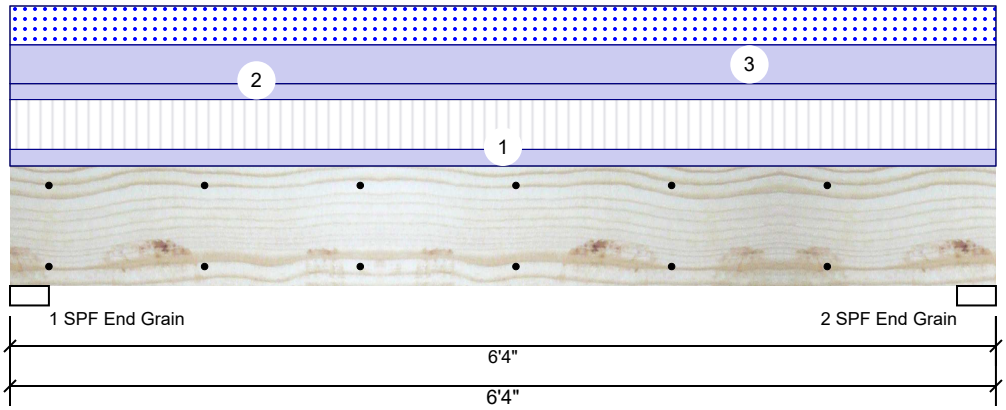
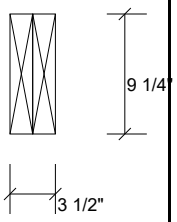
Client:	Signature Home Builders	Date:	8/30/2023
Project:		Input by:	Hampton Horrocks
Address:		Job Name:	245 Mamie Upchurch Rd
		Project #:	J0823-4774

BM3 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: 1ST. FLOOR





Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
Deflection LL:	480	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	1131	1641	880	0	0
2	Vertical	1131	1641	880	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.000"	Vert	36%	1641 / 1508	3149	L	D+0.75(L+S)
2 - SPF End Grain	3.000"	Vert	36%	1641 / 1508	3149	L	D+0.75(L+S)

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	3884 ft-lb	3'2"	12542 ft-lb	0.310 (31%)	D+L	L
Unbraced	4413 ft-lb	3'2"	10614 ft-lb	0.416 (42%)	D+0.75(L+S)	L
Shear	1884 lb	5'3 3/4"	6907 lb	0.273 (27%)	D+L	L
LL Defl inch	0.037 (L/1944)	3'2"	0.149 (L/480)	0.247 (25%)	0.75(L+S)	L
TL Defl inch	0.077 (L/931)	3'2"	0.298 (L/240)	0.258 (26%)	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 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	119 PLF	357 PLF	0 PLF	0 PLF	0 PLF	F02
2	Uniform			Top	114 PLF	0 PLF	0 PLF	0 PLF	0 PLF	wall
3	Uniform			Top	278 PLF	0 PLF	278 PLF	0 PLF	0 PLF	C01
	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

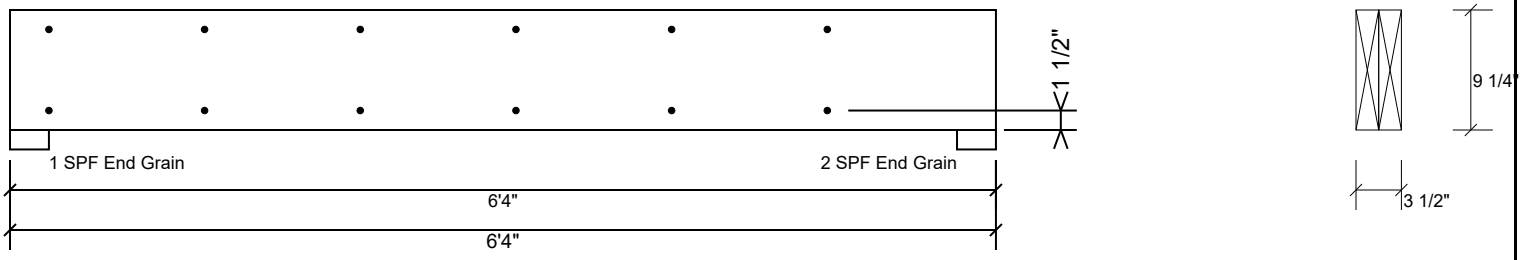
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

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

Client:	Signature Home Builders	Date:	8/30/2023
Project:		Input by:	Hampton Horrocks
Address:		Job Name:	245 Mamie Upchurch Rd
		Project #:	J0823-4774

BM3 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: 1ST. FLOOR



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	0.0 %
Load	0.0 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	
Duration Factor	1.00

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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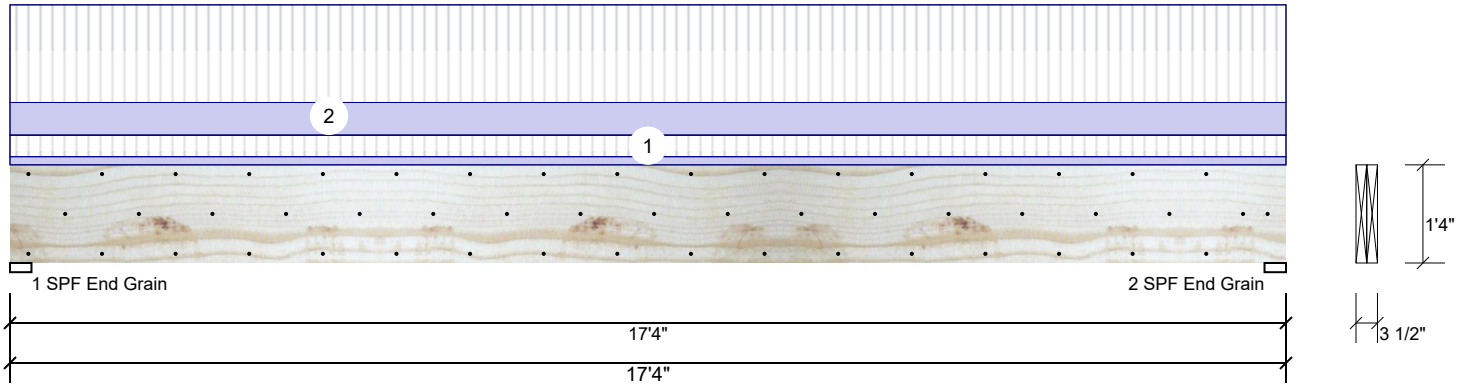
Address:		Job Name:	245 Mamie Upchurch Rd
		Project #:	J0823-4774

BM1 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: 1ST. FLOOR



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	3813	1408	0	0	0
2	Vertical	3813	1408	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	51%	1408 / 3813	5221	L	D+L
2 - SPF End Grain	3.500"	Vert	51%	1408 / 3813	5221	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	21497 ft-lb	8'8"	34565 ft-lb	0.622 (62%)	D+L	L
Unbraced	21497 ft-lb	8'8"	21533 ft-lb	0.998 (100%)	D+L	L
Shear	4899 lb	1'7 1/2"	11947 lb	0.410 (41%)	D+L	L
LL Defl inch	0.370 (L/548)	8'8 1/16"	0.422 (L/480)	0.876 (88%)	L	L
TL Defl inch	0.507 (L/400)	8'8 1/16"	0.563 (L/360)	0.899 (90%)	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 a maximum of 5'3 3/8" 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	30 PLF	80 PLF	0 PLF	0 PLF	0 PLF	Floor
2	Uniform			Near Face	120 PLF	360 PLF	0 PLF	0 PLF	0 PLF	F02
	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
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

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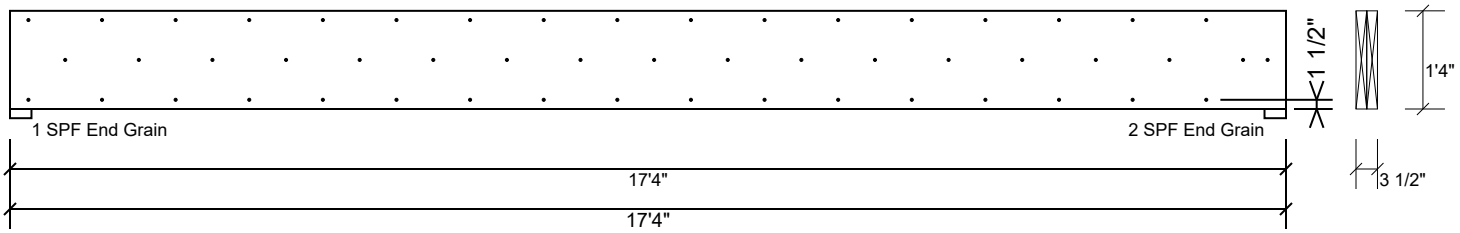
Project:		Input by:	Hampton Horrocks
Address:		Job Name:	245 Mamie Upchurch Rd
		Project #:	J0823-4774

BM1 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: 1ST. FLOOR



Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6".

Capacity	97.7 %
Load	240.0 PLF
Yield Limit per Foot	245.6 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

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

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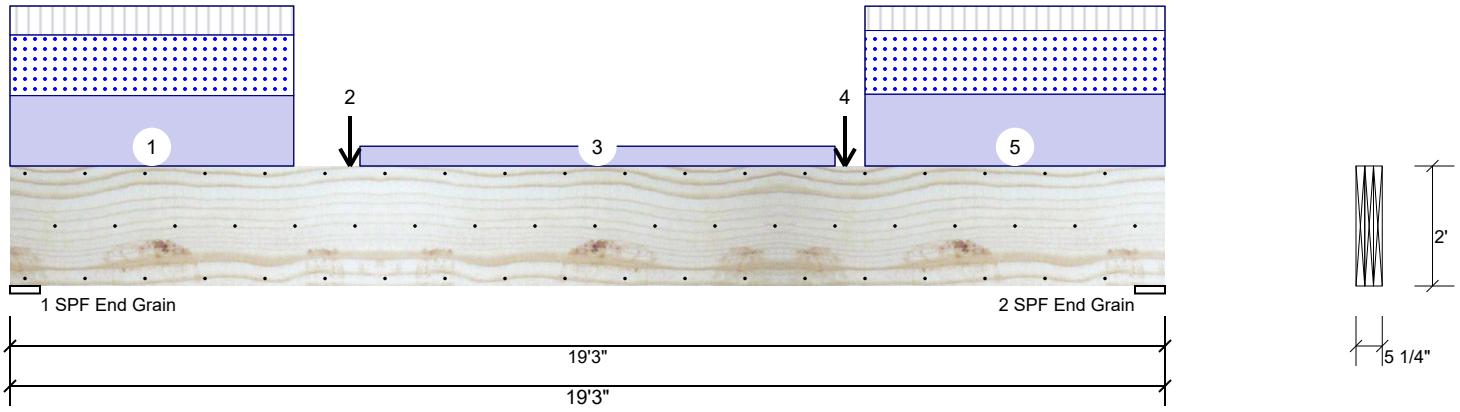
Address:		Job Name:	245 Mamie Upchurch Rd
		Project #:	J0823-4774

GDH1 Kerto-S LVL 1.750" X 24.000" 3-Ply - PASSED

Level: 1ST. FLOOR



Member Information

Type:	Girder	Application:	Floor
Plies:	3	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	1475	5906	4708	0	0
2	Vertical	1419	6117	4922	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	6.000"	Vert	40%	5906 / 4708	10614	L	D+S
2 - SPF End Grain	6.000"	Vert	42%	6117 / 4922	11039	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	44505 ft-lb	9'2 1/2"	131295 ft-lb	0.339 (34%)	D+S	L
Unbraced	44505 ft-lb	9'2 1/2"	44534 ft-lb	0.999 (100%)	D+S	L
Shear	9105 lb	16'9"	30912 lb	0.295 (29%)	D+S	L
LL Defl inch	0.123 (L/1793)	9'7 9/16"	0.460 (L/480)	0.268 (27%)	S	L
TL Defl inch	0.282 (L/782)	9'7 9/16"	0.613 (L/360)	0.460 (46%)	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 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 a maximum of 6' 7/16" 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	Part. Uniform	0-0-0 to 4-8-12		Top	399 PLF	164 PLF	344 PLF	0 PLF	0 PLF	A01
2	Point	5-8-0		Top	3352 lb	719 lb	3112 lb	0 lb	0 lb	A02
	Bearing Length	0-3-8								
3	Part. Uniform	5-10-0 to 13-9-0		Top	112 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall

Continued on page 2...

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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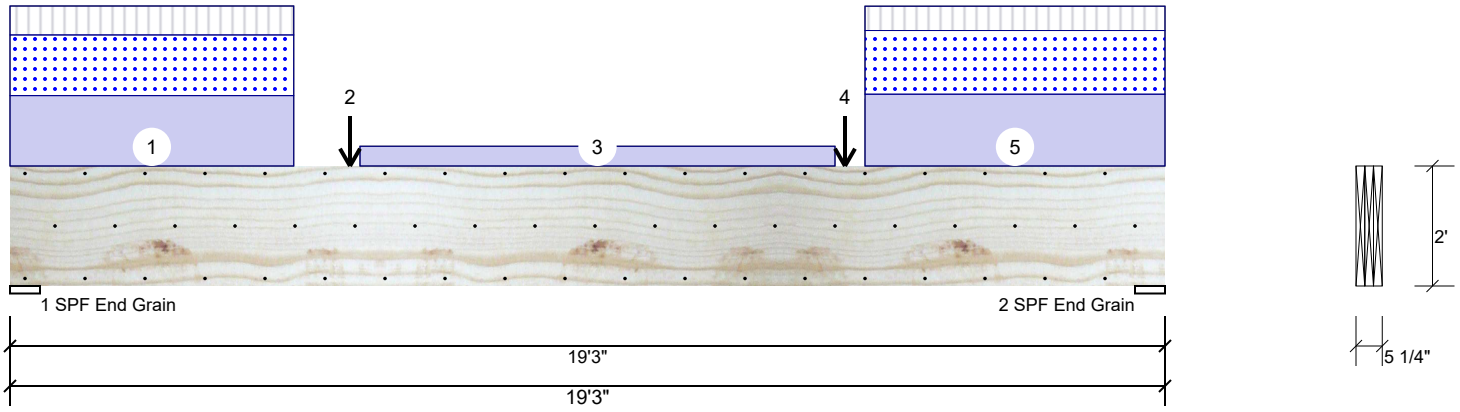
Client:	Signature Home Builders	Date:	8/30/2023
Project:		Input by:	Hampton Horrocks
Address:		Job Name:	245 Mamie Upchurch Rd
		Project #:	J0823-4774

GDH1 Kerto-S LVL 1.750" X 24.000" 3-Ply - PASSED

Level: 1ST. FLOOR



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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
4	Point	13-11-0		Top	3323 lb	710 lb	3086 lb	0 lb	0 lb	A02A
	Bearing Length	0-3-8								
5	Part. Uniform	14-3-0 to 19-3-0		Top	407 PLF	138 PLF	361 PLF	0 PLF	0 PLF	A01A
	Self Weight				28 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

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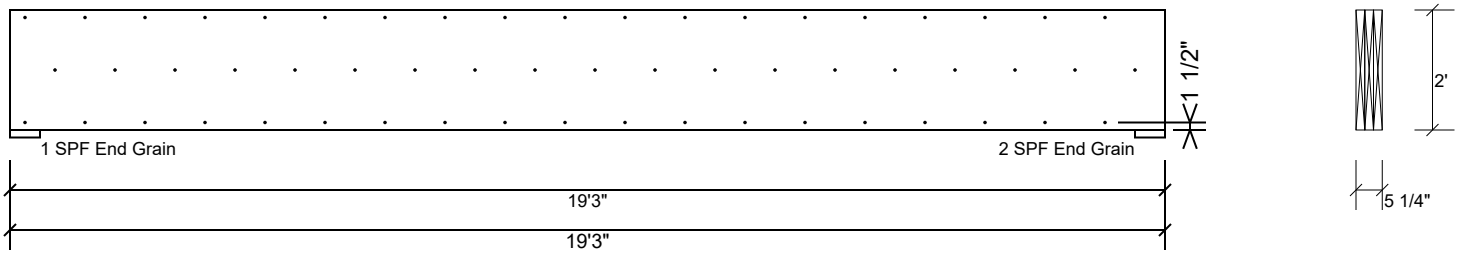
		Project #:	J0823-4774

GDH1 Kerto-S LVL 1.750" X 24.000" 3-Ply - PASSED

Level: 1ST. FLOOR



Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Nail from both sides. Maximum end distance not to exceed 6".

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

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

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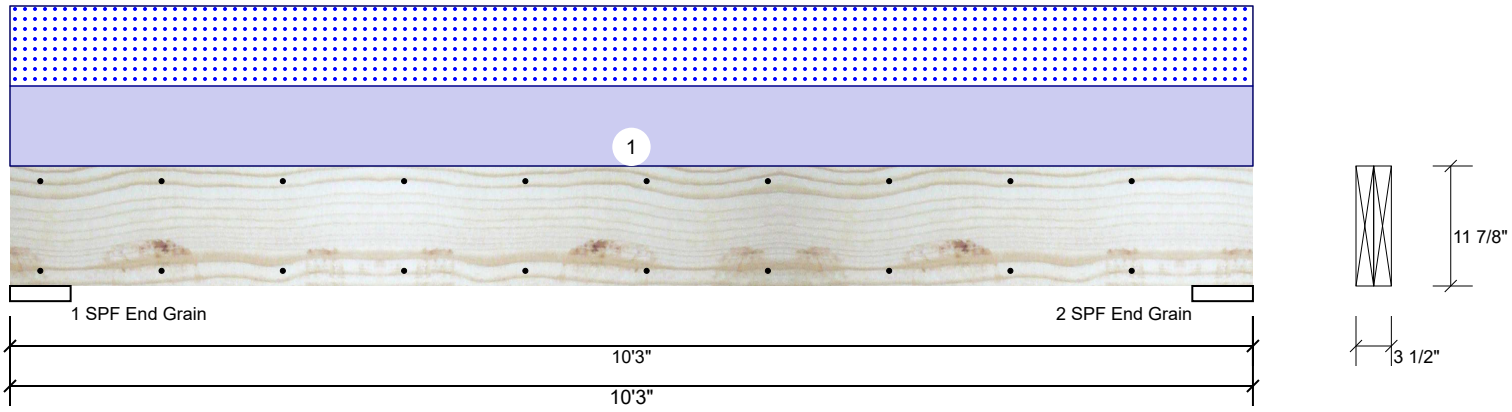
Address:		Job Name:	245 Mamie Upchurch Rd
		Project #:	J0823-4774

GDH2 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: 1ST. FLOOR



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	0	1226	1179	0	0
2	Vertical	0	1226	1179	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	6.000"	Vert	14%	1226 / 1179	2405	L	D+S
2 - SPF End Grain	6.000"	Vert	14%	1226 / 1179	2405	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	5155 ft-lb	5'1 1/2"	22897 ft-lb	0.225 (23%)	D+S	L
Unbraced	5155 ft-lb	5'1 1/2"	9857 ft-lb	0.523 (52%)	D+S	L
Shear	1715 lb	1'5 7/8"	10197 lb	0.168 (17%)	D+S	L
LL Defl inch	0.048 (L/2347)	5'1 1/2"	0.312 (L/360)	0.153 (15%)	S	L
TL Defl inch	0.098 (L/1151)	5'1 1/2"	0.469 (L/240)	0.209 (21%)	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	230 PLF	0 PLF	230 PLF	0 PLF	0 PLF	G01
	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

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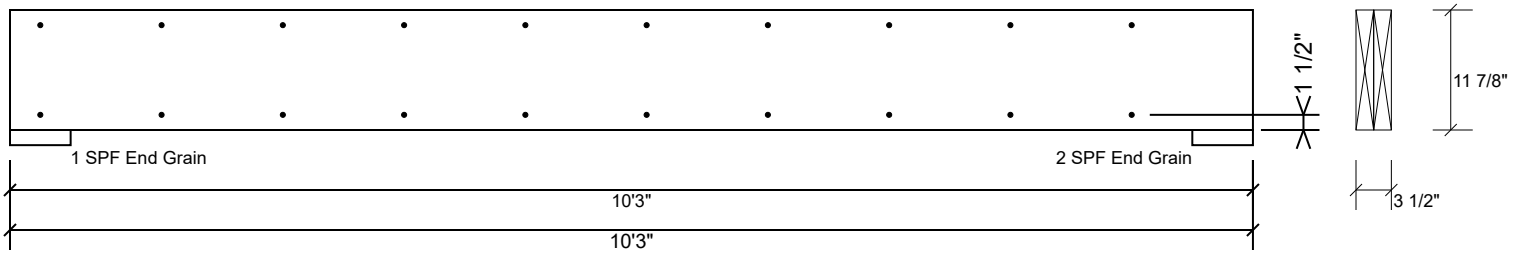
Address:		Job Name:	245 Mamie Upchurch Rd
		Project #:	J0823-4774

GDH2 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: 1ST. FLOOR



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	0.0 %
Load	0.0 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	
Duration Factor	1.00

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

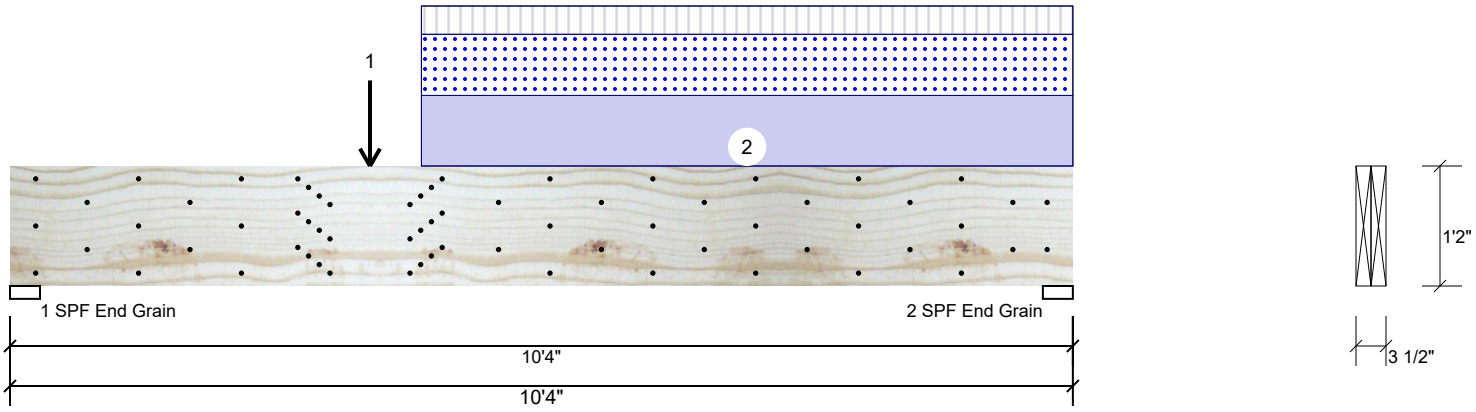
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

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

Client:	Signature Home Builders	Date:	8/30/2023
Project:		Input by:	Hampton Horrocks
Address:		Job Name:	245 Mamie Upchurch Rd
		Project #:	J0823-4774

BM2 Kerto-S LVL 1.750" X 14.000" 2-Ply - PASSED

Level: 1ST. FLOOR



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	880	2659	2309	0	0
2	Vertical	1016	2789	2394	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	49%	2659 / 2392	5052	L	D+0.75(L+S)
2 - SPF End Grain	3.500"	Vert	52%	2789 / 2557	5346	L	D+0.75(L+S)

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	16457 ft-lb	3'6"	31049 ft-lb	0.530 (53%)	D+0.75(L+S)	L
Unbraced	16457 ft-lb	3'6"	16525 ft-lb	0.996 (100%)	D+0.75(L+S)	L
Shear	5984 lb	1'5 1/2"	12021 lb	0.498 (50%)	D+0.75(L+S)	L
LL Defl inch	0.099 (L/1197)	4'10 13/16"	0.247 (L/480)	0.401 (40%)	0.75(L+S)	L
TL Defl inch	0.208 (L/570)	4'10 3/4"	0.329 (L/360)	0.631 (63%)	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. Fasten all plies using 5 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 a maximum of 6'1 5/8" 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	Point	3-6-0		Near Face	2733 lb	851 lb	2449 lb	0 lb	0 lb	A02A
2	Part. Uniform	4-0-0 to 10-4-0		Near Face	411 PLF	165 PLF	356 PLF	0 PLF	0 PLF	A01A
	Self Weight				11 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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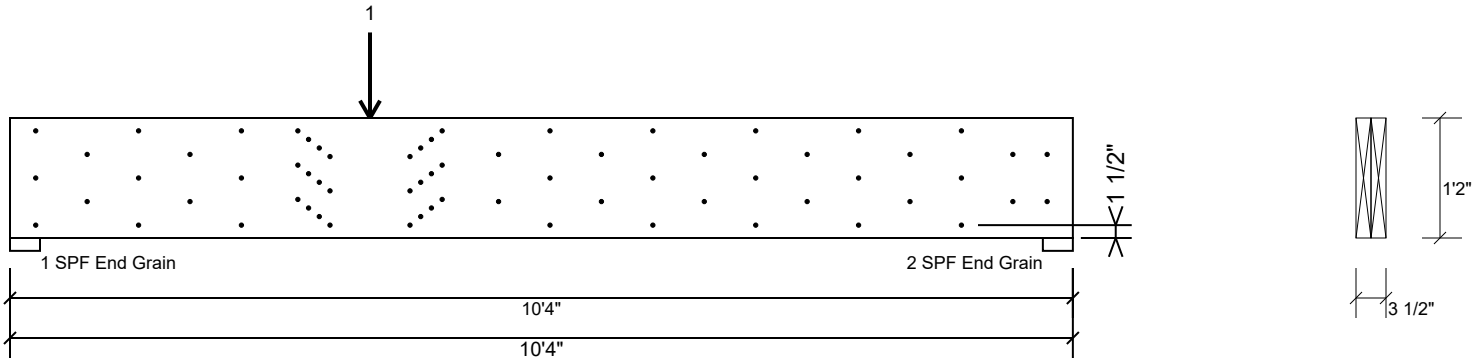
BM2 Kerto-S LVL 1.750" X 14.000" 2-Ply - PASSED

Level: 1ST. FLOOR



Multi-Ply Analysis

Fasten all plies using 5 rows of 10d Box nails (.128x3") at 12" o.c.. except for regions covered by concentrated load fastening. Maximum end distance not to exceed 6".

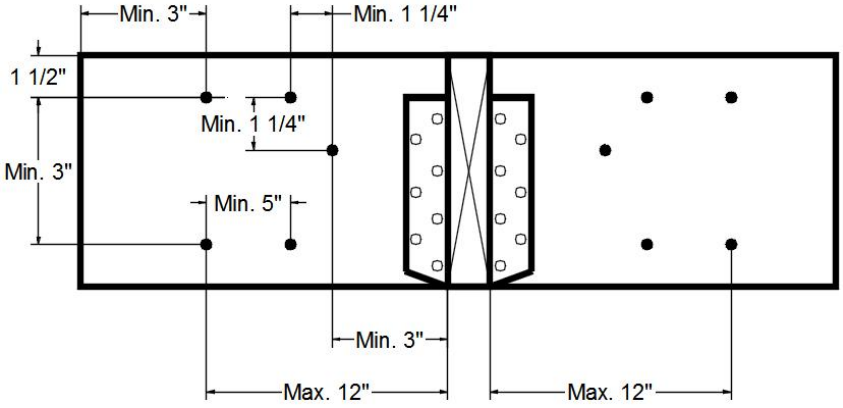
Capacity	85.2 %
Load	400.9 PLF
Yield Limit per Foot	470.6 PLF
Yield Limit per Fastener	94.1 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	D+0.75(L+S)
Duration Factor	1.15

Concentrated Load

Fasten at concentrated side load at 3-6-0 with a minimum of (24) – 12d Common nails (.148x3.25") in the pattern shown.

Capacity	88.8 %
Load	2604.0lb.
Total Yield Limit	2933.3 lb.
Cg	0.9998
Yield Limit per Fastener	122.3 lb.
Yield Mode	IV
Load Combination	D+0.75(L+S)
Duration Factor	1.15

Min/Max fastener distances for Concentrated Side Loads



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
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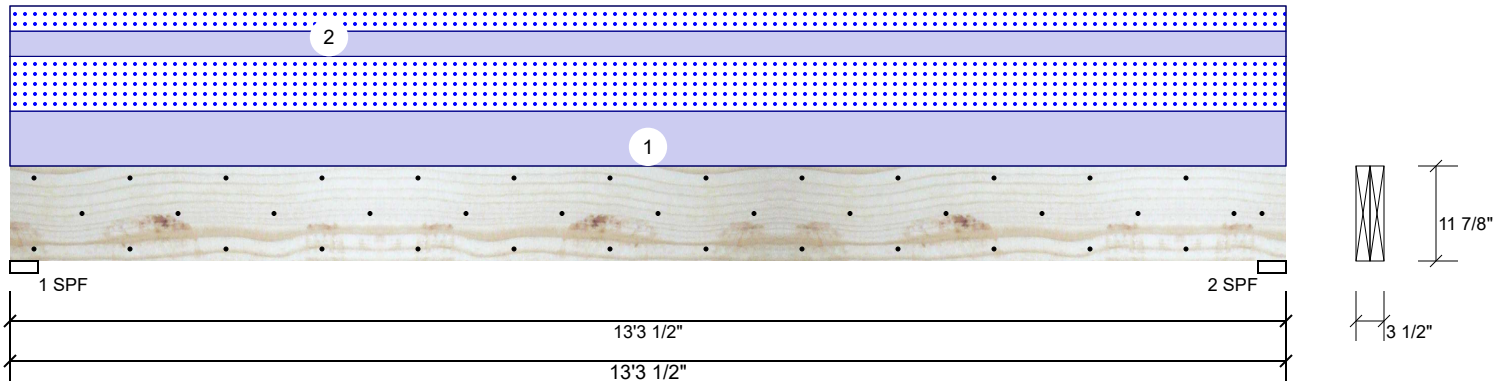
Client:	Signature Home Builders	Date:	8/30/2023
Project:		Input by:	Hampton Horrocks
Address:		Job Name:	245 Mamie Upchurch Rd
		Project #:	J0823-4774

BM4 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: 2ND. FLOOR



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC 2012
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	0	2593	2532	0	0
2	Vertical	0	2593	2532	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	98%	2593 / 2532	5126	L	D+S
2 - SPF	3.500"	Vert	98%	2593 / 2532	5126	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	15877 ft-lb	6'7 3/4"	22897 ft-lb	0.693 (69%)	D+S	L
Unbraced	15877 ft-lb	6'7 3/4"	15911 ft-lb	0.998 (100%)	D+S	L
Shear	4901 lb	12' 1/8"	10197 lb	0.481 (48%)	D+S	L
LL Defl inch	0.260 (L/593)	6'7 3/4"	0.428 (L/360)	0.607 (61%)	S	L
TL Defl inch	0.526 (L/293)	6'7 3/4"	0.642 (L/240)	0.820 (82%)	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 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 must be laterally braced at a maximum of 5'1 3/8" 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	261 PLF	0 PLF	261 PLF	0 PLF	0 PLF	C02
2	Tie-In	0-0-0 to 13-3-8	6-0-0	Near Face	20 PSF	0 PSF	20 PSF	0 PSF	0 PSF	ROOF FRAMING
	Self Weight				9 PLF					

Notes

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Lumber

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

Handling & Installation

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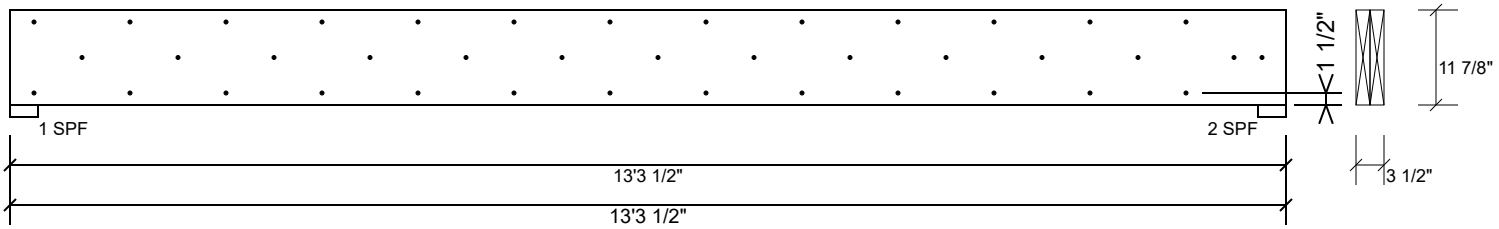

Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6".

Capacity	92.4 %
Load	261.0 PLF
Yield Limit per Foot	282.4 PLF
Yield Limit per Fastener	94.1 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	D+S
Duration Factor	1.15

Notes

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