

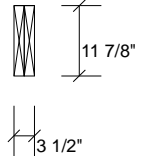
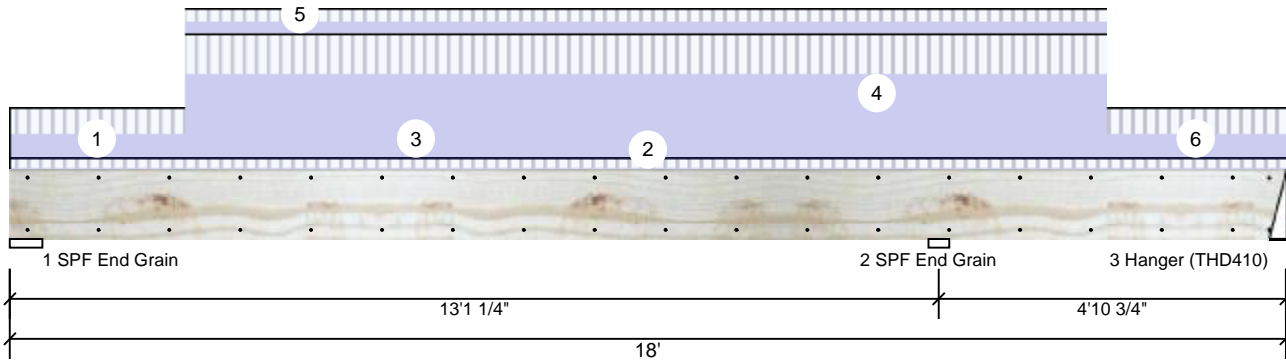


Client: America's Home Place
 Project: K.S. Thompson
 Address:

Date: 11/3/2022
 Input by: Bob Lewis
 Job Name: J0922-4889- Beams
 Project #: J0922-4889 Beams

FB1 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder
Plies:	2
Moisture Condition:	Dry
Deflection LL:	360
Deflection TL:	240
Importance:	Normal - II
Temperature:	Temp <= 100°F

Application:	Floor
Design Method:	ASD
Building Code:	IBC/IRC 2015
Load Sharing:	No
Deck:	Not Checked

Reactions UNPATTERNED Ib (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	1354	1891	0	0	0
2	Vertical	3599	5664	0	0	0
3	Vertical	0 (-360)	(-812)	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	5.500"	Vert	20%	1851 / 1343	3194	L_	D+L
2 - SPF End Grain	3.500"	Vert	83%	5810 / 3691	9501	LL	D+L
3 - Hanger	3.000"	Vert	0%	-918 / -854	-1772 (-1772)	L_	D+L(D+L)

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-11204 ft-lb	13'1 1/4"	19911 ft-lb	0.563 (56%)	D+L	LL
Unbraced	-11204 ft-lb	13'1 1/4"	11206 ft-lb	1.000 (100%)	D+L	LL
Pos Moment	9678 ft-lb	5'8 7/16"	19911 ft-lb	0.486 (49%)	D+L	L_
Unbraced	9678 ft-lb	5'8 7/16"	9695 ft-lb	0.998 (100%)	D+L	L_
Shear	4983 lb	11'11 5/8"	8867 lb	0.562 (56%)	D+L	LL
LL Defl inch	0.117 (L/1306)	6'3 3/4"	0.424 (L/360)	0.276 (28%)	L	L_
TL Defl inch	0.297 (L/513)	6'3 3/4"	0.635 (L/240)	0.468 (47%)	D+L	L_

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
- 3 Refer to last page of calculations for fasteners required for specified loads.
- 4 Fill all hanger nailing holes.
- 5 Girders are designed to be supported on the bottom edge only.
- 6 Top loads must be supported equally by all plies.
- 7 **Tie-down connection required at bearing 3 for uplift 1772 lb (Combination D+L, Load Case L_).**
- 8 Top must be laterally braced at a maximum of 9'5 1/2" o.c.
- 9 Bottom must be laterally braced at a maximum of 7'9 3/8" o.c.
- 10 Lateral slenderness ratio based on single ply width.

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive

chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

Metsä Wood
 301 Merritt 7 Building, 2nd Floor
 Norwalk, CT 06851
 (800) 622-5850
www.metsawood.com/us

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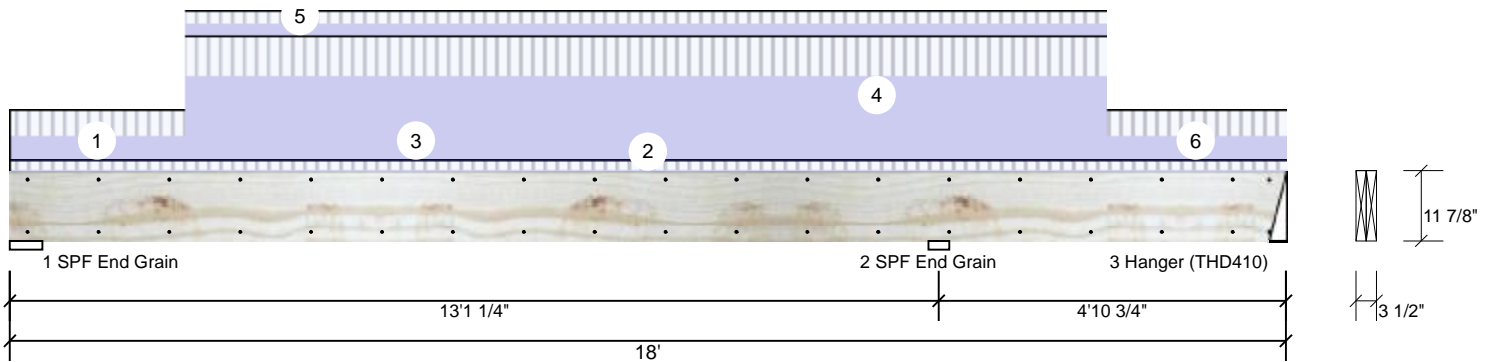


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Level: Level



ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Part. Uniform	0-0-0 to 2-5-8		Near Face	113 PLF	113 PLF	0 PLF	0 PLF	0 PLF	E1 Mono
2	Uniform		1-4-0	Top	10 PSF	40 PSF	0 PSF	0 PSF	0 PSF	
3	Part. Uniform	2-5-8 to 15-5-8		Top	208 PLF	0 PLF	0 PLF	0 PLF	0 PLF	wall
4	Part. Uniform	2-5-8 to 15-5-8		Top	180 PLF	180 PLF	0 PLF	0 PLF	0 PLF	C1 Monos
5	Part. Uniform	2-5-8 to 15-5-8		Near Face	56 PLF	56 PLF	0 PLF	0 PLF	0 PLF	e2 Monos
6	Part. Uniform	15-5-8 to 18-0-0		Top	113 PLF	113 PLF	0 PLF	0 PLF	0 PLF	E1a Mono
	Self Weight				9 PLF					

Notes

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Lumber

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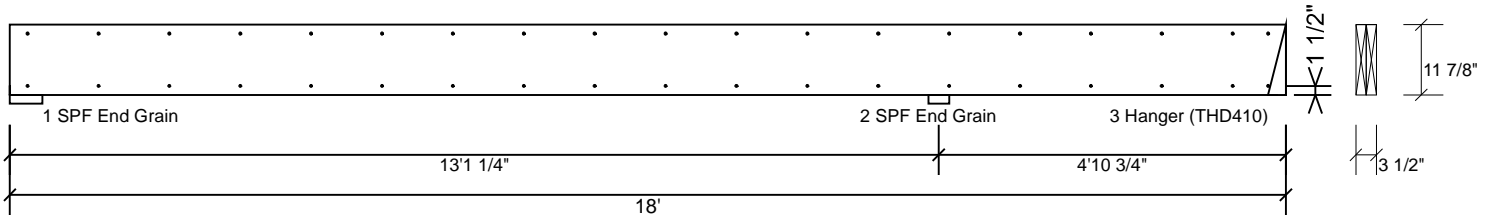


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Multi-Ply Analysis

Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6".

Capacity	69.0 %
Load	113.0 PLF
Yield Limit per Foot	163.7 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	D+L
Duration Factor	1.00

Notes

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Lumber

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2. LVL not to be treated with fire retardant or corrosive

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

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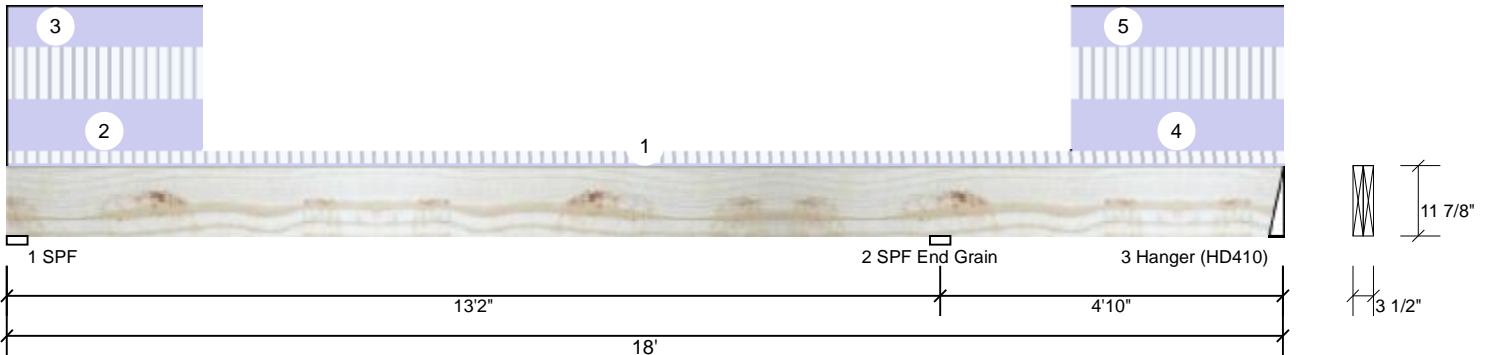


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FB2 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED Ib (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	628	824	0	0	0
2	Vertical	788	716	0	0	0
3	Vertical	281	532	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	28%	819 / 631	1451	L_	D+L
2 - SPF End Grain	3.500"	Vert	14%	732 / 807	1539	LL	D+L
3 - Hanger	2.500"	Vert	13%	520 / 440	959	_L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-1698 ft-lb	13'2"	19911 ft-lb	0.085 (9%)	D+L	LL
Unbraced	-1698 ft-lb	13'2"	5645 ft-lb	0.301 (30%)	D+L	LL
Pos Moment	1670 ft-lb	2'8 7/8"	19911 ft-lb	0.084 (8%)	D+L	L_
Unbraced	1670 ft-lb	2'8 7/8"	5645 ft-lb	0.296 (30%)	D+L	L_
Shear	851 lb	14'3 5/8"	8867 lb	0.096 (10%)	D+L	LL
LL Defl inch	0.025 (L/6131)	5'9 3/4"	0.323 (L/480)	0.078 (8%)	L	L_
TL Defl inch	0.045 (L/3440)	5'6 3/16"	0.647 (L/240)	0.070 (7%)	D+L	L_

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fill all hanger nailing holes.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Multiple plies must be fastened together as per manufacturer's details.
- 5 Top loads must be supported equally by all plies.
- 6 Top must be laterally braced at end bearings.
- 7 Bottom must be laterally braced at end bearings.
- 8 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform		1-0-0	Top	10 PSF	40 PSF	0 PSF	0 PSF	0 PSF	
2	Part. Uniform	0-0-0 to 2-9-0		Top	170 PLF	170 PLF	0 PLF	0 PLF	0 PLF	D1
3	Part. Uniform	0-0-0 to 2-9-0		Top	130 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
4	Part. Uniform	15-0-0 to 18-0-0		Top	170 PLF	170 PLF	0 PLF	0 PLF	0 PLF	D1

Continued on page 2...

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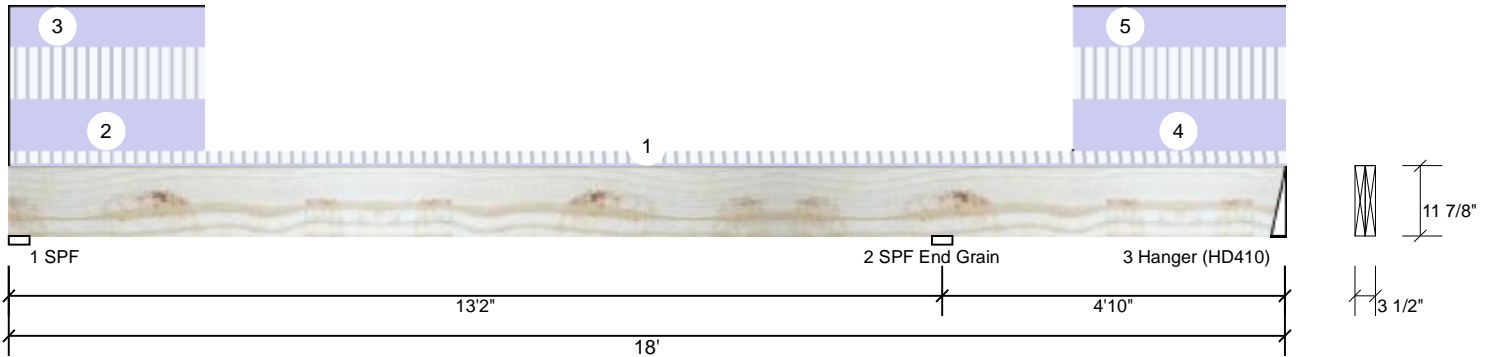


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Level: Level



...Continued from page 1

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5	Part. Uniform	15-0-0 to 18-0-0		Top	130 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
	Self Weight				9 PLF					

Notes

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