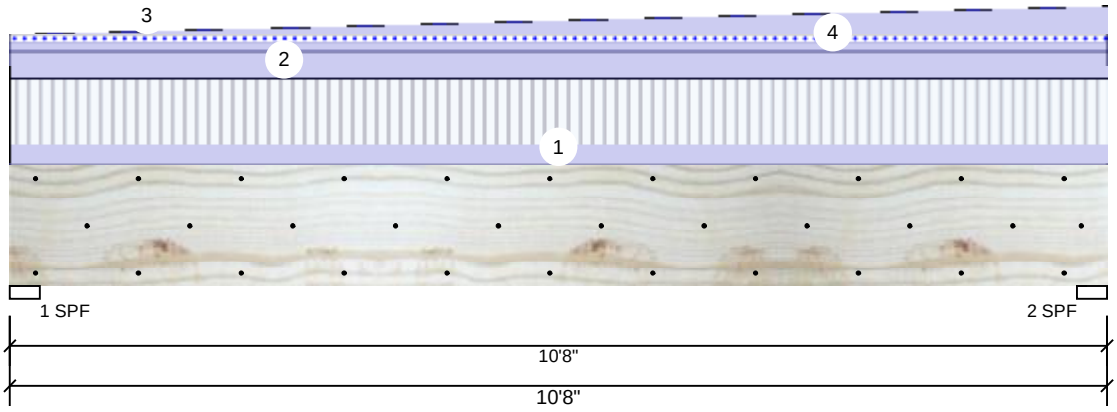
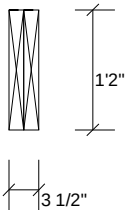
Client:	Weaver Development	Date:	10/24/2022
Project:	The Nicholson	Input by:	Christine Shivy
Address:	The Nicholson	Job Name:	Nicholson
		Project #:	

BM1 Kerto-S LVL 1.750" X 14.000" 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	1600	1698	213	0	0
2	Vertical	1600	1938	213	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	63%	1698 / 1600	3298	L	D+L
2 - SPF	3.500"	Vert	68%	1938 / 1600	3538	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	8351 ft-lb	5'5"	26999 ft-lb	0.309 (31%)	D+L	L
Unbraced	8351 ft-lb	5'5"	10599 ft-lb	0.788 (79%)	D+L	L
Shear	3001 lb	9'2 1/2"	10453 lb	0.287 (29%)	D+L	L
LL Defl inch	0.055 (L/2228)	5'4"	0.255 (L/480)	0.215 (22%)	L	L
TL Defl inch	0.117 (L/1043)	5'4 3/8"	0.340 (L/360)	0.345 (35%)	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 3 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 Girders are designed to be supported on the bottom edge only.
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			Near Face	100 PLF	300 PLF	0 PLF	0 PLF	0 PLF	F1A
2	Uniform			Top	125 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Exterior Wall Load
3	Tapered Start	0-0-0		Top	0 PLF	0 PLF	0 PLF	0 PLF	0 PLF	A1GE
	End	10-8-0			130 PLF	0 PLF	0 PLF	0 PLF	0 PLF	
4	Uniform			Top	40 PLF	0 PLF	40 PLF	0 PLF	0 PLF	2'-0" Roof Load
	Self Weight				11 PLF					

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

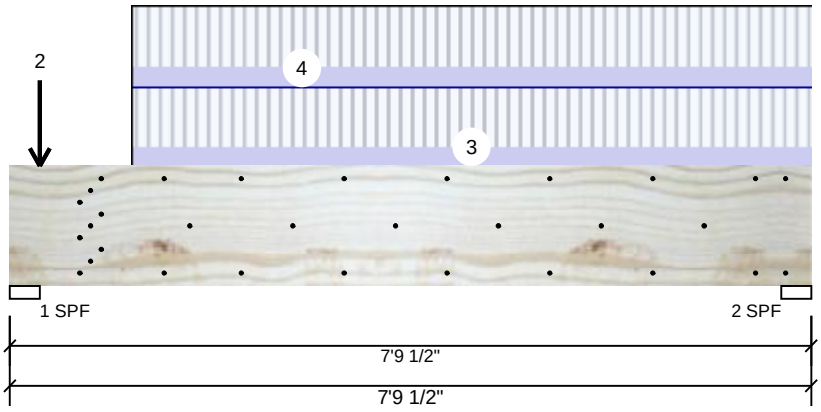
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

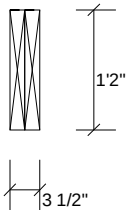
Comtech, Inc.
1001 S. Reilly Road, Suite #639
Fayetteville, NC
USA
28314
910-864-TRUS

Client:	Weaver Development	Date:	10/24/2022
Project:	The Nicholson	Input by:	Christine Shivy
Address:	The Nicholson	Job Name:	Nicholson
		Project #:	

BM2 Kerto-S LVL 1.750" X 14.000" 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	3644	1261	0	0	0
2	Vertical	2679	939	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	94%	1261 / 3644	4905	L	D+L
2 - SPF	3.500"	Vert	70%	939 / 2679	3619	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6133 ft-lb	3'11 1/2"	26999 ft-lb	0.227 (23%)	D+L	L
Unbraced	6133 ft-lb	3'11 1/2"	13870 ft-lb	0.442 (44%)	D+L	L
Shear	3460 lb	1'5 1/2"	10453 lb	0.331 (33%)	D+L	L
LL Defl inch	0.038 (L/2320)	3'11 1/8"	0.183 (L/480)	0.207 (21%)	L	L
TL Defl inch	0.051 (L/1717)	3'11 1/8"	0.244 (L/360)	0.210 (21%)	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 3 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. Concentrated load fastener specification is in addition to hanger fasteners if a hanger is present.
5. Girders are designed to be supported on the bottom edge only.
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	Point	0-3-8		Near Face	306 lb	917 lb	0 lb	0 lb	0 lb	F3A
2	Point	0-3-8		Far Face	264 lb	790 lb	0 lb	0 lb	0 lb	F2A
3	Part. Uniform	1-2-4 to 7-9-8		Near Face	115 PLF	344 PLF	0 PLF	0 PLF	0 PLF	F3
4	Part. Uniform	1-2-4 to 7-9-8		Far Face	119 PLF	355 PLF	0 PLF	0 PLF	0 PLF	F2
	Self Weight				11 PLF					

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

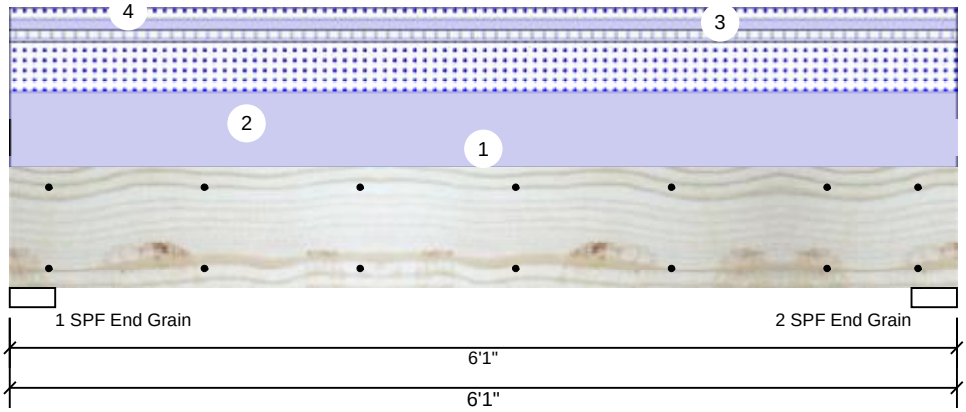
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

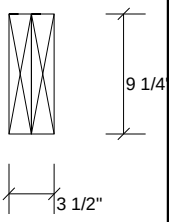
Comtech, Inc.
1001 S. Reilly Road, Suite #639
Fayetteville, NC
USA
28314
910-864-TRUS

Client:	Weaver Development	Date:	10/24/2022
Project:	The Nicholson	Input by:	Christine Shivy
Address:	The Nicholson	Job Name:	Nicholson
		Project #:	

F. Room Window Hdr. Kerto-S LVL 1.750" X 9.250" 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	122	1375	928	0	0
2	Vertical	122	1375	928	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	22%	1375 / 928	2303	L	D+S
2 - SPF End Grain	3.500"	Vert	22%	1375 / 928	2303	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2995 ft-lb	3' 1/2"	14423 ft-lb	0.208 (21%)	D+S	L
Unbraced	2995 ft-lb	3' 1/2"	10944 ft-lb	0.274 (27%)	D+S	L
Shear	1504 lb	1' 3/4"	7943 lb	0.189 (19%)	D+S	L
LL Defl inch	0.019 (L/3521)	3' 1/2"	0.141 (L/480)	0.136 (14%)	S	L
TL Defl inch	0.048 (L/1418)	3' 1/2"	0.188 (L/360)	0.254 (25%)	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 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 Girders are designed to be supported on the bottom edge only.
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			Top	125 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall Load
2	Uniform			Top	249 PLF	0 PLF	249 PLF	0 PLF	0 PLF	A1
3	Uniform			Top	15 PLF	40 PLF	0 PLF	0 PLF	0 PLF	1'-0" Floor Load
4	Uniform			Top	56 PLF	0 PLF	56 PLF	0 PLF	0 PLF	M1
	Self Weight				7 PLF					

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

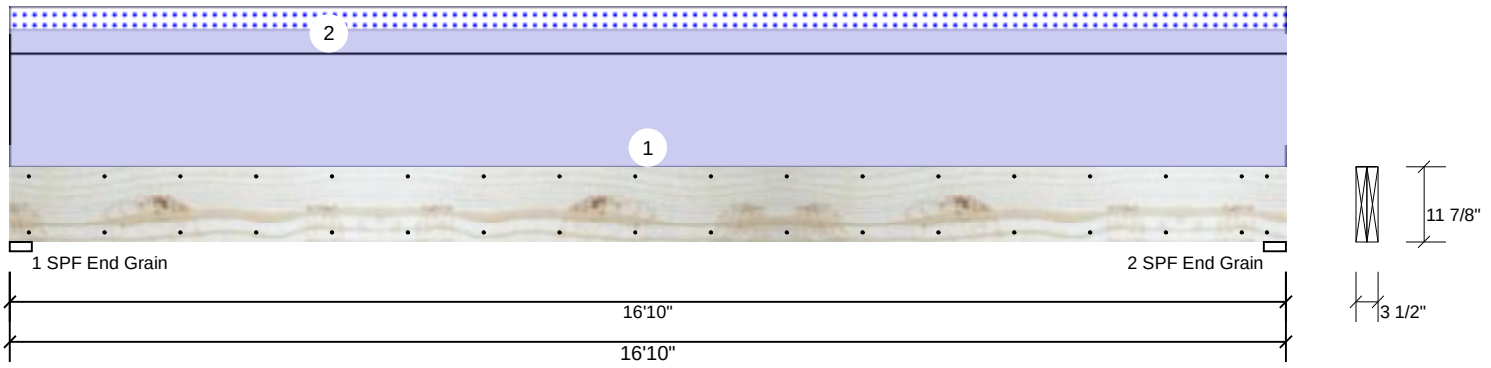
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

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

Client:	Weaver Development	Date:	10/24/2022
Project:	The Nicholson	Input by:	Christine Shivy
Address:	The Nicholson	Job Name:	Nicholson
		Project #:	

GDH 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	2098	337	0	0
2	Vertical	0	2098	337	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	24%	2098 / 337	2434	L	D+S
2 - SPF End Grain	3.500"	Vert	24%	2098 / 337	2434	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	8354 ft-lb	8'5"	17919 ft-lb	0.466 (47%)	D	Uniform
Unbraced	9694 ft-lb	8'5"	9704 ft-lb	0.999 (100%)	D+S	L
Shear	1788 lb	1'3 3/8"	7980 lb	0.224 (22%)	D	Uniform
LL Defl inch	0.070 (L/2809)	8'5 1/16"	0.409 (L/480)	0.171 (17%)	S	L
TL Defl inch	0.506 (L/388)	8'5 1/16"	0.546 (L/360)	0.927 (93%)	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 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 Girders are designed to be supported on the bottom edge only.
5 Top loads must be supported equally by all plies.
6 Top must be laterally braced at a maximum of 9'6 3/4" o.c.
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			Top	200 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Exterior Loads (Siding/ Plywood, etc.)
2	Uniform			Top	40 PLF	0 PLF	40 PLF	0 PLF	0 PLF	2'0" Roof Load
	Self Weight				9 PLF					

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

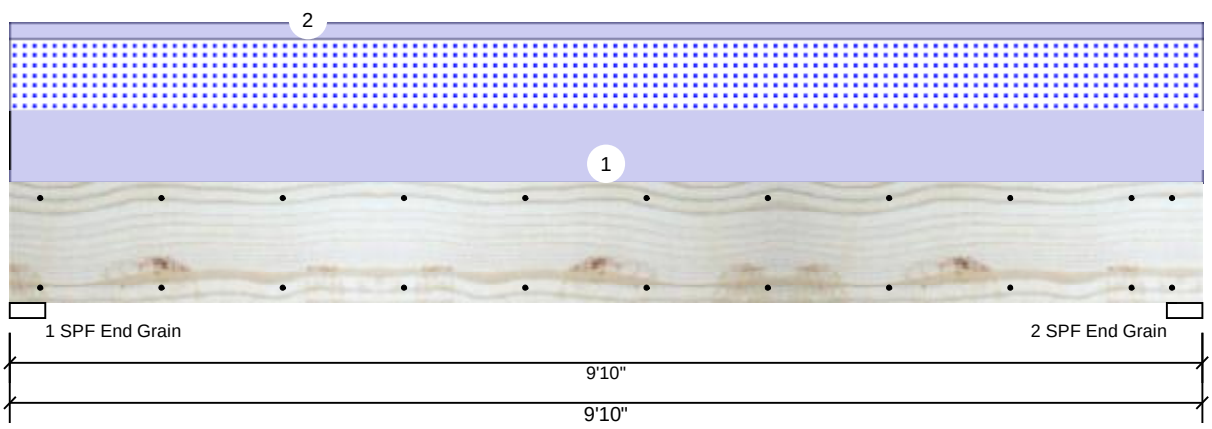
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

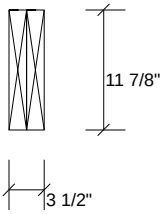
Comtech, Inc.
1001 S. Reilly Road, Suite #639
Fayetteville, NC
USA
28314
910-864-TRUS

Client:	Weaver Development	Date:	10/24/2022
Project:	The Nicholson	Input by:	Christine Shivy
Address:	The Nicholson	Job Name:	Nicholson
		Project #:	

GDH-3 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	1624	1283	0	0
2	Vertical	0	1624	1283	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	28%	1624 / 1283	2907	L	D+S
2 - SPF End Grain	3.500"	Vert	28%	1624 / 1283	2907	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6496 ft-lb	4'11"	22897 ft-lb	0.284 (28%)	D+S	L
Unbraced	6496 ft-lb	4'11"	9857 ft-lb	0.659 (66%)	D+S	L
Shear	2159 lb	1'3 3/8"	10197 lb	0.212 (21%)	D+S	L
LL Defl inch	0.054 (L/2068)	4'11"	0.234 (L/480)	0.232 (23%)	S	L
TL Defl inch	0.123 (L/913)	4'11"	0.312 (L/360)	0.394 (39%)	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. 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. Girders are designed to be supported on the bottom edge only.
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			Top	261 PLF	0 PLF	261 PLF	0 PLF	0 PLF	G1
2	Uniform			Top	60 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Exterior Loads
	Self Weight				9 PLF					

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

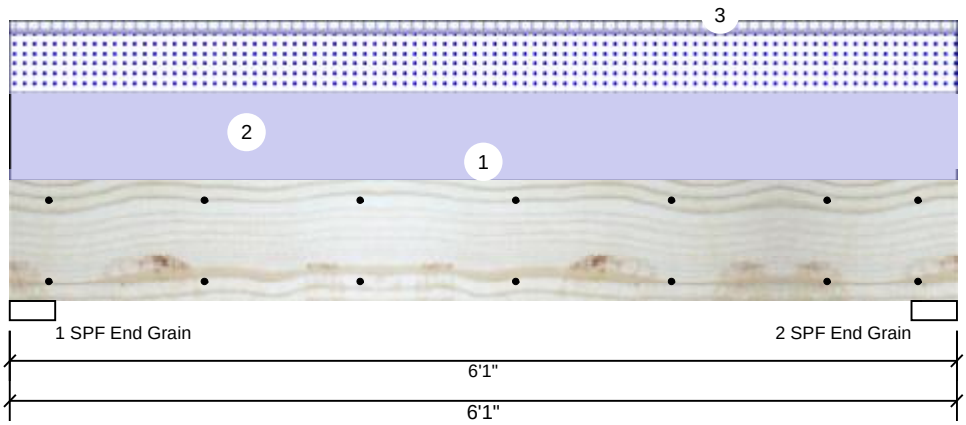
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

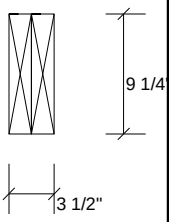
Comtech, Inc.
1001 S. Reilly Road, Suite #639
Fayetteville, NC
USA
28314
910-864-TRUS

Client:	Weaver Development	Date:	10/24/2022
Project:	The Nicholson	Input by:	Christine Shivy
Address:	The Nicholson	Job Name:	Nicholson
		Project #:	

M. Bdrm. Window Hdr. Kerto-S LVL 1.750" X 9.250" 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	122	1205	757	0	0
2	Vertical	122	1205	757	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	19%	1205 / 757	1962	L	D+S
2 - SPF End Grain	3.500"	Vert	19%	1205 / 757	1962	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2552 ft-lb	3' 1/2"	14423 ft-lb	0.177 (18%)	D+S	L
Unbraced	2552 ft-lb	3' 1/2"	10944 ft-lb	0.233 (23%)	D+S	L
Shear	1282 lb	1' 3/4"	7943 lb	0.161 (16%)	D+S	L
LL Defl inch	0.016 (L/4312)	3' 1/2"	0.141 (L/480)	0.111 (11%)	S	L
TL Defl inch	0.041 (L/1664)	3' 1/2"	0.188 (L/360)	0.216 (22%)	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. 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. Girders are designed to be supported on the bottom edge only.
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			Top	125 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Exterior Wall Load
2	Uniform			Top	249 PLF	0 PLF	249 PLF	0 PLF	0 PLF	A1
3	Uniform			Top	15 PLF	40 PLF	0 PLF	0 PLF	0 PLF	1'0" Floor Load
	Self Weight				7 PLF					

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

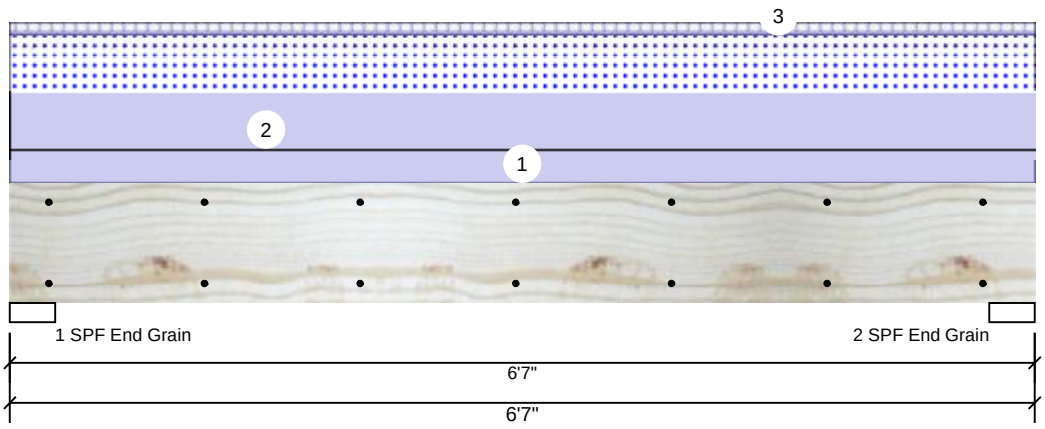
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

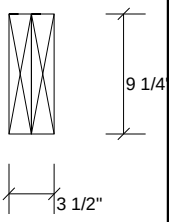
Comtech, Inc.
1001 S. Reilly Road, Suite #639
Fayetteville, NC
USA
28314
910-864-TRUS

Client:	Weaver Development	Date:	10/24/2022
Project:	The Nicholson	Input by:	Christine Shivy
Address:	The Nicholson	Job Name:	Nicholson
		Project #:	

Sliding Door Kerto-S LVL 1.750" X 9.250" 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	132	1386	820	0	0
2	Vertical	132	1386	820	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	21%	1386 / 820	2206	L	D+S
2 - SPF End Grain	3.500"	Vert	21%	1386 / 820	2206	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	3143 ft-lb	3'3 1/2"	14423 ft-lb	0.218 (22%)	D+S	L
Unbraced	3143 ft-lb	3'3 1/2"	10451 ft-lb	0.301 (30%)	D+S	L
Shear	1500 lb	1' 3/4"	7943 lb	0.189 (19%)	D+S	L
LL Defl inch	0.021 (L/3461)	3'3 1/2"	0.153 (L/480)	0.139 (14%)	S	L
TL Defl inch	0.057 (L/1286)	3'3 1/2"	0.204 (L/360)	0.280 (28%)	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. 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. Girders are designed to be supported on the bottom edge only.
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			Top	150 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Exterior Wall Load
2	Uniform			Top	249 PLF	0 PLF	249 PLF	0 PLF	0 PLF	A1
3	Uniform			Top	15 PLF	40 PLF	0 PLF	0 PLF	0 PLF	1'-0" Floor Load
	Self Weight				7 PLF					

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

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