December 9, 2022

IQ Home Builders
Attn: Brett Shelton

Re: Lot 120, Summit View Farms, 3204 SW Saddlebred Ter., Lee's Summit, MO – Inspection Letter

Vista Structural Engineering, LLC was asked to address the following rough-in inspection items for the project located at above referenced address. Please see attached plan mark-up for locations of inspection items on pg. 2 and joist condition sketches on pg. 3. Please see the following responses:

1) **Inspection comment:** Address holes drilled in joists closer than 2" at garage entry for penetration – Area A per plan mark-up on pg. 2.

   Vista Structural's response: *Two ¾" dia. holes are drilled 1" apart w/ 5 ½" from top of hole to top of joist. The joist span in the garage entry is 5'-0" to 6'-8" and the available depth above the top of drilled holes is sufficient (5 ½"). Therefore, we recommend approval of the current framing without repair. See attached calculation on pg. 5.*

2) **Inspection comment:** Address over notched double floor joist above great room near windows – Joist condition 1 per plan mark-up on pg. 2.

   Vista Structural's response: *3"x5 ½" notch occurs at top of joist 12" away from bearing point/wall. We recommend approval of the current framing without repair. See attached calculation on pg. 4.*

3) **Inspection comment:** Address double joists above great room near stairs hole drilled greater than 3" – Area C per plan mark-up on pg. 2.

   Vista Structural's response: *Two ¾" dia. holes are drilled 1" apart w/ 3 ½" from top of hole to top of joist and 5 ¼" away from bearing point/wall. We recommend approval of the current framing without repair. See attached calculation on pg. 4.*

4) **Inspection comment:** Address holes drilled closer than 2" in floor joist above great room near stairs – Area D per plan mark-up on pg. 2.

   Vista Structural's response: *One 3 ¾" dia. is drilled w/ 3 ¾" from top of hole to top of joist and 22" away from bearing point/wall.* ***GC to install Simpson MSTC52 strap to underside of double joist w/ (62) 10d centered on drilled hole.***

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,

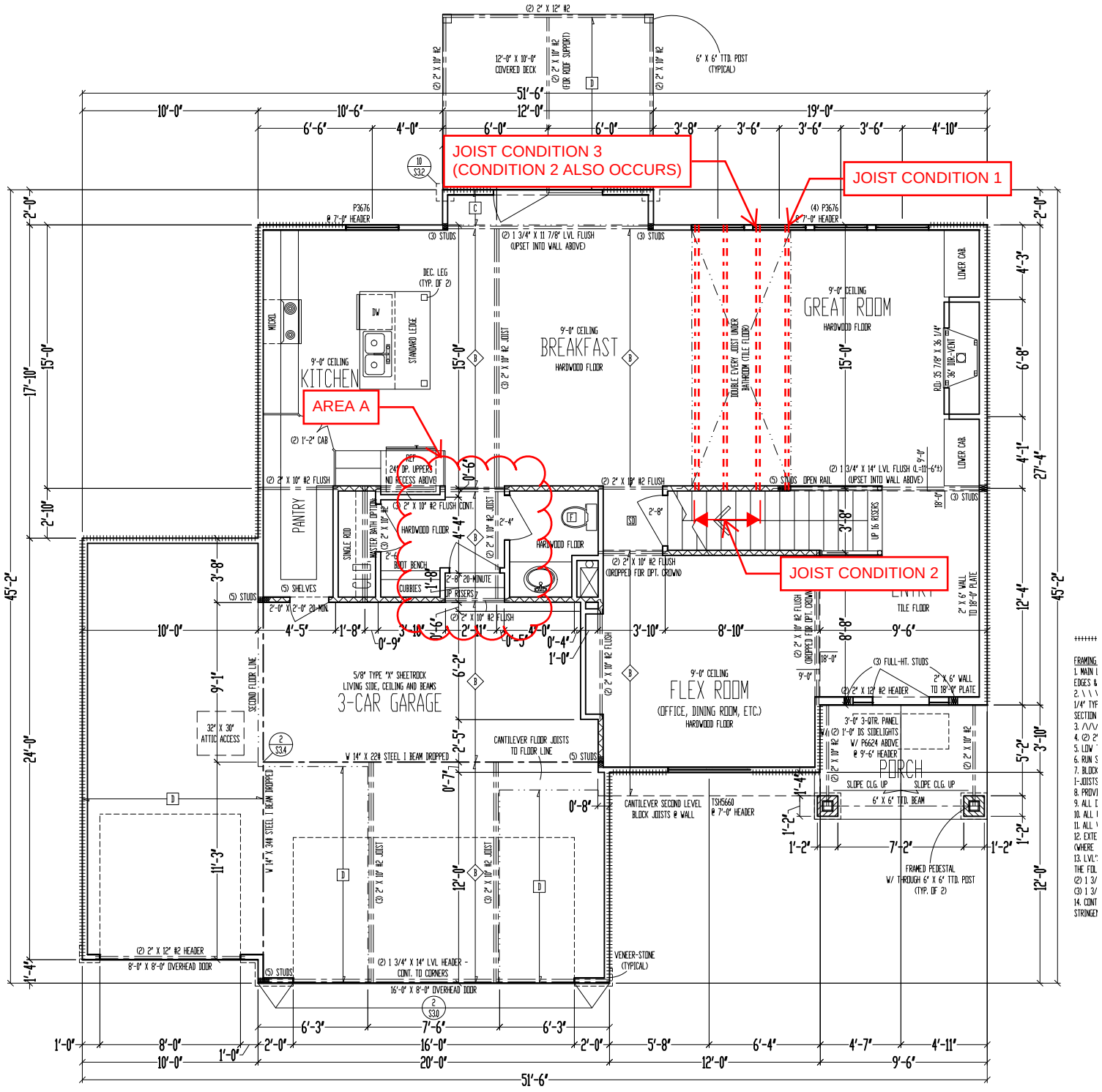
Vista Structural Engineering, LLC

Dennis Heier, P.E.

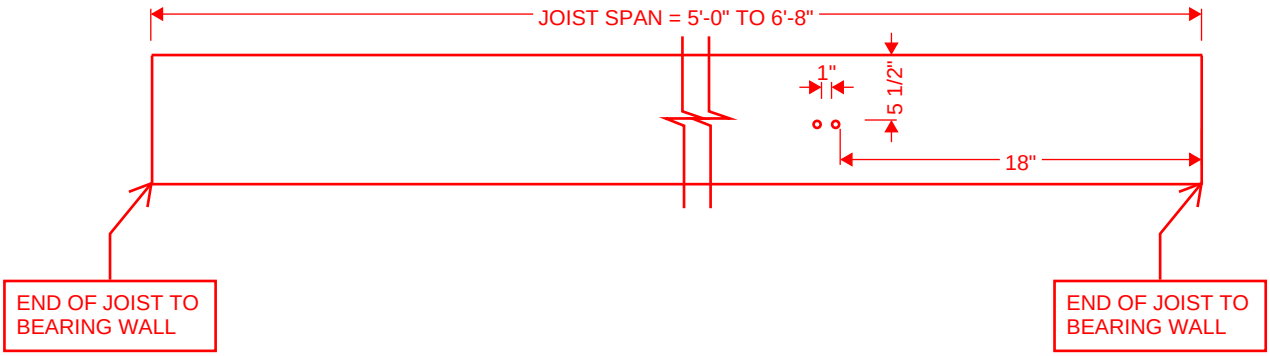
STATE OF MISSOURI
DENNIS HEIER
NUMBER
PE-2010001772
PROFESSIONAL ENGINEER

12-9-22

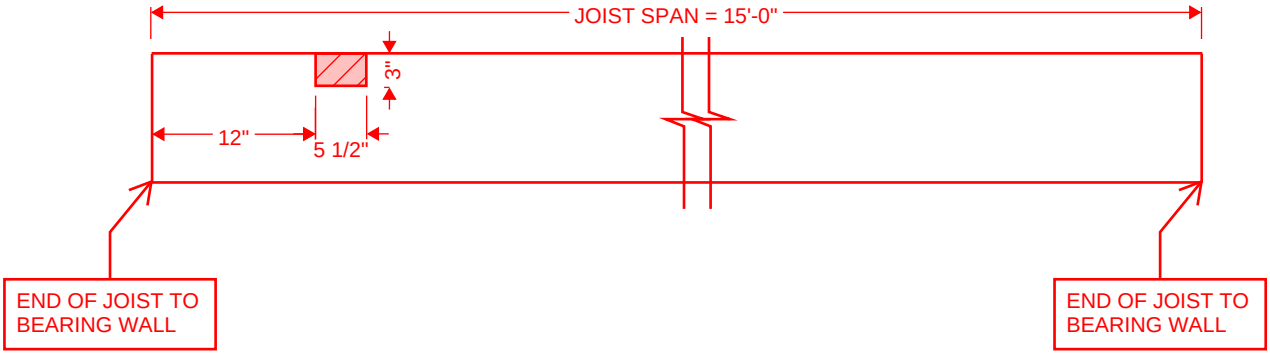
SEE PG. 3 FOR DRILLED HOLES IN JOIST CONDITIONS & SKETCHES



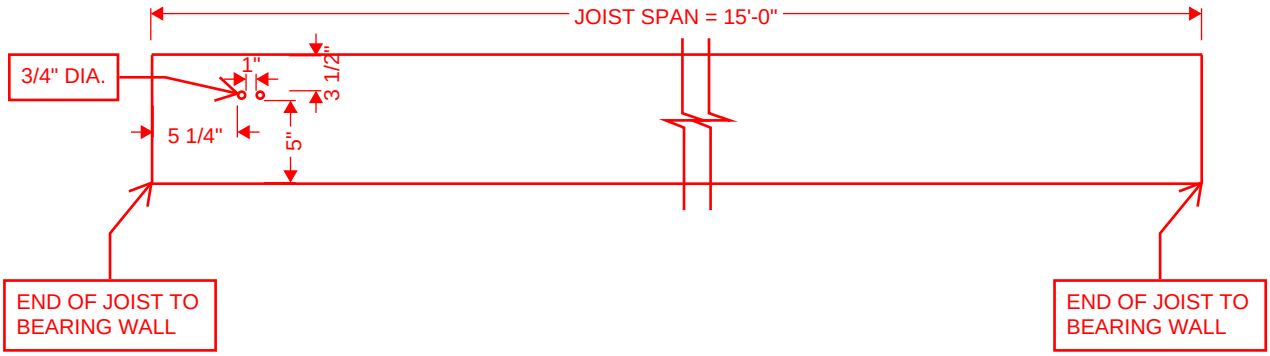
JOIST CONDITION AT AREA A:



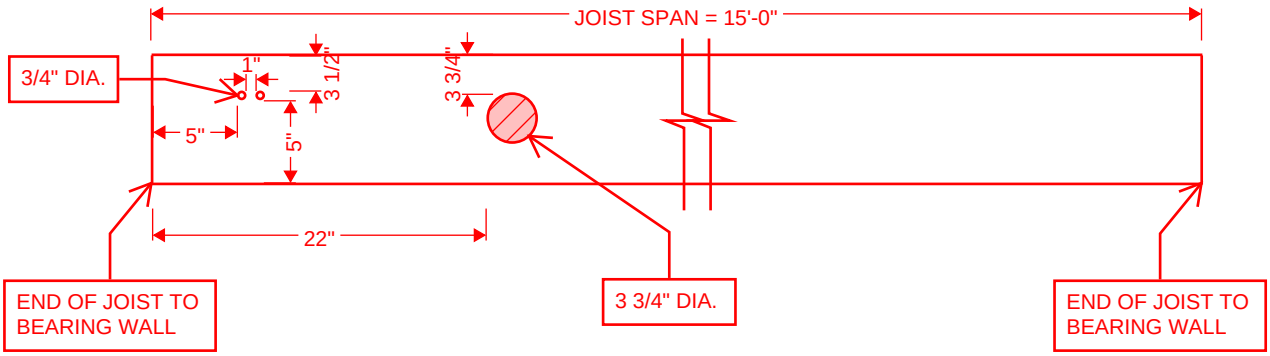
JOIST CONDITION 1:



JOIST CONDITION 2:



JOIST CONDITION 3:



PROJ:	SVF120
DATE:	12-9-22
PROJ #:	
ENGR:	DN

VISTA STRUCTURAL ENGINEERING, LLC

SHEAR CAPACITY CHECK FOR REDUCED SECTION (JOIST DRILLED HOLES)

F'v = 180

JOIST CONDITION 1:

SHEAR, LOCATION @ 12", V = 634#
REDUCED AREA: 9 1/4" - 3" = 6 1/4" * (1.5*2) = 18.75"

fv = 3/2 * V/A = 3/2* 634/18.75 = 50.72 PSI < F'v, OK

JOIST CONDITION 2:

SHEAR, LOCATION @ 5 1/4", V = 686#
REDUCED AREA: 9 1/4" - 3/4" = 8.5" * (1.5*2) = 25.5"

fv = 3/2 * V/A = 3/2* 686/25.5 = 40.35 PSI < F'v, OK

JOIST CONDITION 3

MOMENT, LOCATION @ 22", M = 1027#-FT

T = 1027/(9.25*12) = 1332#

USE SIMPSON MSTC52 W/ (62) 10d

FLOOR			
Member Name	Results	Current Solution	Comments
JOIST CONDITION AREA A	Passed	1 piece(s) 2 x 6 DF No.2 @ 16" OC	
JOIST CONDITION 1	Passed	2 piece(s) 2 x 10 DF No.2 @ 16" OC	
JOIST CONDITION 2	Passed	2 piece(s) 2 x 10 DF No.2 @ 16" OC	
JOIST CONDITION 3	Passed	2 piece(s) 2 x 10 DF No.2 @ 16" OC	

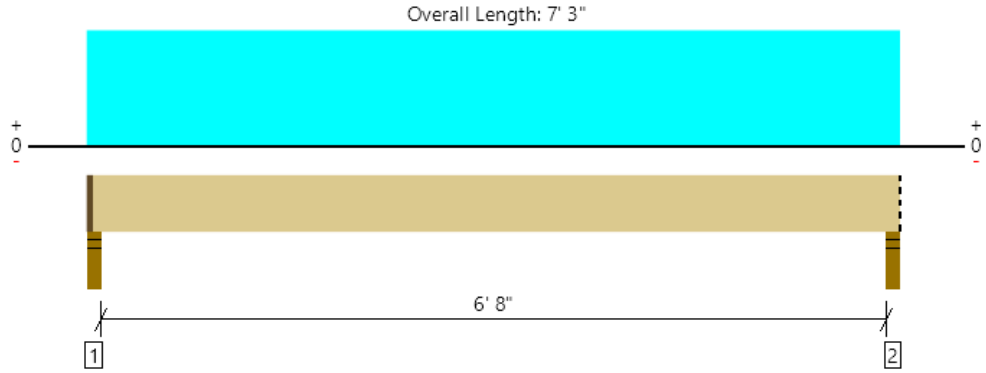
ForteWEB Software Operator	Job Notes
Dennis Nguyen Vista Structural Engineering LLC (503) 515-1124 dn@vistastructural.com	

Weyerhaeuser

12/9/2022 10:52:27 PM UTC
ForteWEB v3.4
File Name: SVF120 LOT

FLOOR, JOIST CONDITION AREA A

1 piece(s) 2 x 6 DF No.2 @ 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)	327 @ 2 1/2"	1875 (2.00")	Passed (17%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	268 @ 9"	990	Passed (27%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	545 @ 3' 7 1/2"	848	Passed (64%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.079 @ 3' 7 1/2"	0.228	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.138 @ 3' 7 1/2"	0.342	Passed (L/596)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

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

- Deflection criteria: LL (L/360) and TL (L/240).
- 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	3.50"	2.00"	1.50"	145	193	338	1 1/2" Rim Board
2 - Stud wall - DF	3.50"	3.50"	1.50"	145	193	338	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)	Continuous	
Bottom Edge (Lu)	Continuous	

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 7' 3"	16"	30.0	40.0	FLOOR

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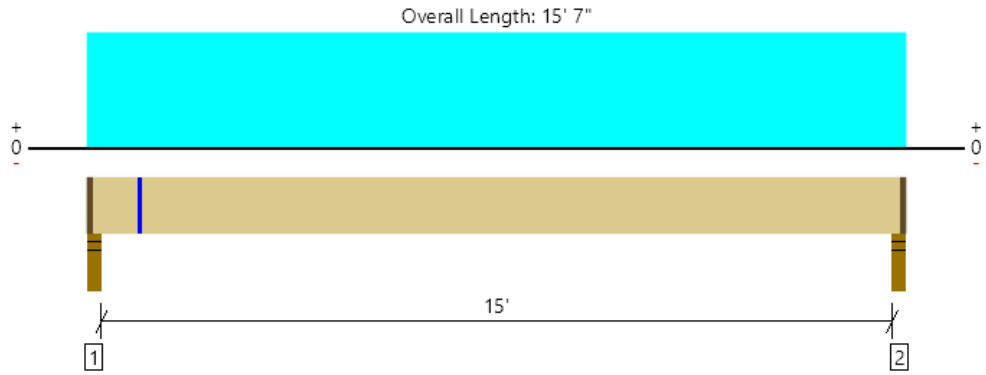
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

FLOOR, JOIST CONDITION 1
2 piece(s) 2 x 10 DF No.2 @ 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)	716 @ 2 1/2"	3750 (2.00")	Passed (19%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	628 @ 1' 3/4"	3330	Passed (19%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	2684 @ 7' 9 1/2"	4059	Passed (66%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.201 @ 7' 9 7/16"	0.506	Passed (L/907)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.351 @ 7' 9 7/16"	0.758	Passed (L/519)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

System : Floor
Member Type : Joist
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.
- 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	3.50"	2.00"	1.50"	312	416	727	1 1/2" Rim Board
2 - Stud wall - DF	3.50"	2.00"	1.50"	312	416	727	1 1/2" 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)	14' 9" o/c	
Bottom Edge (Lu)	15' 4" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 15' 7"	16"	30.0	40.0	FLOOR

Location Analysis	Shear (lbs)			Moment (Ft-lbs)			Deflection (in)		Comments
	Actual	Allowed	LDF	Actual	Allowed	LDF	Live Load	Total	
1 - 1'	634	3330	1.00	531	4059	1.00	0.033	0.058	

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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
Dennis Nguyen Vista Structural Engineering LLC (503) 515-1124 dn@vistastructural.com	

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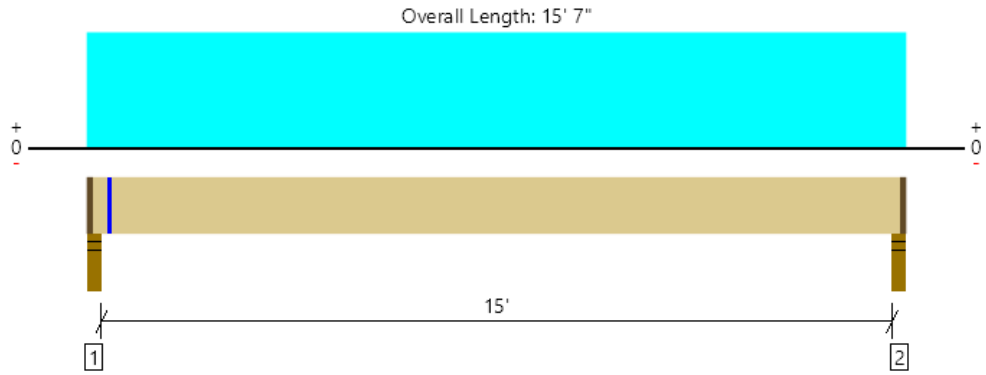
FLOOR, JOIST CONDITION 2
2 piece(s) 2 x 10 DF No.2 @ 16" OC



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)	716 @ 2 1/2"	3750 (2.00")	Passed (19%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	628 @ 1' 3/4"	3330	Passed (19%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	2684 @ 7' 9 1/2"	4059	Passed (66%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.201 @ 7' 9 1/2"	0.506	Passed (L/907)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.351 @ 7' 9 1/2"	0.758	Passed (L/519)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

System : Floor
Member Type : Joist
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.
- 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	3.50"	2.00"	1.50"	312	416	727	1 1/2" Rim Board
2 - Stud wall - DF	3.50"	2.00"	1.50"	312	416	727	1 1/2" 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)	14' 9" o/c	
Bottom Edge (Lu)	15' 4" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 15' 7"	16"	30.0	40.0	FLOOR

Location Analysis	Shear (lbs)			Moment (Ft-lbs)			Deflection (in)		Comments
	Actual	Allowed	LDF	Actual	Allowed	LDF	Live Load	Total	
1 - 5 1/4"	686	3330	1.00	160	4059	1.00	0.010	0.017	

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Dennis Nguyen Vista Structural Engineering LLC (503) 515-1124 dn@vistastructural.com	

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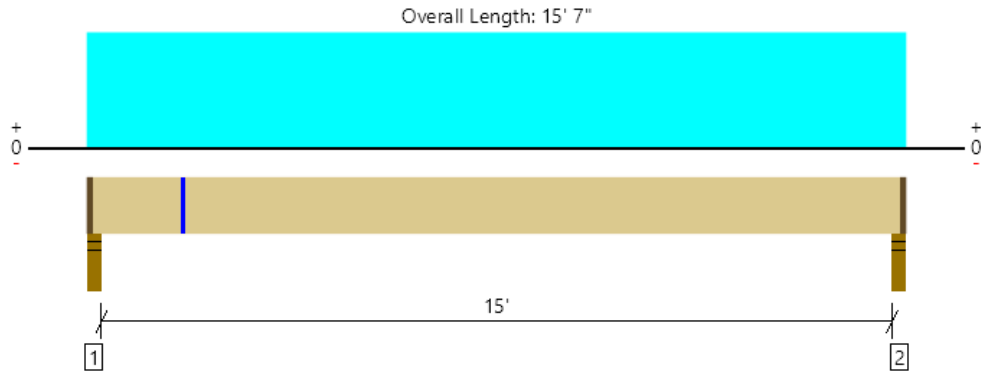
FLOOR, JOIST CONDITION 3
2 piece(s) 2 x 10 DF No.2 @ 16" OC



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Member Reaction (lbs)	716 @ 2 1/2"	3750 (2.00")	Passed (19%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	628 @ 1' 3/4"	3330	Passed (19%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	2684 @ 7' 9 1/2"	4059	Passed (66%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.201 @ 7' 9 1/2"	0.506	Passed (L/907)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.351 @ 7' 9 1/2"	0.758	Passed (L/519)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

System : Floor
Member Type : Joist
Building Use : Residential
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- Deflection criteria: LL (L/360) and TL (L/240).
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Supports	Bearing Length			Loads to Supports (lbs)			Accessories
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Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	14' 9" o/c	
Bottom Edge (Lu)	15' 4" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 15' 7"	16"	30.0	40.0	FLOOR

Location Analysis	Shear (lbs)			Moment (Ft-lbs)			Deflection (in)		Comments
	Actual	Allowed	LDF	Actual	Allowed	LDF	Live Load	Total	
1 - 1' 10"	556	3330	1.00	1027	4059	1.00	0.067	0.118	

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