

**Engineering Note Page (ENP-2)**

MILLWOOD 3-EL.1

REVISION 2009-10-09

**Please read all notes prior to installation of the component****DESIGN INFORMATION**

This building component is certified as an individual component for the loads and conditions shown on the calculation and drawing page.

The responsibility of the undersigned engineer is only limited to the calculation of this building component for the loads and conditions shown on this drawing.

The responsibility of the undersigned is limited to the verification of the structural capacity of the NASCOR floor joists and LVL beams based on placement as shown on the layout. The loads applied are limited to the gravity effects of the specified loads. The structural integrity of the building and the effect of wind, uplift, seismic, lateral or other forces, calculation of adequate support and anchorage of components, as well as the dimensions and design loads used to calculate components are the responsibility of the overall building designer.

Floor joists and OSB rim board are designed to carry uniformly distributed loads only. Point loads should be transferred through the floor cavity with squash blocks. Structural elements such as walls, posts, connectors, and squash blocks are the responsibility of the overall building designer.

The undersigned engineer disclaims any responsibility for damages as a result of being furnished faulty or incorrect information, specifications and/or designs.

Installation of NASCOR joists is to be carried out in accordance with the current edition of the manufacturer's approved literature available at <http://www.nascor.ca>.

**CODE**

This building component is designed in accordance with the National Building Code of Canada, the Ontario Building Code, CCMC and Canadian Standards Association guidelines.

**COMPONENT**

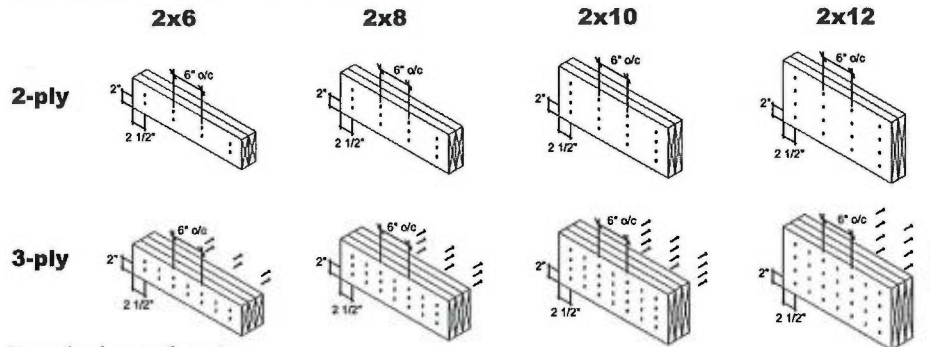
1. The building component used in construction must be the same as indicated on the drawings.
2. The building component must be installed and assembled as per specification shown on the drawing and in accordance with the manufacturer's assembly and installation.
3. Members consisting of multiple plies must be connected as per the document "Multi-ply Connection Details".
4. Pass-thru squash block framing is required at all point loads over bearings.

**HANDLING AND INSTALLATION**

Do not drill any hole, cut or notch a certified building component without a written pre-authorization.

# MULTIPLE MEMBER CONNECTIONS

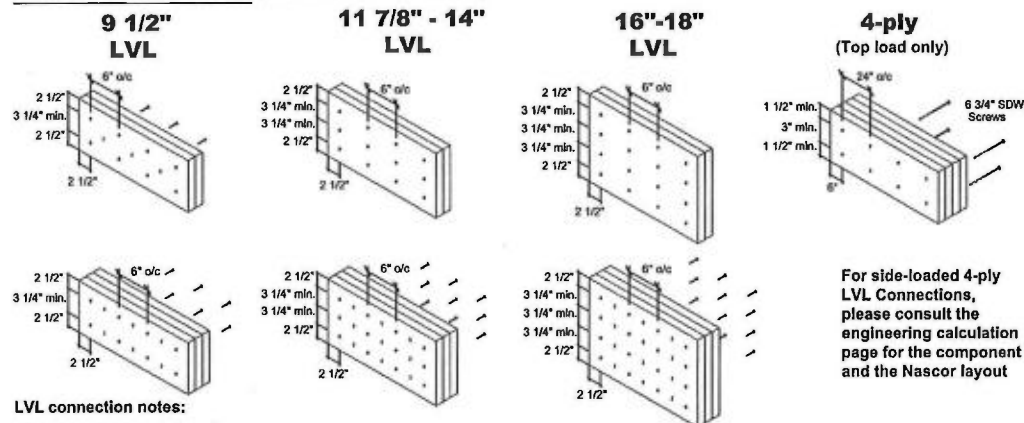
## Conventional Connections (for uniform distributed loads)



### Conventional connection notes:

- Nails to be 3" 10d spiral wire nails.
- Nails to be located a minimum of 2" from the top and bottom of the member. Start all nails a minimum of 2 1/2" in from ends.
- Number of rows and spacing as per details shown, unless noted otherwise.
- "X" represents nail driven from the opposite side.

## LVL Connections (for uniform distributed loads)

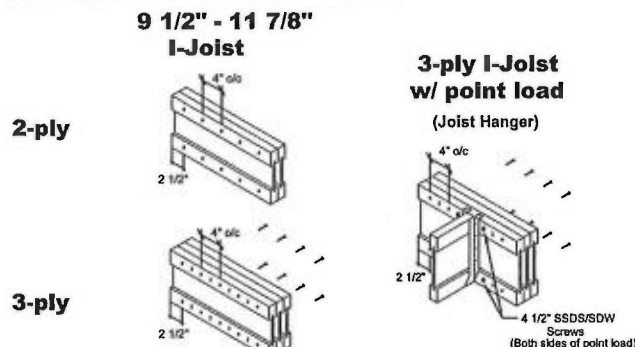


### LVL connection notes:

- Nails to be 3 1/2" spiral wire nails.
- Nails to be located a minimum of 2 1/2" from the top and bottom of the member. Start all nails a minimum of 2 1/2" in from ends.
- Minimum 3 1/4" spacing between rows.
- Number of rows and spacing as per details shown, unless noted otherwise.
- "X" represents nail or screw driven from the opposite side.

For side-loaded 4-ply LVL Connections, please consult the engineering calculation page for the component and the Nascor layout

## Vertical I-Joist Connections (for uniform distributed loads)



### Vertical I-Joist connection notes:

- Nails to be 3" spiral wire nails.
- Nails to be located at centre of top and bottom flanges. Start all nails a minimum of 2 1/2" in from ends.
- Number of rows and spacing as per details shown, unless noted otherwise.
- "X" represents nail driven from the opposite side.

MULTI-PLY  
CONNECTION  
DETAILS

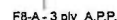
Date: November 30, 2016

Scale: NTS

# KOTT

KOTT  
3228 Moodie Drive  
Ottawa, ON  
K2H 7V1  
Ph: 613-838-2775  
Fx: 613-838-4751





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**PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS**

The framing shown on this layout may be deviate from the architectural drawings. Project Engineer to review and approve the deviation prior to construction.

	Canada
h	L4A 7X4
2	905-642-4400

Architectural Drawing Info

Project # 18012  
Model: Millwood 3  
Date: JUNE 29, 2018 REV 4



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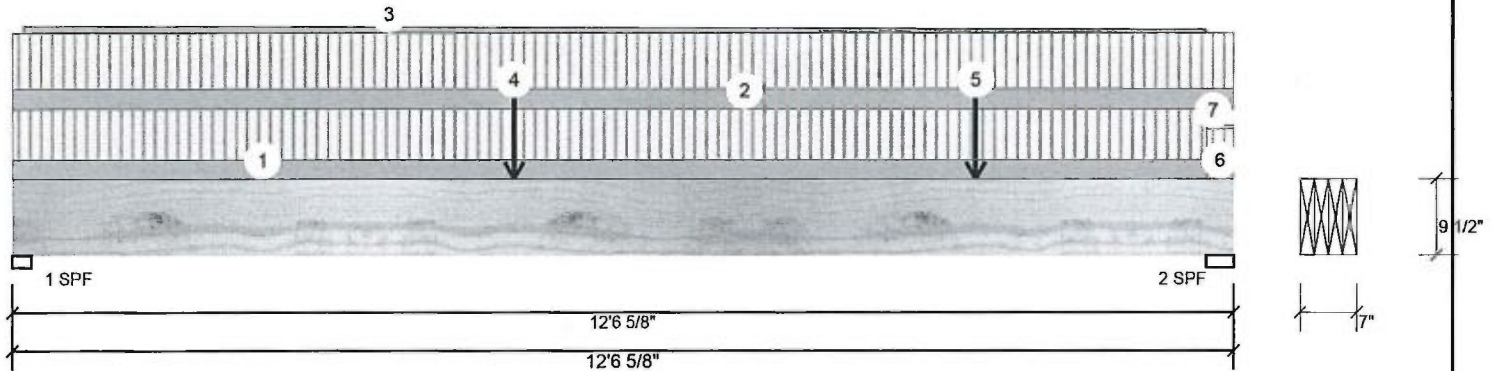
Client:  
Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 1 of 2

F11-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" 4-Ply - PASSED

Level: Ground Floor



## Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	4	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	Yes
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

## Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind
1	2249	1115	48	0
2	5546	2608	193	0

## Bearings and Factored Reactions

Bearing	Length	Cap. React D/L lb	Total Ld. Case	Ld. Comb.
1 - SPF	2.375"	47%	1394 / 3397	4791 L 1.25D+1.5L +0.5S
2 - SPF	3.375"	80%	3259 / 8415	11675 L 1.25D+1.5L +0.5S

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	28059 ft-lb	9'10 7/8"	47266 ft-lb	0.594 (59%)	1.25D+1.5L +0.5S	L
Unbraced	28059 ft-lb	9'10 7/8"	47266 ft-lb	0.594 (59%)	1.25D+1.5L +0.5S	L
Shear	11595 lb	11'6 1/2"	18554 lb	0.625 (62%)	1.25D+1.5L +0.5S	L
Perm Defl in.	0.166 (L/879)	6'8 1/8"	0.407 (L/360)	0.410 (41%)	D	Uniform
LL Defl inch	0.354 (L/413)	6'8 1/2"	0.407 (L/360)	0.870 (87%)	L+0.5S	L
TL Defl inch	0.521 (L/281)	6'8 3/8"	0.610 (L/240)	0.850 (85%)	D+L+0.5S	L

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



## Design Notes

- Girders are designed to be supported on the bottom edge only.
- Multiple plies must be fastened together as per manufacturer's details.
- Top loads must be supported equally by all plies.
- Top braced at bearings.
- Bottom braced at bearings.
- Lateral slenderness ratio based on full section width.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 12-3-4	(Span)0-8-13	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 12-6-10	(Span)0-9-11	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Tapered Start	0-1-6		Top	2 PLF	0 PLF	0 PLF	0 PLF	
	End	12-3-4			1 PLF	0 PLF	0 PLF	0 PLF	
4	Point	5-1-14		Top	687 lb	1496 lb	0 lb	0 lb	C3

Continued on page 2...

**Notes**  
Calculated Structural 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

## Manufacturer Info

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021







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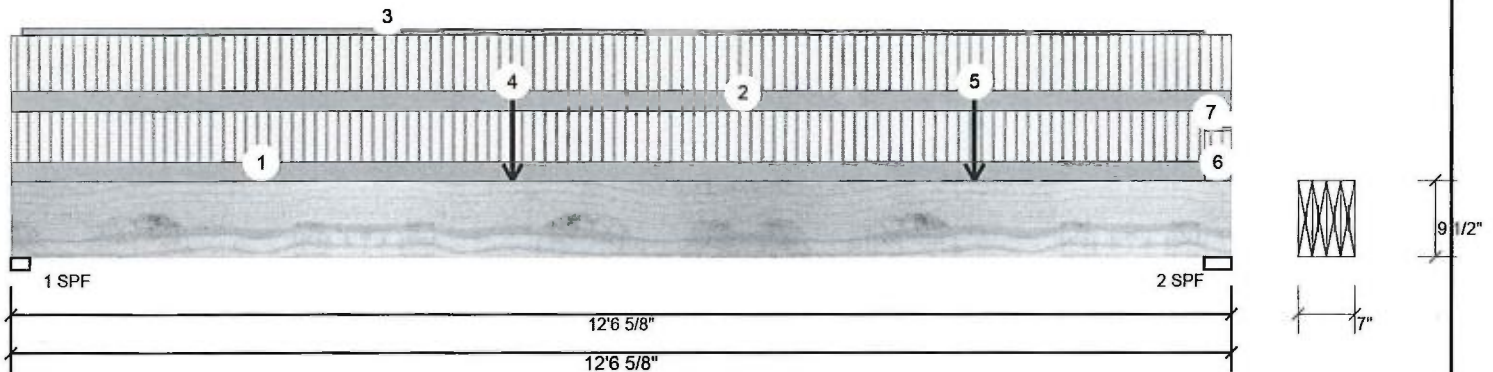
Client:  
Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 2 of 2

F11-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" 4-Ply - PASSED

Level: Ground Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
5	Point	9-10-14		Top	2681 lb	5913 lb	241 lb	0 lb	C4
6	Tie-In	12-3-4 to 12-6-10	(Span)0-6-5	Top	15 PSF	40 PSF	0 PSF	0 PSF	
7	Part. Uniform	12-3-4 to 12-6-10		Top	1 PLF	0 PLF	0 PLF	0 PLF	
	Self Weight				15 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.

**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

**Manufacturer Info**

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021





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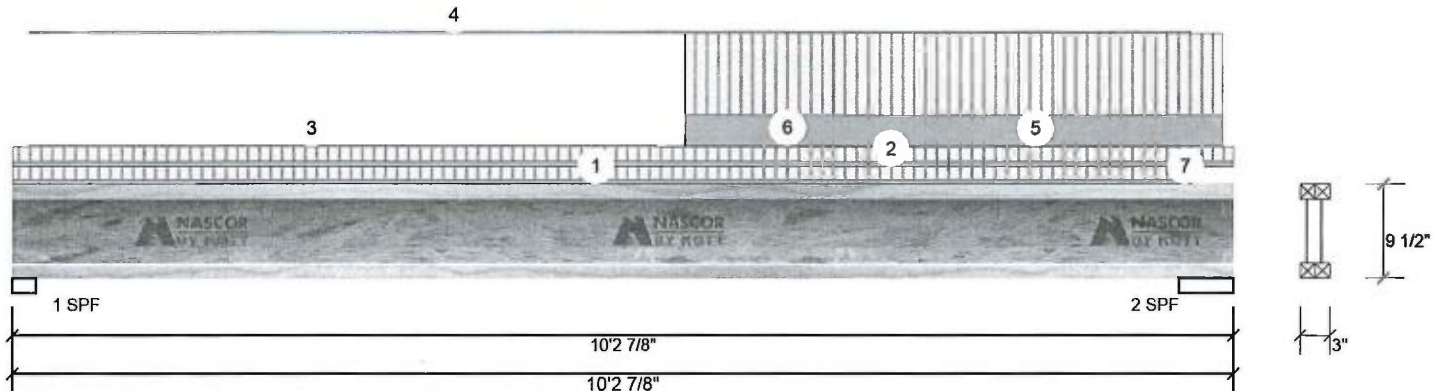
 Client:  
 Project:  
 Address:

 Date: 8/15/2018  
 Designer: S B  
 Job Name: MILLWOOD 3 EL-1A  
 Project #:

Page 1 of 1

F13-A NJ 9.500" 2-Ply - PASSED

Level: Ground Floor



## Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

## Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind
1	308	138	0	0
2	633	257	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap. React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	2.375"	24%	173 / 463	636 L	1.25D+1.5L
2 - SPF	5.500"	41%	321 / 949	1270 L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2192 ft-lb	6'1 11/16"	7340 ft-lb	0.299 (30%)	1.25D+1.5L	L
Unbraced	2192 ft-lb	6'1 11/16"	2202 ft-lb	0.995 (100%)	1.25D+1.5L	L
Shear	1181 lb	9'10 1/8"	3080 lb	0.384 (38%)	1.25D+1.5L	L
Perm Defl in.	0.031 (L/3745)	5'4 1/8"	0.324 (L/360)	0.100 (10%)	D	Uniform
LL Defl inch	0.073 (L/1586)	5'4 7/8"	0.324 (L/360)	0.230 (23%)	L	L
TL Defl inch	0.105 (L/1114)	5'4 11/16"	0.485 (L/240)	0.220 (22%)	D+L	L

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



## Design Notes

- Girders are designed to be supported on the bottom edge only.
- Multiple plies must be fastened together as per manufacturer's details.
- Top loads must be supported equally by all plies.
- Top flange must be laterally braced at a maximum of 4'6" o.c.
- Bottom flange braced at bearings.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 9-9-6	(Span)0-11-2	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 10-2-14	(Span)1-0-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Part. Uniform	0-1-10 to 5-4-13		Top	2 PLF	0 PLF	0 PLF	0 PLF	
4	Part. Uniform	0-1-11 to 9-10-8		Top	3 PLF	0 PLF	0 PLF	0 PLF	
5	Tapered Start	5-5-7		Top	0 PLF	0 PLF	0 PLF	0 PLF	
	End	9-9-6			1 PLF	0 PLF	0 PLF	0 PLF	
6	Part. Uniform	5-7-12 to 10-1-12		Top	45 PLF	120 PLF	0 PLF	0 PLF	
7	Part. Uniform	9-9-6 to 9-10-11		Top	1 PLF	0 PLF	0 PLF	0 PLF	

## Notes

Calculated Structural 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

- Dry service conditions, unless noted otherwise
- Ljoist not to be treated with fire retardant or corrosive chemicals

## chemicals

## Handling &amp; Installation

- Ljoist flanges must not be cut or drilled
- Refer to latest copy of the Ljoist product information details for framing details, stiffener tables, web hole chart, bridging details, multi-ply fastening details and handling/erection details
- Damaged Ljoists must not be used
- Design assumes top flange to be laterally restrained by attached sheathing or as specified in engineering notes.

- Provide lateral support at bearing points to avoid lateral displacement and rotation
- Web stiffeners for point load as shown Minimum point load bearing length= 3.5 inches
- For flat roofs provide proper drainage to prevent ponding

## Manufacturer Info

Nascor by Kott

Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400



This design is valid until 7/10/2021





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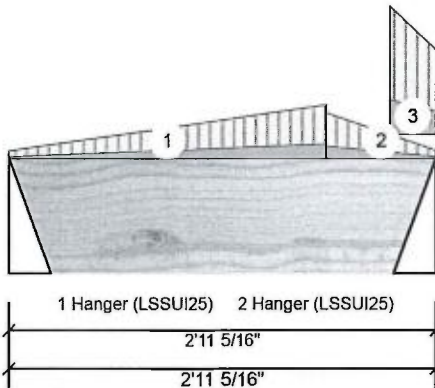
 Client:  
 Project:  
 Address:

 Date: 8/15/2018  
 Designer: S B  
 Job Name: MILLWOOD 3 EL-1A  
 Project #:

Page 1 of 1

**F14-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" - PASSED**

Level: Ground Floor

**Member Information**

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

**Unfactored Reactions UNPATTERNED lb (Uplift)**

Brg	Live	Dead	Snow	Wind
1	24	15	0	0
2	52	25	0	0

**Bearings and Factored Reactions**

Bearing	Length	Cap. React D/L lb	Total Ld. Case	Ld. Comb.
1 - Hanger	3.500"	1%	18 / 36	55 L 1.25D+1.5L
2 - Hanger	3.500"	2%	31 / 78	109 L 1.25D+1.5L

**Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	39 ft-lb	1'6 7/8"	11362 ft-lb	0.003 (0%)	1.25D+1.5L	L
Unbraced	39 ft-lb	1'6 7/8"	10386 ft-lb	0.004 (0%)	1.25D+1.5L	L
Shear	26 lb	1' 1/4"	4638 lb	0.006 (1%)	1.25D+1.5L	L
Perm Defl in.	0.000 (L/999)	0	999.000 (L/0)	0.000 (0%)		
LL Defl inch	0.000 (L/999)	0	999.000 (L/0)	0.000 (0%)		
TL Defl inch	0.000 (L/999)	0	999.000 (L/0)	0.000 (0%)		

**Design Notes**

- 1 Fill all hanger nailing holes.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Top braced at bearings.
- 4 Bottom braced at bearings.

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 2-2-4	(Span)0-3-0 to 1-8-2	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	2-2-4 to 2-11-5	(Span)1-5-2 to 0-3-3	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Tie-In	2-7-8 to 2-11-5	(Span)4-0-0 to 2-7-10	Top	15 PSF	40 PSF	0 PSF	0 PSF	
	Self Weight				4 PLF				

**Notes**

Calculated Structural 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

**Manufacturer Info**
 Forex  
 APA: PR-L318

 Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400

**KOTT NASCOR**

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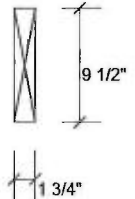
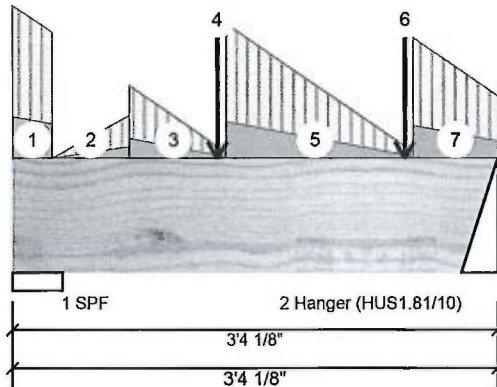
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Page 1 of 2

F14-B Forex 2.0E-3000Fb LVL 1.750" X 9.500" - PASSED

Level: Ground Floor



## Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

## Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind
1	29 (-48)	(-1)	0	0
2	48 (-31)	12	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	4.125"	1%	-1 / 43	42 (-73)	L	0.9D+1.5L
2 - Hanger	3.000"	2%	15 / 71	86 (-36)	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-66 ft-lb	1"	7840 ft-lb	0.008 (1%)	1.25D+1.5L	L
Unbraced	-94 ft-lb	1"	10055 ft-lb	0.009 (1%)	1.25D+1.5L	L
Pos Moment	33 ft-lb	2'4 1/16"	11362 ft-lb	0.003 (0%)	1.25D+1.5L	L
Unbraced	33 ft-lb	2'4 1/16"	10055 ft-lb	0.003 (0%)	1.25D+1.5L	L
Shear	64 lb	1' 7/8"	3200 lb	0.020 (2%)	1.25D+1.5L	L
Perm Defl in.	0.000 (L/999)	0	999.000 (L/0)	0.000 (0%)		
LL Defl inch	0.001 (L/55396)	1"	0.096 (L/360)	0.010 (1%)	L	L
TL Defl inch	0.000 (L/999)	0	999.000 (L/0)	0.000 (0%)		

READ ALL NOTES ON THIS PAGE AND ON  
ENGINEERING NOTE PAGE ENP-2. THIS  
NOTE PAGE IS AN INTEGRAL PART OF THIS  
CALCULATION SUMMARY PAGE AS IT  
CONTAINS SPECIFICATIONS AND CRITERIA  
USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.



## Design Notes

- 1 Fill all hanger nailing holes.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Tie-down connection required at bearing 1 for uplift 73 lb (Combination 1.25D+1.5L, Load Case L).
- 4 Tie-down connection required at bearing 2 for uplift 36 lb (Combination 0.9D+1.5L, Load Case L).
- 5 Top braced at bearings.
- 6 Bottom braced at bearings.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 0-3-4	(Span)1-8-8 to 1-4-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	

Continued on page 2...

## Notes

Calculated Structural 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 &amp; 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

## Manufacturer Info

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
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L4A 7X4  
905-642-4400

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This design is valid until 7/10/2021







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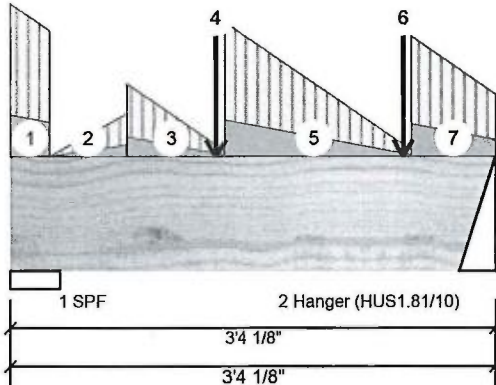
Client:  
Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 2 of 2

**F14-B Forex 2.0E-3000Fb LVL 1.750" X 9.500" - PASSED**

Level: Ground Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
2	Tie-In	0-3-4 to 0-9-11	(Span)0-0-0 to 0-5-12	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Tie-In	0-9-11 to 1-5-11	(Span)0-9-12 to 0-0-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	
4	Point	1-5-0		Far Face	-30 lb	-79 lb	0 lb	0 lb	J9
5	Tie-In	1-5-11 to 2-9-2	(Span)1-6-1 to 0-0-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	
6	Point	2-8-7		Far Face	10 lb	27 lb	0 lb	0 lb	J7
7	Tie-In	2-9-2 to 3-4-2	(Span)1-4-3 to 0-8-6	Top	15 PSF	40 PSF	0 PSF	0 PSF	
	Self Weight				4 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.

**Notes**

Calculated Structural 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

**Manufacturer Info**

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021





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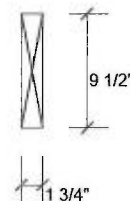
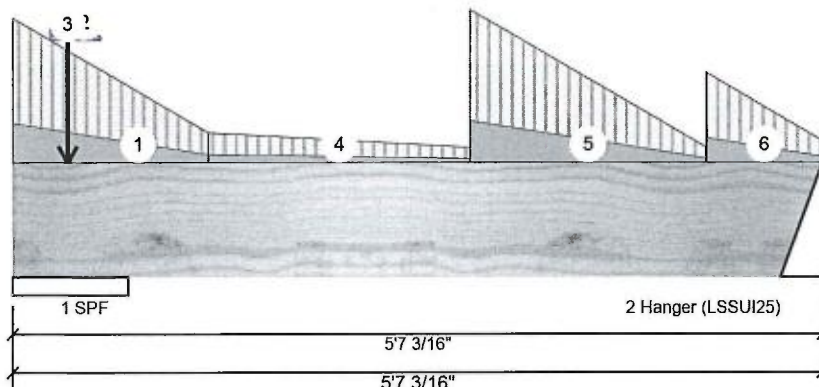
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 Project:  
 Address:

 Date: 8/15/2018  
 Designer: S B  
 Job Name: MILLWOOD 3 EL-1A  
 Project #:

Page 1 of 2

F15-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" - PASSED

Level: Ground Floor



## Member Information

## Unfactored Reactions UNPATTERNED lb (Uplift)

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Brg	Live	Dead	Snow	Wind
1	67	38	0	0
2	49	28	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	9.582"	1%	47 / 101	148	L	1.25D+1.5L
2 - Hanger	3.500"	2%	35 / 74	109	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	118 ft-lb	3'4 3/4"	11362 ft-lb	0.010 (1%)	1.25D+1.5L	L
Unbraced	118 ft-lb	3'4 3/4"	7968 ft-lb	0.015 (1%)	1.25D+1.5L	L
Shear	71 lb	4'6 15/16"	4638 lb	0.015 (2%)	1.25D+1.5L	L
Perm Defl in.	0.000 (L/999)	0	999.000 (L/0)	0.000 (0%)		
LL Defl inch	0.001 (L/48729)	3'3 1/4"	0.154 (L/360)	0.010 (1%)	L	L
TL Defl inch	0.002 (L/30960)	3'3"	0.232 (L/240)	0.010 (1%)	D+L	L

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



## Design Notes

- 1 Performed Secondary Bearing Check (CSA 086-14 6.5.7.3). Assumed point load size: beam width X 4.5.
- 2 Fill all hanger nailing holes.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top braced at bearings.
- 5 Bottom braced at bearings.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 1-4-5	(Span)2-5-5 to 0-6-1	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-3-3 to 0-7-6	(Span)0-3-13 to 0-0-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Point	0-4-10		Top	1 lb	0 lb	0 lb	0 lb	Wall Self Weight

Continued on page 2...

## Notes

Calculated Structural 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 &amp; 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

## Manufacturer Info

 Forex  
 APA: PR-L318

 Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400

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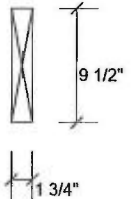
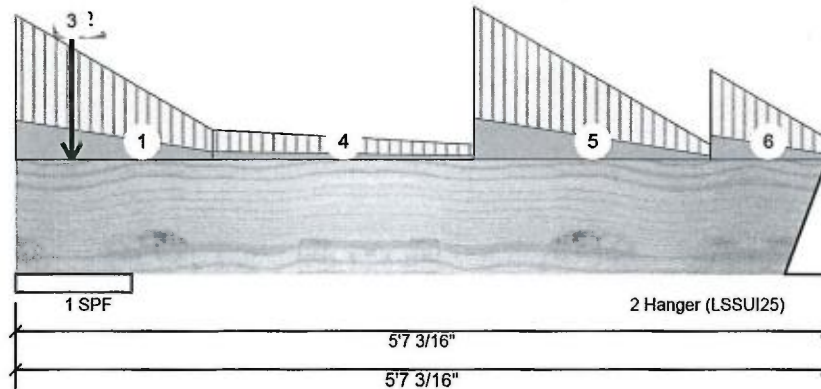
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Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 2 of 2

F15-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" - PASSED

Level: Ground Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
4	Tie-In	1-4-5 to 3-1-15	(Span)0-6-1 to 0-3-1	Top	15 PSF	40 PSF	0 PSF	0 PSF	
5	Tie-In	3-1-15 to 4-9-8	(Span)2-6-15 to 0-3-1	Top	15 PSF	40 PSF	0 PSF	0 PSF	
6	Tie-In	4-9-8 to 5-7-3	(Span)1-6-4 to 0-4-6	Top	15 PSF	40 PSF	0 PSF	0 PSF	
	Self Weight				4 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.

## 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 &amp; Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multiply 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

## Manufacturer Info

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021





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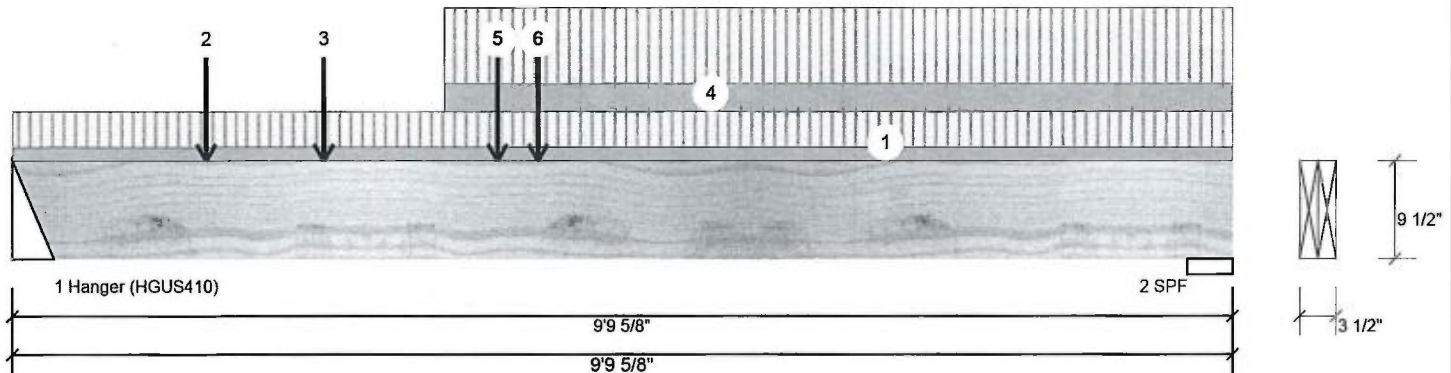
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 Address:

 Date: 8/15/2018  
 Designer: S B  
 Job Name: MILLWOOD 3 EL-1A  
 Project #:

Page 1 of 2

F4-D Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Ground Floor



## Member Information

## Unfactored Reactions UNPATTERNED lb (Uplift)

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Brg	Live	Dead	Snow	Wind
1	1537	690	0	0
2	631	298	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap. React D/L lb	Total	Ld. Case	Ld. Comb.
1 - Hanger	4.000"	30%	862 / 2306	3168 L	1.25D+1.5L
2 - SPF	4.375"	14%	372 / 947	1319 L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6884 ft-lb	2'6"	22724 ft-lb	0.303 (30%)	1.25D+1.5L	L
Unbraced	6884 ft-lb	2'6"	21042 ft-lb	0.327 (33%)	1.25D+1.5L	L
Shear	3140 lb	1' 3/4"	9277 lb	0.338 (34%)	1.25D+1.5L	L
Perm Defl in.	0.043 (L/2596)	4'3 9/16"	0.308 (L/360)	0.140 (14%)	D	Uniform
LL Defl inch	0.095 (L/1160)	4'3 3/16"	0.308 (L/360)	0.310 (31%)	L	L
TL Defl inch	0.138 (L/802)	4'3 5/16"	0.461 (L/240)	0.300 (30%)	D+L	L

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



## Design Notes

- 1 Fill all hanger nailing holes.
- 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 braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on full section width.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 9-9-10	(Span)0-5-2	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Point	1-6-12		Far Face	25 lb	52 lb	0 lb	0 lb	F14
3	Point	2-6-0		Far Face	729 lb	1694 lb	0 lb	0 lb	F8
4	Tie-In	3-5-10 to 9-9-10	(Span)0-10-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	
5	Point	3-10-12		Top	27 lb	72 lb	0 lb	0 lb	

Continued on page 2...

## Notes

Calculated Structural 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

## chemicals

## Handling &amp; 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

## Manufacturer Info

 Forex  
 APA: PR-L318

 Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400

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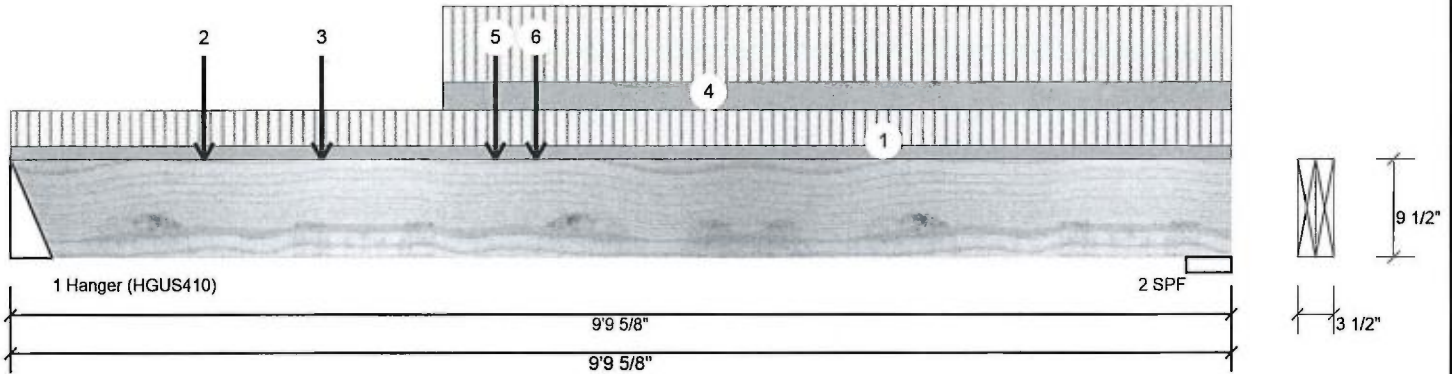
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Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

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F4-D Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Ground Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
6	Point	4-2-11		Top	57 lb	152 lb	0 lb	0 lb	
	Self Weight				8 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.

**Notes**

Calculated Structural 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

**Manufacturer Info**

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

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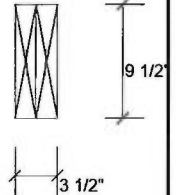
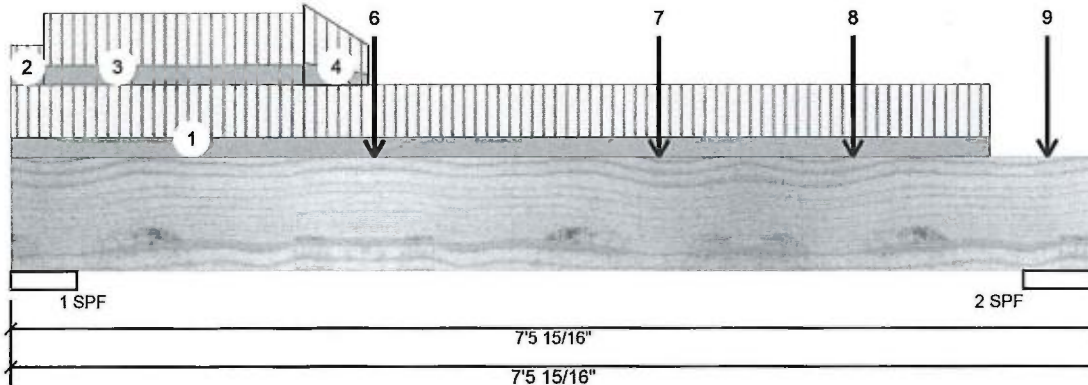
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 Date: 8/15/2018  
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 Job Name: MILLWOOD 3 EL-1A  
 Project #:

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F7-B Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Ground Floor



## Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

## Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind
1	2211 (-21)	948	0	0
2	1212 (-10)	525	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	5.500"	38%	1185 / 3317	4502	L	1.25D+1.5L
2 - SPF	6.188"	19%	656 / 1819	2475	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	9269 ft-lb	2'6 1/16"	22724 ft-lb	0.408 (41%)	1.25D+1.5L	L
Unbraced	9269 ft-lb	2'6 1/16"	21851 ft-lb	0.424 (42%)	1.25D+1.5L	L
Shear	4414 lb	1'2 1/4"	9277 lb	0.476 (48%)	1.25D+1.5L	L
Perm Defl in.	0.030 (L/2651)	3'2 3/8"	0.222 (L/360)	0.140 (14%)	D	Uniform
LL Defl inch	0.070 (L/1132)	3'2 3/16"	0.222 (L/360)	0.320 (32%)	L	L
TL Defl inch	0.101 (L/793)	3'2 1/4"	0.332 (L/240)	0.300 (30%)	D+L	L

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



## Design Notes

- Girders are designed to be supported on the bottom edge only.
- Multiple plies must be fastened together as per manufacturer's details.
- Top loads must be supported equally by all plies.
- Top braced at bearings.
- Bottom braced at bearings.
- Lateral slenderness ratio based on full section width.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 6-9-0	(Span)0-10-4	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 0-2-12	(Span)0-5-12	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Tie-In	0-2-12 to 2-0-4	(Span)0-10-4	Top	15 PSF	40 PSF	0 PSF	0 PSF	
4	Tie-In	2-0-4 to 2-5-9	(Span)0-11-9 to 0-5-10	Top	15 PSF	40 PSF	0 PSF	0 PSF	
5	Point	2-6-1		Near Face	1277 lb	3051 lb	0 lb	0 lb	F8
6	Point	2-6-1		Near Face	0 lb	-31 lb	0 lb	0 lb	F8

Continued on page 2...

## Notes

Calculated Structural 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

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

## chemicals

## Handling &amp; Installation

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

6. For flat roofs provide proper drainage to prevent ponding

## Manufacturer Info

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

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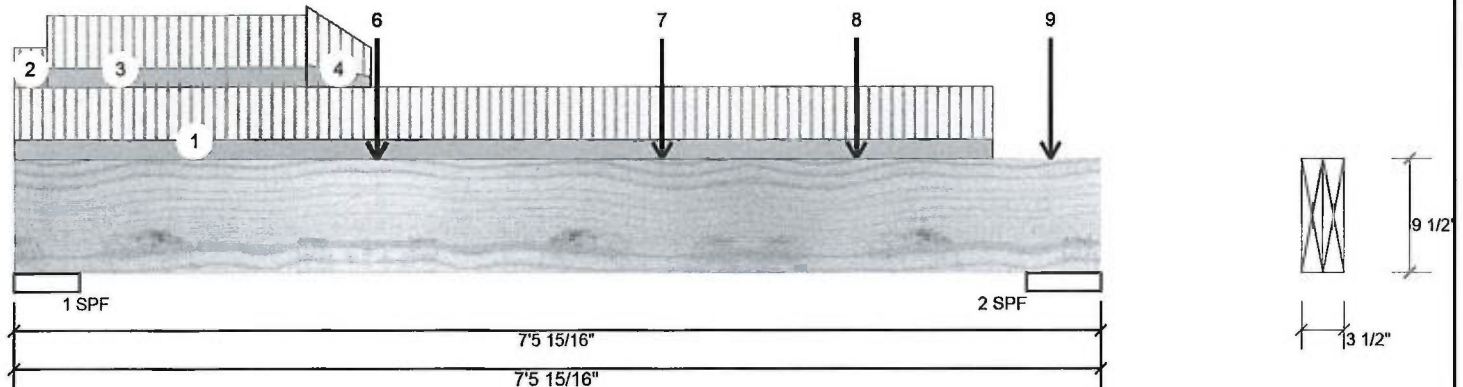
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Job Name: MILLWOOD 3 EL-1A  
Project #:

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F7-B Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Ground Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
7	Point	4-5-12		Near Face	16 lb	44 lb	0 lb	0 lb	J1
8	Point	5-9-12		Near Face	28 lb	75 lb	0 lb	0 lb	J7
9	Point	7-1-12		Near Face	37 lb	99 lb	0 lb	0 lb	J8
	Self Weight				8 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.

**Notes**

Calculated Structural 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

**Manufacturer Info**

Forex  
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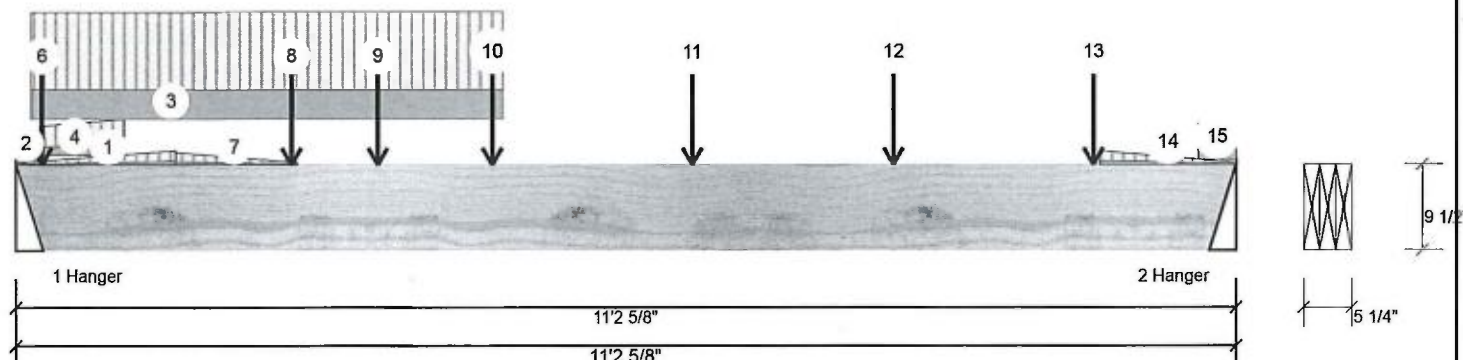


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Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 1 of 2

Level: Ground Floor



## Member Information

Type:	Girder
Plies:	3
Moisture Condition:	Dry
Deflection LL:	360
Deflection TL:	240
Importance:	Normal
General Load	
Floor Live:	40 PSF
Dead:	15 PSF

Application:	Floor (Residential)
Design Method:	LSD
Building Code:	NBCC 2010 / OBC 2012
Load Sharing:	Yes
Deck:	Not Checked
Vibration:	Not Checked

### Unfactored Reactions UNPATTERNED Ib (Uplift)

Brg	Live	Dead	Snow	Wind
1	3051 (-31)	1277	0	0
2	1694	729	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - Hanger	3.000"	53%	1597 / 4577	6174	L	1.25D+1.5L
2 - Hanger	3.000"	30%	912 / 2541	3452	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	16089 ft-lb	3'4"	35449 ft-lb	0.454 (45%)	1.25D+1.5L	L
Unbraced	16089 ft-lb	3'4"	35449 ft-lb	0.454 (45%)	1.25D+1.5L	L
Shear	5536 lb	11 3/4"	13915 lb	0.398 (40%)	1.25D+1.5L	L
Perm Defl in.	0.088 (L/1480)	5'1 1/8"	0.362 (L/360)	0.240 (24%)	D	Uniform
LL Defl inch	0.206 (L/631)	5' 7/8"	0.362 (L/360)	0.570 (57%)	L	L
TL Defl inch	0.294 (L/442)	5'1"	0.542 (L/240)	0.540 (54%)	D+L	L

## Design Notes

- 1 Fill all hanger nailing holes.
- 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 braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on full section width.

**READ ALL NOTES ON THIS PAGE AND ON  
ENGINEERING NOTE PAGE ENP-2. THIS  
NOTE PAGE IS AN INTEGRAL PART OF THIS  
CALCULATION SUMMARY PAGE AS IT  
CONTAINS SPECIFICATIONS AND CRITERIA  
USED IN THE DESIGN OF THIS COMPONENT.**

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

**PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.**



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 1-5-11	(Span)0-2-7 to 1-7-4	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 0-2-3	(Span)0-11-11 to 0-9-11	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Part. Uniform	0-1-10 to 4-5-13		Top	90 PLF	240 PLF	0 PLF	0 PLF	
4	Tie-In	0-2-10 to 1-0-0	(Span)3-2-2 to 4-0-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	

Continued on page 2...

## 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

### Manufacturer Info

Forex  
APA: PR-L318

**Kott Lumber Company**  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400



This design is valid until 7/10/2021





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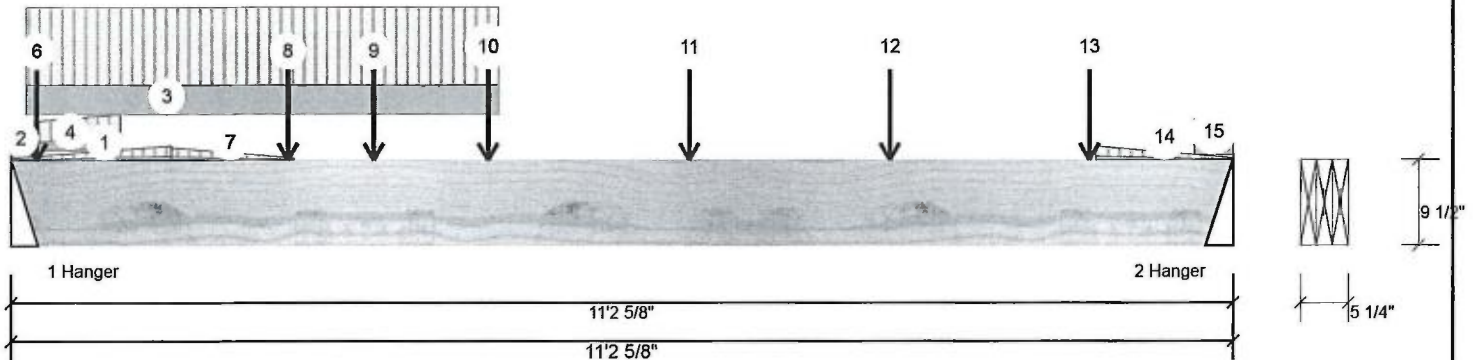
Client:  
Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 2 of 2

F8-B Forex 2.0E-3000Fb LVL 1.750" X 9.500" 3-Ply - PASSED

Level: Ground Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
5	Point	0-2-14		Near Face	12 lb	48 lb	0 lb	0 lb	F14
6	Point	0-2-14		Near Face	0 lb	-31 lb	0 lb	0 lb	F14
7	Tie-In	1-5-11 to 2-7-3	(Span)1-4-13 to 0-2-10	Top	15 PSF	40 PSF	0 PSF	0 PSF	
8	Point	2-6-8		Far Face	14 lb	38 lb	0 lb	0 lb	J1
9	Point	3-4-0		Top	1067 lb	2562 lb	0 lb	0 lb	C6
10	Point	4-4-10		Far Face	27 lb	71 lb	0 lb	0 lb	J7
11	Point	6-2-11		Far Face	39 lb	105 lb	0 lb	0 lb	J8
12	Point	8-0-13		Far Face	113 lb	303 lb	0 lb	0 lb	J8
13	Point	9-10-14		Far Face	158 lb	422 lb	0 lb	0 lb	J9
14	Tie-In	9-11-9 to 11-2-10	(Span)1-6-6 to 0-2-9	Top	15 PSF	40 PSF	0 PSF	0 PSF	
15	Tie-In	10-10-7 to 11-2-10	(Span)4-0-0 to 3-7-15	Top	15 PSF	40 PSF	0 PSF	0 PSF	
	Self Weight				11 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.

## Notes

Calculated Structural 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 &amp; 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

## Manufacturer Info

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021





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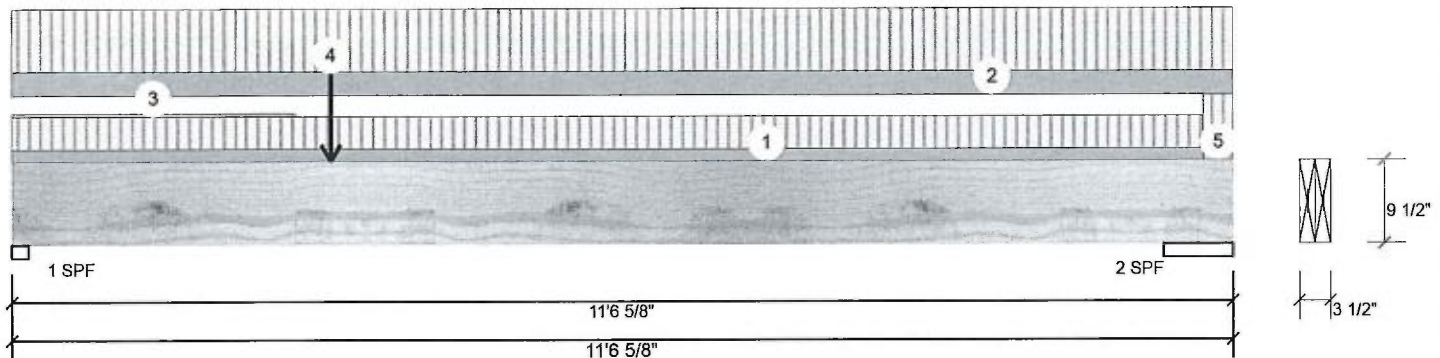
 Client:  
 Project:  
 Address:

 Date: 8/15/2018  
 Designer: S B  
 Job Name: MILLWOOD 3 EL-1A  
 Project #:

Page 1 of 1

F9-C Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Ground Floor



## Member Information

## Unfactored Reactions UNPATTERNED lb (Uplift)

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Brg	Live	Dead	Snow	Wind
1	1647	691	0	0
2	731	331	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	1.875"	83%	864 / 2470	3333	L	1.25D+1.5L
2 - SPF	7.778"	9%	414 / 1096	1510	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	9431 ft-lb	3' 1/4"	22724 ft-lb	0.415 (42%)	1.25D+1.5L	L
Unbraced	9431 ft-lb	3' 1/4"	20390 ft-lb	0.463 (46%)	1.25D+1.5L	L
Shear	3270 lb	10 5/8"	9277 lb	0.353 (35%)	1.25D+1.5L	L
Perm Defl in.	0.072 (L/1812)	4'10 13/16"	0.362 (L/360)	0.200 (20%)	D	Uniform
LL Defl inch	0.170 (L/766)	4'10 1/4"	0.362 (L/360)	0.470 (47%)	L	L
TL Defl inch	0.242 (L/538)	4'10 7/16"	0.544 (L/240)	0.450 (45%)	D+L	L

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



## Design Notes

- Girders are designed to be supported on the bottom edge only.
- Multiple plies must be fastened together as per manufacturer's details.
- Top loads must be supported equally by all plies.
- Top braced at bearings.
- Bottom braced at bearings.
- Lateral slenderness ratio based on full section width.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 11-3-4	(Span)0-6-5	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 11-6-10	(Span)1-0-3	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Part. Uniform	0-0-0 to 2-8-4		Top	1 PLF	0 PLF	0 PLF	0 PLF	
4	Point	3-0-4		Top	797 lb	2020 lb	0 lb	0 lb	C5
5	Tie-In	11-3-4 to 11-6-10	(Span)0-9-5	Top	15 PSF	40 PSF	0 PSF	0 PSF	
	Self Weight				8 PLF				

## Notes

Calculated Structural 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

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

## chemicals

## Handling &amp; Installation

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

- For flat roofs provide proper drainage to prevent ponding

## Manufacturer Info

 Forex  
 APA: PR-L318

 Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400

This design is valid until 7/10/2021





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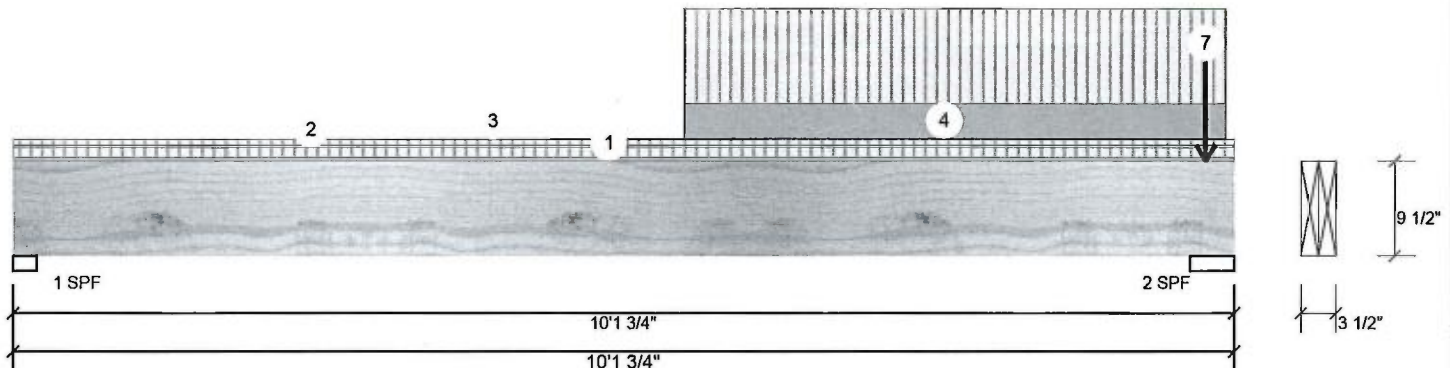
Client:  
Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 1 of 2

F9-D	Forex 2.0E-3000Fb LVL	1.750" X 9.500"	2-Ply - PASSED
------	-----------------------	-----------------	----------------

Level: Ground Floor



## Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

### Unfactored Reactions UNPATTERNED Ib (Uplift)

Brg	Live	Dead	Snow	Wind
1	212	118	0	0
2	627	316	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/Lb	Total	Ld. Case	Ld. Comb.
1 - SPF	2.375"	9%	148 / 319	467	L	1.25D+1.5L
2 - SPF	4.375"	14%	395 / 940	1335	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	1843 ft-lb	6'3"	22724 ft-lb	0.081 (8%)	1.25D+1.5L	L
Unbraced	1843 ft-lb	6'3"	20862 ft-lb	0.088 (9%)	1.25D+1.5L	L
Shear	799 lb	9' 5/8"	9277 lb	0.086 (9%)	1.25D+1.5L	L
Perm Defl in.	0.015 (L/7851)	5'4 1/8"	0.324 (L/360)	0.050 (5%)	D	Uniform
LL Defl inch	0.030 (L/3833)	5'5 7/16"	0.324 (L/360)	0.090 (9%)	L	L
TL Defl inch	0.045 (L/2576)	5'5"	0.485 (L/240)	0.090 (9%)	D+L	L

## Design Notes

- 1 Performed Secondary Bearing Check (CSA 086-14 6.5.7.3). Assumed point load size: beam width X 4.5.
- 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 braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on full section width.

**READ ALL NOTES ON THIS PAGE AND ON  
ENGINEERING NOTE PAGE ENP-2. THIS  
NOTE PAGE IS AN INTEGRAL PART OF THIS  
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USED IN THE DESIGN OF THIS COMPONENT.**

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

**PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.**



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 10-1-12	(Span)0-7-9	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 10-1-12	(Span)0-4-7	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Tapered Start	3-0-7		Top	0 PLF	0 PLF	0 PLF	0 PLF	
	End	6-2-12			1 PLF	0 PLF	0 PLF	0 PLF	
4	Part. Uniform	5-6-14 to 10-0-14		Top	45 PLF	120 PLF	0 PLF	0 PLF	

Continued on page 2...

## 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

### Manufacturer Info

Forex  
APA: PR-1318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

This design is valid until 7/10/2021







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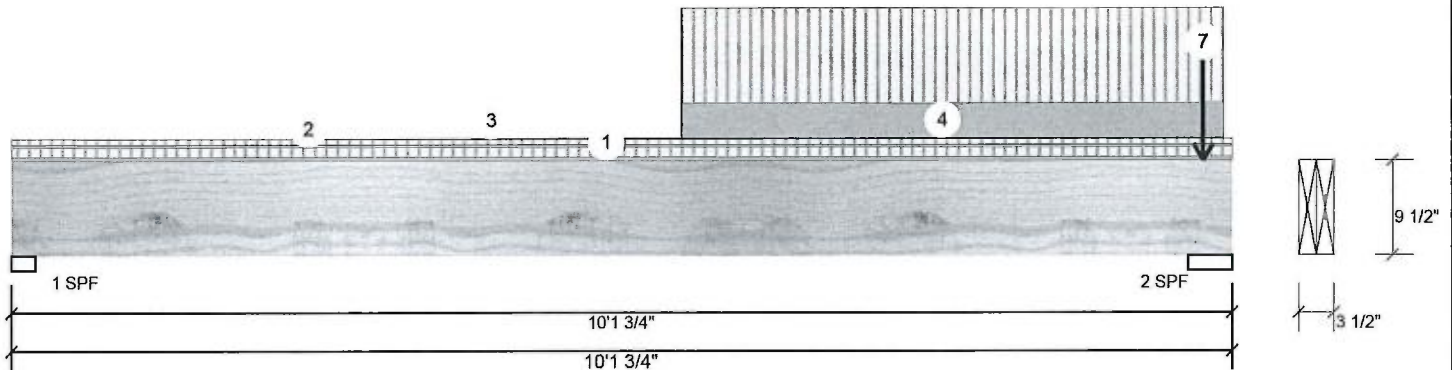
 Client:  
 Project:  
 Address:

 Date: 8/15/2018  
 Designer: S B  
 Job Name: MILLWOOD 3 EL-1A  
 Project #:

Page 2 of 2

F9-D Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Ground Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
5	Point	9-10-14		Top	25 lb	66 lb	0 lb	0 lb	J11
6	Point	9-10-14		Top	11 lb	30 lb	0 lb	0 lb	J11
7	Point	9-10-14		Top	41 lb	0 lb	0 lb	0 lb	Wall Self Weight
	Self Weight				8 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER  
 CONNECTION DETAIL FOR PLY TO PLY  
 NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
 BLOCK IS REQUIRED AT ALL  
 POINT LOADS OVER BEARINGS.

**Notes**

Calculated Structural 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

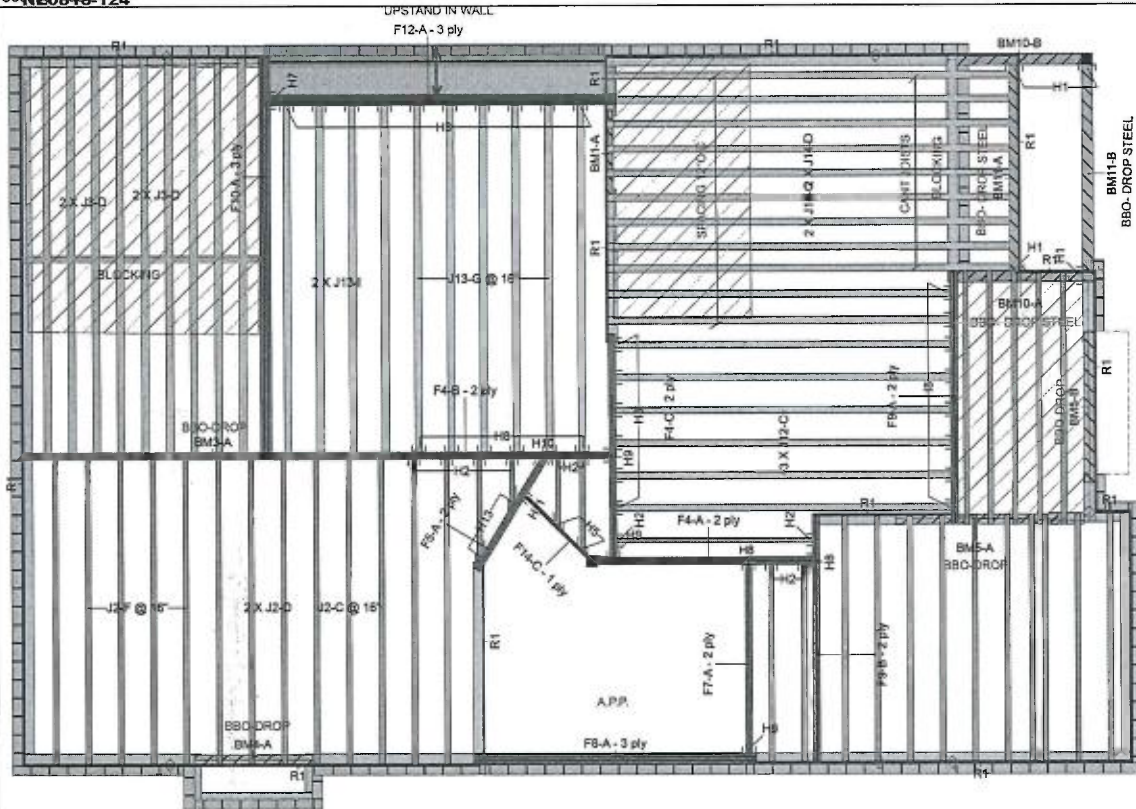
6. For flat roofs provide proper drainage to prevent ponding

**Manufacturer Info**
 Forex  
 APA: PR-L318

 Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400

This design is valid until 7/10/2021





JOISTS SPACING 16" O/C  
UNLESS  
NOTED OTHERWISE

Legend	Point Load Support
PS	Load from Above
W	Wall
NB	Norboard Rimboard Plus 1.125 X 9.5
NJ40U 9.5	NJ40U 9.5
NJ60U 9.5	NJ60U 9.5
NJH 9.5	NJH 9.5
Forex 2.0E-3000Fb LVL 1.75 X 9.5	Forex 2.0E-3000Fb LVL 1.75 X 9.5
Forex 2.0E-3000Fb LVL 1.75 X 11.875	Forex 2.0E-3000Fb LVL 1.75 X 11.875
2.5 X 9.5 (Dropped)	2.5 X 9.5 (Dropped)
5.5 X 10.25 (Dropped)	5.5 X 10.25 (Dropped)

- OBC 2012 O.Reg 332/12 as amended
- Nascor CCMC - 13535-R
- LVL CCMC -12904-R
- CAN/CSA-Q88-09
- CCMC -12787-R APA PR-L310(C)

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This layout is to be used as an installation guide. It is meant to be used in conjunction with the architectural and structural drawings, not to replace them.

#### THIS CERTIFICATION IS TO CONFIRM THAT:

- THE LOADS USED IN THE CALCULATION OF THE ATTACHED APPROVED COMPONENTS CONFORM TO THE FLOOR ASSEMBLY SHOWN ON THIS LAYOUT.
- THE FLOOR JOISTS COMPLY WITH THE NASCOR SPAN TABLE FOR THE LOADS AND SPACING SHOWN ON THIS LAYOUT.

THE FLOOR SYSTEM MUST BE ASSEMBLED IN ACCORDANCE TO THE NASCOR SPECIFIER GUIDE. MULTI-PLY MEMBERS MUST BE ATTACHED TOGETHER AS PER THE INCLUDED MULTIPLE MEMBER CONNECTION DETAIL.

ALL OTHER COMPONENTS AND STRUCTURAL ELEMENTS SUPPORTING THE FLOOR SYSTEM SUCH AS BEAMS, WALLS, COLUMNS AND FOUNDATION WALLS AND FOOTINGS INCLUDING ANCHORAGE OF COMPONENTS AND BRACING FOR LATERAL STABILITY ARE THE RESPONSIBILITY OF OTHERS.

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.

#### Second Floor LVL/LSL

Label	Description	Width	Depth	Qty	Piles	Pcs	Length
F10	Forex 2.0E-3000Fb LVL	1.75	9.5	1	3	3	18-0-0
F9	Forex 2.0E-3000Fb LVL	1.75	9.5	2	2	4	12-0-0
F8	Forex 2.0E-3000Fb LVL	1.75	9.5	1	3	3	12-0-0
F4	Forex 2.0E-3000Fb LVL	1.75	9.5	3	2	6	10-0-0
F7	Forex 2.0E-3000Fb LVL	1.75	9.5	1	2	2	8-0-0
F5	Forex 2.0E-3000Fb LVL	1.75	9.5	1	2	2	6-0-0
F14	Forex 2.0E-3000Fb LVL	1.75	9.5			1	4-0-0
F12	Forex 2.0E-3000Fb LVL	1.75	11.875	1	3	3	16-0-0

#### J1 Joist

Label	Description	Width	Depth	Qty	Piles	Pcs	Length
J14	NJ40U	3.5	9.5			9	18-0-0
J13	NJ40U	3.5	9.5			10	16-0-0
J12	NJ40U	3.5	9.5			8	14-0-0
J3	NJ60U	3.5	9.5			9	18-0-0
J2	NJH	2.5	9.5			13	14-0-0
J11	NJH	2.5	9.5			15	12-0-0
J10	NJH	2.5	9.5			2	10-0-0
J9	NJH	2.5	9.5			1	8-0-0
J8	NJH	2.5	9.5			1	8-0-0
J7	NJH	2.5	9.5			3	4-0-0

#### Rim Board

Label	Description	Width	Depth	Qty	Piles	Pcs	Length
R1	Norboard Rimboard Plus 1.125 X 9.5	1.125	9.5			13	12

#### Blocking

Label	Description	Width	Depth	Qty	Piles	Pcs	Length
BLK1	NJ40U	3.5	9.5	Lin Ft		Varies	7-0-0
BLK3	NJ60U	3.5	9.5	Lin Ft		Varies	8-0-0

#### Hanger

Label	Pcs	Description	Skew	Slope	fasteners	Supported Member
H1	4	Unknown Hanger				
H2	10	LF259			10 10d	1 #8x1 1/4WS
H5	2	SUR2 56/9 (Min)	Right		14 10dx1 1/2	2 10dx1 1/2
H7	1	HGUS5.50/10			46 10d	16 16d
H8	32	LF359			10 10d	2 #8x1 1/4WS
H9	3	HGUS410			46 16d	16 16d
H10	1	LSSU410-L	Var	Var	14 16d	12 10dx1 1/2
H11	1	LSSU125-L	Var	Var	9 10d	7 10dx1 1/2
H13	2	LSSU1310-L	Var	Var	14 16d	12 10dx1 1/2

#### NOTES:

- Framer to verify dimensions on the architectural drawings.
- Double joist only requires filler/backer ply when supporting another member using a face-mounted hanger.
- Install 2x4 blocking @ 24" o/c under parallel non-loadbearing walls.
- Install single-ply flush window header along inside face of rimboard/rimjoist.
- Refer to Nascor specifier guide for installation details.
- Squash blocks recommended to be installed at end bearing on all first level joists which support loading from above exceeding two levels floor or roof.
- Load transfer blocks to be installed under all point loads.
- It shall be the framer's responsibility that floor joists and beams are fastened as per the hanger manufacturer's standards.

Refer to Multiple Member Connection Detail to ply to ply nailing or bolting requirements.

Rim parallel to joists: 1-1/2" rimboard with 2"x4" block (1/16" longer than rim depth) @ 16" o/c. All other components and structural elements supporting the floor system such as beams, walls, columns and foundation walls and footings including anchorage of components and bracing for lateral stability are the responsibility of others.

Hatch area represents ceramic tiled floor with an additional dead load of 5 PSF.

The framing shown on this layout may deviate from the architectural drawings. Project Engineer to review and approve the deviation prior to construction.



Layout Name  
MILLWOOD 3 EL-1A

Design Method  
LSD

Description  
GREENPARK HOMES  
MINISALE, BRAMPTON, ON

Created  
June 27, 2018

Builder

Sales Rep  
RM

Designer  
S B

Shipping

Project

Builder's Project  
Kott Lumber Company  
14 Anderson Blvd  
Stouffville, Ontario  
Canada  
L4A 7X4  
905-642-4400

Second Floor  
Design Method  
Building Code  
NBC 2010 / OBC 2012

Floor  
Live  
Dead  
Deflection Joist  
LL Span /  
TL Span /  
LL Cant 2L/  
TL Cant 2L/  
Deflection Girder  
LL Span /  
TL Span /  
LL Cant 2L/  
TL Cant 2L/  
Decking  
Deck  
Thickness  
Fastener  
Vibration  
Celling:  
OSB  
5/8"  
Nailed & Glued  
Gypsum 1/2"

Architectural Drawing Info  
VA3 DESIGN  
255 CONSUMERS ROAD  
TORONTO, ON M2J 1R4  
Project # 18012  
Model: Millwood 3  
Date: JUN 28, 2018 REV 4







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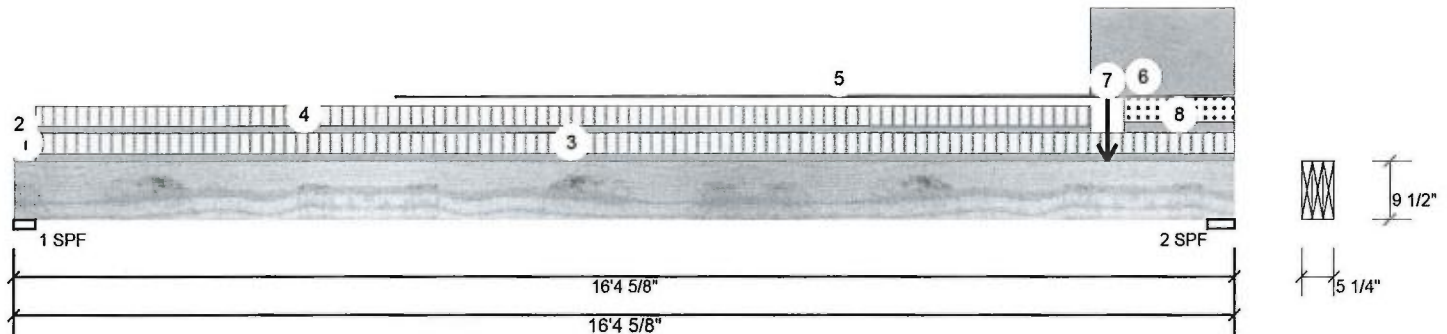
Client:  
Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 1 of 2

F10-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" 3-Ply - PASSED

Level: Second Floor



## Member Information

## Unfactored Reactions UNPATTERNED lb (Uplift)

Type:	Girder	Application:	Floor (Residential)
Plies:	3	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	Yes
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Brg	Live	Dead	Snow	Wind
1	467	441	241	0
2	2024	2666	2479	0

## Bearings and Factored Reactions

Bearing	Length	Cap. React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	12% 552 / 821	1373	L	1.25D+1.5L +0.5S
2 - SPF	4.375"	57% 3333 / 4731	8064	L	1.25D+1.5S +0.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	11165 ft-lb	14'8"	35449 ft-lb	0.315 (31%)	1.25D+1.5S +0.5L	L
Unbraced	11165 ft-lb	14'8"	33795 ft-lb	0.330 (33%)	1.25D+1.5S +0.5L	L
Shear	7866 lb	15'3 1/2"	13915 lb	0.565 (57%)	1.25D+1.5S +0.5L	L
Perm Defl in.	0.190 (L/999)	9'1 1/16"	0.528 (L/360)	0.360 (36%)	D	Uniform
LL Defl inch	0.246 (L/773)	9' 5/8"	0.528 (L/360)	0.470 (47%)	L+0.5S	L
TL Defl inch	0.437 (L/436)	9' 13/16"	0.793 (L/240)	0.550 (55%)	D+L+0.5S	L

READ ALL NOTES ON THIS PAGE AND ON  
ENGINEERING NOTE PAGE ENP-2. THIS  
NOTE PAGE IS AN INTEGRAL PART OF THIS  
CALCULATION SUMMARY PAGE AS IT  
CONTAINS SPECIFICATIONS AND CRITERIA  
USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.



## Design Notes

- Girders are designed to be supported on the bottom edge only.
- Multiple plies must be fastened together as per manufacturer's details.
- Top loads must be supported equally by all plies.
- Top braced at bearings.
- Bottom braced at bearings.
- Lateral slenderness ratio based on full section width.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 0-3-8	(Span)0-7-12	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 0-3-8	(Span)0-8-4	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Tie-In	0-3-8 to 16-4-10	(Span)0-11-4	Top	15 PSF	40 PSF	0 PSF	0 PSF	
4	Tie-In	0-3-8 to 14-5-6	(Span)0-10-12	Top	15 PSF	40 PSF	0 PSF	0 PSF	

Continued on page 2...

## Notes

Calculated Structural 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

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

## chemicals

## Handling &amp; Installation

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

- For flat roofs provide proper drainage to prevent ponding

## Manufacturer Info

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021







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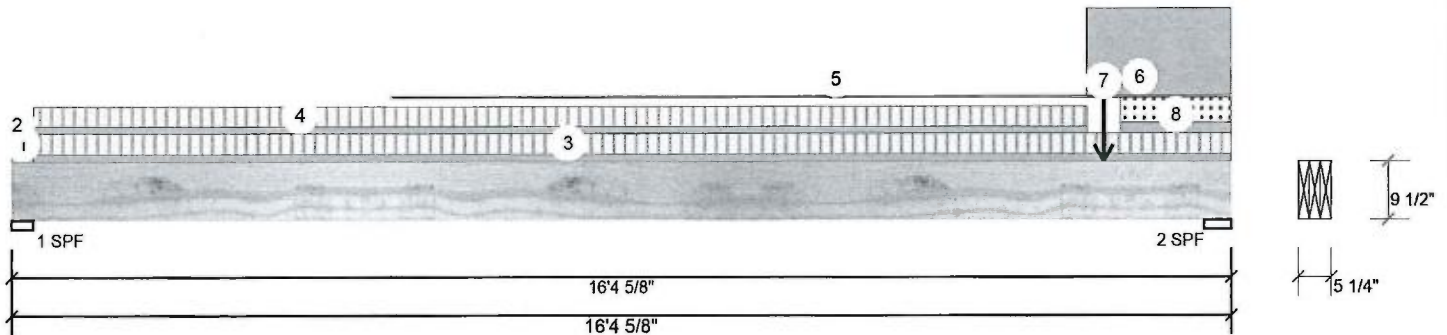
Client:  
Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 2 of 2

F10-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" 3-Ply - PASSED

Level: Second Floor



Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
5	Tapered Start	5-1-5		Top	1 PLF	0 PLF	0 PLF	0 PLF	
	End	16-2-4			2 PLF	0 PLF	0 PLF	0 PLF	
6	Part. Uniform	14-5-4 to 16-4-10		Top	80 PLF	0 PLF	0 PLF	0 PLF	Wall Self Weight
7	Point	14-8-0		Near Face	2522 lb	1928 lb	2686 lb	0 lb	F12
8	Part. Uniform	14-10-12 to 16-4-10		Top	10 PLF	0 PLF	23 PLF	0 PLF	
	Self Weight				11 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.

**Notes**

Calculated Structural 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

**Manufacturer Info**

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021





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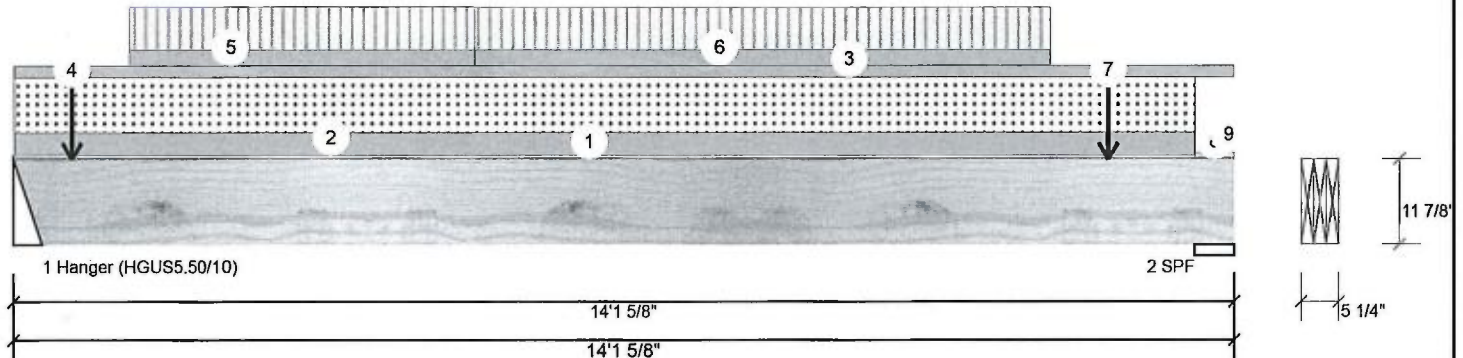
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 Project:  
 Address:

 Date: 8/15/2018  
 Designer: S B  
 Job Name: MILLWOOD 3 EL-1A  
 Project #:

Page 1 of 2

**F12-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" 3-Ply - PASSED**

Level: Second Floor



## Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	3	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	Yes
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

## Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind
1	1928	2522	2686	0
2	1774	2424	2562	0

## Bearings and Factored Reactions

Bearing	Length	Cap. React D/L lb	Total	Ld. Case	Ld. Comb.
1 - Hanger	4.000"	52% 3153 / 4993	8146	L	1.25D+1.5S +0.5L
2 - SPF	5.500"	44% 3030 / 4730	7760	L	1.25D+1.5S +0.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	26537 ft-lb	7'	53447 ft-lb	0.497 (50%)	1.25D+1.5S +0.5L	L
Unbraced	26537 ft-lb	7'	50634 ft-lb	0.524 (52%)	1.25D+1.5S +0.5L	L
Shear	7024 lb	1'3 1/8"	17394 lb	0.404 (40%)	1.25D+1.5S +0.5L	L
Perm Defl in.	0.198 (L/814)	7'	0.449 (L/360)	0.440 (44%)	D	Uniform
LL Defl inch	0.287 (L/563)	7'	0.449 (L/360)	0.640 (64%)	S+0.5L	L
TL Defl inch	0.486 (L/333)	7'	0.673 (L/240)	0.720 (72%)	D+S+0.5L	L

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



## Design Notes

- 1 Fill all hanger nailing holes.
- 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 braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on full section width.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Part. Uniform	0-0-0 to 13-8-2		Top	8 PLF	0 PLF	18 PLF	0 PLF	
2	Part. Uniform	0-0-2 to 13-8-2		Top	157 PLF	0 PLF	366 PLF	0 PLF	
3	Part. Uniform	0-0-2 to 14-1-10		Top	78 PLF	0 PLF	0 PLF	0 PLF	Wall Self Weight
4	Point	0-8-2		Near Face	120 lb	319 lb	0 lb	0 lb	J13

Continued on page 2...

## Notes

Calculated Structural 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 &amp; Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multiply 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

## Manufacturer Info

 Forex  
 APA: PR-L318

 Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400

This design is valid until 7/10/2021





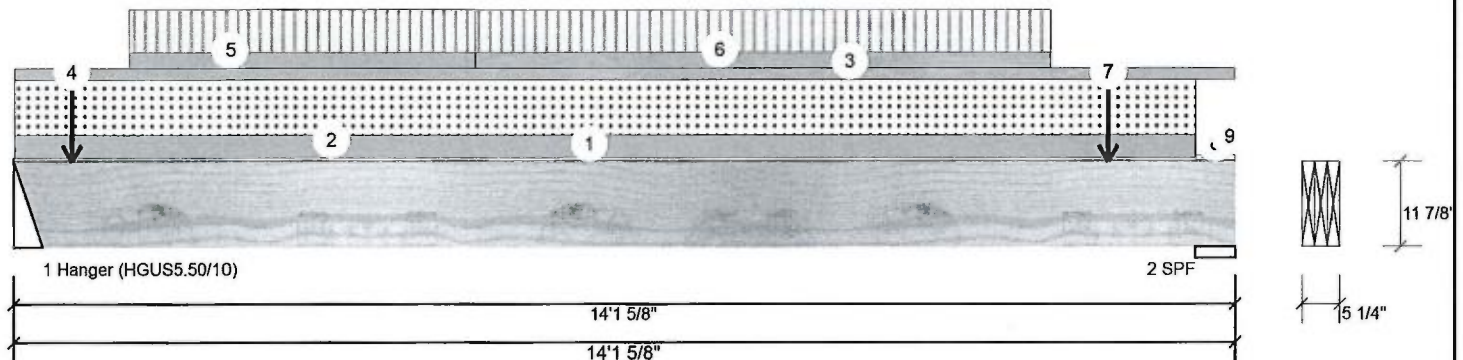
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Client:  
Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 2 of 2

F12-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" 3-Ply - PASSED Level: Second Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
5	Part. Uniform	1-4-2 to 5-4-2		Near Face	107 PLF	286 PLF	0 PLF	0 PLF	
6	Part. Uniform	5-4-2 to 12-0-2		Near Face	106 PLF	283 PLF	0 PLF	0 PLF	
7	Point	12-8-2		Near Face	127 lb	338 lb	0 lb	0 lb	J13
8	Tie-In	13-8-2 to 14-1-10	(Span)1-7-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	
9	Part. Uniform	14-0-2 to 14-1-10		Top	4 PLF	0 PLF	0 PLF	0 PLF	
	Self Weight				14 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.

## Notes

Calculated Structural 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 &amp; 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

## Manufacturer Info

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021







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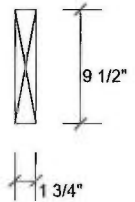
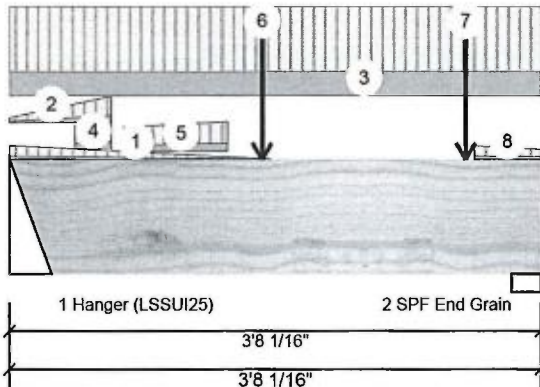
 Client:  
 Project:  
 Address:

 Date: 8/15/2018  
 Designer: S B  
 Job Name: MILLWOOD 3 EL-1A  
 Project #:

Page 1 of 2

**F14-C Forex 2.0E-3000Fb LVL 1.750" X 9.500" - PASSED**

Level: Second Floor

**Member Information**

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

**Unfactored Reactions UNPATTERNED lb (Uplift)**

Brg	Live	Dead	Snow	Wind
1	600	232	0	0
2	561	218	0	0

**Bearings and Factored Reactions**

Bearing	Length	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - Hanger	3.500"	26%	290 / 900	1190	L	1.25D+1.5L
2 - SPF End Grain	2.438"	35%	272 / 841	1113	L	1.25D+1.5L

**Analysis Results**

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	840 ft-lb	1'8 15/16"	11362 ft-lb	0.074 (7%)	1.25D+1.5L	L
Unbraced	840 ft-lb	1'8 15/16"	9640 ft-lb	0.087 (9%)	1.25D+1.5L	L
Shear	639 lb	2'8 7/8"	4638 lb	0.138 (14%)	1.25D+1.5L	L
Perm Defl in.	0.002 (L/16401)	1'9 7/8"	0.110 (L/360)	0.020 (2%)	D	Uniform
LL Defl inch	0.006 (L/6369)	1'9 13/16"	0.110 (L/360)	0.060 (6%)	L	L
TL Defl inch	0.009 (L/4588)	1'9 13/16"	0.165 (L/240)	0.050 (5%)	D+L	L

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.

**Design Notes**

- 1 Fill all hanger nailing holes.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Top braced at bearings.
- 4 Bottom braced at bearings.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 1-9-10	(Span) 1-10-12 to 0-0-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 0-8-7	(Span) 0-7-8 to 3-6-10	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Part. Uniform	0-0-0 to 3-8-1		Top	90 PLF	240 PLF	0 PLF	0 PLF	
4	Tie-In	0-5-7 to 0-8-7	(Span) 3-1-8 to 3-6-10	Top	15 PSF	40 PSF	0 PSF	0 PSF	
5	Tie-In	0-9-8 to 1-6-0	(Span) 3-3-6 to 4-0-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	

Continued on page 2...

**Notes**

Calculated Structural 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

**Manufacturer Info**
 Forex  
 APA: PR-L318

 Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400


This design is valid until 7/10/2021





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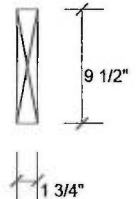
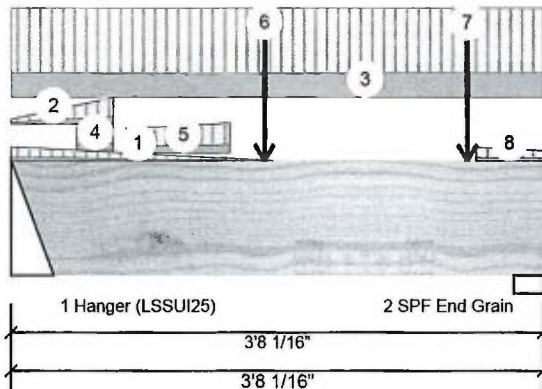
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Project #:

Page 2 of 2

**F14-C Forex 2.0E-3000Fb LVL 1.750" X 9.500" - PASSED**

Level: Second Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
6	Point	1-8-15		Far Face	20 lb	52 lb	0 lb	0 lb	J7
7	Point	3-1-13		Far Face	30 lb	79 lb	0 lb	0 lb	J7
8	Tie-In	3-2-8 to 3-8-1	(Span)1-10-2 to 1-4-8	Top	15 PSF	40 PSF	0 PSF	0 PSF	
	Self Weight				4 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.

**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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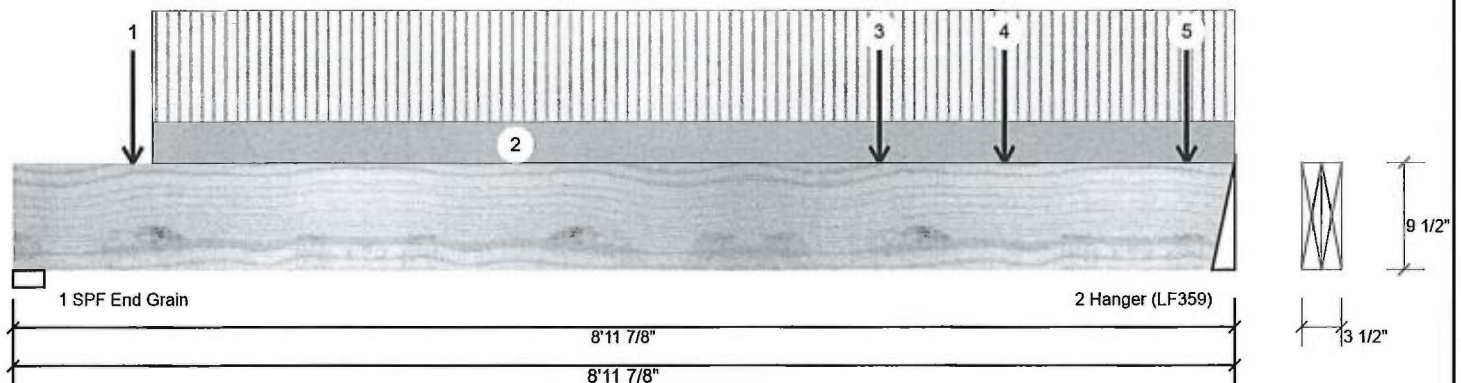
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 Project #:

Page 1 of 1

F4-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Second Floor



## Member Information

## Unfactored Reactions UNPATTERNED lb (Uplift)

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Brg	Live	Dead	Snow	Wind
1	2001	849	0	0
2	579	277	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	2.750"	57%	1062 / 3001	4062	L	1.25D+1.5L
2 - Hanger	2.000"	23%	347 / 869	1216	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2916 ft-lb	10 5/8"	22724 ft-lb	0.128 (13%)	1.25D+1.5L	L
Unbraced	2916 ft-lb	10 5/8"	21223 ft-lb	0.137 (14%)	1.25D+1.5L	L
Shear	4053 lb	11 1/2"	9277 lb	0.437 (44%)	1.25D+1.5L	L
Perm Defl in.	0.019 (L/5434)	4'2 5/8"	0.291 (L/360)	0.070 (7%)	D	Uniform
LL Defl inch	0.040 (L/2603)	4'1 3/8"	0.291 (L/360)	0.140 (14%)	L	L
TL Defl inch	0.059 (L/1760)	4'1 13/16"	0.436 (L/240)	0.140 (14%)	D+L	L

## Design Notes

- 1 Fill all hanger nailing holes.
- 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 braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on full section width.

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Point	0-10-10		Far Face	831 lb	2053 lb	0 lb	0 lb	F4
2	Tie-In	1-0-6 to 8-11-14	(Span)0-10-4 to 0-10-4	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Point	6-4-9		Near Face	55 lb	70 lb	0 lb	0 lb	F7
4	Point	7-3-10		Near Face	67 lb	177 lb	0 lb	0 lb	J10
5	Point	8-7-10		Near Face	54 lb	144 lb	0 lb	0 lb	J10
	Self Weight				8 PLF				

## Notes

Calculated Structural 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 &amp; 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

## Manufacturer Info

 Forex  
 APA: PR-L316

 Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400

This design is valid until 7/10/2021







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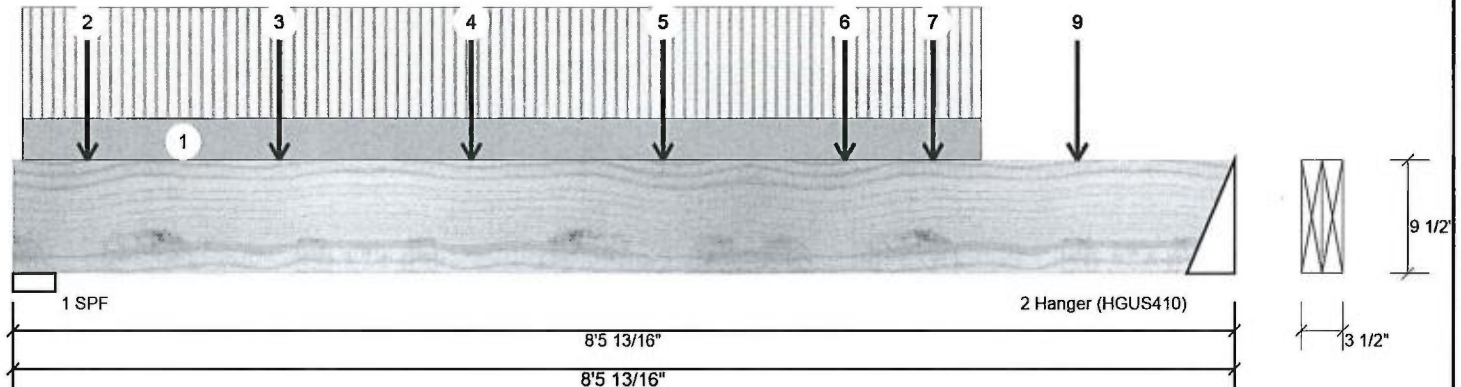
 Client:  
 Project:  
 Address:

 Date: 8/15/2018  
 Designer: S B  
 Job Name: MILLWOOD 3 EL-1A  
 Project #:

Page 1 of 2

F4-B Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Second Floor



## Member Information

## Unfactored Reactions UNPATTERNED lb (Uplift)

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Brg	Live	Dead	Snow	Wind
1	2020	797	0	0
2	1688	683	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	53%	996 / 3030	4027	L	1.25D+1.5L
2 - Hanger	4.000"	33%	854 / 2533	3387	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	7070 ft-lb	4'6 1/4"	22724 ft-lb	0.311 (31%)	1.25D+1.5L	L
Unbraced	7070 ft-lb	4'6 1/4"	21464 ft-lb	0.329 (33%)	1.25D+1.5L	L
Shear	3818 lb	7'5 1/16"	9277 lb	0.412 (41%)	1.25D+1.5L	L
Perm Defl in.	0.038 (L/2523)	4'3 3/8"	0.266 (L/360)	0.140 (14%)	D	Uniform
LL Defl inch	0.095 (L/1011)	4'3 1/4"	0.266 (L/360)	0.360 (36%)	L	L
TL Defl inch	0.133 (L/722)	4'3 1/4"	0.399 (L/240)	0.330 (33%)	D+L	L

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



## Design Notes

- 1 Fill all hanger nailing holes.
- 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 braced at bearings.
- 5 Bottom braced at bearings.
- 6 Lateral slenderness ratio based on full section width.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Part. Uniform	0-0-12 to 6-8-12		Far Face	106 PLF	283 PLF	0 PLF	0 PLF	
2	Point	0-6-4		Near Face	122 lb	326 lb	0 lb	0 lb	J2
3	Point	1-10-4		Near Face	125 lb	333 lb	0 lb	0 lb	J2
4	Point	3-2-4		Near Face	39 lb	103 lb	0 lb	0 lb	J8
5	Point	4-6-4		Near Face	15 lb	40 lb	0 lb	0 lb	J7
6	Point	5-9-6		Near Face	226 lb	536 lb	0 lb	0 lb	F5

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 &amp; 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

## Manufacturer Info

 Forex  
 APA: PR-L318

 Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400

This design is valid until 7/10/2021





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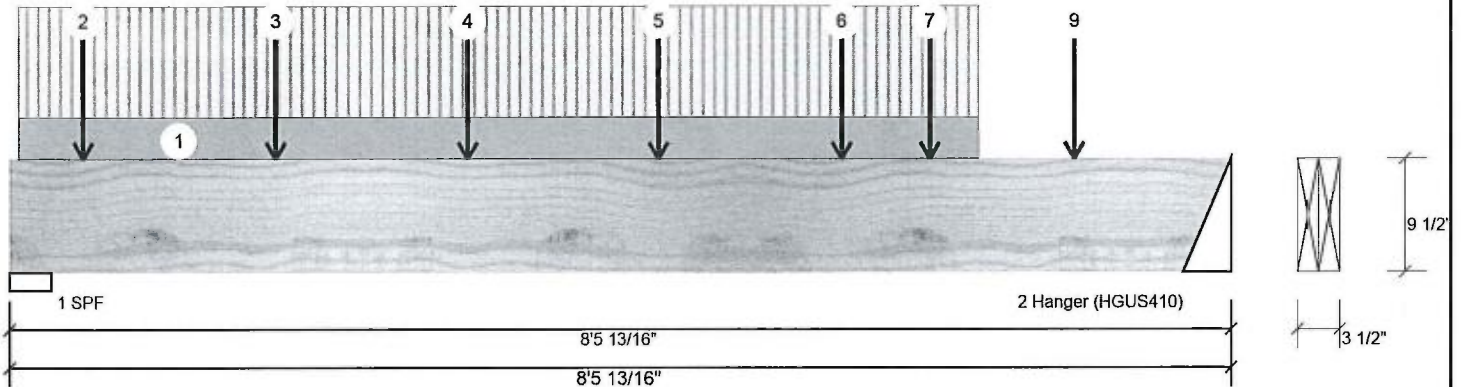
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Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 2 of 2

F4-B Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Second Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
7	Point	6-4-12		Near Face	20 lb	53 lb	0 lb	0 lb	J7
8	Point	7-4-12		Far Face	131 lb	350 lb	0 lb	0 lb	J13
9	Point	7-4-12		Near Face	31 lb	81 lb	0 lb	0 lb	J7
	Self Weight				8 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.

## Notes

Calculated Structural 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 &amp; 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

## Manufacturer Info

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021





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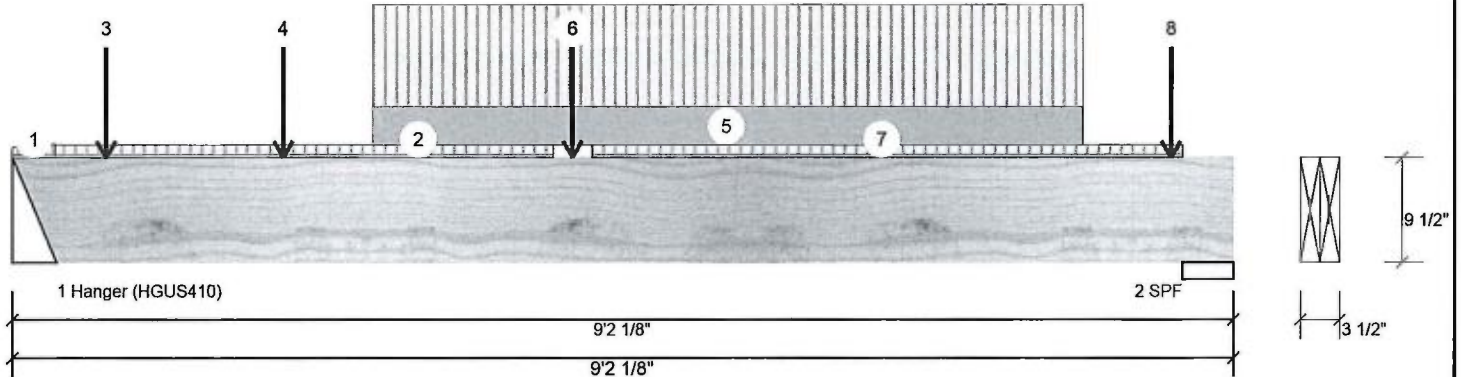
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 Project:  
 Address:

 Date: 8/15/2018  
 Designer: S B  
 Job Name: MILLWOOD 3 EL-1A  
 Project #:

Page 1 of 2

F4-C Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Second Floor



## Member Information

## Unfactored Reactions UNPATTERNED lb (Uplift)

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Brg	Live	Dead	Snow	Wind
1	2053	831	0	0
2	2134	858	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap. React D/L lb	Total	Ld. Case	Ld. Comb.
1 - Hanger	4.000"	40%	1039 / 3079	4118 L	1.25D+1.5L
2 - SPF	4.625"	43%	1072 / 3201	4273 L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	12455 ft-lb	4'2 9/16"	22724 ft-lb	0.548 (55%)	1.25D+1.5L	L
Unbraced	12455 ft-lb	4'2 9/16"	21268 ft-lb	0.586 (59%)	1.25D+1.5L	L
Shear	4227 lb	8' 3/4"	9277 lb	0.456 (46%)	1.25D+1.5L	L
Perm Defl in.	0.067 (L/1532)	4'4 5/8"	0.286 (L/360)	0.230 (23%)	D	Uniform
LL Defl inch	0.167 (L/617)	4'4 5/8"	0.286 (L/360)	0.580 (58%)	L	L
TL Defl inch	0.234 (L/440)	4'4 5/8"	0.429 (L/240)	0.550 (55%)	D+L	L

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



## Design Notes

- 1 Fill all hanger nailing holes.
- 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 braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on full section width.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 0-3-14	(Span)1-0-6 to 1-4-4	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-3-14 to 4-0-13	(Span)1-3-0 to 1-2-13	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Point	0-8-8		Near Face	65 lb	174 lb	0 lb	0 lb	J9
4	Point	2-0-8		Near Face	128 lb	340 lb	0 lb	0 lb	J12
5	Part. Uniform	2-8-8 to 8-0-8		Near Face	102 PLF	273 PLF	0 PLF	0 PLF	

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 &amp; 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

## Manufacturer Info

 Forex  
 APA: PR-L318

 Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400

This design is valid until 7/10/2021







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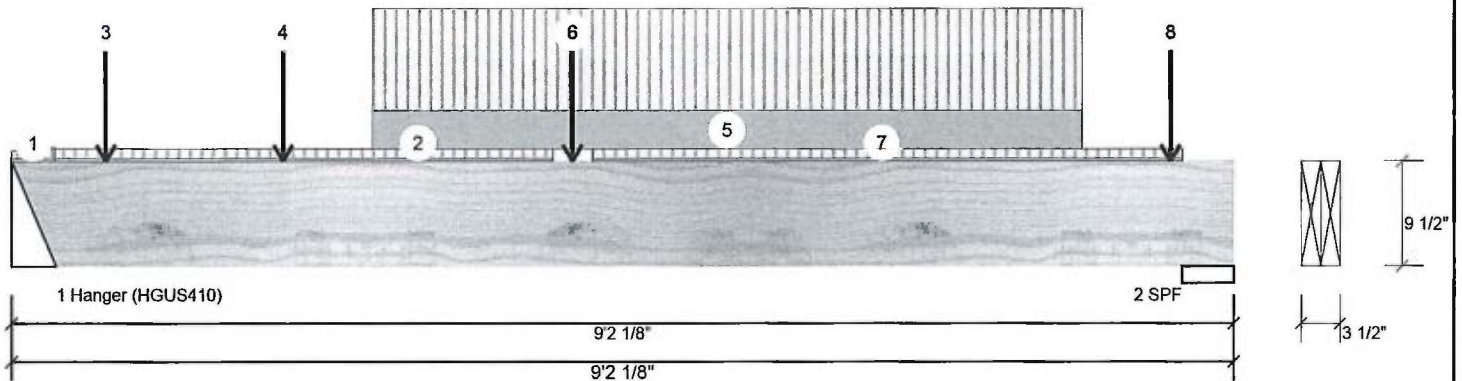
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Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

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F4-C Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Second Floor



Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
6	Point	4-2-9		Far Face	683 lb	1688 lb	0 lb	0 lb	F4
7	Tie-In	4-4-5 to 8-9-9	(Span)1-2-13 to 1-2-10	Top	15 PSF	40 PSF	0 PSF	0 PSF	
8	Point	8-8-8		Near Face	120 lb	319 lb	0 lb	0 lb	J12
	Self Weight				8 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.

## Notes

Calculated Structural 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 &amp; Installation

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## Manufacturer Info

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021





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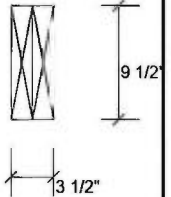
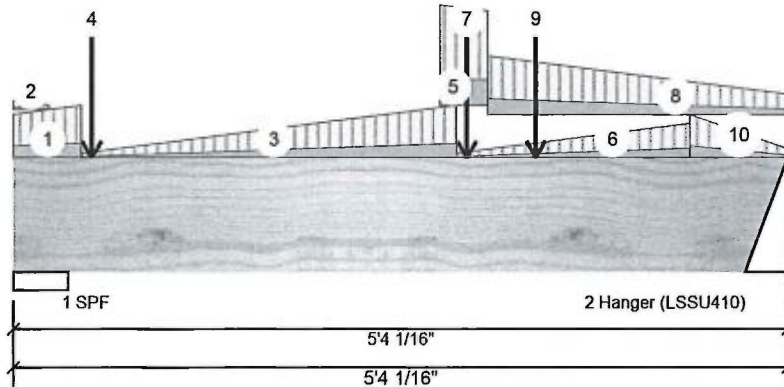
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Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 1 of 2

F5-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Second Floor



## Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

## Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind
1	363	159	0	0
2	536	226	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	4.563"	8%	199 / 545	744	L	1.25D+1.5L
2 - Hanger	3.500"	12%	282 / 804	1087	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	1519 ft-lb	3'7 3/16"	22724 ft-lb	0.067 (7%)	1.25D+1.5L	L
Unbraced	1519 ft-lb	3'7 3/16"	22724 ft-lb	0.067 (7%)	1.25D+1.5L	L
Shear	1002 lb	4'3 13/16"	9277 lb	0.108 (11%)	1.25D+1.5L	L
Perm Defl in.	0.003 (L/18467)	3'1 1/2"	0.160 (L/360)	0.020 (2%)	D	Uniform
LL Defl inch	0.007 (L/7708)	3'1 11/16"	0.160 (L/360)	0.050 (5%)	L	L
TL Defl inch	0.011 (L/5438)	3'1 9/16"	0.240 (L/240)	0.040 (4%)	D+L	L

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



## Design Notes

- 1 Fill all hanger nailing holes.
- 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 braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on full section width.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 0-5-10	(Span)1-5-0 to 1-8-7	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 0-2-15	(Span)0-3-8 to 0-1-12	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Tie-In	0-5-10 to 3-0-10	(Span)0-1-12 to 1-8-7	Top	15 PSF	40 PSF	0 PSF	0 PSF	

Continued on page 2...

## Notes

Calculated Structural 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 &amp; Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multiply 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

## Manufacturer Info

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021





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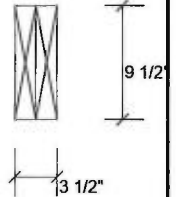
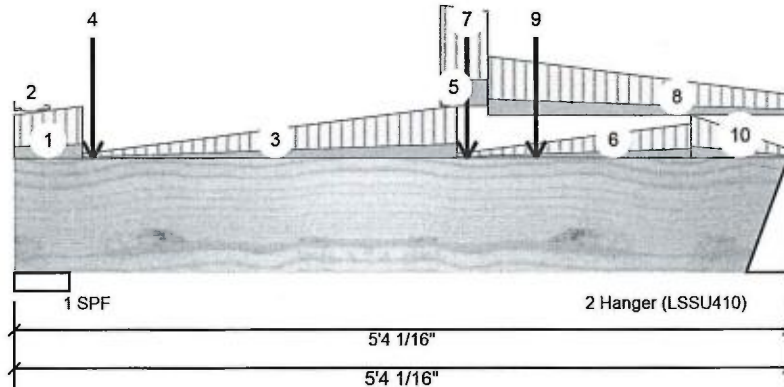
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Project #:

Page 2 of 2

F5-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Second Floor



Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
4	Point	0-6-8		Far Face	35 lb	93 lb	0 lb	0 lb	J8
5	Tie-In	2-11-4 to 3-3-3	(Span)3-3-6 to 3-1-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	
6	Tie-In	3-0-10 to 4-7-15	(Span)0-1-12 to 1-1-7	Top	15 PSF	40 PSF	0 PSF	0 PSF	
7	Point	3-1-8		Far Face	14 lb	37 lb	0 lb	0 lb	J7
8	Tie-In	3-3-3 to 5-4-1	(Span)1-11-0 to 0-8-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	
9	Point	3-7-3		Near Face	232 lb	600 lb	0 lb	0 lb	F14
10	Tie-In	4-7-15 to 5-4-1	(Span)1-4-13 to 0-3-6	Top	15 PSF	40 PSF	0 PSF	0 PSF	
	Self Weight				8 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.

## 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 &amp; Installation

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5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

## Manufacturer Info

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021







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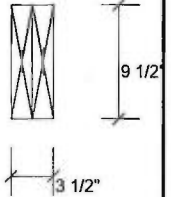
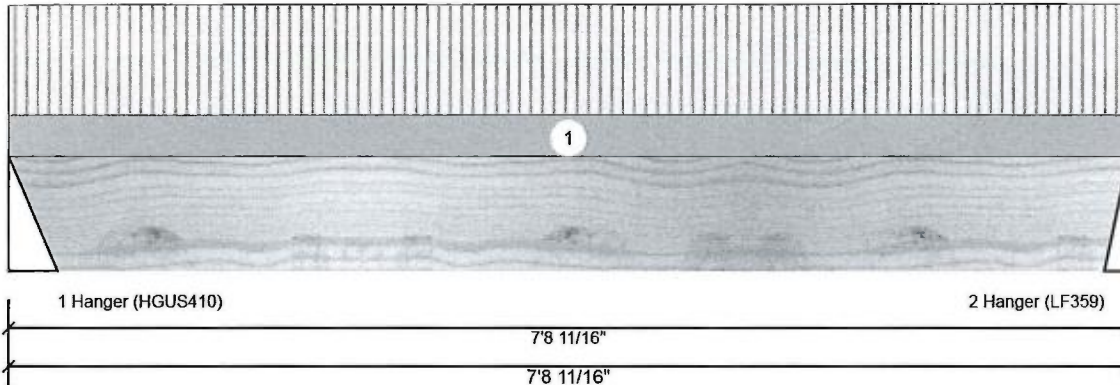
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 Address:

 Date: 8/15/2018  
 Designer: S B  
 Job Name: MILLWOOD 3 EL-1A  
 Project #:

Page 1 of 1

F7-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Second Floor



## Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

## Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind
1	73	57	0	0
2	70	55	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap. React D/L lb	Total	Ld. Case	Ld. Comb.
1 - Hanger	4.000"	2%	72 / 109	180 L	1.25D+1.5L
2 - Hanger	2.000"	3%	69 / 104	173 L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	309 ft-lb	3'11 3/8"	22724 ft-lb	0.014 (1%)	1.25D+1.5L	L
Unbraced	309 ft-lb	3'11 3/8"	21657 ft-lb	0.014 (1%)	1.25D+1.5L	L
Shear	132 lb	6'9 15/16"	9277 lb	0.014 (1%)	1.25D+1.5L	L
Perm Defl in.	0.002 (L/39248)	3'11 3/8"	0.245 (L/360)	0.010 (1%)	D	Uniform
LL Defl inch	0.003 (L/30962)	3'11 3/8"	0.245 (L/360)	0.010 (1%)	L	L
TL Defl inch	0.005 (L/17308)	3'11 3/8"	0.368 (L/240)	0.010 (1%)	D+L	L

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



## Design Notes

- 1 Fill all hanger nailing holes.
- 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 braced at bearings.
- 6 Bottom braced at bearings.
- 7 Lateral slenderness ratio based on full section width.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 7-8-11	(Span)0-11-0 to 0-11-1	Top	15 PSF	40 PSF	0 PSF	0 PSF	
	Self Weight				8 PLF				

## Notes

Calculated Structural 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 &amp; 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

## Manufacturer Info

 Forex  
 APA: PR-L318

 Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400


This design is valid until 7/10/2021





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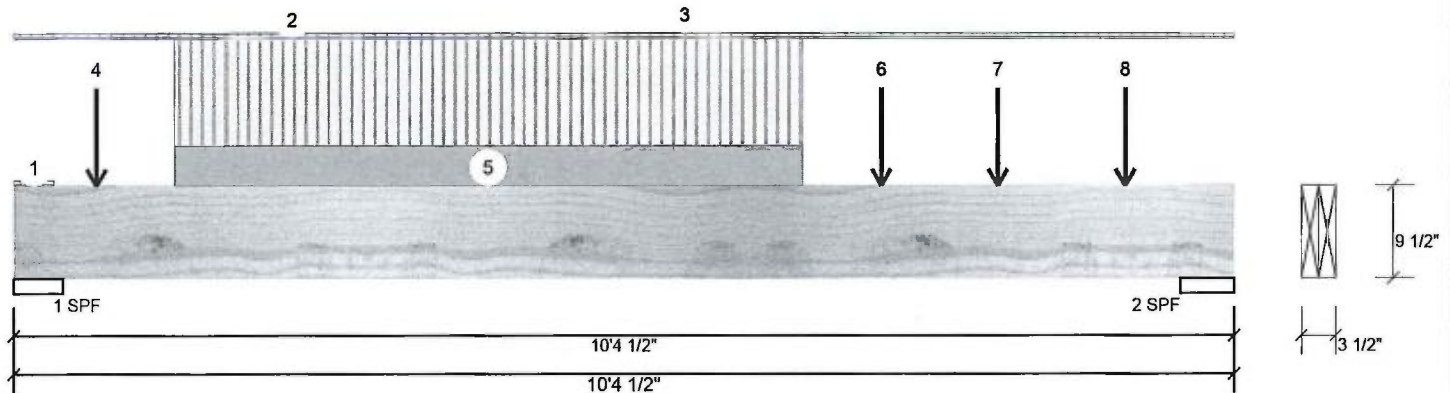
Client:  
Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 1 of 2

**F9-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED**

Level: Second Floor



## Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

### Unfactored Reactions UNPATTERNED Ib (Uplift)

Brg	Live	Dead	Snow	Wind
1	1364	555	0	0
2	1365	564	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	5.000"	25%	694 / 2046	2740	L	1.25D+1.5L
2 - SPF	5.500"	23%	705 / 2047	2752	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6506 ft-lb	5'2 1/8"	22724 ft-lb	0.286 (29%)	1.25D+1.5L	L
Unbraced	6506 ft-lb	5'2 1/8"	20894 ft-lb	0.311 (31%)	1.25D+1.5L	L
Shear	2718 lb	9'2 1/4"	9277 lb	0.293 (29%)	1.25D+1.5L	L
Perm Defl in.	0.048 (L/2382)	5'2 3/16"	0.321 (L/360)	0.150 (15%)	D	Uniform
LL Defl inch	0.119 (L/968)	5'2 1/8"	0.321 (L/360)	0.370 (37%)	L	L
TL Defl inch	0.168 (L/688)	5'2 1/8"	0.481 (L/240)	0.350 (35%)	D+L	L

## Design Notes

- 1 Girders are designed to be supported on the bottom edge only.
- 2 Multiple plies must be fastened together as per manufacturer's details.
- 3 Top loads must be supported equally by all plies.
- 4 Top braced at bearings.
- 5 Bottom braced at bearings.
- 6 Lateral slenderness ratio based on full section width.

**READ ALL NOTES ON THIS PAGE AND ON  
ENGINEERING NOTE PAGE ENP-2. THIS  
NOTE PAGE IS AN INTEGRAL PART OF THIS  
CALCULATION SUMMARY PAGE AS IT  
CONTAINS SPECIFICATIONS AND CRITERIA  
USED IN THE DESIGN OF THIS COMPONENT.**

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

**PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.**



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 0-4-2	(Span)0-6-4	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 10-4-8	(Span)0-5-12	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Part. Uniform	0-3-7 to 9-11-0		Top	1 PLF	0 PLF	0 PLF	0 PLF	
4	Point	0-8-7		Far Face	102 lb	272 lb	0 lb	0 lb	J12
5	Part. Uniform	1-4-7 to 6-8-7		Far Face	102 PLF	273 PLF	0 PLF	0 PLF	
6	Point	7-4-7		Far Face	120 lb	319 lb	0 lb	0 lb	J12

Continued on page 2...

## 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

### Manufacturer Info

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

This design is valid until 7/10/2021





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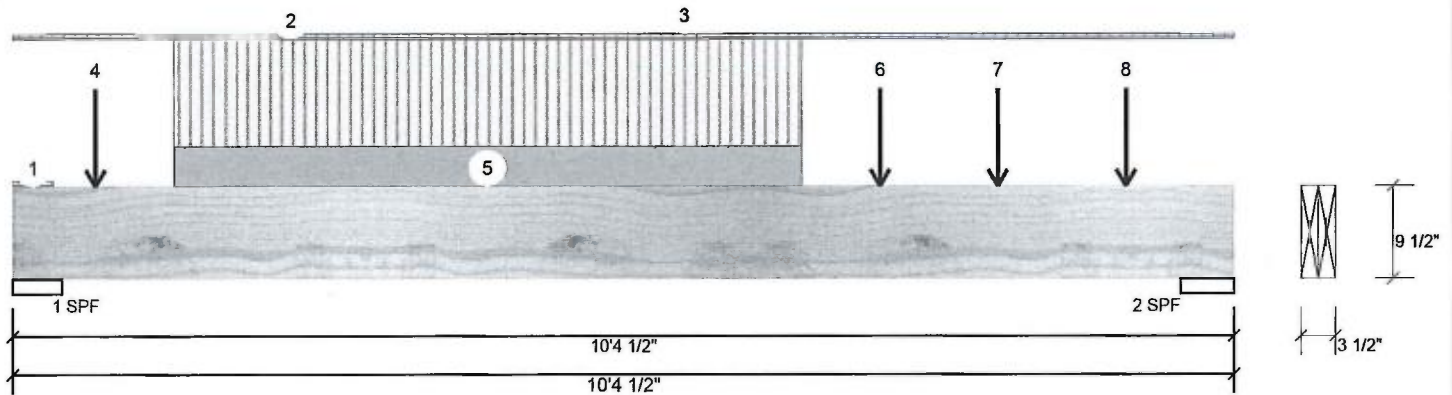
Client:  
Project:  
Address:

Date: 8/15/2018  
Designer: S B  
Job Name: MILLWOOD 3 EL-1A  
Project #:

Page 2 of 2

F9-A Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Second Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
7	Point	8-4-7		Far Face	110 lb	287 lb	0 lb	0 lb	J12
8	Point	9-5-7		Far Face	116 lb	292 lb	0 lb	0 lb	J12
	Self Weight				8 PLF				

REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.

**Notes**

Calculated Structural 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

**Manufacturer Info**

Forex  
APA: PR-L318

Kott Lumber Company  
14 Anderson Blvd, Ontario  
Canada  
L4A 7X4  
905-642-4400

**KOTT NASCOR**

This design is valid until 7/10/2021







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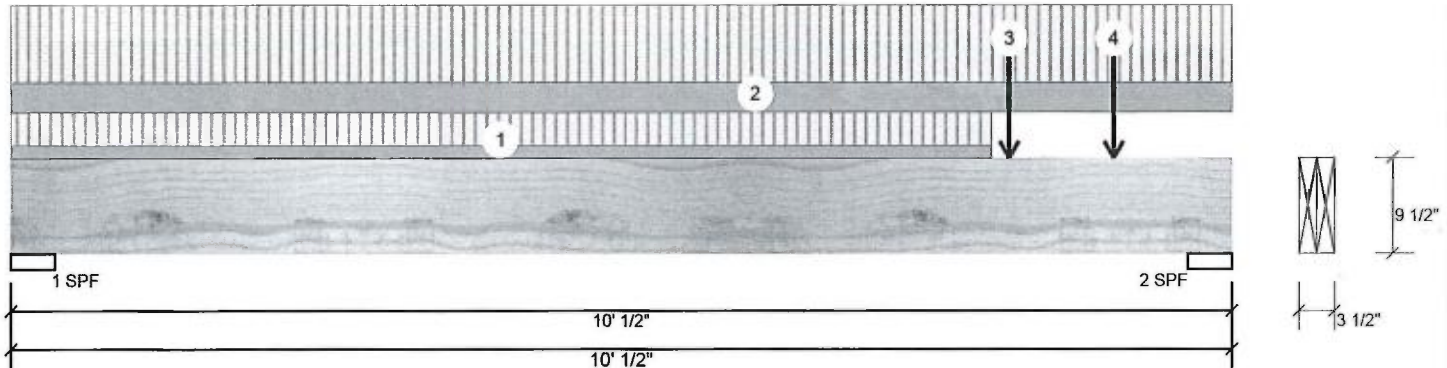
 Client:  
 Project:  
 Address:

 Date: 8/15/2018  
 Designer: S B  
 Job Name: MILLWOOD 3 EL-1A  
 Project #:

Page 1 of 1

F9-B Forex 2.0E-3000Fb LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Second Floor



## Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2010 / OBC 2012
Deflection LL:	360	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

## Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind
1	272	150	0	0
2	796	387	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	4.375"	6%	187 / 408	595	L	1.25D+1.5L
2 - SPF	4.375"	18%	484 / 1194	1678	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2178 ft-lb	7'11"	22724 ft-lb	0.096 (10%)	1.25D+1.5L	L
Unbraced	2178 ft-lb	7'11"	20965 ft-lb	0.104 (10%)	1.25D+1.5L	L
Shear	1617 lb	8'11 3/8"	9277 lb	0.174 (17%)	1.25D+1.5L	L
Perm Defl in.	0.017 (L/6476)	5'5 9/16"	0.315 (L/360)	0.060 (6%)	D	Uniform
LL Defl inch	0.034 (L/3368)	5'6 3/16"	0.315 (L/360)	0.110 (11%)	L	L
TL Defl inch	0.051 (L/2216)	5'6"	0.472 (L/240)	0.110 (11%)	D+L	L

## Design Notes

- Girders are designed to be supported on the bottom edge only.
- Multiple plies must be fastened together as per manufacturer's details.
- Top loads must be supported equally by all plies.
- Top braced at bearings.
- Bottom braced at bearings.
- Lateral slenderness ratio based on full section width.

READ ALL NOTES ON THIS PAGE AND ON ENGINEERING NOTE PAGE ENP-2. THIS NOTE PAGE IS AN INTEGRAL PART OF THIS CALCULATION SUMMARY PAGE AS IT CONTAINS SPECIFICATIONS AND CRITERIA USED IN THE DESIGN OF THIS COMPONENT.

REFER TO MULTIPLE MEMBER TO MEMBER CONNECTION DETAIL FOR PLY TO PLY NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH BLOCK IS REQUIRED AT ALL POINT LOADS OVER BEARINGS.



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 8-0-13	(Span)0-6-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 10-0-8	(Span)1-2-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Point	8-2-9		Far Face	277 lb	579 lb	0 lb	0 lb	F4
4	Point	9-0-13		Far Face	65 lb	174 lb	0 lb	0 lb	J9
	Self Weight				8 PLF				

## Notes

Calculated Structural 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

- Dry service conditions, unless noted otherwise
- LVL not to be treated with fire retardant or corrosive chemicals

## chemicals

## Handling &amp; Installation

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

- For flat roofs provide proper drainage to prevent ponding

## Manufacturer Info

 Forex  
 APA: PR-L318

 Kott Lumber Company  
 14 Anderson Blvd, Ontario  
 Canada  
 L4A 7X4  
 905-642-4400

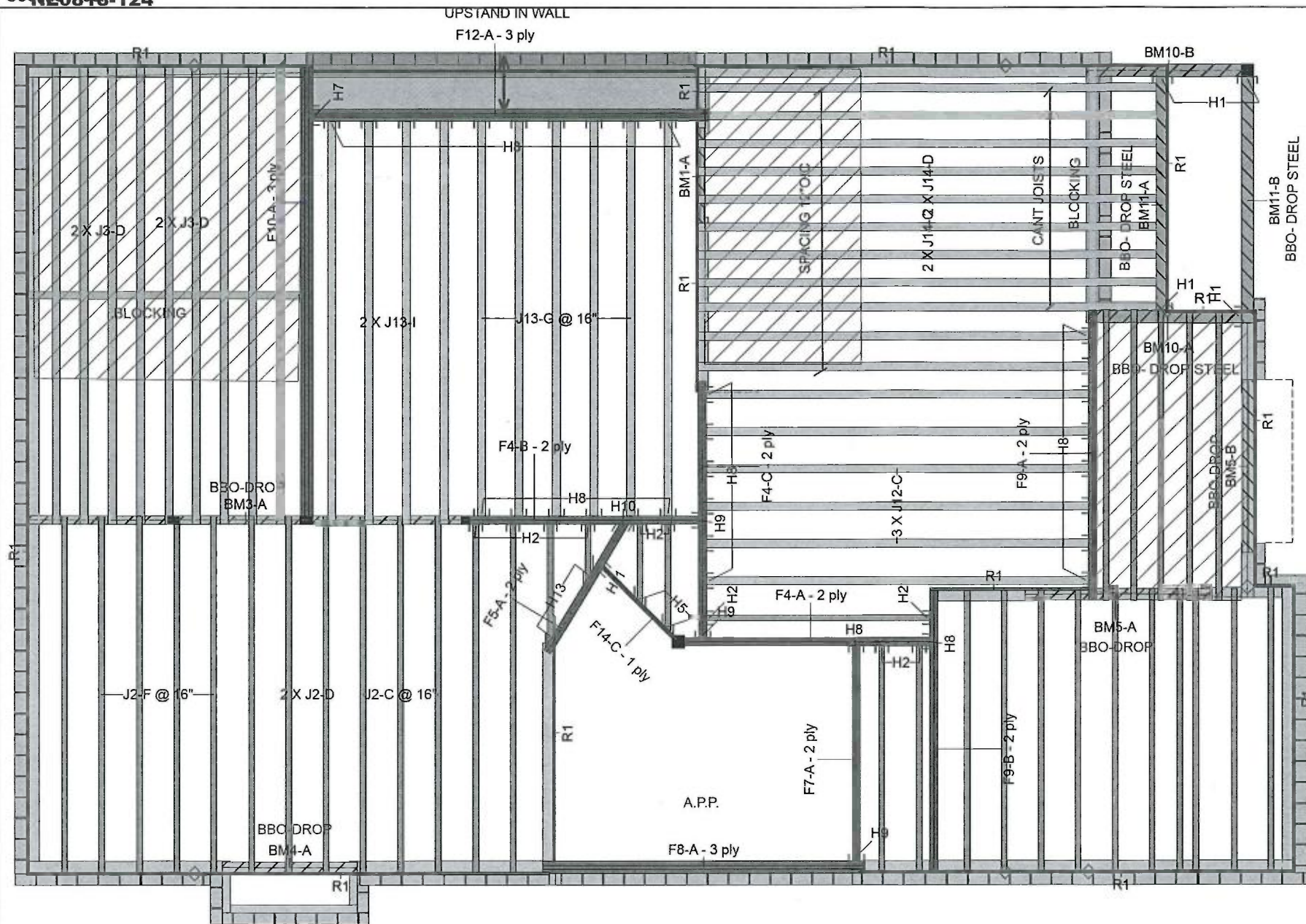
This design is valid until 7/10/2021











JOISTS SPACING 16"O/C  
UNLESS  
NOTED OTHERWISE

### Legend

PS	
◇	Point Load Support
	Load from Above
	Wall
	Norbord Rimboard Plus 1.125 X 9.5
	NJ40U 9.5
	NJ60U 9.5
	NJH 9.5
	Forex 2.0E-3000Fb LVL 1.75 X 9.5
	Forex 2.0E-3000Fb LVL 1.75 X 11.875
	1.75 X 9.5 (Dropped)
	2.5 X 9.5 (Dropped)
	5.5 X 10.25 (Dropped)

1. OBC 2012 O.Reg 332/12 as amended
2. Nascor CCMC - 13535-R
3. LVL CCMC -12904-R
4. CAN/CSA-O86-09
5. CCMC -12787-R APA PR-L310(C)

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This layout is to be used as an installation guide ly. It is meant to be used in conjunction with the architectural and structural drawings, not to replace them

**THIS CERTIFICATION IS TO CONFIRM THAT:**

- 1. THE LOADS USED IN THE CALCULATION OF THE ATTACHED APPROVED COMPONENTS CONFORM TO THE FLOOR ASSEMBLY SHOWN ON THIS LAYOUT.**

- 2. THE FLOOR JOISTS COMPLY WITH THE NASCOR SPAN TABLE FOR THE LOADS AND SPACING SHOWN ON THIS LAYOUT.**

**THE FLOOR SYSTEM MUST BE ASSEMBLED IN ACCORDANCE TO THE NASCOR SPECIFIER GUIDE. MULTI-PLY MEMBERS MUST BE ATTACHED TOGETHER AS PER THE INCLUDED MULTIPLE MEMBER CONNECTION DETAIL.**

**ALL OTHER COMPONENTS AND STRUCTURAL ELEMENTS SUPPORTING THE FLOOR SYSTEM SUCH AS BEAMS, WALLS, COLUMNS AND FOUNDATION WALLS AND FOOTINGS INCLUDING ANCHORAGE OF COMPONENTS AND BRACING FOR LATERAL STABILITY ARE THE RESPONSIBILITY OF OTHERS.**



**READ ALL NOTES ON THIS PAGE AND ON  
ENGINEERING NOTE PAGE ENP-2. THIS  
NOTE PAGE IS AN INTEGRAL PART OF THIS  
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CONTAINS SPECIFICATIONS AND CRITERIA  
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REFER TO MULTIPLE MEMBER TO MEMBER  
CONNECTION DETAIL FOR PLY TO PLY  
NAILING OR BOLTING REQUIREMENTS.

PASS THRU FRAMING SQUASH  
BLOCK IS REQUIRED AT ALL  
POINT LOADS OVER BEARINGS.

Second Floor							
LVL/LSL							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
F10	Forex 2.0E-3000Fb LVL	1.75	9.5	1	3	3	18-0-0
F9	Forex 2.0E-3000Fb LVL	1.75	9.5	2	2	4	12-0-0
F8	Forex 2.0E-3000Fb LVL	1.75	9.5	1	3	3	12-0-0
F4	Forex 2.0E-3000Fb LVL	1.75	9.5	3	2	6	10-0-0
F7	Forex 2.0E-3000Fb LVL	1.75	9.5	1	2	2	8-0-0
F5	Forex 2.0E-3000Fb LVL	1.75	9.5	1	2	2	6-0-0
F14	Forex 2.0E-3000Fb LVL	1.75	9.5			1	4-0-0
F12	Forex 2.0E-3000Fb LVL	1.75	11.875	1	3	3	16-0-0

Joist							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
J14	NJ40U	3.5	9.5			9	18-0-0
J13	NJ40U	3.5	9.5			10	16-0-0
J12	NJ40U	3.5	9.5			8	14-0-0
J3	NJ60U	3.5	9.5			9	18-0-0
J2	NJH	2.5	9.5			13	14-0-0
J11	NJH	2.5	9.5			15	12-0-0
J10	NJH	2.5	9.5			2	10-0-0
J9	NJH	2.5	9.5			1	8-0-0
J8	NJH	2.5	9.5			1	6-0-0
J7	NJH	2.5	9.5			3	4-0-0

Rim Board							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
R1	Norbord Rimboard Plus 1.125 X 9.5	1.125	9.5			13	12

Blocking							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
BLK1	NJ40U	3.5	9.5	LinFt		Varies	7-0-0
BLK3	NJ60U	3.5	9.5	LinFt		Varies	8-0-0

Hanger			Beam/Girder		Supported Member
Label	Pcs	Description	Skew	Slope	fasteners
H1	4	Unknown Hanger			
H2	10	LF259			10 10d
H5	2	SUR2.56/9 (Min)	Right		14 10dx1 1/2
H7	1	HGUS5.50/10			46 16d
H8	32	LF359			10 10d
H9	3	HGUS410			46 16d
H10	1	LSSU410-L	Var	Var	14 16d
H11	1	LSSUI25-L	Var	Var	9 10d
H13	2	LSSUH310-L	Var	Var	14 16d

## NOTES:

1. Framer to verify dimensions on the architectural drawings.
2. Double joist only require filler/backer ply when supporting another member using a square mounted hanger.
3. Install 2x4 blocking @ 24" o/c under parallel non-loadbearing walls.
4. Install single-ply flush window header along inside face of rimboard/rimjoist
5. Refer to Nascor specifier guide for installation details.
6. Squash blocks recommended to be installed at end bearing on all first level joists which support loading from above exceeding two levels floor or roof.
7. Load transfer blocks to be installed under all point loads.
8. It shall be the framer's responsibility that floor joists and beams are fastened as per the hanger manufacturer's standards.

Refer to Multiple Member Connection Detail to ply to ply nailing or bolting requirements.

Rim parallel to joists: 1-1/8" rimboard with 2"x4" block (1/16" longer than rim depth) @ 16" o/c. All other components and structural elements supporting the floor system such as beams, walls, columns and foundation walls and footings including anchorage of components and bracing for lateral stability are the responsibility of others.

Hatch area represents ceramic tiled floor with an additional dead load of 5 PSF.

The framing shown on this layout may be deviate from the architectural drawings. Project Engineer to review and approve the deviation prior to construction.

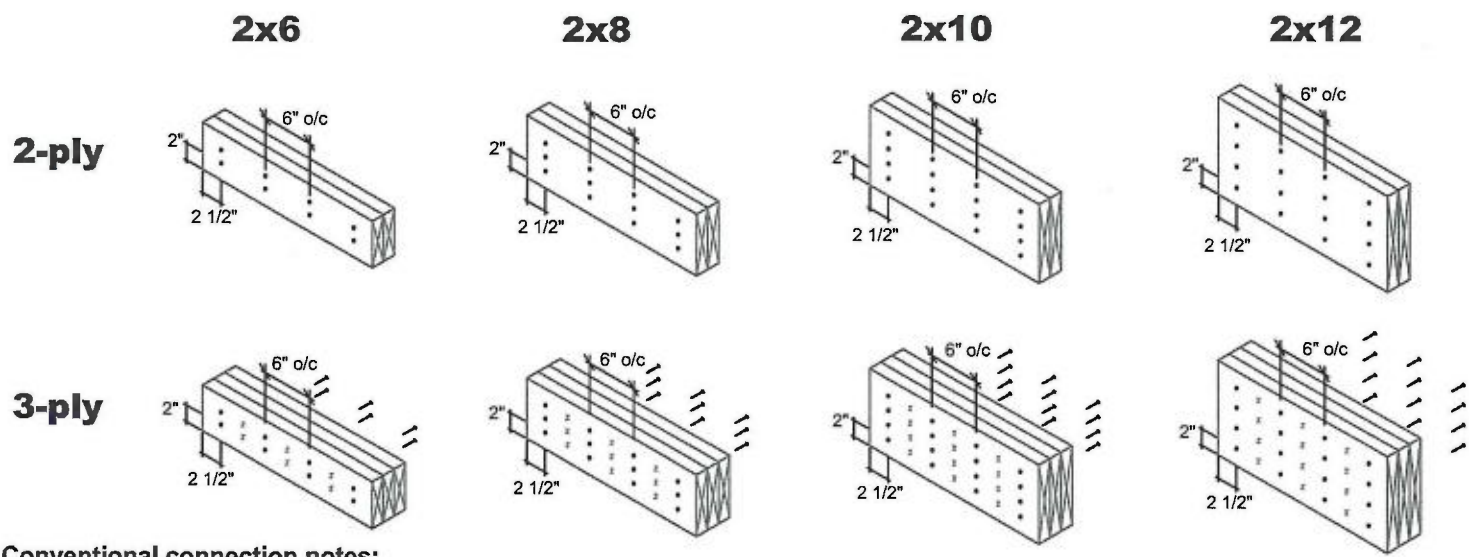
<b>NASCOR</b>	
<b>Layout Name</b> MILLWOOD 3 EL-1A	
<b>Design Method</b> LSD	
<b>Description</b> GREENPARK HOMES MINISALE, BRAMPTON, ON	
<b>Created</b> June 27, 2018	
<b>Builder</b>	
<b>Sales Rep</b> RM	
<b>Designer</b> S B	
<b>Shipping</b>	
<b>Project</b>	
<b>Builder's Project</b> <b>Kott Lumber Company</b> 14 Anderson Blvd Stouffville, Ontario Canada L4A 7X4 905-642-4400	
<b>Second Floor</b>	
<b>Design Method</b>	LSD
<b>Building Code</b>	NBCC 2010 / OBC 2012
<b>Floor</b>	
<b>Loads</b>	
Live	40
Dead	15
<b>Deflection Joist</b>	
LL Span L/	480
TL Span L/	360
LL Cant 2L/	480
TL Cant 2L/	360
<b>Deflection Girder</b>	
LL Span L/	360
TL Span L/	240
LL Cant 2L/	480
TL Cant 2L/	360
<b>Decking</b>	
Deck	OSB
Thickness	5/8"
Fastener	Nailed & Glued
<b>Vibration</b>	
Ceiling:	Gypsum 1/2"
<b>Architectural Drawing Info</b>	
VA3 DESIGN 255 CONSUMERS ROAD TORONTO, ON M2J 1R4	
Project # 18012 Model: Millwood 3 Date: JUN 29, 2018 REV 4	





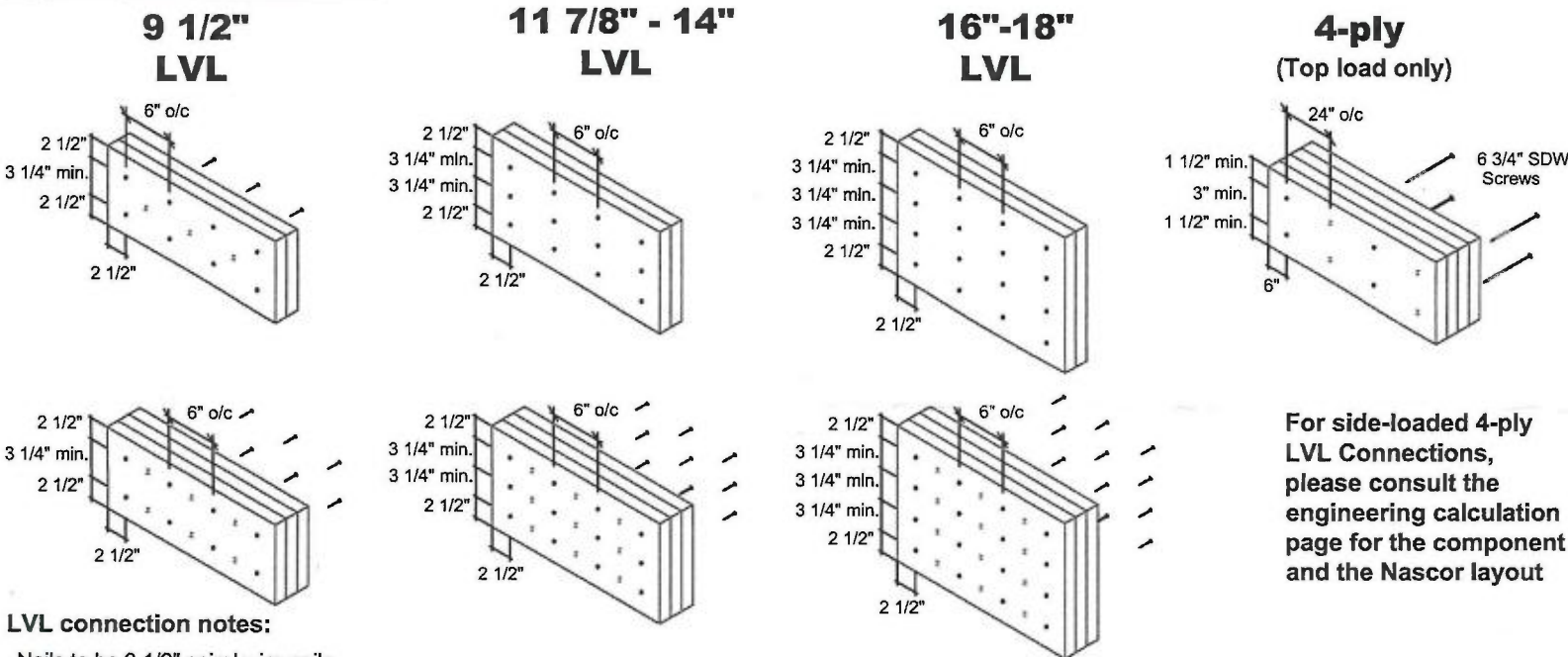
# MULTIPLE MEMBER CONNECTIONS

## Conventional Connections (for uniform distributed loads)



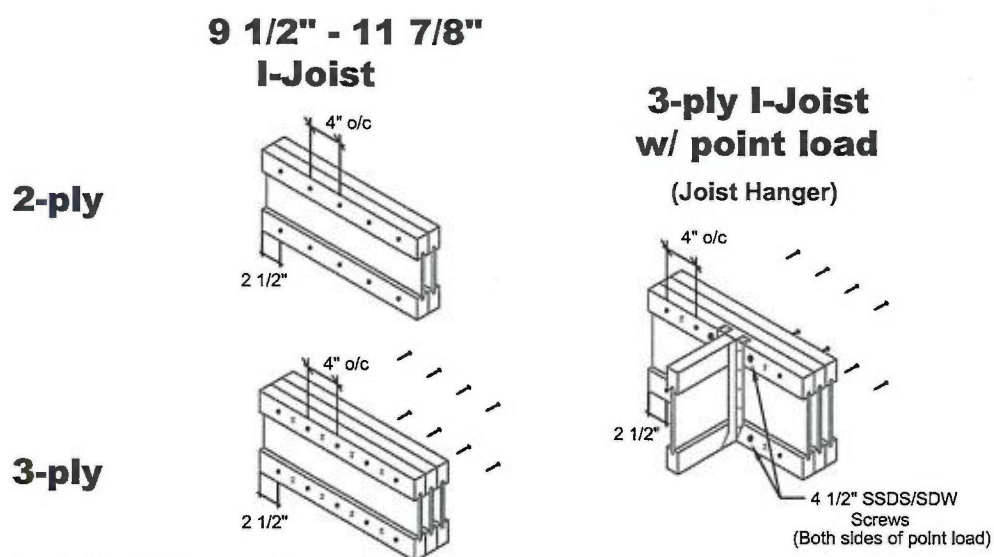
**Conventional connection notes:**  
-Nails to be 3" 10d spiral wire nails.  
-Nails to be located a minimum of 2" from the top and bottom of the member. Start all nails a minimum of 2 1/2" in from ends.  
-Number of rows and spacing as per details shown, unless noted otherwise.  
- "X" represents nail driven from the opposite side.

## LVL Connections (for uniform distributed loads)



**LVL connection notes:**  
-Nails to be 3 1/2" spiral wire nails.  
-Nails to be located a minimum of 2 1/2" from the top and bottom of the member. Start all nails a minimum of 2 1/2" in from ends.  
-Minimum 3 1/4" spacing between rows.  
-Number of rows and spacing as per details shown, unless noted otherwise.  
- "X" represents nail or screw driven from the opposite side.

## Vertical I-Joist Connections (for uniform distributed loads)



**Vertical I-Joist connection notes:**  
-Nails to be 3" spiral wire nails.  
-Nails to be located at centre of top and bottom flanges. Start all nails a minimum of 2 1/2" in from ends.  
-Number of rows and spacing as per details shown, unless noted otherwise.  
- "X" represents nail driven from the opposite side.