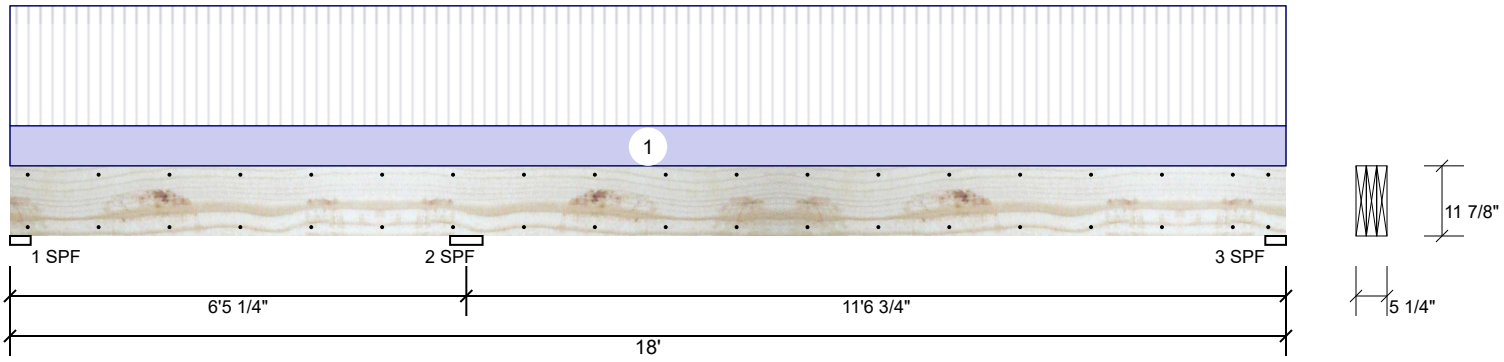
Client:	Watermark Homes	Date:	3/1/2022
Project:		Input by:	Anthony Williams
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

BM1 Kerto-S LVL 1.750" X 11.875" 3-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Roof
Plies:	3	Slope:	0/12
Moisture Condition:	Dry	Design Method:	ASD
Deflection LL:	480	Building Code:	IBC 2012
Deflection TL:	360	Load Sharing:	Yes
Importance:	Normal - II	Deck:	Not Checked
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	1162	409	0	0	0
2	Vertical	8927	3140	0	0	0
3	Vertical	3771	1326	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	35%	376 / 2355	2731 (-734)	L_	D+L(D+L)
2 - SPF	5.500"	Vert	100%	3191 / 9072	12263	LL	D+L
3 - SPF	3.500"	Vert	66%	1308 / 3835	5143	_L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-12572 ft-lb	6'5 1/4"	31060 ft-lb	0.405 (40%)	D+L	LL
Unbraced	-12572 ft-lb	6'5 1/4"	12575 ft-lb	1.000 (100%)	D+L	LL
Pos Moment	11556 ft-lb	13' 11/16"	31060 ft-lb	0.372 (37%)	D+L	_L
Unbraced	11556 ft-lb	13' 11/16"	11563 ft-lb	0.999 (100%)	D+L	_L
Shear	5753 lb	7'7 7/8"	13300 lb	0.433 (43%)	D+L	LL
LL Defl inch	0.148 (L/920)	12'5 1/2"	0.283 (L/480)	0.522 (52%)	L	_L
TL Defl inch	0.196 (L/695)	12'5 13/16"	0.378 (L/360)	0.518 (52%)	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 Girders are designed to be supported on the bottom edge only.
5 Top loads must be supported equally by all plies.
6 Tie-down connection required at bearing 1 for uplift 734 lb (Combination D+L, Load Case _L).
7 Top must be laterally braced at a maximum of 12'7 5/16" o.c.
8 Bottom must be laterally braced at a maximum of 11'4 11/16" o.c.
9 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 3/30/2024

Manufacturer Info

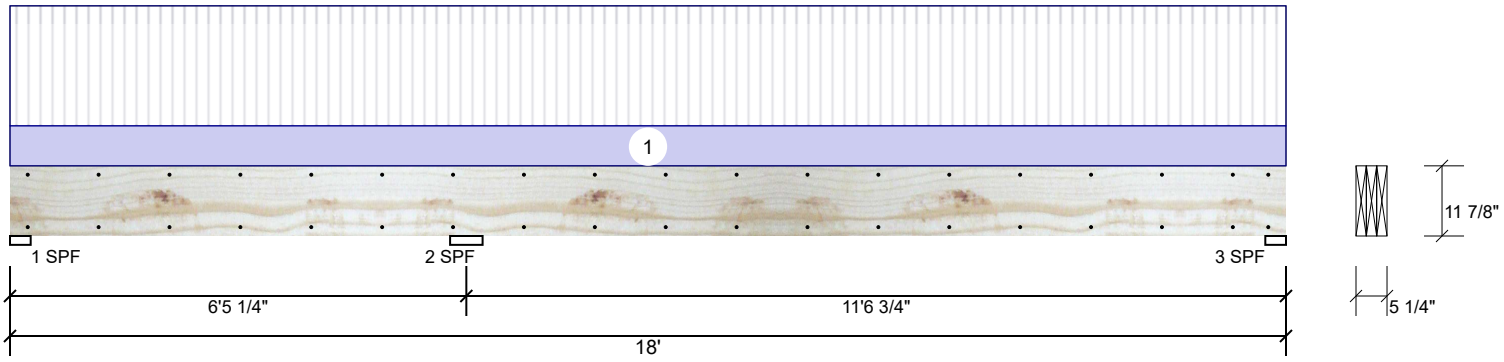
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us
ICC-ES: ESR-3633

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

Client:	Watermark Homes	Date:	3/1/2022
Project:		Input by:	Anthony Williams
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

BM1 Kerto-S LVL 1.750" X 11.875" 3-Ply - PASSED

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	Uniform			Top	257 PLF	770 PLF	0 PLF	0 PLF	0 PLF	F04
	Self Weight				14 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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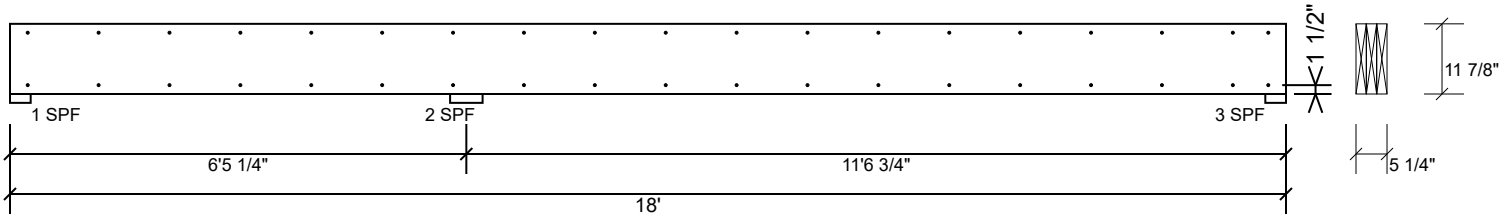
Project:		Input by:	Anthony Williams
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

BM1 Kerto-S LVL 1.750" X 11.875" 3-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 2 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	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

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 3/30/2024

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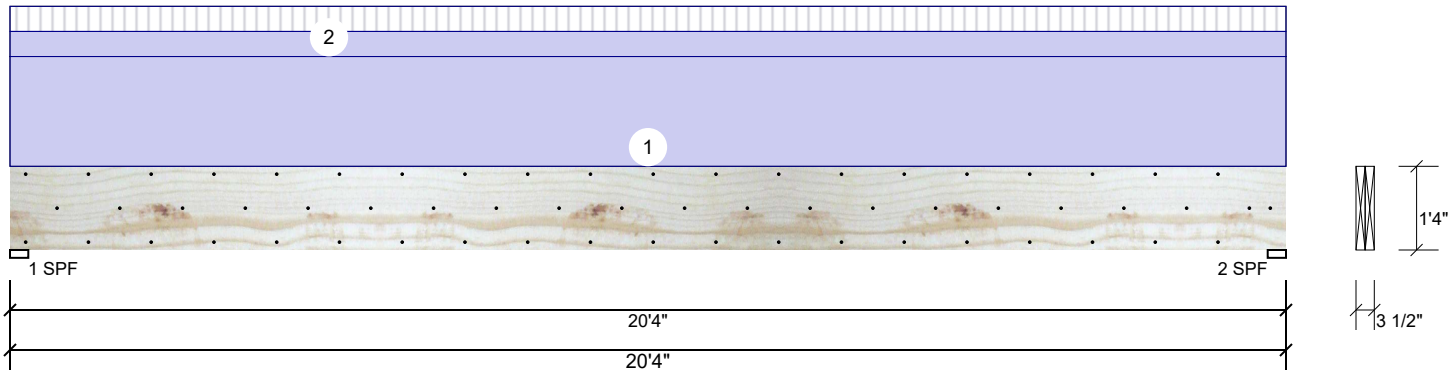
Client:	Watermark Homes	Date:	3/1/2022
Project:		Input by:	Anthony Williams
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

BM3 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Roof
Plies:	2	Slope:	0/12
Moisture Condition:	Dry	Design Method:	ASD
Deflection LL:	480	Building Code:	IBC 2012
Deflection TL:	360	Load Sharing:	No
Importance:	Normal - II	Deck:	Not Checked
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	407	2312	0	0	0
2	Vertical	407	2312	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	52%	2312 / 407	2719	L	D+L
2 - SPF	3.500"	Vert	52%	2312 / 407	2719	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	13233 ft-lb	10'2"	34565 ft-lb	0.383 (38%)	D+L	L
Unbraced	13233 ft-lb	10'2"	13276 ft-lb	0.997 (100%)	D+L	L
Shear	2301 lb	1'7 1/2"	11947 lb	0.193 (19%)	D+L	L
LL Defl inch	0.063 (L/3784)	10'2 1/16"	0.497 (L/480)	0.127 (13%)	L	L
TL Defl inch	0.422 (L/566)	10'2 1/16"	0.663 (L/360)	0.636 (64%)	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 8'11 1/4" 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	175 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
2	Uniform			Top	40 PLF	40 PLF	0 PLF	0 PLF	0 PLF	ROOF
	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

This design is valid until 3/30/2024

Manufacturer Info

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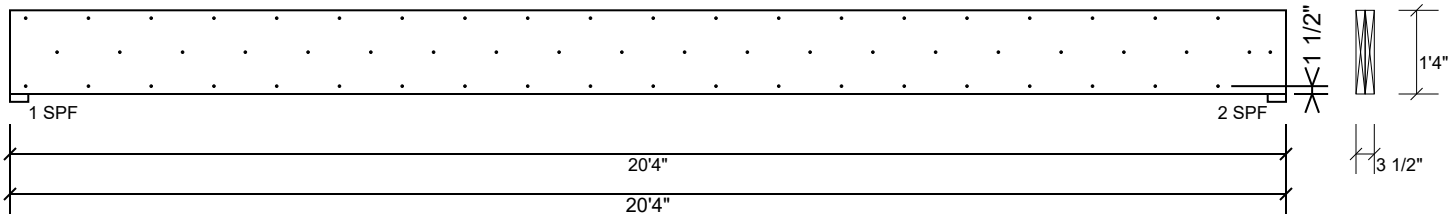
910-864-TRUS

Client:	Watermark Homes	Date:	3/1/2022
Project:		Input by:	Anthony Williams
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

BM3 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level



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	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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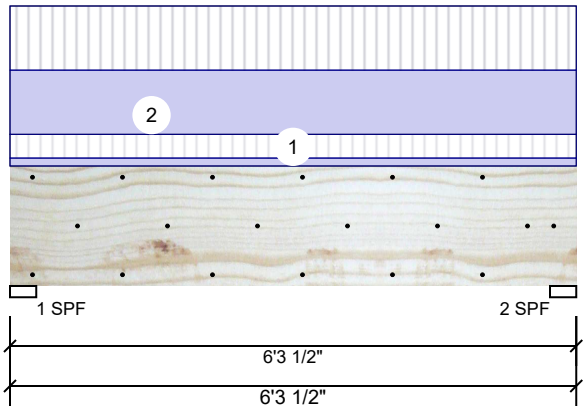
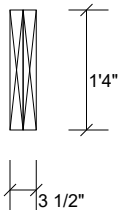
Client:	Watermark Homes	Date:	3/1/2022
Project:		Input by:	Anthony Williams
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

BM4 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level





Member Information

Type:	Girder	Application:	Roof
Plies:	2	Slope:	0/12
Moisture Condition:	Dry	Design Method:	ASD
Deflection LL:	480	Building Code:	IBC 2012
Deflection TL:	360	Load Sharing:	No
Importance:	Normal - II	Deck:	Not Checked
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	1746	1471	0	0	0
2	Vertical	1746	1471	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	62%	1471 / 1746	3216	L	D+L
2 - SPF	3.500"	Vert	62%	1471 / 1746	3216	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	4380 ft-lb	3'1 3/4"	34565 ft-lb	0.127 (13%)	D+L	L
Unbraced	4380 ft-lb	3'1 3/4"	19678 ft-lb	0.223 (22%)	D+L	L
Shear	1572 lb	1'7 1/2"	11947 lb	0.132 (13%)	D+L	L
LL Defl inch	0.011 (L/6369)	3'1 3/4"	0.146 (L/480)	0.075 (8%)	L	L
TL Defl inch	0.020 (L/3457)	3'1 3/4"	0.195 (L/360)	0.104 (10%)	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			Top	50 PLF	150 PLF	0 PLF	0 PLF	0 PLF	FLOOR
2	Uniform			Top	405 PLF	405 PLF	0 PLF	0 PLF	0 PLF	J1
	Self Weight				12 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 3/30/2024

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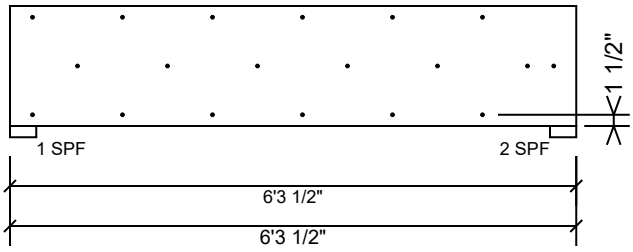
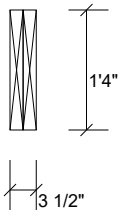
Client:	Watermark Homes	Date:	3/1/2022
Project:		Input by:	Anthony Williams
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

BM4 Kerto-S LVL 1.750" X 16.000" 2-Ply - PASSED

Level: Level





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	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
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Project:		Input by:	Anthony Williams
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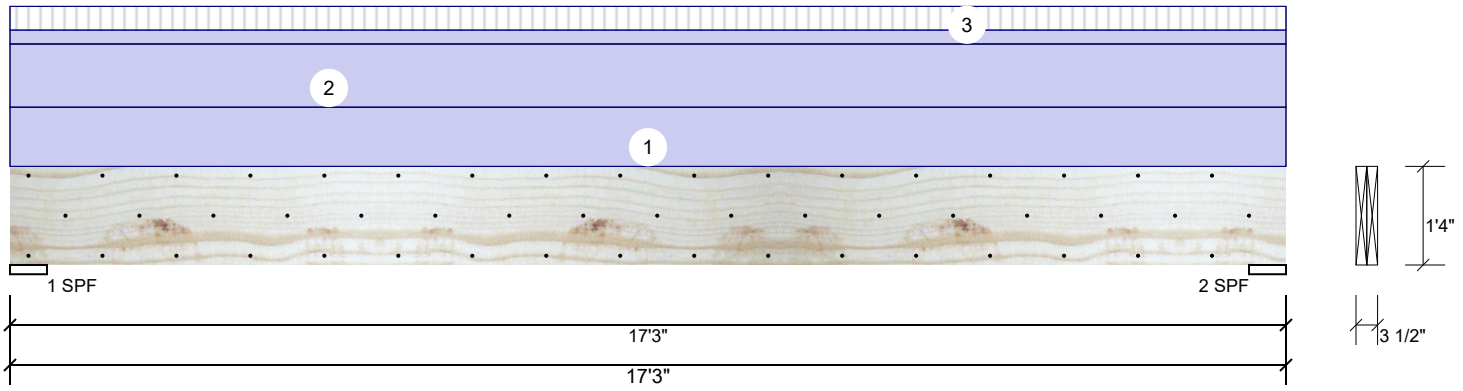
		Project #:	J0322-1085/1086

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

Level: Level



Member Information

Type:	Girder	Application:	Roof
Plies:	2	Slope:	0/12
Moisture Condition:	Dry	Design Method:	ASD
Deflection LL:	480	Building Code:	IBC 2012
Deflection TL:	600	Load Sharing:	No
Importance:	Normal - II	Deck:	Not Checked
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	518	3083	0	0	0
2	Vertical	518	3083	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	6.000"	Vert	40%	3083 / 518	3600	L	D+L
2 - SPF	6.000"	Vert	40%	3083 / 518	3600	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	14027 ft-lb	8'7 1/2"	34565 ft-lb	0.406 (41%)	D+L	L
Unbraced	14027 ft-lb	8'7 1/2"	14050 ft-lb	0.998 (100%)	D+L	L
Shear	2852 lb	1'10"	11947 lb	0.239 (24%)	D+L	L
LL Defl inch	0.045 (L/4374)	8'7 9/16"	0.410 (L/480)	0.110 (11%)	L	L
TL Defl inch	0.313 (L/629)	8'7 9/16"	0.328 (L/600)	0.954 (95%)	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 8'5 1/16" 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	Uniform			Top	150 PLF	0 PLF	0 PLF	0 PLF	0 PLF	WALL
2	Uniform			Top	160 PLF	0 PLF	0 PLF	0 PLF	0 PLF	BRICK
3	Uniform			Top	35 PLF	60 PLF	0 PLF	0 PLF	0 PLF	Roof/Floor
	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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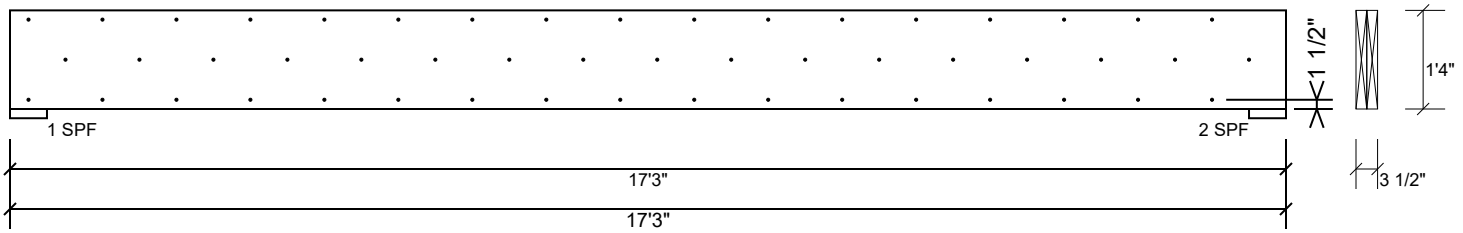
ICC-ES: ESR-3633

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

Client:	Watermark Homes	Date:	3/1/2022
Project:		Input by:	Anthony Williams
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

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

Level: Level



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	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

This design is valid until 3/30/2024

Manufacturer Info

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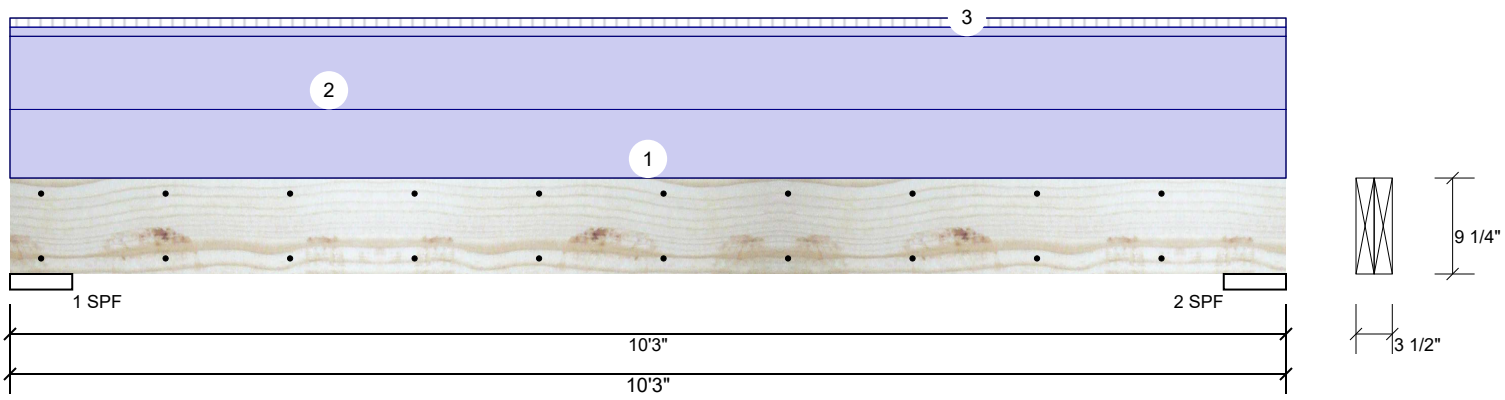
Client:	Watermark Homes	Date:	3/1/2022
Project:		Input by:	Anthony Williams
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

GDH-9 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Roof
Plies:	2	Slope:	0/12
Moisture Condition:	Dry	Design Method:	ASD
Deflection LL:	480	Building Code:	IBC 2012
Deflection TL:	600	Load Sharing:	No
Importance:	Normal - II	Deck:	Not Checked
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	103	1728	0	0	0
2	Vertical	103	1728	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	6.000"	Vert	21%	1728 / 103	1831	L	D+L
2 - SPF	6.000"	Vert	21%	1728 / 103	1831	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	3705 ft-lb	5'1 1/2"	11288 ft-lb	0.328 (33%)	D	Uniform
Unbraced	3924 ft-lb	5'1 1/2"	7663 ft-lb	0.512 (51%)	D+L	L
Shear	1305 lb	8'11 3/4"	6216 lb	0.210 (21%)	D	Uniform
LL Defl inch	0.008 (L/13536)	5'1 1/2"	0.234 (L/480)	0.035 (4%)	L	L
TL Defl inch	0.148 (L/758)	5'1 1/2"	0.188 (L/600)	0.792 (79%)	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. 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	WALL
2	Uniform			Top	160 PLF	0 PLF	0 PLF	0 PLF	0 PLF	BRICK
3	Uniform			Top	20 PLF	20 PLF	0 PLF	0 PLF	0 PLF	Roof
	Self Weight				7 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 3/30/2024

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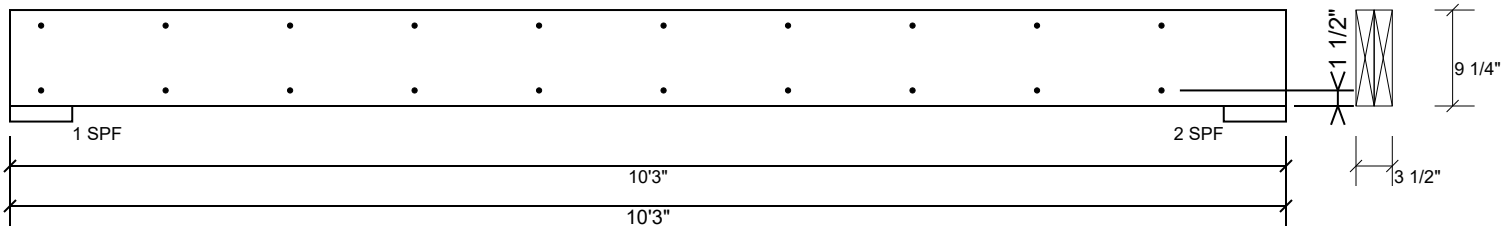
Client:	Watermark Homes	Date:	3/1/2022
Project:		Input by:	Anthony Williams
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

GDH-9 Kerto-S LVL 1.750" X 9.250" 2-Ply - PASSED

Level: Level



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

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

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

Handling & Installation

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2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
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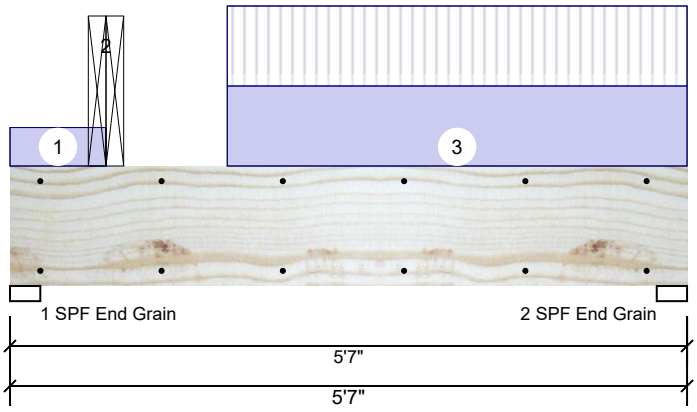
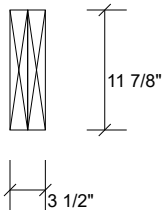
Client:	Watermark Homes	Date:	3/1/2022
Project:		Input by:	Anthony Williams
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

Sliding Door Header 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 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	684	2489	0	0	0
2	Vertical	709	960	0	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.000"	Vert	35%	2489 / 684	3173	L	D+L
2 - SPF End Grain	3.000"	Vert	18%	960 / 709	1669	L	D+L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2327 ft-lb	2'5 3/16"	19911 ft-lb	0.117 (12%)	D+L	L
Unbraced	2327 ft-lb	2'5 3/16"	15061 ft-lb	0.155 (15%)	D+L	L
Shear	1840 lb	1'2 7/8"	8867 lb	0.208 (21%)	D+L	L
LL Defl inch	0.007 (L/9597)	2'9 7/8"	0.174 (L/360)	0.038 (4%)	L	L
TL Defl inch	0.018 (L/3391)	2'7 1/2"	0.260 (L/240)	0.071 (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. 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	Part. Uniform	0-0-0 to 0-9-8		Top	125 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Wall Load
2	Point	0-9-8		Top	2312 lb	407 lb	0 lb	0 lb	0 lb	BM3 Brg 1
	Bearing Length	0-3-8								
3	Part. Uniform	1-9-8 to 5-7-0		Top	260 PLF	260 PLF	0 PLF	0 PLF	0 PLF	C2
	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
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6. For flat roofs provide proper drainage to prevent ponding

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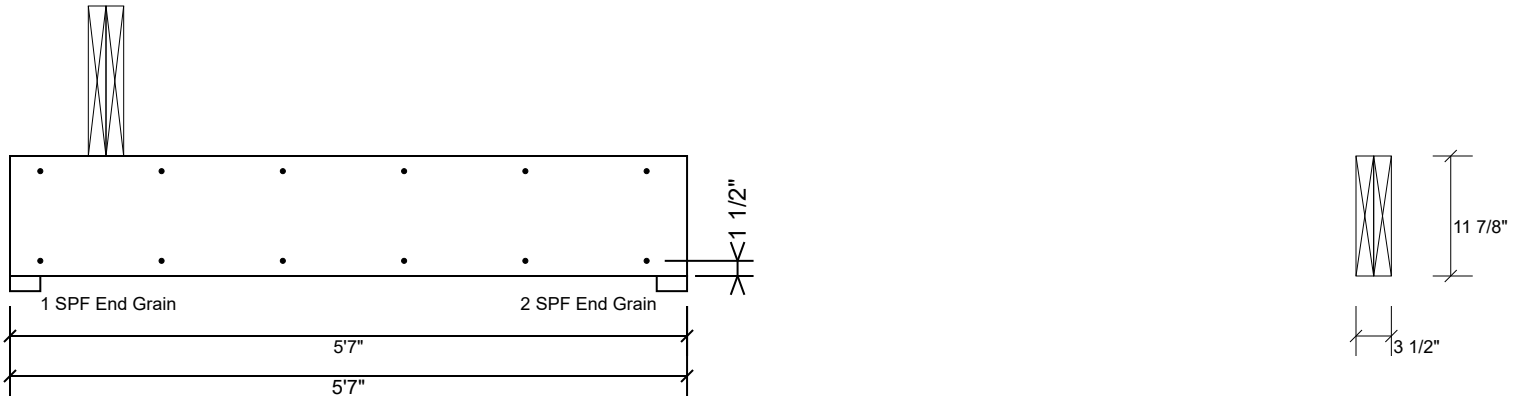
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

Sliding Door Header Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



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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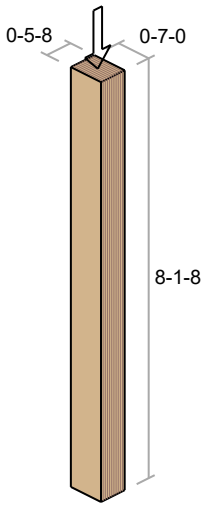
Project:		Input by:	Anthony Williams
Address:	Lot 35 Oak Haven	Job Name:	Lot 35 Oak Haven
		Project #:	J0322-1085/1086

C1 Anthony Power Column 5.500" X 7.000" - PASSED

Level: Level



Design Method:	ASD
Building Code:	IBC 2012
Importance:	Normal - II
Application:	Column Free Standing
Service Condition:	Dry
Load Sharing:	No

Design OK.

Design Notes

1. Axial load eccentricity of 1/6 side dimension in both cross-section axes, each axis analyzed separately.
2. Designed in accordance with NDS 2012, ASCE7 and IBC 2012.
3. Top and bottom ends of the member must be supported to prevent lateral movement and rotation.
4. Holes and notches are not allowed in member.

Analysis

	Actual	Allowed	Capacity	Load Combination
Slenderness	17.7	50.0	35%	
Axial (lb.)	12263	71395	17%	D+L
Axial + Bending	0.20	1	20%	D+L
Bearing SPF (lb.)	12348	16363	75%	D+L
LL Deflection	0.056 (in.) L/1731	0.271 (in.) L/360	21%	L

Design Properties

E:	1900000	Fc:	2300
Ey:	1900000	Fv:	0
Fb:	2100	Fvy:	0
Fby:	2300		

Applied Loads

ID	Load Type	Location	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
Axial								
1	Point	8-1-8	3191 lb	9072 lb	0 lb	0 lb	0 lb	BM1

This design is valid until 3/30/2024

Manufacturer Info

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