



Revised Structural Calculations For:

Lumpkin Residence

Roof Valley Beam Revision

5401 W. Mercer Way

Mercer Island, WA 98040



Prepared for: Suyama Peterson Deguchi

Job #: 00043-2020-04

Date: September 1, 2021



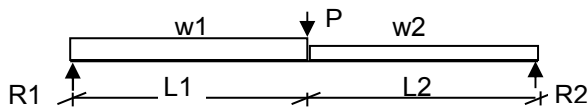
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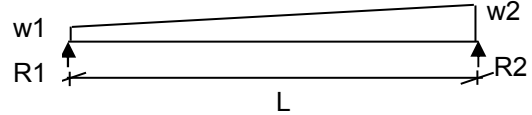
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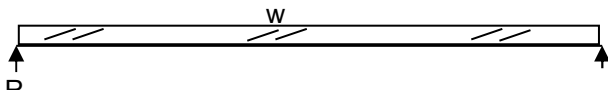
Beam	R3	GL	5 1/2 x 11 7/8
w1=	25 plf	R1 =	2,313 lbs
w2=	25 plf	R2 =	2,313 lbs
L1=	6.50 ft	M =	14,503 lb-ft
L2=	6.50 ft	Fb =	1,346 psi
X=	6.5 ft	Fv =	53 psi
P=	4,300 lbs	Δ =	0.26 in
b=	5.50 in	I/	605
d=	11.88 in	Cv=	1.00
E=	1,800 ksi		



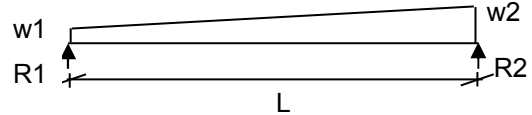
Beam	R7	PSL	5 1/4 x 9 1/2
w1=	- plf	R1 =	1,100 lbs
w2=	440 plf	R2 =	2,200 lbs
L=	15 ft	M =	6,024 lb-ft
b=	5.25 in	Fb =	915 psi
d=	9.50 in	Fv =	33 psi
E=	2,000 ksi	Δ =	0.33 in
Cv=	1.00	I/	538



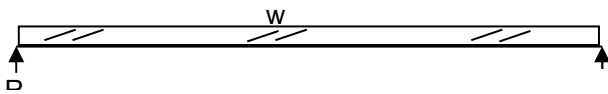
Beam	R4	GL	5 1/2 x 11 7/8
w=	310 plf	R=	2,829 lbs
L=	18.25 ft	M=	12,906 ft-lbs
b=	5.50 in	Fb=	1,198 psi
d=	11.88 in	Fv=	58 psi
E=	1800 ksi	Δ =	0.56 in
Cv=	1.00 \leq 1.0	I/	391



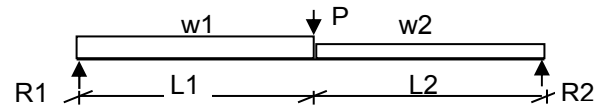
Beam	R7, sim	PSL	5 1/4 x 11 7/8
w1=	- plf	R1 =	1,148 lbs
w2=	475 plf	R2 =	2,296 lbs
L=	15 ft	M =	6,077 lb-ft
b=	5.25 in	Fb =	591 psi
d=	11.88 in	Fv =	27 psi
E=	2,000 ksi	Δ =	0.16 in
Cv=	1.00	I/	1,078



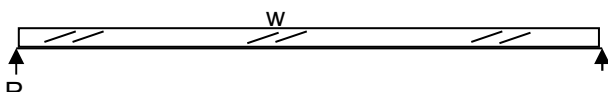
Beam	R5	GL	5 1/2 x 15
w=	480 plf	R=	4,800 lbs
L=	20 ft	M=	24,000 ft-lbs
b=	5.50 in	Fb=	1,396 psi
d=	15.00 in	Fv=	76 psi
E=	1800 ksi	Δ =	0.62 in
Cv=	0.98 \leq 1.0	I/	387



Beam	R8	GL	5 1/2 x 11 7/8
w1=	200 plf	R1 =	1,848 lbs
w2=	200 plf	R2 =	1,848 lbs
L1=	3.5 ft	M =	5,243 lb-ft
L2=	3.5 ft	Fb =	487 psi
X=	3.5 ft	Fv =	38 psi
P=	2,296 lbs	Δ =	0.03 in
b=	5.50 in	I/	2,964
d=	11.88 in	Cv=	1.00
E=	1,800 ksi		



Beam	R6	GL	5 1/2 x 9
w=	360 plf	R=	1,800 lbs
L=	10 ft	M=	4,500 ft-lbs
b=	5.50 in	Fb=	727 psi
d=	9.00 in	Fv=	46 psi
E=	1800 ksi	Δ =	0.13 in
Cv=	1.00 \leq 1.0	I/	891



Project: Lumpkin Residence Date: 08/31/21

Gravity Design - Roof Project #: _____

Design: VMB

Sheet: 13

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