Spectral Response Acc., S_A (g)	0.879

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	5.0	230	10	0.0	2 K
2	0.0	0	0	0.0	0 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 2 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	0.173	0.173

BASE SHEARS:

Ultimate Loads		x 0.7 =	Allowable Loads	
Transverse	Longitudinal		Transverse	Longitudinal
0 K	0 K		0.3 K	0.3 K

STORY SHEAR CALCULATION:

Distribution exponent, k: 1.00

		Ultimate Loads			x 0.7 =	Allowable Loads			
		Transverse	Longitudinal			Transverse		Longitudinal	
Level	Vert. Dist. Factor, C_{vx}	Story Shear, F_x	Story Shear, F_x			Story Shear, F_x	Σ Story Shear	Story Shear, F_x	Σ Story Shear
1	1.000	0.4 K	0.4 K			0.3 K	0.3 K	0.3 K	0.3 K
2	0.000	0.0 K	0.0 K			0.0 K	0.0 K	0.0 K	0.0 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

DECK LEDGER

GRAVITY

365 PLF APPLIED (60 PSF LIVE & 10 PSF DEAD)

- 340#/SDS SCREW PER SIMPSON

(2) 1/4" x 3 1/2" SDS SCREWS @ 16" O.C. RESIST GRAVITY

(340#)(2 SCREWS)(12"/16") = 510 PLF ALLOWABLE

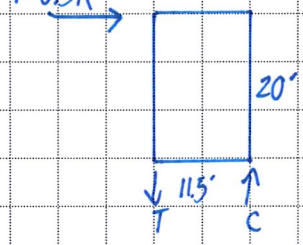
510 PLF > 365 PLF ✓ ∴ (2) 1/4" Ø x 3 1/2" LONG SDS SCREWS @ 16" O.C. ADEQUATE FOR GRAVITY

LATERAL

- CHECK CAPACITY OF DECK LEDGER AGAINST PRESCRIPTIVE REQUIREMENT.
- PER R507.2.4 HOLD DOWN TENSION DEVICE W/ 1500# PRESCRIPTIVE CAPACITY REQ'D WITHIN 24" OF EA END OF DECK. (NOT APPLICABLE IF ACTUAL APPLIED LOAD CAN BE RESISTED)

SEISMIC LOAD ON DECK = 0.3K

WORST CASE



M = 0.3K(20') = 6K'

T = C = 6K'/11.5' = 520#

520# TENSION REQ'D

ALLOWABLE

- (1) SCREW @ 16" RESIST LATERAL
- WITHDRAWL = 385#(1.6)^{CD} = 616#/SCREW

  616# > 520# ✓
- SHEAR = 340#(1.6)^{CD} = 544#/SCREW

  (12"/16")(11.5')(544#) = 4.69K > 0.3K ✓

∴ (1) 1/4" Ø x 3 1/2" LONG SDS SCREWS @ 16" O.C. ADEQUATE FOR LATERAL

⇒ (3) 1/4" Ø x 3 1/2" LONG SIMPSON SDS SCREWS @ 16" O.C. IS ADEQUATE FOR GRAVITY & LATERAL LOADS

PROJECT NAME: 6515 SE 30TH St. MERCER ISLAND
DATE: 04-13-21 SHEET: 01 DRAWN BY: RJD PROJECT NUMBER: 154-21007

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