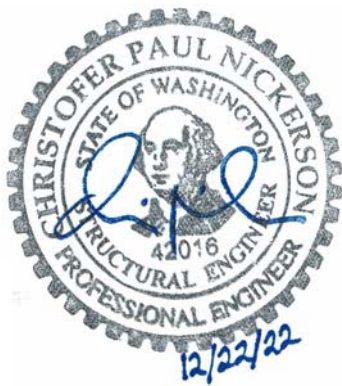


Structural Calculations for:

Helling Addition

Project Address:
8925 SE 58th ST
Mercer Island WA 98040



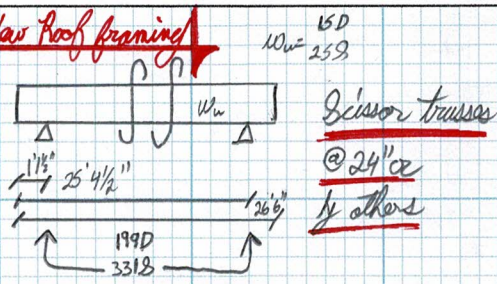
Structural Engineering by:

Nickerson Engineering

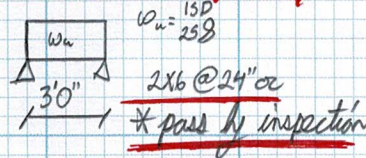
2221 Everett Ave, #202
Everett, WA 98201

Design per:
2018 International Building Code

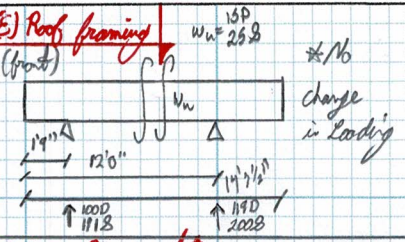
New Roof framing



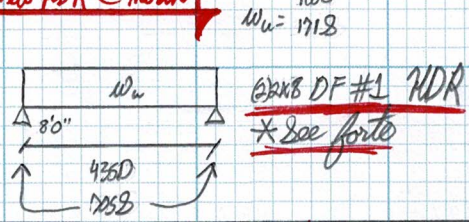
Window Bump out framing



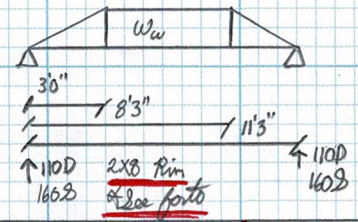
(E) Roof framing (front)



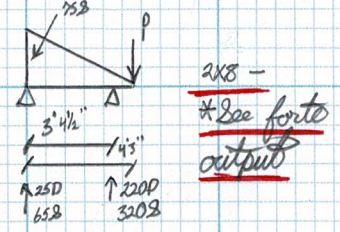
New NDR @ north



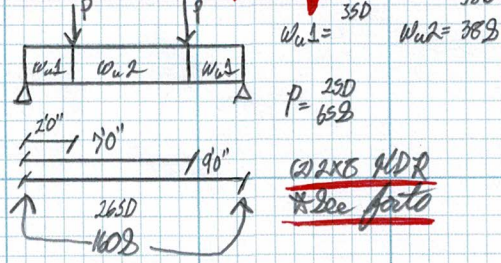
Rin @ Bumpout



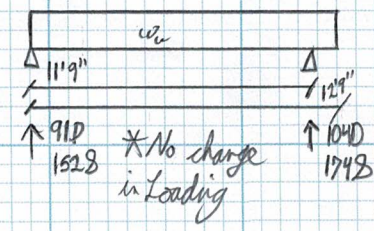
Ridge @ Bumpout



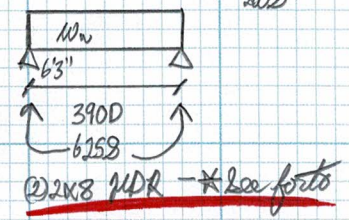
Beam @ Window Bumpout



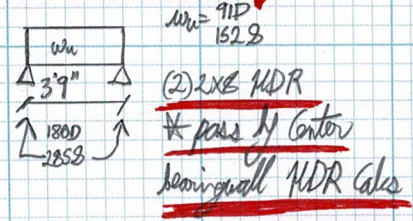
(E) Roof framing - Back



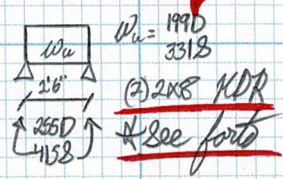
Center Bearing Wall - NDR



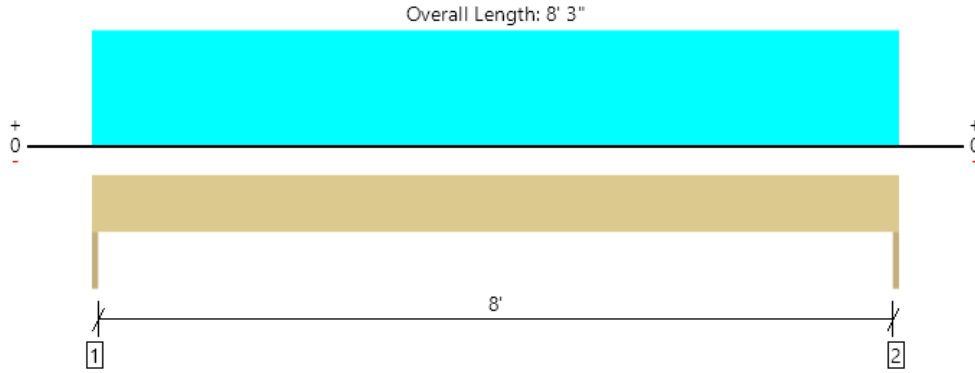
New NDR @ South



New NDR @ East



Roof Framing, (N) HDR
2 piece(s) 2 x 8 HF No.2



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)	1141 @ 0	1823 (1.50")	Passed (63%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	939 @ 8 3/4"	2501	Passed (38%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	2352 @ 4' 1 1/2"	2569	Passed (92%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.144 @ 4' 1 1/2"	0.275	Passed (L/688)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.233 @ 4' 1 1/2"	0.313	Passed (L/425)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2015
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (5/16").
- 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"	435	705	1141	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	435	705	1141	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	7' 5" o/c	
Bottom Edge (Lu)	8' 3" 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 8' 3"	N/A	5.5	--	
1 - Uniform (PLF)	0 to 8' 3"	N/A	100.0	171.0	

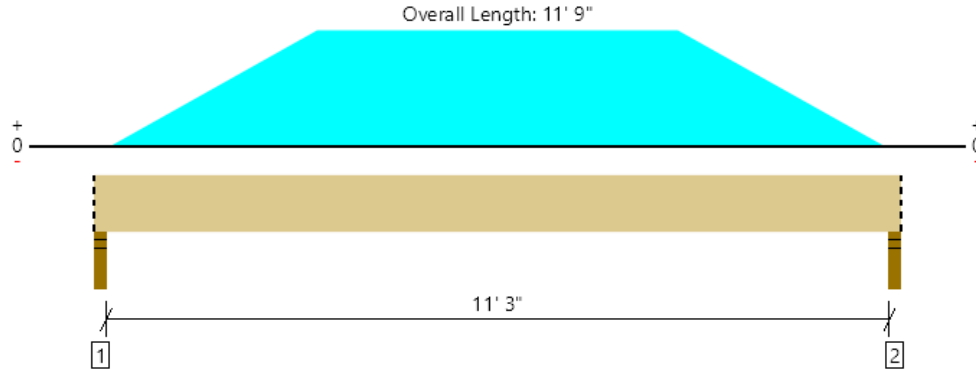
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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Roof Framing, Rim @ Bump Out
 1 piece(s) 2 x 8 HF No.2


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)	268 @ 1 1/2"	1823 (3.00")	Passed (15%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	262 @ 10 1/4"	1251	Passed (21%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	951 @ 5' 10 1/2"	1284	Passed (74%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.213 @ 5' 10 1/2"	0.287	Passed (L/649)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.359 @ 5' 10 1/2"	0.575	Passed (L/385)	--	1.0 D + 1.0 S (All Spans)

System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2015
 Design Methodology : ASD

- Deflection criteria: LL (L/480) 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 - Stud wall - SPF	3.00"	3.00"	1.50"	111	157	268	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	111	157	268	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	7' 11" o/c	
Bottom Edge (Lu)	11' 9" o/c	

- Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 11' 9"	N/A	2.8	--	
1 - Tapered (PLF)	3" to 3' 3" (Top)	N/A	0.0 to 23.0	0.0 to 38.0	
2 - Uniform (PLF)	3' 3" to 8' 6" (Top)	N/A	23.0	38.0	
3 - Tapered (PLF)	8' 6" to 11' 6" (Top)	N/A	23.0 to 0.0	38.0 to 0.0	

Weyerhaeuser Notes

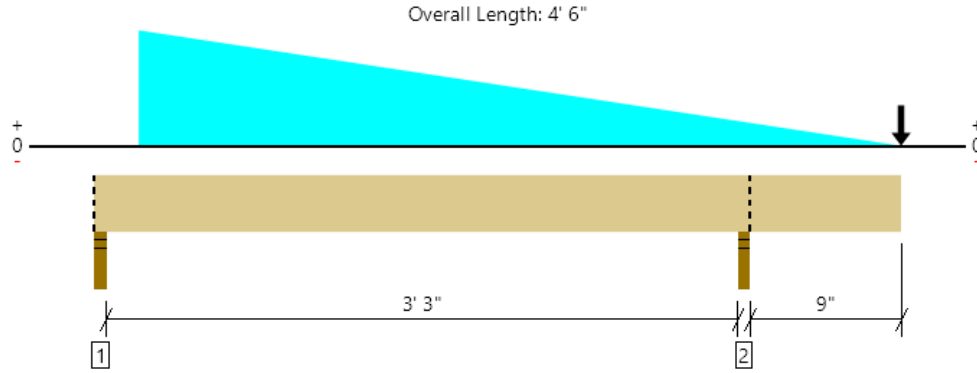
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ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Roof Framing, Ridge @ Bump Out
1 piece(s) 2 x 8 HF No.2



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)	539 @ 3' 7 1/2"	1823 (3.00")	Passed (30%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	336 @ 4' 4 1/4"	1251	Passed (27%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	-297 @ 3' 7 1/2"	1284	Passed (23%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	-0.003 @ 2' 2 3/8"	0.087	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.008 @ 4' 6"	0.200	Passed (2L/999+)	--	1.0 D + 1.0 S (Alt Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2015
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Overhang deflection criteria: LL (2L/480) and TL (0.2").
- 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 - Stud wall - SPF	3.00"	3.00"	1.50"	25	64/-6	89	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	218	320	539	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	4' 6" o/c	
Bottom Edge (Lu)	4' 6" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 4' 6"	N/A	2.8	--	
1 - Tapered (PLF)	3" to 4' 6" (Top)	N/A	45.0 to 0.0	75.0 to 0.0	
2 - Point (lb)	4' 6" (Top)	N/A	135	200	

Weyerhaeuser Notes

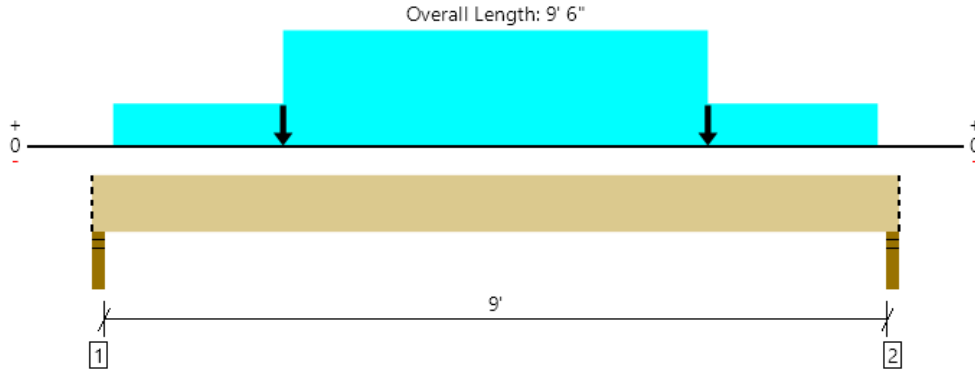
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ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Roof Framing, Beam @ Window Bump
2 piece(s) 2 x 8 HF No.2



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)	426 @ 1 1/2"	3645 (3.00")	Passed (12%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	400 @ 10 1/4"	2501	Passed (16%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1139 @ 4' 9"	2569	Passed (44%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.057 @ 4' 9"	0.231	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.142 @ 4' 9"	0.463	Passed (L/784)	--	1.0 D + 1.0 S (All Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2015
Design Methodology : ASD

- Deflection criteria: LL (L/480) 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 - Stud wall - SPF	3.00"	3.00"	1.50"	266	160	426	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	266	160	426	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	9' 6" o/c	
Bottom Edge (Lu)	9' 6" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 9' 6"	N/A	5.5	--	
1 - Uniform (PLF)	3" to 2' 3" (Top)	N/A	35.0	-	
2 - Uniform (PLF)	7' 3" to 9' 3" (Top)	N/A	35.0	-	
3 - Uniform (PLF)	2' 3" to 7' 3" (Top)	N/A	58.0	38.0	
4 - Point (lb)	2' 3" (Top)	N/A	25	65	
5 - Point (lb)	7' 3" (Top)	N/A	25	65	

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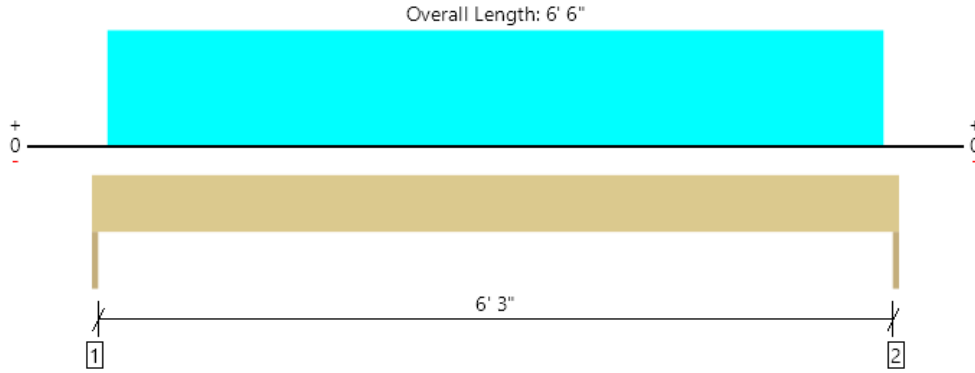
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ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Roof Framing, Center Bearing Wall HDR
2 piece(s) 2 x 8 HF No.2



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)	1015 @ 0	1823 (1.50")	Passed (56%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	818 @ 8 3/4"	2501	Passed (33%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1711 @ 3' 3"	2569	Passed (67%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.065 @ 3' 3"	0.217	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.105 @ 3' 3"	0.313	Passed (L/742)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2015
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (5/16").
- 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"	390	625	1015	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	390	625	1015	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	6' 6" o/c	
Bottom Edge (Lu)	6' 6" 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 6' 6"	N/A	5.5	--	
1 - Uniform (PLF)	1 1/2" to 6' 4 1/2"	N/A	119.0	200.0	

Weyerhaeuser Notes

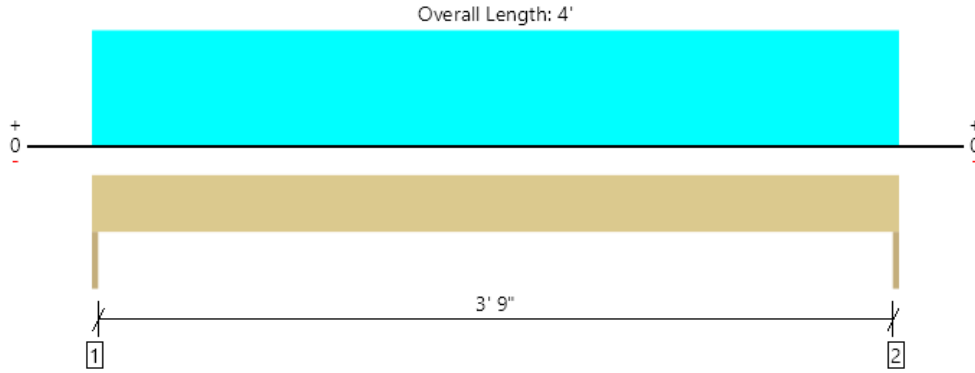
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ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Roof Framing, (N) HDR @ South
2 piece(s) 2 x 8 HF No.2



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)	1181 @ 0	1823 (1.50")	Passed (65%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	750 @ 8 3/4"	2501	Passed (30%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1181 @ 2'	2569	Passed (46%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.017 @ 2'	0.133	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.027 @ 2'	0.200	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2015
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"	449	732	1181	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	449	732	1181	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	4' o/c	
Bottom Edge (Lu)	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 4'	N/A	5.5	--	
1 - Uniform (PLF)	0 to 4'	N/A	219.0	366.0	

Weyerhaeuser Notes

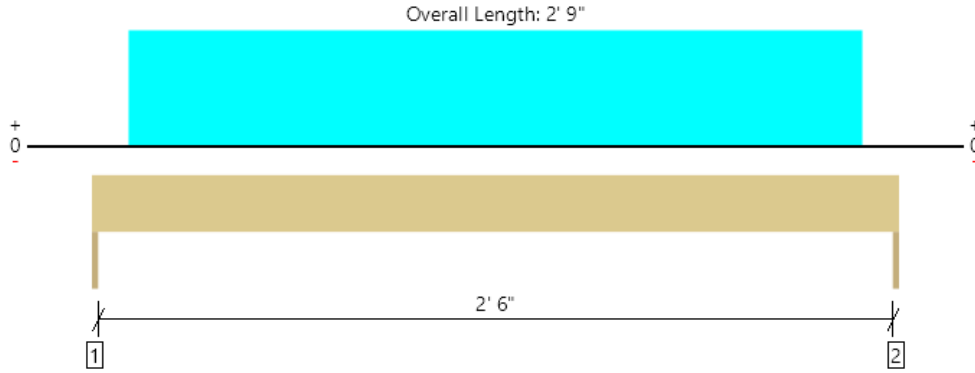
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ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Roof Framing, New HDR @ East
2 piece(s) 2 x 8 HF No.2



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)	670 @ 0	1823 (1.50")	Passed (37%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	346 @ 8 3/4"	2501	Passed (14%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	502 @ 1' 4 1/2"	2569	Passed (20%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.003 @ 1' 4 1/2"	0.092	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.006 @ 1' 4 1/2"	0.138	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2015
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"	256	414	670	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	256	414	670	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	2' 9" o/c	
Bottom Edge (Lu)	2' 9" 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 2' 9"	N/A	5.5	--	
1 - Uniform (PLF)	1 1/2" to 2' 7 1/2"	N/A	199.0	331.0	

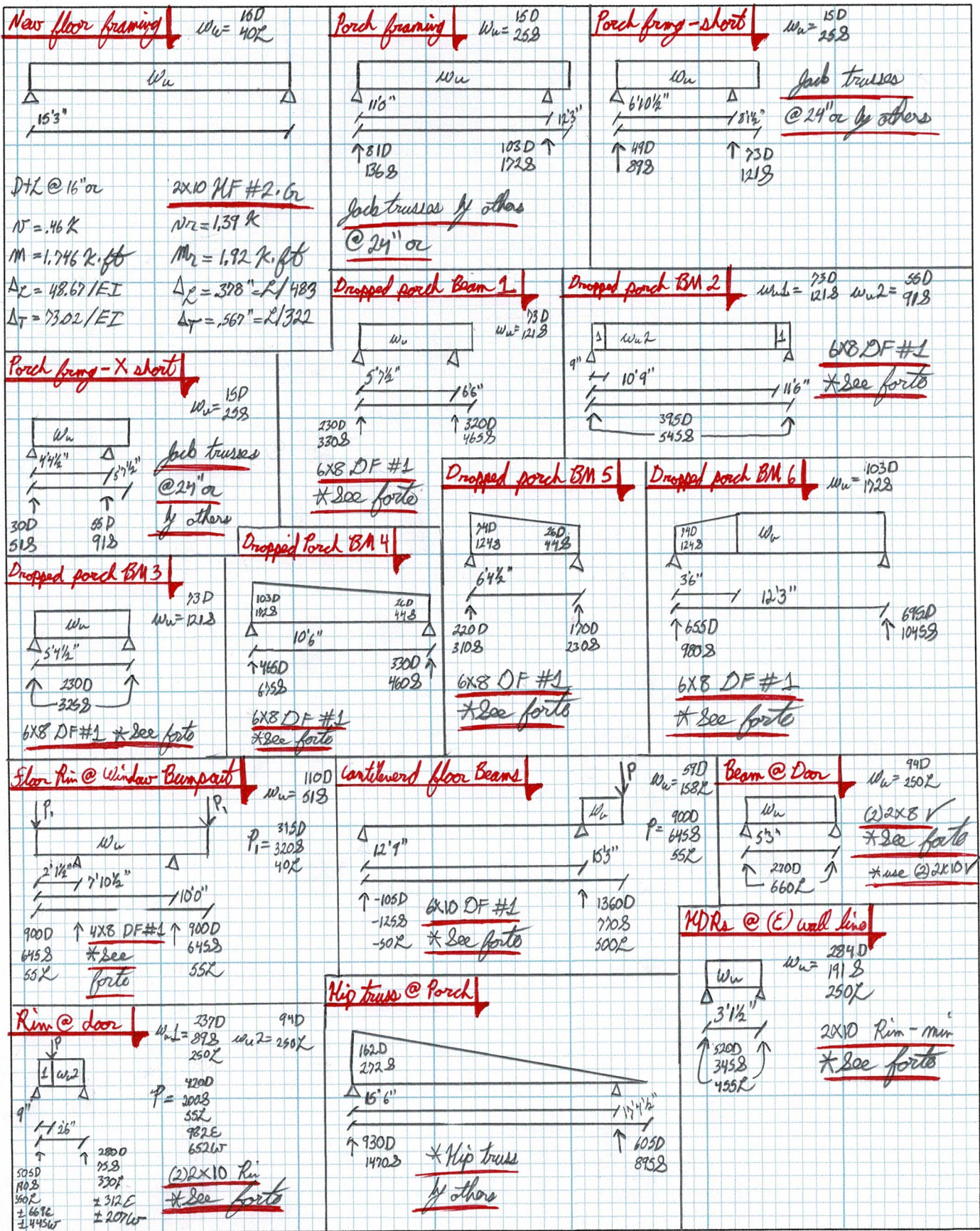
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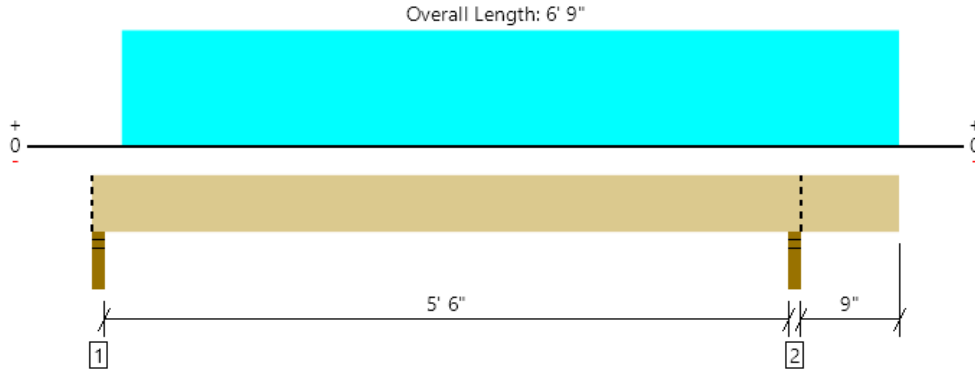
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	





Main Floor Framing, Dropped Porch Beam1
1 piece(s) 6 x 8 DF No.1



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)	780 @ 5' 10 1/2"	7013 (3.00")	Passed (11%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	448 @ 5' 1 1/2"	5376	Passed (8%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	817 @ 2' 11 7/16"	5930	Passed (14%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.009 @ 2' 11 13/16"	0.144	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.016 @ 2' 11 3/4"	0.287	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2015
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Overhang deflection criteria: LL (2L/480) and TL (2L/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 - Stud wall - SPF	3.00"	3.00"	1.50"	227	329	556	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	318	462	780	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	6' 9" o/c	
Bottom Edge (Lu)	6' 9" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 6' 9"	N/A	10.4	--	
1 - Uniform (PLF)	3" to 6' 9" (Top)	N/A	73.0	121.0	

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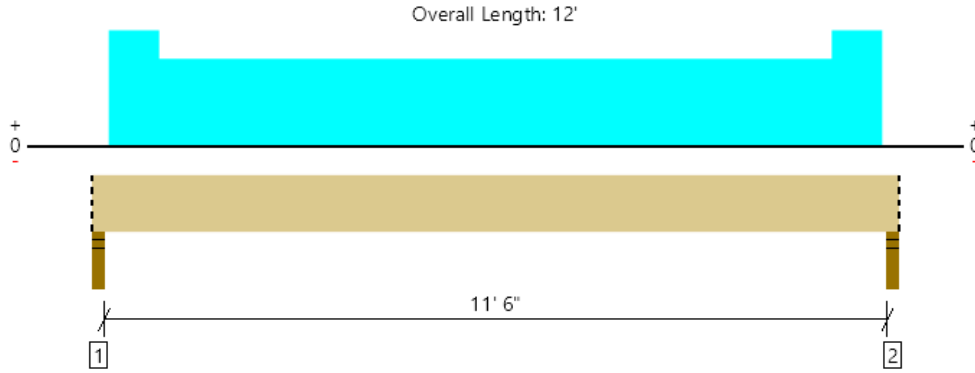
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ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Main Floor Framing, Dropped Porch Beam 2
1 piece(s) 6 x 8 DF No.1



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)	938 @ 1 1/2"	7013 (3.00")	Passed (13%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	808 @ 10 1/2"	5376	Passed (15%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	2717 @ 6'	5930	Passed (46%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.127 @ 6'	0.392	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.219 @ 6'	0.587	Passed (L/645)	--	1.0 D + 1.0 S (All Spans)

System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2015
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 - Stud wall - SPF	3.00"	3.00"	1.50"	392	546	938	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	392	546	938	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	12' o/c	
Bottom Edge (Lu)	12' o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 12'	N/A	10.4	--	
1 - Uniform (PLF)	3" to 1' (Top)	N/A	73.0	121.0	
2 - Uniform (PLF)	1' to 11' (Top)	N/A	55.0	91.0	
3 - Uniform (PLF)	11' to 11' 9" (Top)	N/A	73.0	121.0	

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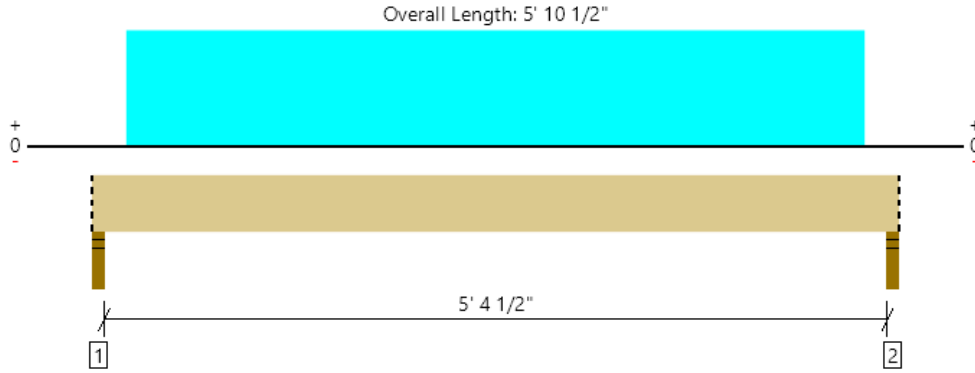
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ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Main Floor Framing, Dropped Porch Beam 3
1 piece(s) 6 x 8 DF No.1



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)	552 @ 1' 1/2"	7013 (3.00")	Passed (8%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	422 @ 10' 1/2"	5376	Passed (8%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	807 @ 2' 11 1/4"	5930	Passed (14%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.009 @ 2' 11 1/4"	0.188	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.015 @ 2' 11 1/4"	0.281	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2015
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 - Stud wall - SPF	3.00"	3.00"	1.50"	227	325	552	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	227	325	552	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 11" o/c	
Bottom Edge (Lu)	5' 11" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 5' 10 1/2"	N/A	10.4	--	
1 - Uniform (PLF)	3" to 5' 7 1/2" (Top)	N/A	73.0	121.0	

Weyerhaeuser Notes

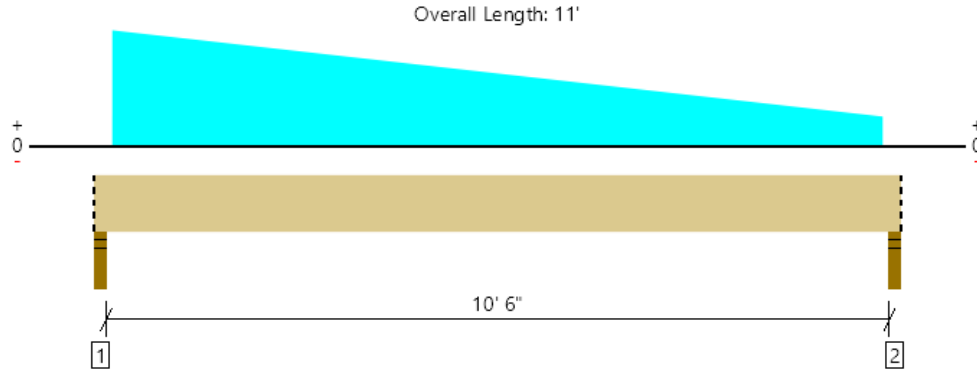
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ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Main Floor Framing, Dropped Porch Beam 4
1 piece(s) 6 x 8 DF No.1



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)	1138 @ 1 1/2"	7013 (3.00")	Passed (16%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	961 @ 10 1/2"	5376	Passed (18%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	2665 @ 5'	5930	Passed (45%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.105 @ 5' 4 1/2"	0.358	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.178 @ 5' 4 9/16"	0.538	Passed (L/726)	--	1.0 D + 1.0 S (All Spans)

System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2015
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 - Stud wall - SPF	3.00"	3.00"	1.50"	462	676	1138	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	330	458	788	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	11' o/c	
Bottom Edge (Lu)	11' o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 11'	N/A	10.4	--	
1 - Tapered (PLF)	3" to 10' 9" (Top)	N/A	103.0 to 26.0	172.0 to 44.0	

Weyerhaeuser Notes

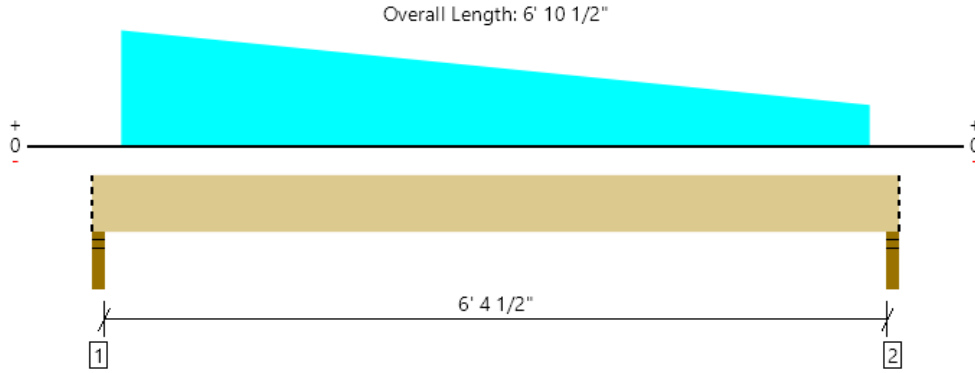
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ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Main Floor Framing, Dropped Porch Beam 5
1 piece(s) 6 x 8 DF No.1



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)	528 @ 1 1/2"	7013 (3.00")	Passed (8%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	400 @ 10 1/2"	5376	Passed (7%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	796 @ 3' 2 1/4"	5930	Passed (13%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.012 @ 3' 4 7/16"	0.221	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.020 @ 3' 4 1/2"	0.331	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2015
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 - Stud wall - SPF	3.00"	3.00"	1.50"	220	309	528	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	171	227	398	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	6' 11" o/c	
Bottom Edge (Lu)	6' 11" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 6' 10 1/2"	N/A	10.4	--	
1 - Tapered (PLF)	3" to 6' 7 1/2" (Top)	N/A	74.0 to 26.0	124.0 to 44.0	

Weyerhaeuser Notes

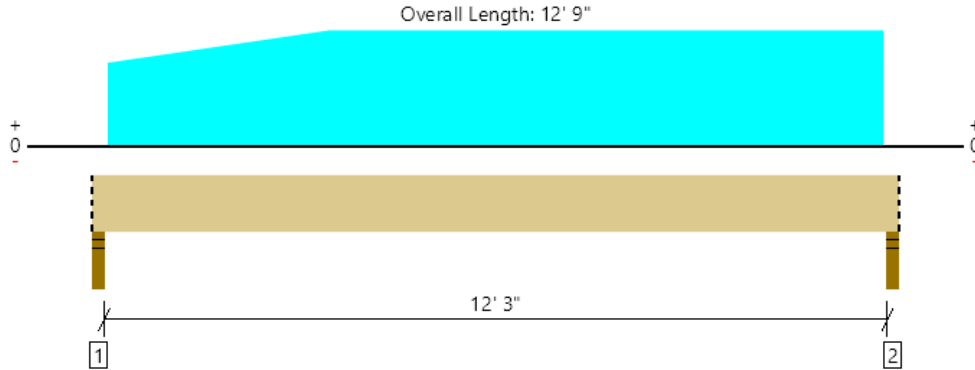
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ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Main Floor Framing, Dropped Porch Beam 6
1 piece(s) 6 x 8 DF No.1



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)	1737 @ 12' 7 1/2"	7013 (3.00")	Passed (25%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1556 @ 11' 10 1/2"	5376	Passed (29%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	5486 @ 6' 5 1/16"	5930	Passed (93%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.300 @ 6' 4 11/16"	0.417	Passed (L/501)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.497 @ 6' 4 11/16"	0.625	Passed (L/302)	--	1.0 D + 1.0 S (All Spans)

System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2015
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 - Stud wall - SPF	3.00"	3.00"	1.50"	652	978	1630	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	692	1045	1737	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	12' 9" o/c	
Bottom Edge (Lu)	12' 9" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 12' 9"	N/A	10.4	--	
1 - Tapered (PLF)	3" to 3' 9" (Top)	N/A	74.0 to 103.0	124.0 to 172.0	
2 - Uniform (PLF)	3' 9" to 12' 6" (Top)	N/A	103.0	172.0	

Weyerhaeuser Notes

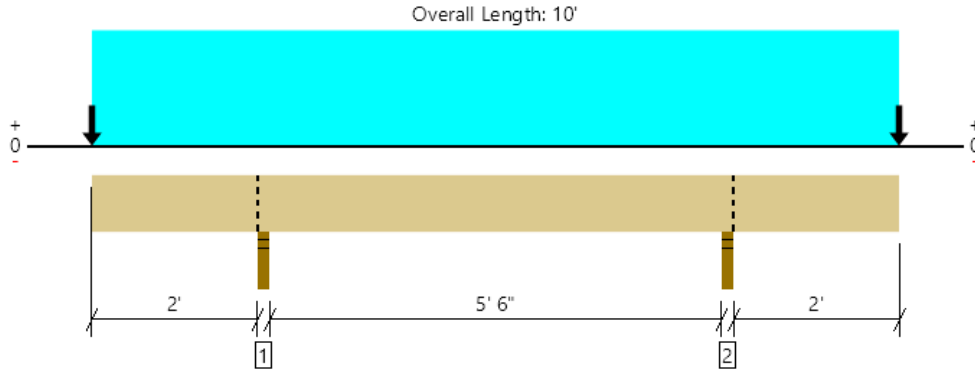
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ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Main Floor Framing, Floor Rim @ Bump out
1 piece(s) 4 x 8 DF No.1



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)	1541 @ 2' 1 1/2"	4463 (3.00")	Passed (35%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	869 @ 1' 4 3/4"	3502	Passed (25%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	-1727 @ 7' 10 1/2"	3820	Passed (45%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.051 @ 0	0.200	Passed (2L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.097 @ 0	0.213	Passed (2L/526)	--	1.0 D + 1.0 S (Alt Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2015
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Overhang deflection criteria: LL (0.2") and TL (2L/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	Floor Live	Snow	Factored	
1 - Stud wall - SPF	3.00"	3.00"	1.50"	897	55/-15	644	1541	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	897	55/-15	644	1541	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 10'	N/A	6.4	--	--	
1 - Uniform (PLF)	0 to 10' (Top)	N/A	110.0	-	51.0	
2 - Point (lb)	0 (Top)	N/A	315	40	320	
3 - Point (lb)	10' (Top)	N/A	315	40	320	

Weyerhaeuser Notes

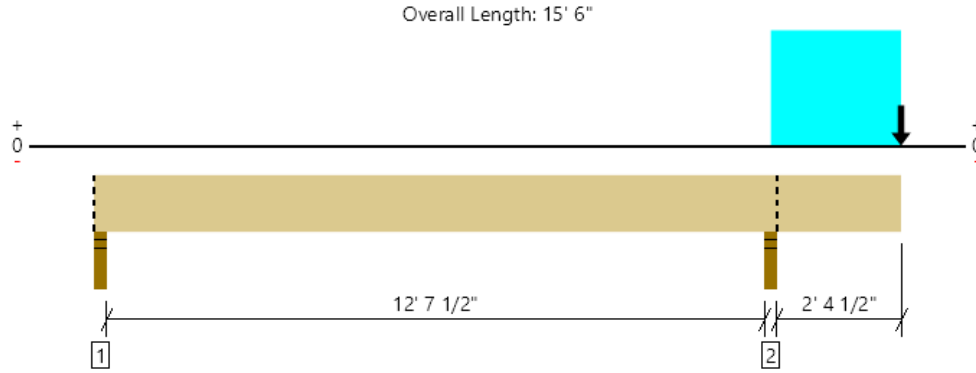
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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Main Floor Framing, Cantilevered Floor Beam
1 piece(s) 6 x 10 DF No.1



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)	2310 @ 13'	7013 (3.00")	Passed (33%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	1727 @ 13' 11"	6810	Passed (25%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	-4159 @ 13'	10703	Passed (39%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.059 @ 15' 6"	0.200	Passed (2L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.137 @ 15' 6"	0.250	Passed (2L/436)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2015
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Overhang deflection criteria: LL (0.2") and TL (2L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- -236 lbs uplift at support located at 1 1/2". Strapping or other restraint may be required.
- Lumber grading provisions must be extended over the length of the member per NDS 4.2.5.5.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Factored	
1 - Stud wall - SPF	3.00"	3.00"	1.50"	-105	-49	-125	-236	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	1358	499	770	2310	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	15' 6" o/c	
Bottom Edge (Lu)	15' 6" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 15' 6"	N/A	13.2	--	--	
1 - Uniform (PLF)	13' to 15' 6" (Top)	N/A	59.0	158.0	-	
2 - Point (lb)	15' 6" (Top)	N/A	900	55	645	

Weyerhaeuser Notes

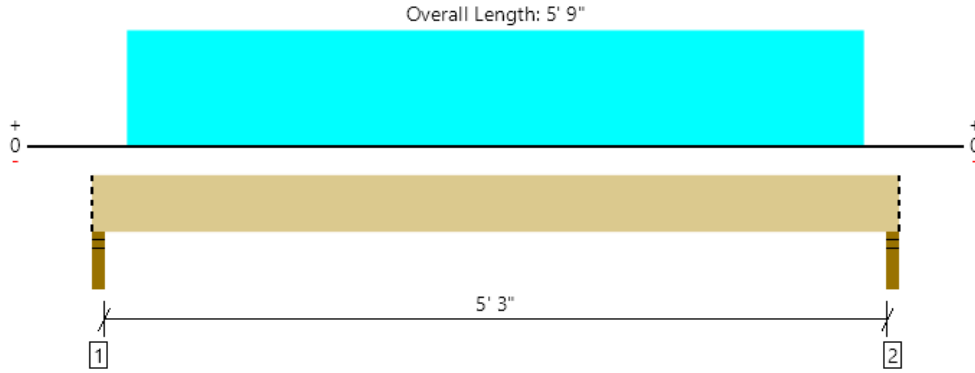
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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Main Floor Framing, Beam @ Door
2 piece(s) 2 x 8 HF No.2



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)	919 @ 1' 1/2"	3645 (3.00")	Passed (25%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	706 @ 10' 1/4"	2175	Passed (32%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1319 @ 2' 10' 1/2"	2234	Passed (59%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.041 @ 2' 10' 1/2"	0.138	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.058 @ 2' 10' 1/2"	0.275	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2015
Design Methodology : ASD

- Deflection criteria: LL (L/480) 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	Floor Live	Factored	
1 - Stud wall - SPF	3.00"	3.00"	1.50"	263	656	919	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	263	656	919	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 9" o/c	
Bottom Edge (Lu)	5' 9" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 5' 9"	N/A	5.5	--	
1 - Uniform (PLF)	3" to 5' 6" (Top)	N/A	94.0	250.0	

Weyerhaeuser Notes

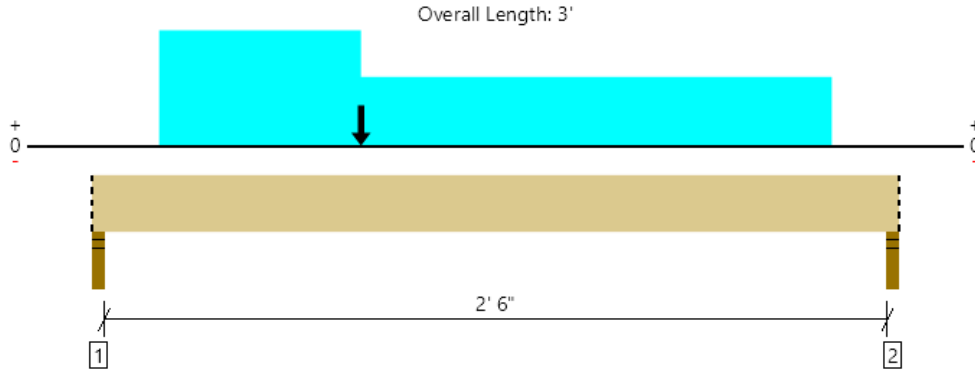
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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Main Floor Framing, Rim @ Door
2 piece(s) 2 x 10 HF No.2



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)	1787 @ 1 1/2"	3645 (3.00")	Passed (49%)	--	1.0 D + 0.525 E + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	1429 @ 1' 1/4"	4440	Passed (32%)	1.60	1.0 D + 0.7 E (All Spans)
Moment (Ft-lbs)	1422 @ 1'	5333	Passed (27%)	1.60	1.0 D + 0.525 E + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.005 @ 1' 5 3/8"	0.069	Passed (L/999+)	--	1.0 D + 0.525 E + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.006 @ 1' 5 3/8"	0.138	Passed (L/999+)	--	1.0 D + 0.525 E + 0.75 L + 0.75 S (All Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2015
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- -870 lbs uplift at support located at 1 1/2". Strapping or other restraint may be required.
- -378 lbs uplift at support located at 2' 10 1/2". Strapping or other restraint may be required.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)						Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Wind	Seismic	Factored	
1 - Stud wall - SPF	3.00"	3.00"	1.50"	502	350	191	445	1674/-1674	1787/-870	Blocking
2 - Stud wall - SPF	3.00"	3.00"	1.50"	281	330	76	207	781/-781	996/-378	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Wind (1.60)	Seismic (1.60)	Comments
0 - Self Weight (PLF)	0 to 3'	N/A	7.0	--	--	--	--	
1 - Uniform (PLF)	3" to 1' (Top)	N/A	237.0	250.0	89.0	-	-	
2 - Uniform (PLF)	1' to 2' 9" (Top)	N/A	94.0	250.0	-	-	-	
3 - Point (lb)	1' (Top)	N/A	420	55	200	652	2455	E=2.5E for overstrength

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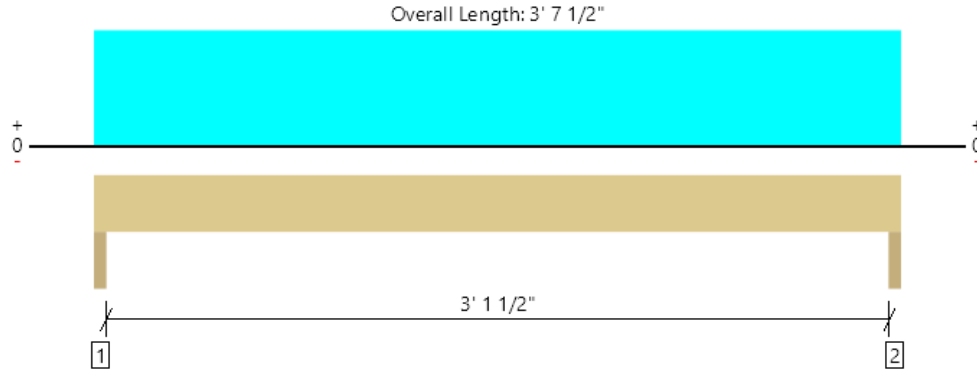
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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Main Floor Framing, HDR's @ (E) Wall Line
1 piece(s) 2 x 10 HF No.2



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)	1121 @ 1' 1/2"	1823 (3.00")	Passed (61%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	489 @ 1' 1/4"	1596	Passed (31%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	880 @ 1' 9 3/4"	1917	Passed (46%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.008 @ 1' 9 3/4"	0.112	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.014 @ 1' 9 3/4"	0.169	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2015
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	Floor Live	Snow	Factored	
1 - Trimmer - SPF	3.00"	3.00"	1.84"	521	453	346	1121	None
2 - Trimmer - SPF	3.00"	3.00"	1.84"	521	453	346	1121	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 8" o/c	
Bottom Edge (Lu)	3' 8" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 3' 7 1/2"	N/A	3.5	--	--	
1 - Uniform (PLF)	0 to 3' 7 1/2"	N/A	284.0	250.0	191.0	

Weyerhaeuser Notes

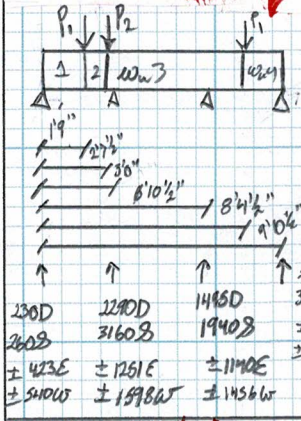
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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Cont. Rim over SW



$W_u1 = 900$ $W_u2 = 2890$
 $W_u3 = 4628$ $W_u4 = 1368$
 $P_1 = 4158$ $P_2 = 14708$
 $\pm 1378 E$
 $\pm 1760 W$

(E) fln - Loads

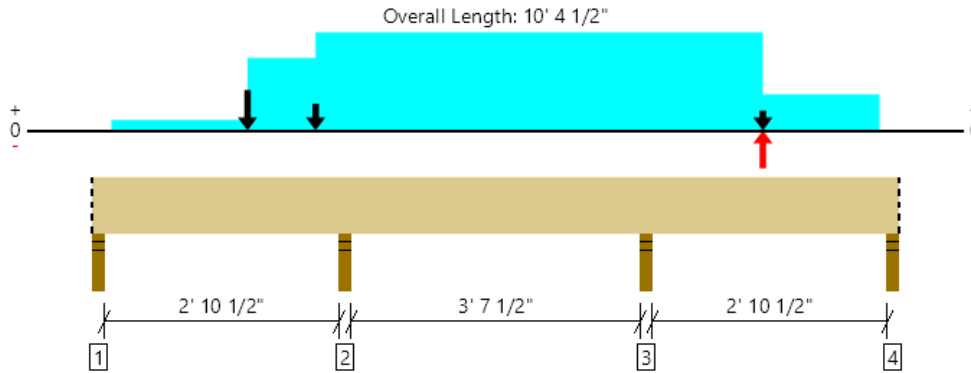
$$W_u = \begin{matrix} 1000 & 900 & 940 & 900 & 3740 \\ 1918 & + & 2502 & + & 1913 \\ & & & & 2502 \end{matrix}$$

$D+8+L = 815 \text{ pcf} @ 1500 \text{ pcf} \rightarrow 7" \text{ min width} \checkmark$

Main Floor Framing, Cont. Rim over SW
1 piece(s) 4 x 10 DF No.1

Support 2 failed reaction check due to insufficient bearing capacity.
An excessive uplift of -1100 lbs at support located at 7' 1 1/2" failed this product.

See plans for hardware designed for uplift and posts for bearing.



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)	6257 @ 3' 3"	4463 (3.00")	Failed (140%)	--	1.0 D + 0.525 E + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	2515 @ 2' 4 1/4"	6216	Passed (40%)	1.60	1.0 D + 0.525 E + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	-1326 @ 3' 3"	5740	Passed (23%)	1.15	1.0 D + 1.0 S (Adj Spans)
Live Load Defl. (in)	-0.005 @ 8' 9"	0.078	Passed (L/999+)	--	1.0 D + 0.7 E (Adj Spans)
Total Load Defl. (in)	0.006 @ 8' 9 3/16"	0.156	Passed (L/999+)	--	1.0 D - 0.7 E (Adj Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2015
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- -604 lbs uplift at support located at 1 1/2". Strapping or other restraint may be required.
- -815 lbs uplift at support located at 3' 3". Strapping or other restraint may be required.
- -752 lbs uplift at support located at 10' 3". Strapping or other restraint may be required.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)					Accessories
	Total	Available	Required	Dead	Snow	Wind	Seismic	Factored	
1 - Stud wall - SPF	3.00"	3.00"	1.50"	229	258	541/-45	1058/-1058	969/-604	Blocking
2 - Stud wall - SPF	3.00"	3.00"	4.21"	2292	3161	1598	3129/-3129	6257/-815	None
3 - Stud wall - SPF	3.00"	3.00"	2.94"	1492	1940	-1456	2850/-2850	4377/-1100	None
4 - Stud wall - SPF	3.00"	3.00"	1.50"	307	394	45/-683	1338/-1338	1258/-752	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Wind (1.60)	Seismic (1.60)	Comments
0 - Self Weight (PLF)	0 to 10' 4 1/2"	N/A	8.2	--	--	--	
1 - Uniform (PLF)	3" to 2' (Top)	N/A	90.0	-	-	-	
2 - Uniform (PLF)	2' to 2' 10 1/2" (Top)	N/A	289.0	331.0	-	-	
3 - Uniform (PLF)	2' 10 1/2" to 8' 7 1/2" (Top)	N/A	370.0	467.0	-	-	
4 - Uniform (PLF)	8' 7 1/2" to 10' 1 1/2" (Top)	N/A	171.0	136.0	-	-	
5 - Point (lb)	2' (Top)	N/A	255	415	1760	3445	E=2.5E for overstrength
6 - Point (lb)	8' 7 1/2" (Top)	N/A	255	415	-1760	-3445	E=2.5E for overstrength
7 - Point (lb)	2' 10 1/2" (Top)	N/A	930	1470	-	-	

FortewEB Software Operator	Job Notes
Jonathan Carlson Nickerson Engineering (425) 610-4425 carlson@nickersonengineering.com	



Winds - Directional procedure

Exposure B Hgt = 1.3 (Mercer Island Wind Maps)

$V = 98$ mph Green = 1.0 Wind Blue = 1.6W

(New)

N/S

$L = 39' 1/2"$ $B = 24' 9"$

(New)

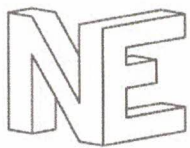
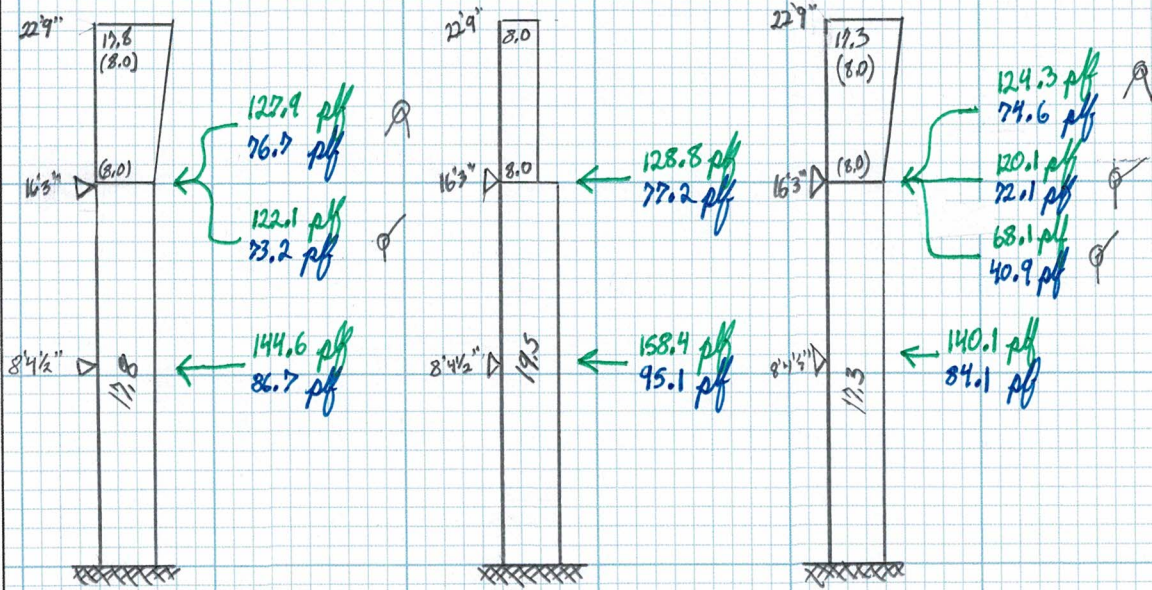
E/W

$L = 24' 9"$ $B = 39' 1/2"$

(New)

E/W

$L = 68' 0"$ $B = 39' 1/2"$



NICKERSON
ENGINEERING

DATE _____

PROJ. NO. _____

DESIGN _____

SHEET _____

Winds Directional Procedure

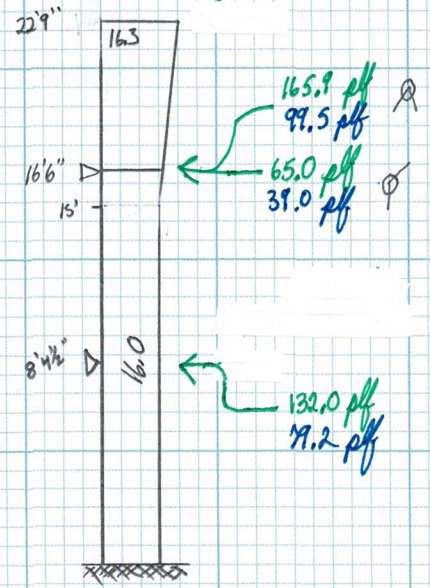
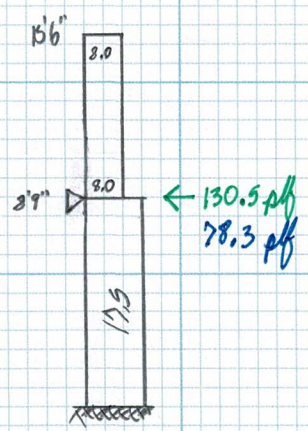
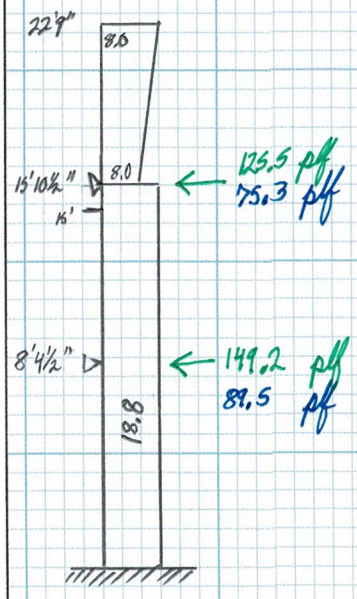
Exposure B $K_{zt} = 1.3$ (Mercer Island Wind Maps)
 $V = 98$ mph Green = 1.0 W Blue = .6 W

Existing

N/S
 $L = 26'3"$ $B = 36'10\frac{1}{2}"$

N/S
 $L = 28'7\frac{1}{2}"$ $B = 68'$

E/W
 $L = 68'$ $B = 28'7\frac{1}{2}"$

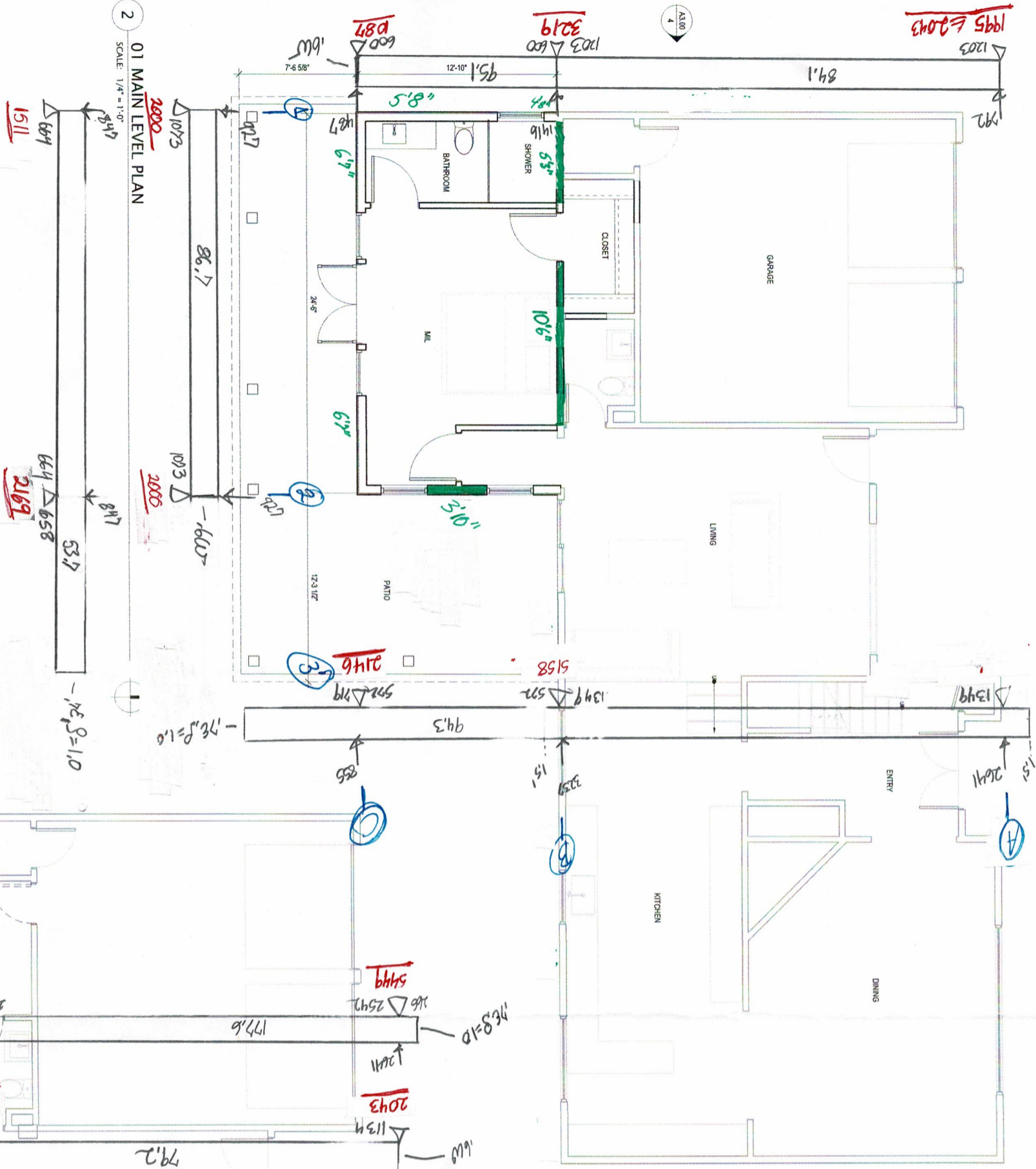


1995 E 2043



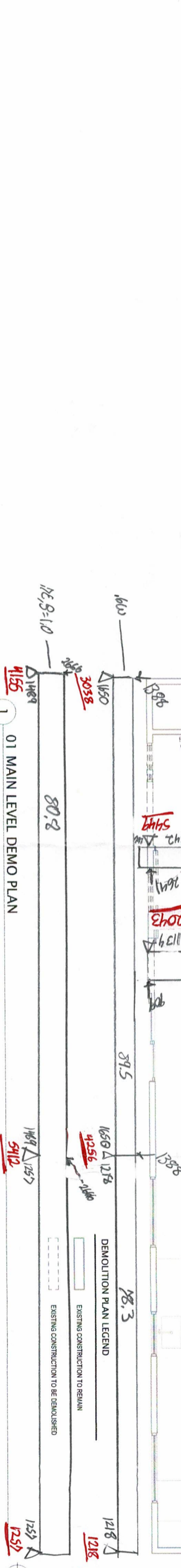
2 01 MAIN LEVEL PLAN

SCALE: 1/4" = 1'-0"



1 01 MAIN LEVEL DEMO PLAN

SCALE: 1/4" = 1'-0"



FLOOR PLAN LEGEND

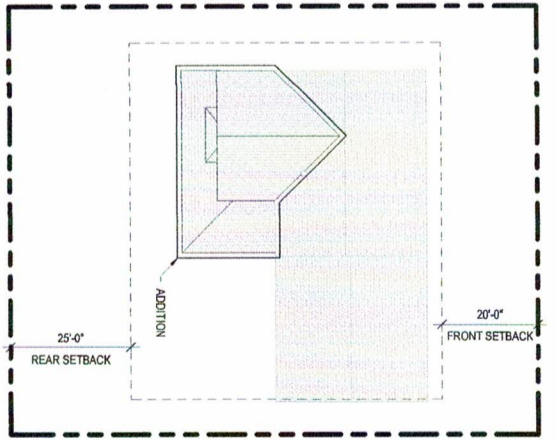
EXISTING CONSTRUCTION TO REMAIN

NEW CONSTRUCTION

Area = 2946 sq ft

3 Site Plan - Project North

SCALE: 1" = 20'-0"



**Shear Wall Lengths
Roof**

**1203 N Allen PL
Seattle WA, 98103**

	h _{max}	Lmin (Ft-In)	wall 1	wall 2	wall 3	wall 4	wall 5	wall 6	wall 7	wall 8	wall 9	L Total (Ft)
grid 1	7.5	2		13.16667								13.16666667
aspect ratio reduc		2		13.16667								13.16666667
grid 2	7.5	2	6.583333									6.583333333
aspect ratio reduc		2	6.583333									6.583333333
grid 3												0
aspect ratio reduc												0
grid 4												0
aspect ratio reduc												0
grid 5												0
aspect ratio reduc												0
grid 6												0
aspect ratio reduc												0
grid A												0
aspect ratio reduc												0
grid B	7.5	2		4.583333	4.083333	3.83333						12.5
aspect ratio reduc		2		4.583333	4.083333	3.83333						12.5
grid C	7.5	2	2.333333	2.333333	2.333333	2.33333						9.333333333
aspect ratio reduc		2	1.451852	1.451852	1.4518519	1.45185						5.807407407
grid D												0
aspect ratio reduc												0
grid E												0
aspect ratio reduc												0
grid F												0
aspect ratio reduc												0

**Shear Wall Lengths
Upper Floor**

**1203 N Allen PL
Seattle WA, 98103**

	h_{max}	Lmin (Ft-In)	wall 1	wall 2	wall 3	wall 4	wall 5	wall 6	wall 7	wall 8	wall 9	L Total (Ft)
grid 1	7.75	2	5.666667	4.666667								10.33333333
aspect ratio reduc		3	5.666667	4.666667								10.33333333
grid 2	7.75	2	3.833333									3.83333333
aspect ratio reduc		3	3.792115									3.792114695
grid 3												0
aspect ratio reduc												0
grid 4												0
aspect ratio reduc												0
grid 5												0
aspect ratio reduc												0
grid 6												0
aspect ratio reduc												0
grid A												0
aspect ratio reduc												0
grid B	7.75	2	5.25	10.5								15.75
aspect ratio reduc		3	5.25	10.5								15.75
grid C	7.75	2	6.583333	6.583333								13.16666667
aspect ratio reduc		3	6.583333	6.583333								13.16666667
grid D												0
aspect ratio reduc												0
grid E												0
aspect ratio reduc												0
grid F												0
aspect ratio reduc												0

FORCE DISTRIBUTION
Roof

1203 N Allen PL
Seattle WA, 98103

		story shears:		Vs = 6788		Vw = 1903 east to west		Vw = 1854 north to south			
	grid	V _{seismic} (lbs)	V _{wind} (lbs)	∑ l _{wall} (ft)	v _{u s} (plf)	v _{u w} (plf)	SW	h (ft)	DL(lbs)	uplift (lbs)	holdown
N to S	1	847	927	13.17	64	70	SW1	7.5	1082	-554	None
	2	847	927	6.58	129	141	SW1	7.5	541	515	None
	3										
	4										
	5										
	6										
E to W	A										
	B	3237	1416	12.50	259	113	SW2	7.5	236	1707	(1)CS16
	C	855	487	5.81	147	84	SW1	7.5	63	624	None
	D										
	E										
	F										

FORCE DISTRIBUTION
Upper Floor

1203 N Allen PL
Seattle WA, 98103

		story shears:		Vs = 14318		Vw = 4306 east to west		Vw = 4000 north to south			
	grid	V _{seismic} (lbs)	V _{wind} (lbs)	∑ l _{wall} (ft)	v _{u s} (plf)	v _{u w} (plf)	SW	h (ft)	DL(lbs)	uplift (lbs)	holdown
N to S	1	1511	2000	10.333333	146	194	SW1	7.8	109	1392	HTT5
	2	2169	2000	3.7921147	572	527	SW4	7.8	89	4296	HDQ8
	3										
	4										
	5										
	6										
E to W	A										
	B	5158	3219	15.75	327	204	SW2	7.8	276	2262	HTT5
	C	2146	1087	13.166667	163	83	SW1	7.8	347	917	HTT5
	D										
	E										
	F										