

## STRUCTURAL CALCULATIONS

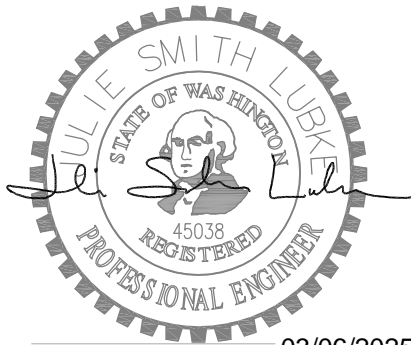
### Permit Corrections

PROJECT:  
Spurlock-MA Remodel  
8427 SE 62nd St.  
Mercer Island, WA 98040

PREPARED BY:

Julie Smith Lubke  
julie@smithlubke.com

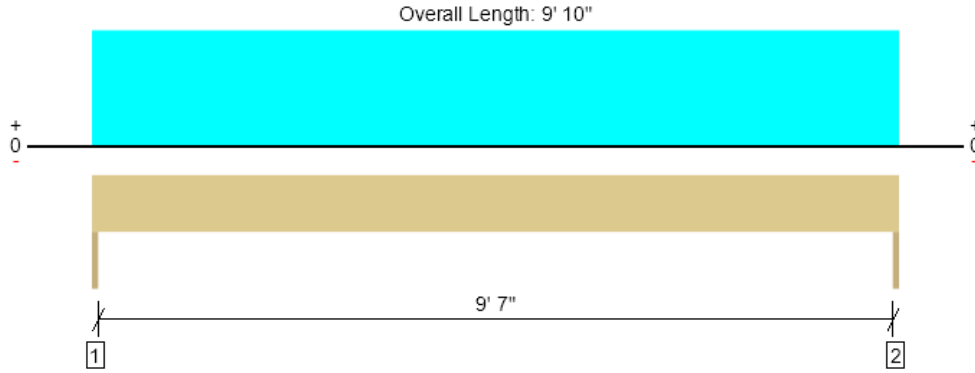
Smith Lubke Structural Design  
P.O. Box 30954, Seattle, WA 98113  
206.852.1536



03/06/2025

Roof, B1

**2 piece(s) 1 3/4" x 10" 2.OE Microllam® LVL**



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	3492 @ 0	3806 (1.50")	Passed (92%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	2811 @ 11 1/2"	7648	Passed (37%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	8584 @ 4' 11"	14900	Passed (58%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.175 @ 4' 11"	0.328	Passed (L/674)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.284 @ 4' 11"	0.492	Passed (L/415)	--	1.0 D + 1.0 S (All Spans)

Member Length : 9' 10"  
 System : Wall  
 Member Type : Header  
 Building Use : Residential  
 Building Code : IBC 2018  
 Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Resawn products must maintain manufacturing stamps.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	1341	2151	3492	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	1341	2151	3492	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	9' 10" o/c	
Bottom Edge (Lu)	9' 10" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 9' 10"	N/A	10.2	--	
1 - Uniform (PSF)	0 to 9' 10"	17' 6"	15.0	25.0	Default Load

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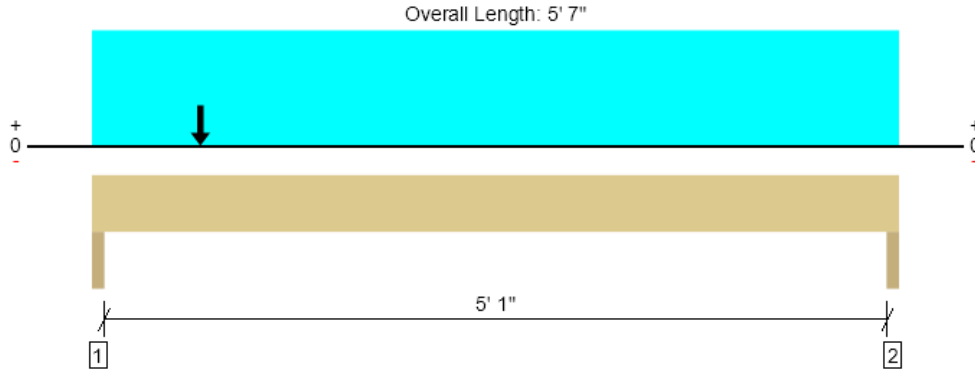
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Julie Smith Lubke Smith Lubke Structural Design (206) 852-1536 julie@smithlubke.com	



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 ForteWEB v3.8, Engine: V8.4.1.24, Data: V8.1.6.3  
 File Name: Spurlock\_Shed\_Mercer Island

Roof, B7  
**2 piece(s) 2 x 10 HF No.2**



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2230 @ 1' 1/2"	3645 (3.00")	Passed (61%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1443 @ 1' 1/4"	3191	Passed (45%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1367 @ 9"	3833	Passed (36%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.012 @ 2' 5 15/16"	0.178	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.023 @ 2' 6 3/4"	0.267	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 5' 7"  
 System : Wall  
 Member Type : Header  
 Building Use : Residential  
 Building Code : IBC 2018  
 Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Trimmer - SPF	3.00"	3.00"	1.84"	924	1306	2230	None
2 - Trimmer - SPF	3.00"	3.00"	1.50"	302	234	536	None

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 5' 7"	N/A	7.0	--	
1 - Uniform (PSF)	0 to 5' 7"	1'	12.0	25.0	Default Load
2 - Uniform (PLF)	0 to 5' 7"	N/A	55.0	-	
3 - Point (lb)	9"	N/A	813	1400	Linked from: B5, Support 1

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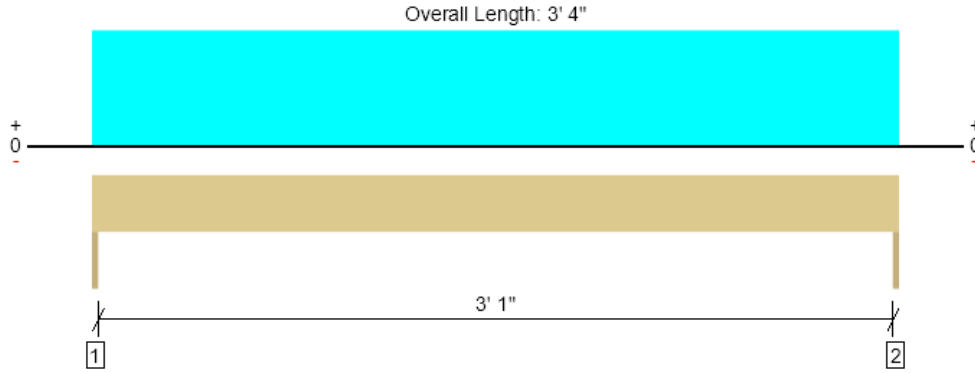
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Roof, B18

2 piece(s) 2 x 6 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	580 @ 0	1823 (1.50")	Passed (32%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	377 @ 7"	1898	Passed (20%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	484 @ 1' 8"	1602	Passed (30%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.009 @ 1' 8"	0.111	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.018 @ 1' 8"	0.167	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 3' 4"  
 System : Wall  
 Member Type : Header  
 Building Use : Residential  
 Building Code : IBC 2018  
 Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	274	307	580	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	274	307	580	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 4" o/c	
Bottom Edge (Lu)	3' 4" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 3' 4"	N/A	4.2	--	
1 - Uniform (PLF)	0 to 3' 4"	N/A	160.0	184.0	Default Load

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