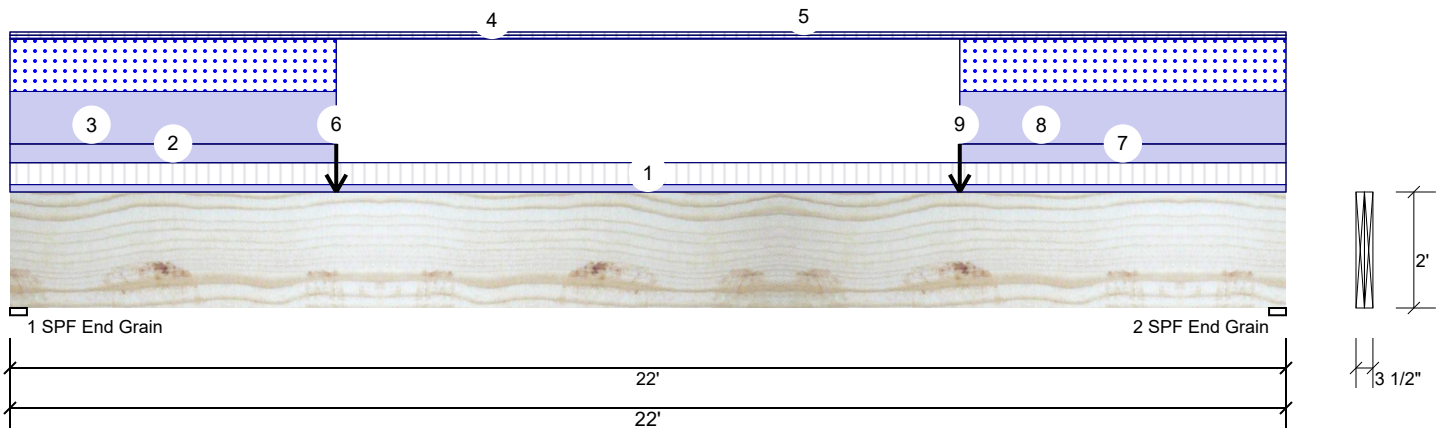
Client:	Benjamin Stout	Date:	5/18/2022
Project:		Input by:	Marshall Naylor
Address:		Job Name:	Charlotte
		Project #:	

TFBM1 Kerto-S LVL 1.750" X 24.000" 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:	360	Deck:	Not Checked
Importance:	Normal - II		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	1980	5161	3709	0	0
2	Vertical	1980	5161	3709	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	92%	5161 / 4267	9428	L	D+0.75(L+S)
2 - SPF End Grain	3.500"	Vert	92%	5161 / 4267	9428	L	D+0.75(L+S)

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	39562 ft-lb	11'	84163 ft-lb	0.470 (47%)	D+0.75(L+S)	L
Unbraced	39562 ft-lb	11'	39573 ft-lb	1.000 (100%)	D+0.75(L+S)	L
Shear	7753 lb	2'3 1/2"	20608 lb	0.376 (38%)	D+0.75(L+S)	L
LL Defl inch	0.236 (L/1098)	11' 1/16"	0.539 (L/480)	0.437 (44%)	0.75(L+S)	L
TL Defl inch	0.499 (L/519)	11' 1/16"	0.719 (L/360)	0.694 (69%)	D+0.75(L+S)	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 Girders are designed to be supported on the bottom edge only.
3 Multiple plies must be fastened together as per manufacturer's details.
4 Top loads must be supported equally by all plies.
5 Top must be laterally braced at a maximum of 4'5 9/16" o.c.
6 Bottom must be laterally braced at end bearings.
7 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			Far Face	47 PLF	140 PLF	0 PLF	0 PLF	0 PLF	F6
2	Part. Uniform	0-0-0 to 5-7-8		Top	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall
3	Part. Uniform	0-0-0 to 5-7-8		Top	334 PLF	0 PLF	334 PLF	0 PLF	0 PLF	A3
4	Tie-In	0-0-0 to 22-0-0	0-6-0	Far Face	10 PSF	40 PSF	0 PSF	0 PSF	0 PSF	1' Floor
5	Tie-In	0-0-0 to 22-0-0	0-6-0	Near Face	0 PSF	40 PSF	0 PSF	0 PSF	0 PSF	1' Floor
6	Point	5-7-8		Top	1830 lb	0 lb	1830 lb	0 lb	0 lb	FB3

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Notes

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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

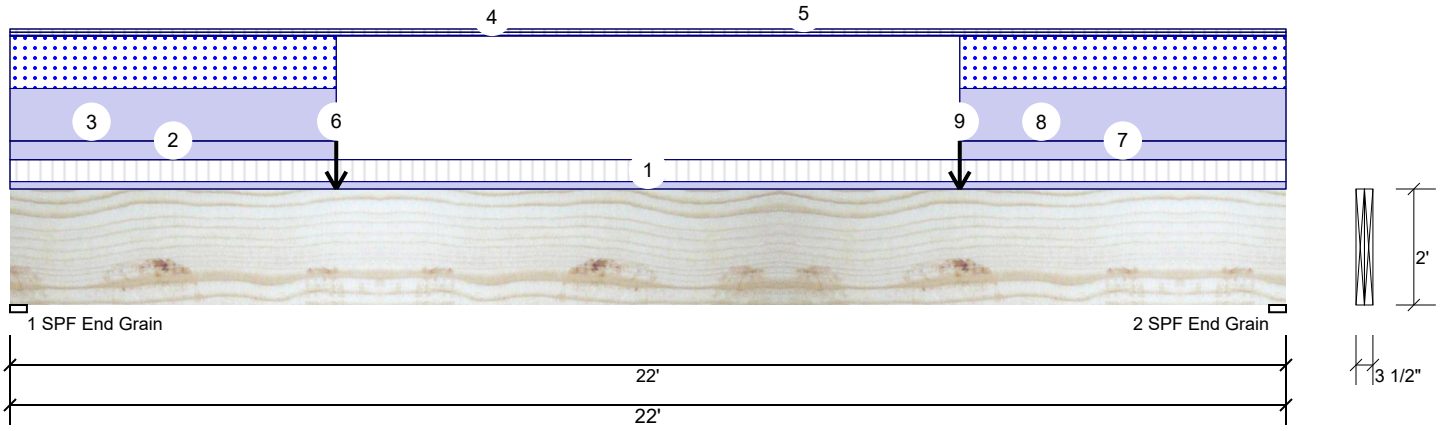
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

Comtech, Inc.
1001 S. Reilly Road, Suite #639
Fayetteville, NC
USA
28314
910-864-TRUS

Client:	Benjamin Stout	Date:	5/18/2022
Project:		Input by:	Marshall Naylor
Address:		Job Name:	Charlotte
		Project #:	

TFBM1 Kerto-S LVL 1.750" X 24.000" 2-Ply - PASSED

Level: Level



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ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
	Bearing Length	0-3-8								
7	Part. Uniform	16-4-8 to 22-0-0		Top	120 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall
8	Part. Uniform	16-4-8 to 22-0-0		Top	334 PLF	0 PLF	334 PLF	0 PLF	0 PLF	A3
9	Point	16-4-8		Top	1830 lb	0 lb	1830 lb	0 lb	0 lb	FB3
	Bearing Length	0-3-8								
	Self Weight				19 PLF					

Notes

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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

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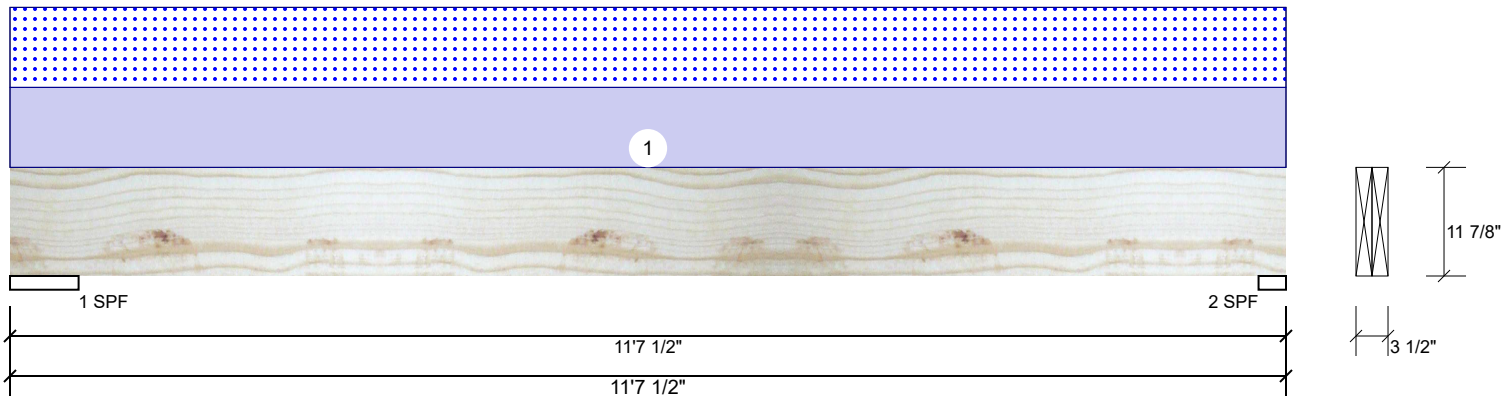
Client:	Benjamin Stout	Date:	5/18/2022
Project:		Input by:	Marshall Naylor
Address:		Job Name:	Charlotte
		Project #:	

FB3 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:	360	Deck:	Not Checked
Importance:	Normal - II		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	0	1855	1800	0	0
2	Vertical	0	1739	1688	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	7.500"	Vert	33%	1855 / 1800	3655	L	D+S
2 - SPF	3.000"	Vert	77%	1739 / 1688	3427	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	9006 ft-lb	6'	22897 ft-lb	0.393 (39%)	D+S	L
Unbraced	9006 ft-lb	6'	9009 ft-lb	1.000 (100%)	D+S	L
Shear	3275 lb	10'4 5/8"	10197 lb	0.321 (32%)	D+S	L
LL Defl inch	0.109 (L/1198)	6'	0.272 (L/480)	0.401 (40%)	S	L
TL Defl inch	0.221 (L/590)	6'	0.362 (L/360)	0.610 (61%)	D+S	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 Girders are designed to be supported on the bottom edge only.
3 Multiple plies must be fastened together as per manufacturer's details.
4 Top must be laterally braced at a maximum of 10'5 15/16" o.c.
5 Bottom must be laterally braced at end bearings.
6 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			Far Face	300 PLF	0 PLF	300 PLF	0 PLF	0 PLF	A4
	Self Weight				9 PLF					

Notes

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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

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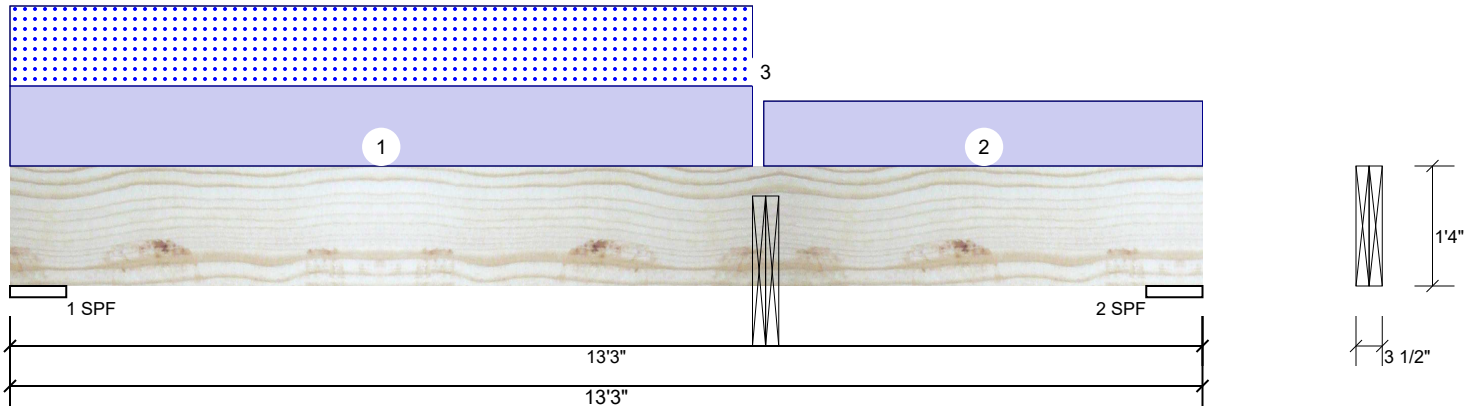
Client:	Benjamin Stout	Date:	5/18/2022
Project:		Input by:	Marshall Naylor
Address:		Job Name:	Charlotte
		Project #:	

FB1-3 Kerto-S LVL 1.750" X 16.000" 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:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	701	4291	3464	0	0
2	Vertical	1279	5550	3298	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	7.500"	Vert	70%	4291 / 3464	7755	L	D+S
2 - SPF	7.500"	Vert	81%	5550 / 3432	8982	L	D+0.75(L+S)

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	35008 ft-lb	8'4 3/4"	39750 ft-lb	0.881 (88%)	D+0.75(L+S)	L
Unbraced	35008 ft-lb	8'4 3/4"	35112 ft-lb	0.997 (100%)	D+0.75(L+S)	L
Shear	9250 lb	11'3 1/2"	13739 lb	0.673 (67%)	D+0.75(L+S)	L
LL Defl inch	0.170 (L/857)	7'1 3/4"	0.405 (L/360)	0.420 (42%)	0.75(L+S)	L
TL Defl inch	0.405 (L/360)	7'1 7/8"	0.607 (L/240)	0.667 (67%)	D+0.75(L+S)	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 Girders are designed to be supported on the bottom edge only.
3 Multiple plies must be fastened together as per manufacturer's details.
4 Top loads must be supported equally by all plies.
5 Top must be laterally braced at a maximum of 2'8 3/4" o.c.
6 Bottom must be laterally braced at end bearings.
7 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	Part. Uniform	0-0-0 to 8-3-0		Far Face	370 PLF	0 PLF	370 PLF	0 PLF	0 PLF	C2
2	Part. Uniform	8-4-8 to 13-3-0		Top	300 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall/Gable
3	Point	8-4-12		Far Face	5161 lb	1980 lb	3709 lb	0 lb	0 lb	TFBM1 Brg 2
	Self Weight				12 PLF					

Notes

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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
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6. For flat roofs provide proper drainage to prevent ponding

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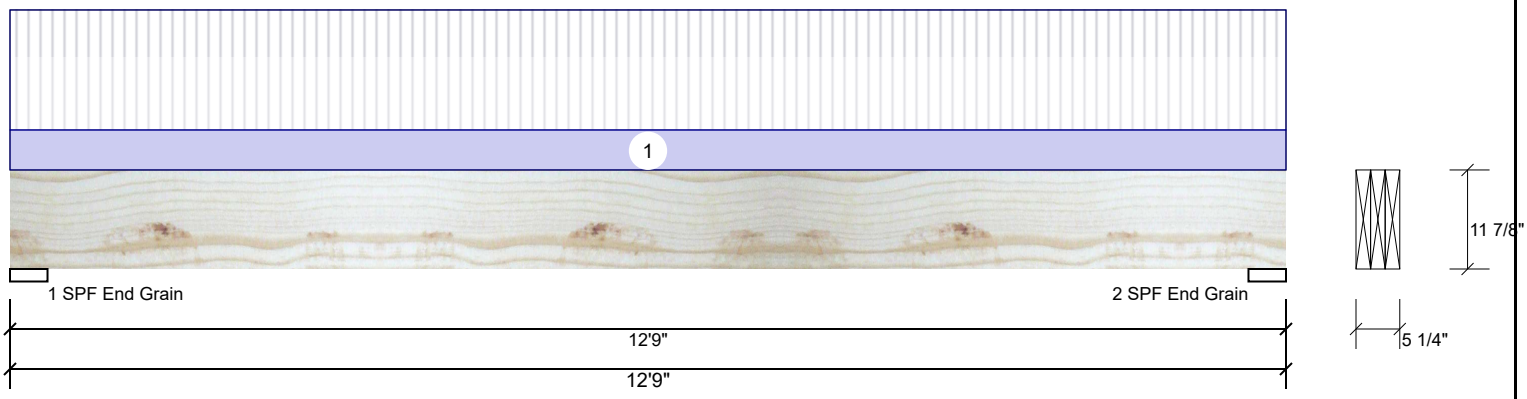
Client:	Benjamin Stout	Date:	5/18/2022
Project:		Input by:	Marshall Naylor
Address:		Job Name:	Charlotte
		Project #:	

DB1 Kerto-S LVL 1.750" X 11.875" 3-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	3	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	480	Load Sharing:	Yes
Deflection TL:	360	Deck:	Not Checked
Importance:	Normal - II		
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	4781	1682	0	0	0
2	Vertical	4781	1682	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	4.500"	Vert	33%	1682 / 4781	6463	L	D+L
2 - SPF End Grain	4.500"	Vert	33%	1682 / 4781	6463	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	18632 ft-lb	6'4 1/2"	31060 ft-lb	0.600 (60%)	D+L	L
Unbraced	18632 ft-lb	6'4 1/2"	18665 ft-lb	0.998 (100%)	D+L	L
Shear	5094 lb	1'4 3/8"	13300 lb	0.383 (38%)	D+L	L
LL Defl inch	0.274 (L/530)	6'4 1/2"	0.303 (L/480)	0.905 (91%)	L	L
TL Defl inch	0.371 (L/392)	6'4 1/2"	0.404 (L/360)	0.918 (92%)	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 Girders are designed to be supported on the bottom edge only.
3 Multiple plies must be fastened together as per manufacturer's details.
4 Top loads must be supported equally by all plies.
5 Top must be laterally braced at a maximum of 6'9 1/4" o.c.
6 Bottom must be laterally braced at end bearings.
7 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			Top	250 PLF	750 PLF	0 PLF	0 PLF	0 PLF	F1
	Self Weight				14 PLF					

Notes

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