February 21, 2024

Higdon Builders
Attn: Doug Slotter

Re: Inspection Letter - Lot 18, The Townhomes of Chapel Ridge - 2nd Plat – 804, 806, and 808 Algonquin St., Lee's Summit, Missouri

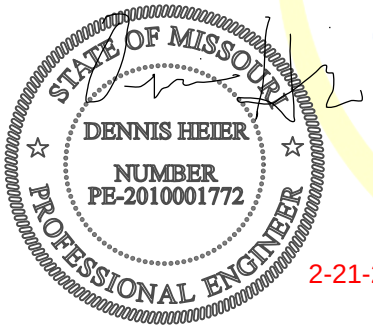
Vista Structural Engineering, LLC was asked to analyze the rough-in framing of the master suite bath for a tub in lieu of a shower for the project located at the above referenced address. Due to the proposed change, the current framing will be required to be supplemented with (2) 1 ¾" x 9 ¼" Microllam LVLs on both sides (plan north and plan south) of the tub. The LVLs are to be sistered and fastened to the existing (2) 2x10 joists with (2) rows of Simpson SDS25600 (1/4 x 6" long) screws @ 12" o.c. Please see attached partial plan mark up and calculations for reference.

Our firm appreciates the opportunity to serve you. If you have any questions or if you need anything further, please feel free to contact us.

Sincerely,

Vista Structural Engineering, LLC

Dennis Heier, P.E.



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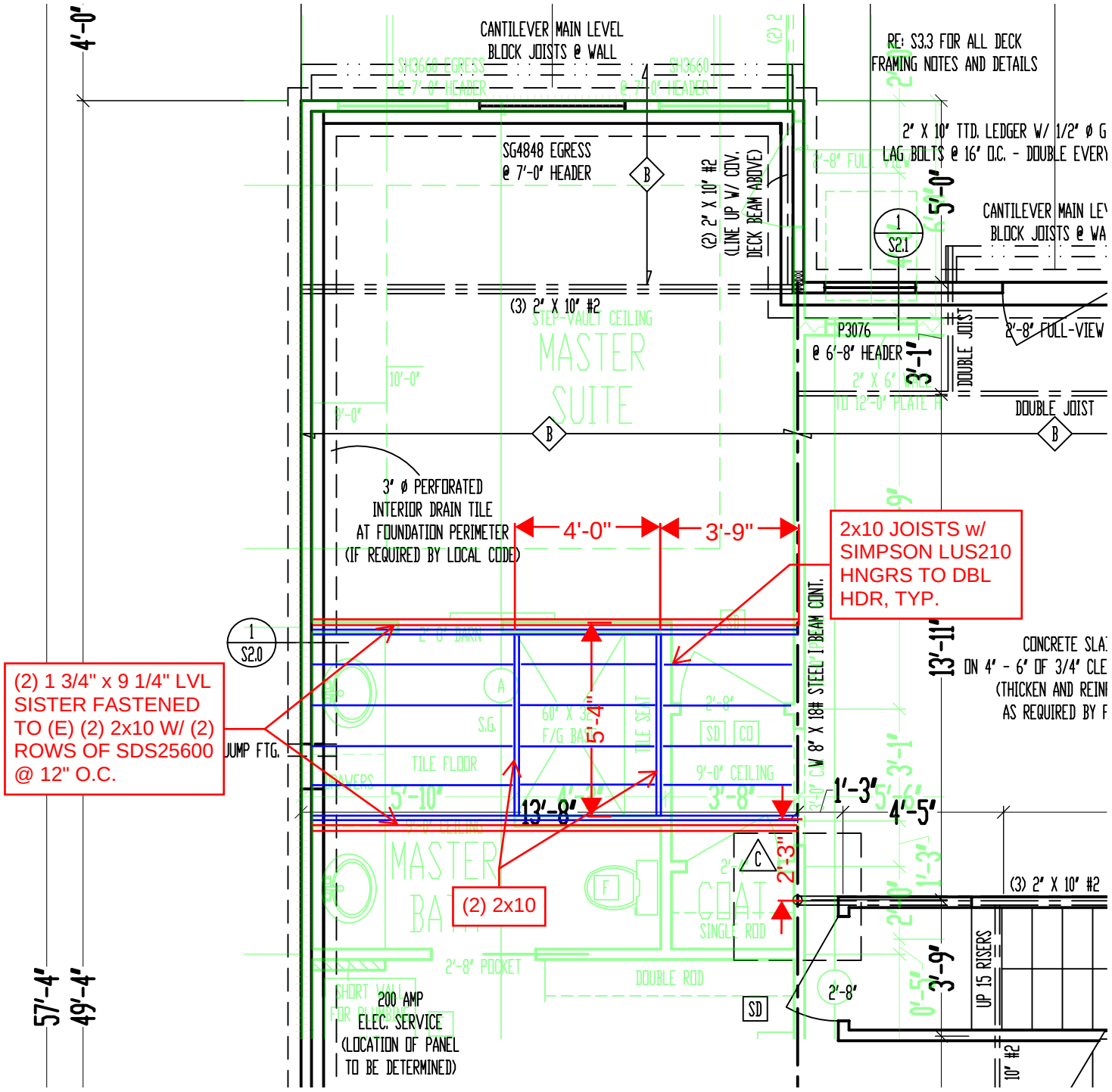
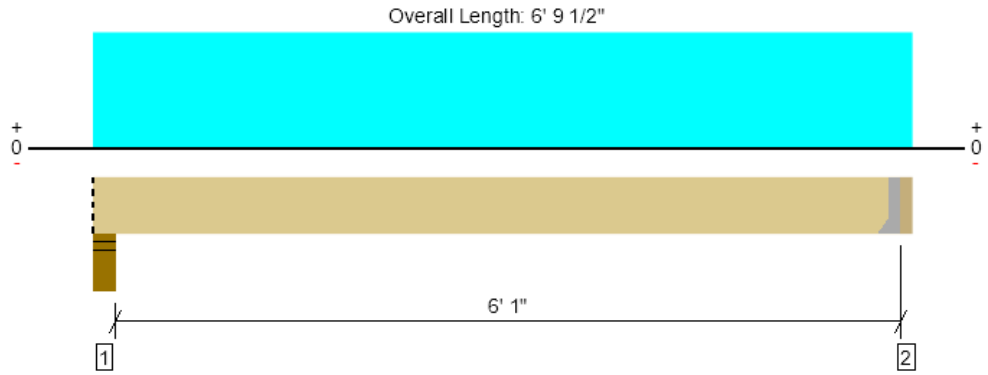
VISTA STRUCTURAL ENGINEERING, LLC



MASTER BATH FLOOR FRAMING (PARTIAL PLAN)

Main Level, Bathroom Joist
1 piece(s) 2 x 10 DF No.2 @ 16" OC



Drawing is Conceptual. 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)	288 @ 6' 6 1/2"	1406 (1.50")	Passed (20%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	216 @ 5' 9 1/4"	1665	Passed (13%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	444 @ 3' 5 1/2"	2029	Passed (22%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.011 @ 3' 5 1/2"	0.154	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.019 @ 3' 5 1/2"	0.308	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

Member Length : 6' 6 1/2"
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 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.
- No composite action between deck and joist was considered in analysis.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Stud wall - DF	5.50"	5.50"	1.50"	138	184	323	Blocking
2 - Hanger on 9 1/4" DF beam	3.00"	Hanger[1]	1.50"	133	178	311	See note [1]

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	6' 7" o/c	
Bottom Edge (Lu)	6' 7" o/c	

- Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	LU28	1.50"	N/A	8-10dx1.5	6-10dx1.5	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Loads	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 6' 9 1/2"	16"	15.0	40.0	Floor Load
2 - Uniform (PSF)	0 to 6' 9 1/2"	16"	15.0	-	Tile DL

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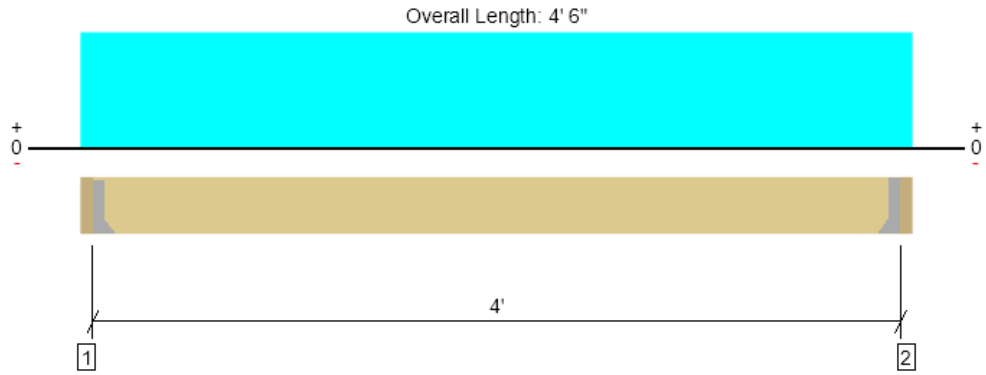
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Ethan Schott Vista Structural Engineering (402) 875-3199 ethan@vistastructural.com	

Weyerhaeuser

Main Level, Tub Joist
1 piece(s) 2 x 10 DF No.2 @ 16" OC



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	389 @ 3"	1406 (1.50")	Passed (28%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	239 @ 1' 1/4"	1665	Passed (14%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	389 @ 2' 3"	2029	Passed (19%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.002 @ 2' 3"	0.100	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.007 @ 2' 3"	0.200	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

Member Length : 4'
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 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.
- No composite action between deck and joist was considered in analysis.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Hanger on 9 1/4" DF beam	3.00"	Hanger[1]	1.50"	317	120	437	See note [1]
2 - Hanger on 9 1/4" DF beam	3.00"	Hanger[1]	1.50"	317	120	437	See note [1]

- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

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.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	LU28	1.50"	N/A	8-10dx1.5	6-10dx1.5	
2 - Face Mount Hanger	LU28	1.50"	N/A	8-10dx1.5	6-10dx1.5	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Loads	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 4' 6"	16"	15.0	40.0	Floor Load
2 - Uniform (PSF)	0 to 4' 6"	16"	90.7	-	Tub Water Weight

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

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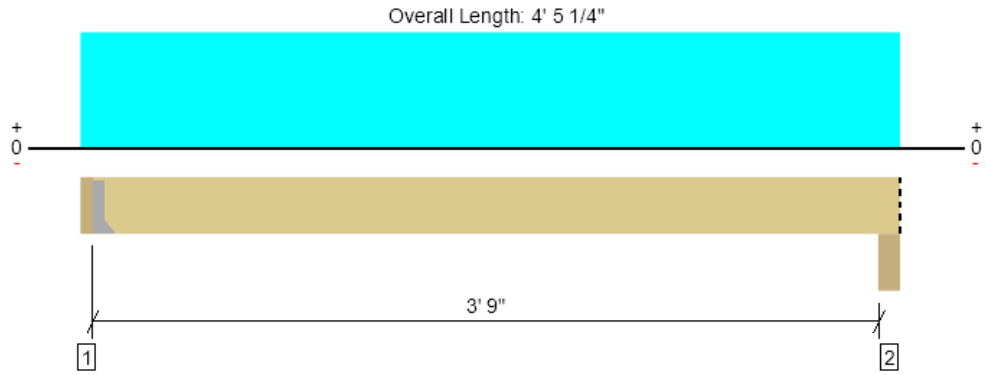
Ethan Schott Vista Structural Engineering (402) 875-3199 ethan@vistastructural.com	

Weyerhaeuser

Main Level, Normal Joist
1 piece(s) 2 x 10 DF No.2 @ 16" OC



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	141 @ 3"	1406 (1.50")	Passed (10%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	84 @ 1' 1/4"	1665	Passed (5%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	135 @ 2' 2"	2029	Passed (7%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.002 @ 2' 2"	0.096	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.002 @ 2' 2"	0.192	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

Member Length : 4' 2 1/4"
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 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.
- No composite action between deck and joist was considered in analysis.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Hanger on 9 1/4" DF beam	3.00"	Hanger[1]	1.50"	43	116	159	See note [1]
2 - Beam - DF	5.25"	5.25"	1.50"	45	121	167	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	4' 2" o/c	
Bottom Edge (Lu)	4' 2" o/c	

- Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	LU28	1.50"	N/A	8-10dx1.5	6-10dx1.5	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 4' 5 1/4"	16"	15.0	40.0	Default Load

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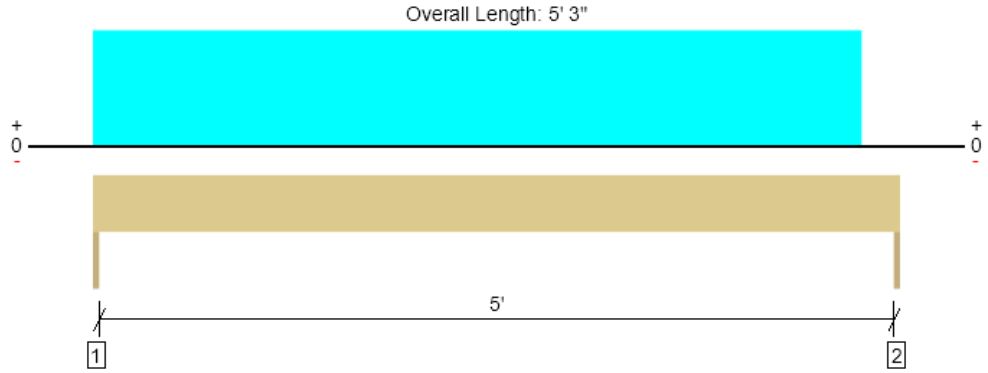
Ethan Schott Vista Structural Engineering (402) 875-3199 ethan@vistastructural.com	

Weyerhaeuser

Main Level, Tub Joist (L) Trimmer
2 piece(s) 2 x 10 DF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1488 @ 0	2813 (1.50")	Passed (53%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	986 @ 4' 4 1/4"	3330	Passed (30%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1948 @ 2' 7 7/16"	3529	Passed (55%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.012 @ 2' 7 9/16"	0.131	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.031 @ 2' 7 9/16"	0.262	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 5' 3"
System : Floor
Member Type : Flush Beam
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.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Trimmer - DF	1.50"	1.50"	1.50"	902	585	1488	None
2 - Trimmer - DF	1.50"	1.50"	1.50"	822	532	1354	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 3" o/c	
Bottom Edge (Lu)	5' 3" 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' 3"	N/A	7.0	--	
1 - Uniform (PLF)	0 to 5' (Front)	N/A	237.8	90.0	Linked from: Tub Joist, Support 1
2 - Uniform (PLF)	0 to 5' (Front)	N/A	99.8	133.5	Linked from: Bathroom Joist, Support 2

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

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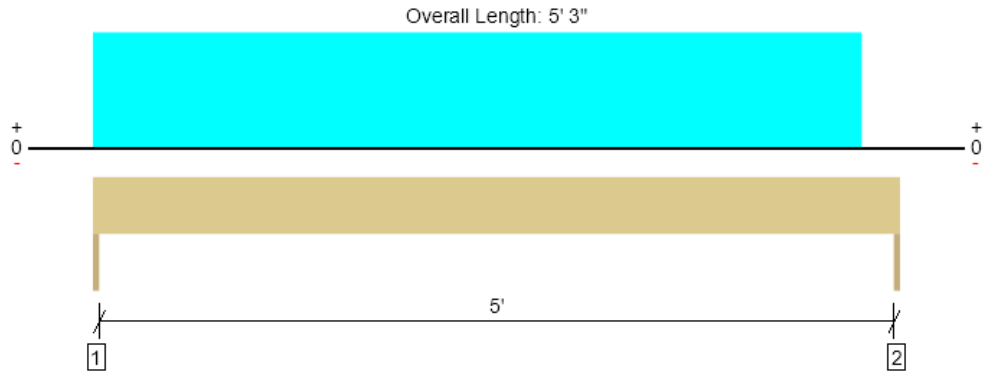
Weyerhaeuser

Main Level, Tub Joist (R) Trimmer
2 piece(s) 2 x 10 DF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1189 @ 0	2813 (1.50")	Passed (42%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	788 @ 4' 4 1/4"	3330	Passed (24%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1557 @ 2' 7 7/16"	3529	Passed (44%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.010 @ 2' 7 9/16"	0.131	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.024 @ 2' 7 9/16"	0.262	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 5' 3"
System : Floor
Member Type : Flush Beam
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.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Trimmer - DF	1.50"	1.50"	1.50"	726	464	1189	None
2 - Trimmer - DF	1.50"	1.50"	1.50"	661	421	1083	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 3" o/c	
Bottom Edge (Lu)	5' 3" 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' 3"	N/A	7.0	--	
1 - Uniform (PLF)	0 to 5' (Front)	N/A	237.8	90.0	Linked from: Tub Joist, Support 2
2 - Uniform (PLF)	0 to 5' (Front)	N/A	32.3	87.0	Linked from: Normal Joist, Support 1

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Weyerhaeuser

- RELATIVE HEADER RIGIDITY CALC

  - (2) 2x10s

    - E = 2.2 ksi
    - $I = \frac{bd^3}{3} = \frac{1.5" \cdot 9.75"^3}{3} = 463.43 in^4$

  - LVL (2)

    - E = 2.1 ksi
    - $I = \frac{bd^3}{3} = \frac{1.75" \cdot 9.75"^3}{3} = 540.67 in^4$

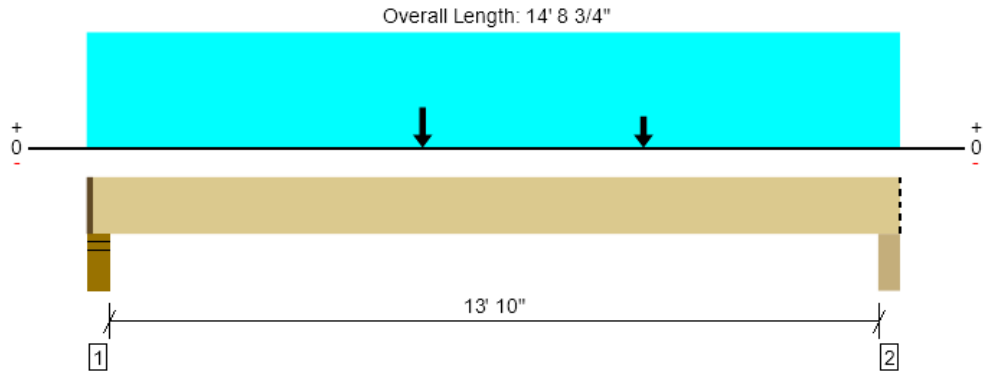
  - % OF (2) LVL RESISTANCE

$$\frac{(2)2.1 \cdot 540.67}{(2)2.1 \cdot 540.67) + (2 \cdot (2.2 \cdot 463.43)} = 53\%$$

  - % OF (2) 2x10 RESISTANCE

    - 100% - 53% = 47%

Main Level, Header
2 piece(s) 2 x 10 DF No.2 @ 12" OC



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	772 @ 4 1/2"	5100 (4.00")	Passed (15%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	831 @ 13' 6 1/4"	3330	Passed (25%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	3952 @ 6' 1"	4059	Passed (97%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.188 @ 7' 4 3/4"	0.350	Passed (L/895)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.418 @ 7' 4 13/16"	0.700	Passed (L/402)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

Member Length : 14' 7 1/4"
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 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.
- No composite action between deck and joist was considered in analysis.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Stud wall - SPF	5.50"	4.00"	1.50"	407	368	776	1 1/2" Rim Board
2 - Beam - DF	5.25"	5.25"	1.50"	461	402	862	Blocking

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.
- 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' 5" o/c	
Bottom Edge (Lu)	14' 7" o/c	

•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 14' 8 3/4"	12"	7.0	18.8	47% of Floor Loading
2 - Point (lb)	6' 1"	N/A	424	275	47% Tub Joist (L) Trimmer, Support 1
3 - Point (lb)	10' 1"	N/A	341	218	47% Tub Joist (R) Trimmer, Support 1

Weyerhaeuser Notes

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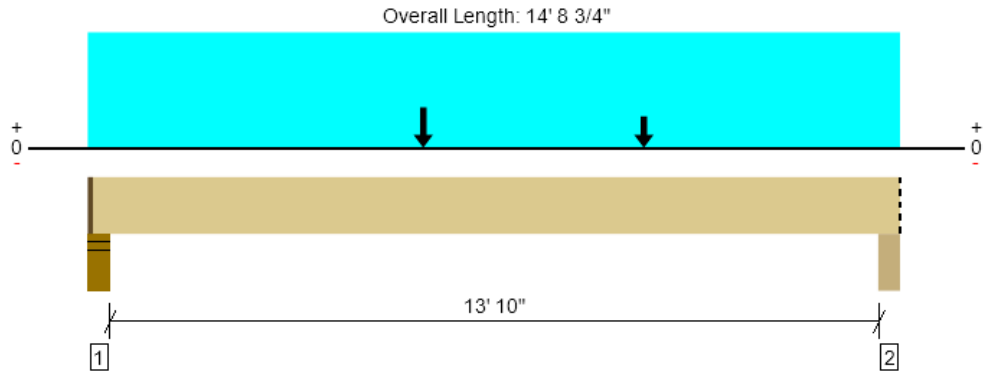
ForteWEB Software Operator	Job Notes
Ethan Schott Vista Structural Engineering (402) 875-3199 ethan@vistastructural.com	

Weyerhaeuser

Main Level, LVL Beam

2 piece(s) 1 3/4" x 9 1/4" 2.0E Microllam® LVL



Drawing is Conceptual. 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)	871 @ 4"	9297 (4.25")	Passed (9%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	936 @ 13' 6 1/4"	6151	Passed (15%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	4490 @ 6' 1"	11204	Passed (40%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.141 @ 7' 4 3/4"	0.352	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.345 @ 7' 4 13/16"	0.704	Passed (L/490)	--	1.0 D + 1.0 L (All Spans)

Member Length : 14' 7 1/2"
System : Floor
Member Type : Flush Beam
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.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Stud wall - DF	5.50"	4.25"	1.50"	509	363	873	1 1/4" Rim Board
2 - Beam - DF	5.25"	5.25"	1.50"	570	401	971	Blocking

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.
- 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)	14' 8" o/c	
Bottom Edge (Lu)	14' 8" o/c	

•Maximum allowable bracing intervals based on applied load.

Multiple Member Connections							
Type	Location	Fastener	Placement	Rows	O.C.	# of Fasteners	Details
Uniform	1 1/4" to 14' 8 3/4"	Strong-Drive® SDS Screw SDS25312 (5 1/2")	One Face	2	19.2"	--	L17

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	1 1/4" to 14' 8 3/4"	N/A	9.4	--	
1 - Uniform (PSF)	0 to 14' 8 3/4" (Top)	8"	8.0	21.2	53% Floor Loading
2 - Point (lb)	6' 1" (Front)	N/A	478	310	53% Tub Joist (L) Trimmer, Support 1
3 - Point (lb)	10' 1" (Front)	N/A	385	246	53% Tub Joist (R) Trimmer, Support 1

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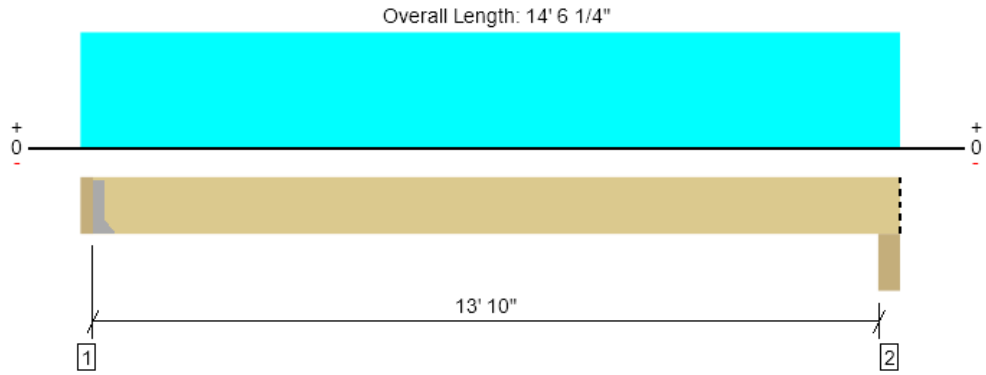
Weyerhaeuser

Main Level, Full Length Normal Joist
1 piece(s) 2 x 10 DF No.2 @ 16" OC



Drawing is Conceptual. 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)	510 @ 3"	1406 (1.50")	Passed (36%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	454 @ 1' 1/4"	1665	Passed (27%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1775 @ 7' 2 1/2"	2029	Passed (87%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.284 @ 7' 2 1/2"	0.348	Passed (L/587)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.391 @ 7' 2 1/2"	0.696	Passed (L/427)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

Member Length : 14' 3 1/4"
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 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.
- No composite action between deck and joist was considered in analysis.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Hanger on 9 1/4" DF beam	3.00"	Hanger[1]	1.50"	144	384	529	See note [1]
2 - Beam - DF	5.25"	5.25"	1.50"	146	390	536	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 1" o/c	
Bottom Edge (Lu)	14' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	LU28	1.50"	N/A	8-10dx1.5	6-10dx1.5	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 14' 6 1/4"	16"	15.0	40.0	Default Load

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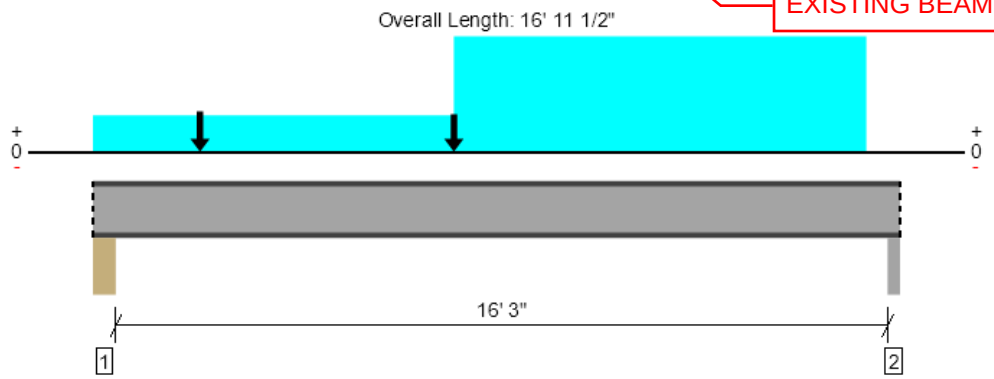
Weyerhaeuser

Main Level, W8x18 Beam

1 piece(s) W8X18 (A992) ASTM Steel

EXISTING BEAM OK



Drawing is Conceptual. 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)	4517 @ 4"	22378 (5.50")	Passed (20%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	4451 @ 5 1/2"	37444	Passed (12%)	--	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	18875 @ 7' 7"	20150	Passed (94%)	--	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.285 @ 8' 7 3/8"	0.550	Passed (L/695)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.491 @ 8' 6 5/16"	0.825	Passed (L/403)	--	1.0 D + 1.0 L (All Spans)

Member Length : 16' 11 1/2"
System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Applicable calculations are based on ANSI/AISC 360-16.
- A lateral-torsional buckling factor (Cb) of 1.0 has been assumed.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Column - DF	5.50"	5.50"	5.50"	2091	2426	4517	Blocking
2 - Column - steel	3.00"	3.00"	3.00"	1408	2326	3734	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)	End Bearing Points	
Bottom Edge (Lu)	End Bearing Points	

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 16' 11 1/2"	N/A	18.0	--	
1 - Point (lb)	2' 3" (Top)	N/A	461	402	Linked from: Header, Support 2
2 - Point (lb)	2' 3" (Top)	N/A	570	401	Linked from: LVL Beam, Support 2
3 - Point (lb)	7' 7" (Top)	N/A	461	402	Linked from: Header, Support 2
4 - Point (lb)	7' 7" (Top)	N/A	509	363	Linked from: LVL Beam, Support 1
5 - Uniform (PLF)	0 to 7' 7" (Top)	N/A	33.8	90.8	Linked from: Normal Joist, Support 2
6 - Uniform (PLF)	7' 7" to 16' 3" (Top)	N/A	108.0	288.0	Linked from: Full Length Normal Joist, Support 1

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