

Engineering Note Page (ENP-2)

REVISION 2021-10-04

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 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 transfer blocks. Structural elements such as walls, posts, connectors, and transfer 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 floor joists is to be carried out in accordance with the current edition of the manufacturer's literature available at <http://www.kottgroup.com>.

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 transfer block framing is required at all point loads over bearings.
5. It is assumed that each LVL beam where not seated in a hanger is attached using (4) four 3-1/4" common spiral nails for up to 5.5" long bearings and using (6) six 3-1/4" common spiral nails for bearings equal to or longer than 5.5", unless indicated otherwise.

HANDLING AND INSTALLATION

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



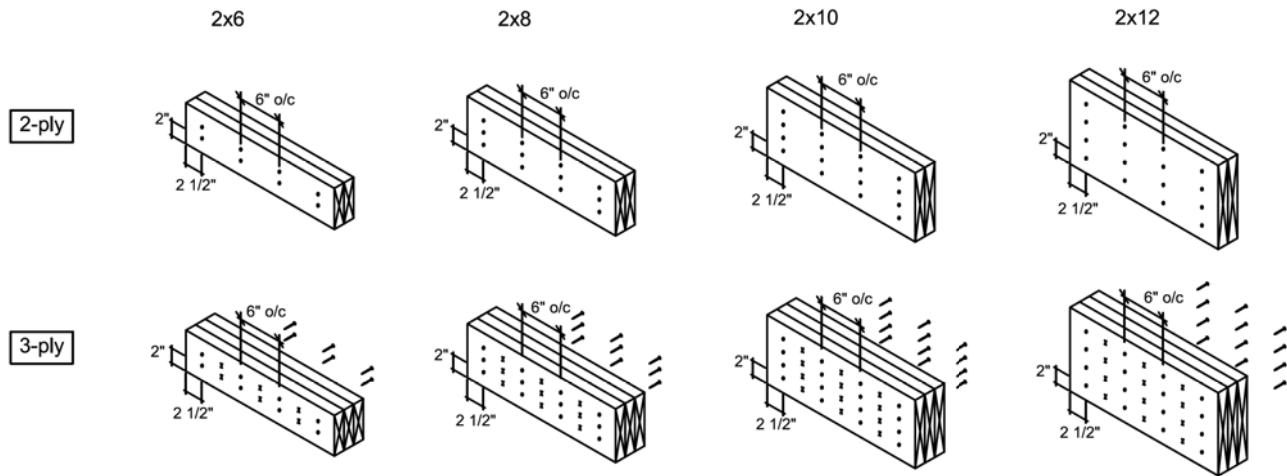
CITY OF RICHMOND HILL
BUILDING DIVISION

09/22/2022

RECEIVED

Per: joshua.nabua

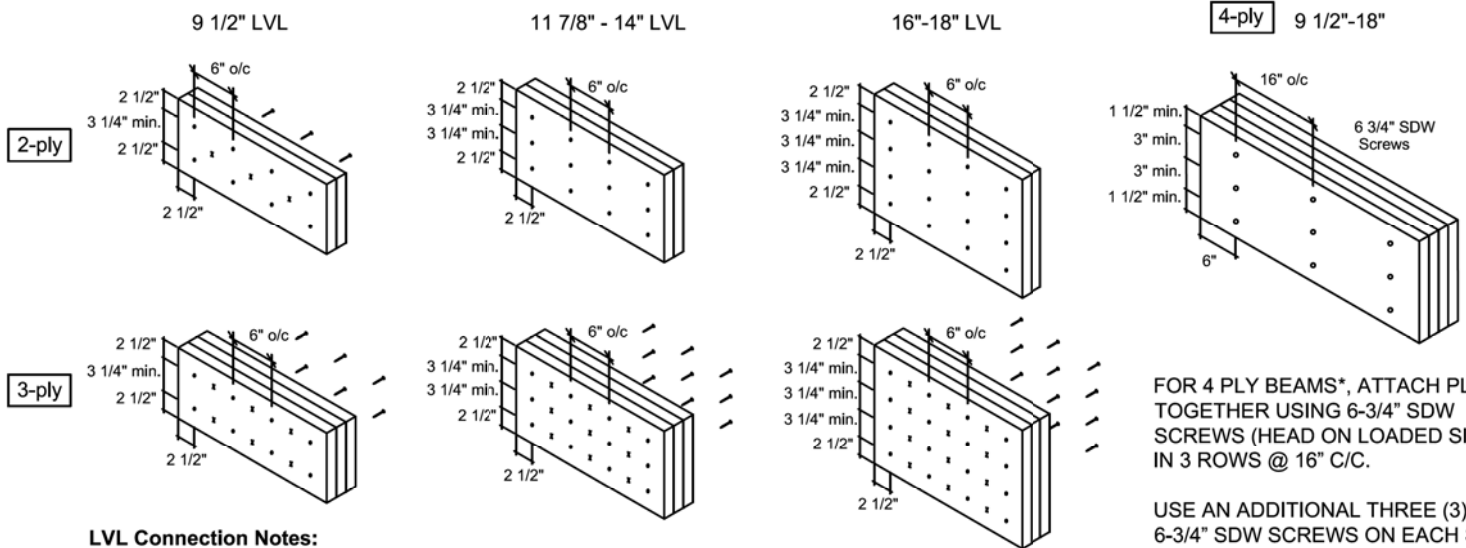
Conventional Connections



Conventional Connection Notes:

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

LVL Connections



LVL Connection Notes:

- LVL ply width is 1-3/4"
- Nails to be 3 1/2" common wire nails.
- Nails to be located 2 1/2" min. from the top and bottom of the member. Start all nails 2 1/2" min. from ends.
- Minimum 3 1/4" spacing between rows.
- Number of rows and spacing as per details shown, unless noted otherwise.
- "X" represents nail driven from the opposite side.
- Head of all specified screws must be on the loaded side.

FOR 4 PLY BEAMS*, ATTACH PLYS TOGETHER USING 6-3/4" SDW SCREWS (HEAD ON LOADED SIDE) IN 3 ROWS @ 16" C/C.

USE AN ADDITIONAL THREE (3) 6-3/4" SDW SCREWS ON EACH SIDE (OF EACH FACE) AT POINT LOAD LOCATIONS @ 1/2 SPACING, WHERE APPLICABLE.

*UNLESS NOTED OTHERWISE ON LAYOUT OR CALCULATION SHEET OF BEAM IN THE FLOOR PACKAGE

Multiple Member Connections

All connections are for uniformly distributed loads.

For multi-ply connections of I-joists, refer to Manufacturer's Installation Guide

Last revised: February 19, 2021



CITY OF RICHMOND HILL
BUILDING DIVISION
KOTT Inc.
3228 Moodie Drive
Ottawa, ON
K2H 7V1
613-838-2775

RECEIVED
Per: joshua.nabua

[illegible]

Label	Description	Width	Depth	Qty	Plies	Pcs	Length
F20	Forex 2.0E-3000Fb LVL	1.75	11.875	1	2	2	18-0
F19	Forex 2.0E-3000Fb LVL	1.75	11.875	1	3	3	14-0
F8	Forex 2.0E-3000Fb LVL	1.75	11.875	1	2	2	14-0
F15	Forex 2.0E-3000Fb LVL	1.75	11.875			1	12-0
F6	Forex 2.0E-3000Fb LVL	1.75	11.875	1	2	2	8-0
F9	Forex 2.0E-3000Fb LVL	1.75	11.875			1	8-0
F5	Forex 2.0E-3000Fb LVL	1.75	11.875			3	4-0

Label	Description	Width	Depth	Qty	Plies	Pcs	Length
F4	AJS 24	3.5	11.875			5	18-0-0
F3	AJS 24	3.5	11.875			1	14-0-0
F2	AJS 24	3.5	11.875			2	4-0-0
F1	AJS 24	3.5	11.875			2	2-0-0
J6	AJS 24	3.5	11.875			27	18-0-0
J5	AJS 24	3.5	11.875			6	16-0-0
J4	AJS 24	3.5	11.875			10	14-0-0
J3	AJS 24	3.5	11.875			6	12-0-0
J2	AJS 24	3.5	11.875			2	10-0-0
J7	AJS 24	3.5	11.875			1	4-0-0
J1	AJS 24	3.5	11.875			24	2-0-0

Label	Description	Width	Depth	Qty	Plies	Pcs	Length
R1	Norbord Rimboard Plus 1.125 X 11.875	1.125	11.875			12	12-0-

Label	Description	Width	Depth	Qty	Plies	Pcs	Length
BLK1	AJS 24	3.5	11.875	LinFt		Varies	27-0-

					Beam/Girder	Supported Member
Label	Pcs	Description	Skew	Slope	fasteners	fasteners
H1	5	HUS1.81/10			30 16d	10 16d
H2	53	LF3511			12 10d	2 #8x1 1/4W
H3	1	HHUS410			30 16d	10 16d

Label	Description	Width	Depth	Qty	Plies	Pcs	Length
	H2.5A					1	

Legend

WS Web Stiffener
 -WS In Hinge Label Denotes Web Stiffener
 PS Point Load Support
 ◇ Load from Above
 Wall
 Wall Opening
 Norbord Rimboor Plus 1,125 X 11,875
 AJS 24 X 11,875
 Forex 2;OE-3000Fb-LVL 1.75 X 11,875

Hatch Area represents where additional load has been applied. (e.g. 5 psf for ceramic tile)

AJS140 I-Joists can be substituted with LP20 I-Joists for 9.5" and 11.875" depths shown on this layout.



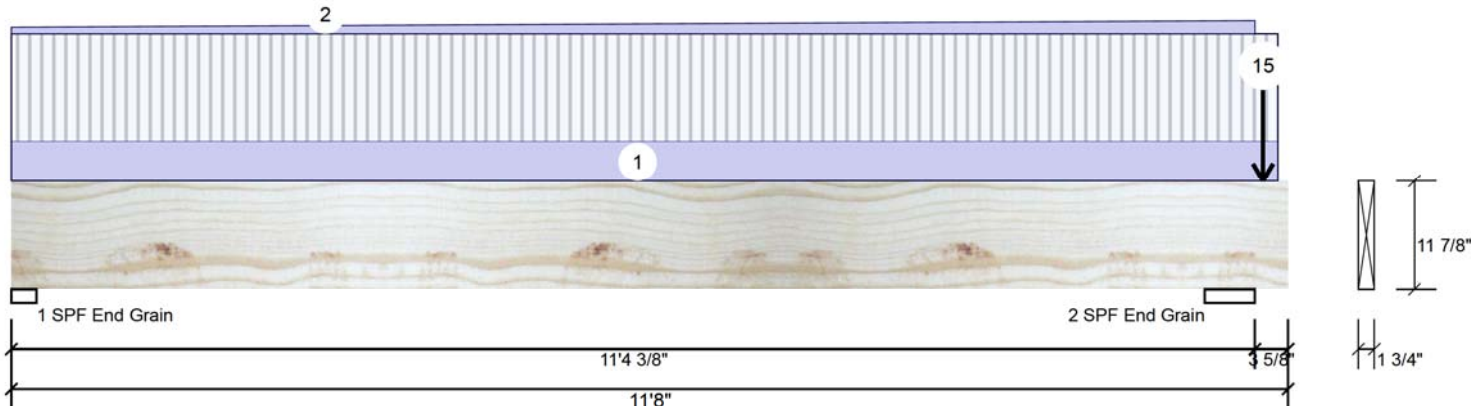
Client: GREENPARK
Project: TERRACOTA 45 1-2
Address: RICHMOND HILL, ON

Date: 10/14/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 1 of 6

F15-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" - PASSED

Level: Ground Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	91	67	0 (-2)	0
2	Vertical	147	208	157	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	2.750"	Vert	7%	84 / 138	221	L_	1.25D+1.5L
2 - SPF End Grain	5.500"	Vert	10%	260 / 382	642	LL	1.25D+1.5S +L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-61 ft-lb	11'4 3/8"	15589 ft-lb	0.004 (0%)	1.25D+1.5S +L	L_
Unbraced	-61 ft-lb	11'4 3/8"	4100 ft-lb	0.015 (2%)	1.25D+1.5S +L	L_
Pos Moment	587 ft-lb	5'7 5/16"	15589 ft-lb	0.038 (4%)	1.25D+1.5L	L_
Unbraced	587 ft-lb	5'7 5/16"	15589 ft-lb	0.038 (4%)	1.25D+1.5L	L_
Shear	180 lb	1'2 5/8"	5624 lb	0.032 (3%)	1.25D+1.5L	L_
Perm Defl in.	0.009 (L/15006)	5'7 7/16"	0.366 (L/360)	0.024 (2%)	D	Uniform
LL Defl inch	0.012 (L/10817)	5'7 13/16"	0.274 (L/480)	0.044 (4%)	L	L_
TL Defl inch	0.021 (L/6286)	5'7 11/16"	0.548 (L/240)	0.038 (4%)	D+L	L_
LL Cant	-0.001 (2L/7606)	Rt Cant	0.200 (2L/480)	0.005 (0%)	L	L_
TL Cant	-0.002 (2L/4821)	Rt Cant	0.300 (2L/240)	0.005 (1%)	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 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top must be continuously laterally braced.
- 5 Bottom must be laterally braced at bearings.

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

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 Inc.
3228 Moodie Dr, Ottawa, Ontario
K1M 1Y4
613-838-2775 / 905-642-4400



Per: joshua.nabua



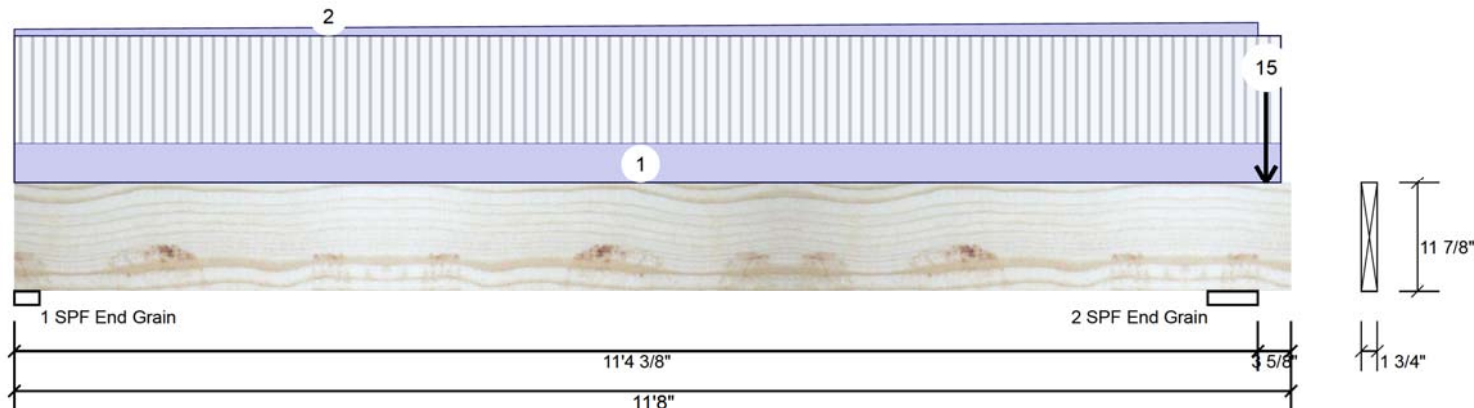
Client: GREENPARK
 Project: TERRACOTA 45 1-2
 Address: RICHMOND HILL, ON

Date: 10/14/2021
 Input by: W C
 Job Name: TC451-2 STANDARD
 Project #: ROUNDEL HOMES INC

Page 2 of 6

F15-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" - PASSED

Level: Ground Floor



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 11-6-14	0-4-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tapered Start	0-0-0		Top	1 PLF	0 PLF	0 PLF	0 PLF	
	End	11-4-6			2 PLF	0 PLF	0 PLF	0 PLF	
3	Point	11-5-4		Top	33 lb	0 lb	83 lb	0 lb	
	Bearing Length	0-5-8							
4	Point	11-5-4		Top	19 lb	50 lb	0 lb	0 lb	J9
	Bearing Length	0-5-8							
6	Point	11-5-4		Top	13 lb	0 lb	0 lb	0 lb	Wall Self Weight
	Bearing Length	0-5-8							
7	Point	11-5-4		Top	13 lb	0 lb	0 lb	0 lb	Wall Self Weight
	Bearing Length	0-5-8							
8	Point	11-5-4		Top	15 lb	0 lb	36 lb	0 lb	
	Bearing Length	0-5-8							
10	Point	11-5-4		Top	6 lb	0 lb	0 lb	0 lb	Wall Self Weight
	Bearing Length	0-5-8							
11	Point	11-5-4		Top	6 lb	0 lb	0 lb	0 lb	Wall Self Weight
	Bearing Length	0-5-8							
12	Point	11-5-4		Top	15 lb	0 lb	36 lb	0 lb	
	Bearing Length	0-5-8							
14	Point	11-5-4		Top	6 lb	0 lb	0 lb	0 lb	Wall Self Weight
	Bearing Length	0-5-8							
15	Point	11-5-4		Top	6 lb	0 lb	0 lb	0 lb	Wall Self Weight
	Bearing Length	0-5-8							
	Self Weight				5 PLF				

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Notes

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Lumber

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

Handling & Installation

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

6. For flat roofs provide proper drainage to prevent ponding

Manufacturer Info

Forex
 APA: PR-L318

This design is valid until 5/24/2024

Kott Inc.
 3228 Moodie Dr, Ottawa, Ontario
 613-838-2775 / 905-642-4400



Per: joshua.nabua

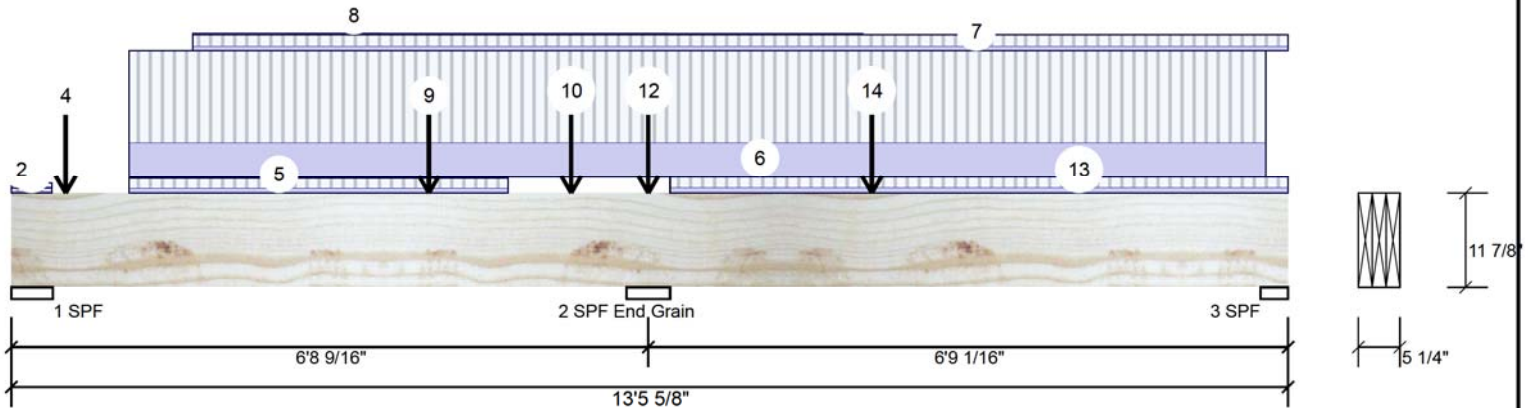


Client: GREENPARK
Project: TERRACOTA 45 1-2
Address: RICHMOND HILL, ON

Date: 9/30/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 1 of 25

F19-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" 3-Ply - PASSED Level: Ground Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	3	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	Yes
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

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Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	1305	569	0	0
2	Vertical	7937	3328	0 (-1)	0
3	Vertical	1828	757	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	5.250"	Vert	19%	664 / 2595	3258 (-282)	L_	1.25D+1.5L (0.9D+1.5L)
2 - SPF End Grain	5.500"	Vert	77%	4254 / 12176	16431	LL	1.25D+1.5L
3 - SPF	3.500"	Vert	36%	900 / 3163	4063	_L	1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-11489 ft-lb	6'8 9/16"	53447 ft-lb	0.215 (21%)	1.25D+1.5L	LL
Pos Moment	9489 ft-lb	9' 13/16"	53447 ft-lb	0.178 (18%)	1.25D+1.5L	_L
Unbraced	9489 ft-lb	9' 13/16"	53447 ft-lb	0.178 (18%)	1.25D+1.5L	_L
Shear	8562 lb	7'11 3/16"	17394 lb	0.492 (49%)	1.25D+1.5L	LL
Perm Defl in.	0.012 (L/6755)	9'7 1/2"	0.218 (L/360)	0.053 (5%)	D	Uniform
LL Defl inch	0.035 (L/2211)	9'7"	0.163 (L/480)	0.217 (22%)	L+0.5S	_L
TL Defl inch	0.047 (L/1666)	9'7 1/8"	0.326 (L/240)	0.144 (14%)	D+L+0.5S	_L

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Multiple plies must be fastened together as per manufacturer's details.
- 4 Top loads must be supported equally by all plies.
- 5 Tie-down connection required at bearing 1 for uplift 282 lb (Combination 0.9D+1.5L, Load Case _L).
- 6 Top must be continuously laterally braced.
- 7 Bottom must have sheathing attached or be continuously braced.
- 8 Lateral slenderness ratio based on full section width.



October 12, 2021

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 0-5-2	0-3-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 0-5-2	0-4-2	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Point	0-6-14		Far Face	13 lb	29 lb	0 lb	0 lb	J1

Continued on page 2...

Notes

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Lumber

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

Handling & Installation

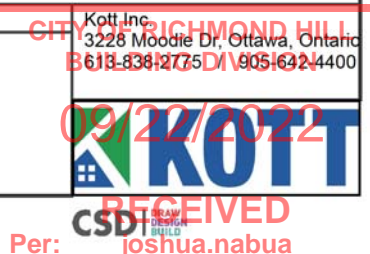
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3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

Manufacturer Info

Forex
APA: PR-L318

This design is valid until 5/24/2024



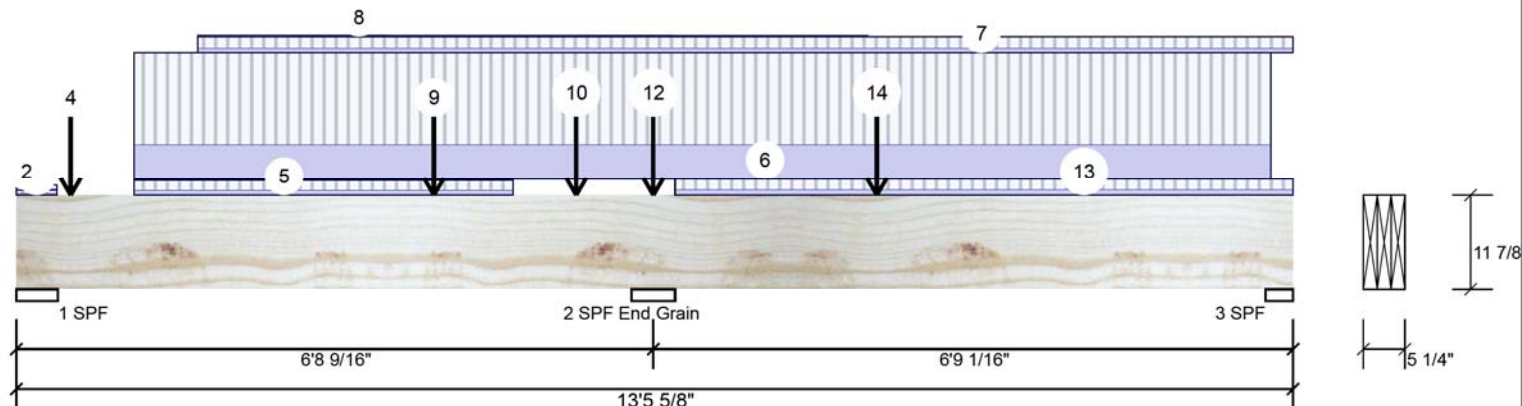


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Page 2 of 25

F19-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" 3-Ply - PASSED Level: Ground Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
4	Point	0-6-14		Near Face	93 lb	247 lb	0 lb	0 lb	J6
5	Part. Uniform	1-2-14 to 5-2-14		Far Face	18 PLF	37 PLF	0 PLF	0 PLF	
6	Part. Uniform	1-2-14 to 13-2-14		Near Face	124 PLF	331 PLF	0 PLF	0 PLF	
7	Tie-In	1-10-14 to 13-5-10	1-0-12	Top	15 PSF	40 PSF	0 PSF	0 PSF	
8	Tapered Start	1-10-14		Top	5 PLF	0 PLF	0 PLF	0 PLF	
	End	8-11-11			4 PLF	0 PLF	0 PLF	0 PLF	
9	Point	4-4-10		Top	1019 lb	2405 lb	0 lb	0 lb	C7
	Bearing Length	0-3-8							
10	Point	5-10-14		Far Face	20 lb	40 lb	0 lb	0 lb	J1
11	Point	6-8-9		Far Face	11 lb	16 lb	0 lb	0 lb	F9
12	Point	6-8-9		Far Face	0 lb	0 lb	-1 lb	0 lb	F9
13	Part. Uniform	6-11-5 to 13-5-10		Top	20 PLF	40 PLF	0 PLF	0 PLF	
14	Point	9-0-13		Top	1395 lb	3450 lb	0 lb	0 lb	C7
	Bearing Length	0-3-8							
	Self Weight				14 PLF				



October 12, 2021

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Lumber

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Handling & Installation

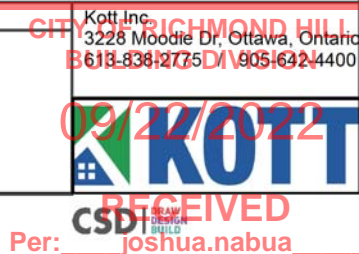
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Manufacturer Info

Forex
APA: PR-L318

This design is valid until 5/24/2024



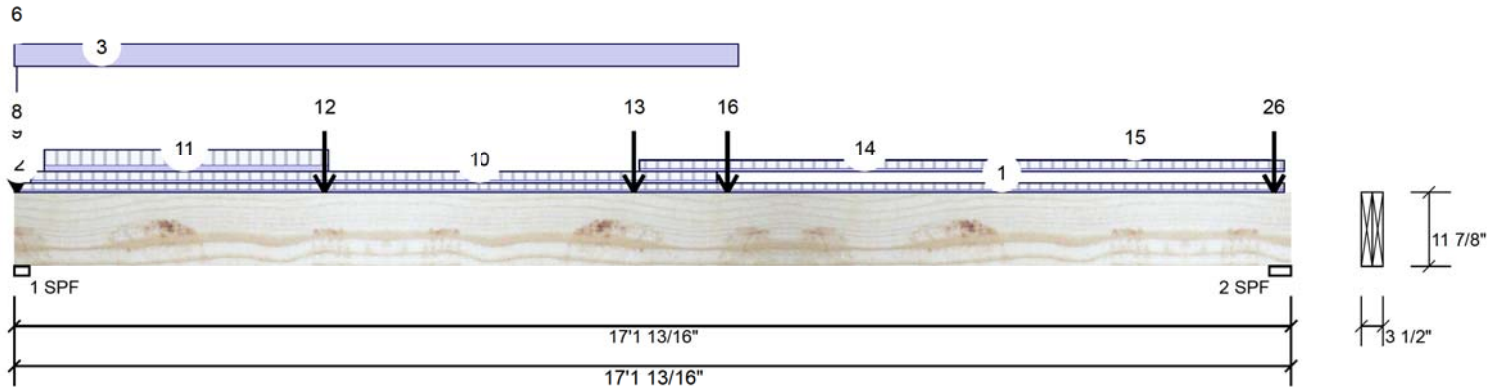


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Page 3 of 25

F20-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED Level: Ground Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	1240	1555	818	0
2	Vertical	1187	858	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	2.375"	Vert	90%	1944 / 2678	4622	L	1.25D+1.5L+S
2 - SPF	3.500"	Vert	38%	1073 / 1781	2854	L	1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	15387 ft-lb	8'3 13/16"	34261 ft-lb	0.449 (45%)	1.25D+1.5L	L
Unbraced	15387 ft-lb	8'3 13/16"	34261 ft-lb	0.449 (45%)	1.25D+1.5L	L
Shear	2951 lb	1'2 1/4"	11596 lb	0.255 (25%)	1.25D+1.5L	L
Perm Defl in.	0.246 (L/818)	8'3 7/8"	0.560 (L/360)	0.440 (44%)	D	Uniform
LL Defl inch	0.320 (L/629)	8'6 5/16"	0.420 (L/480)	0.763 (76%)	L+0.5S	L
TL Defl inch	0.566 (L/356)	8'5 3/16"	0.839 (L/240)	0.675 (67%)	D+L+0.5S	L

Design Notes

- 1 Performed Secondary Bearing Check (CSA 086-14 6.5.7.3). Assumed point load size: beam width X 3.5.
- 2 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Multiple plies must be fastened together as per manufacturer's details.
- 5 Top loads must be supported equally by all plies.
- 6 Top must be continuously laterally braced.
- 7 Bottom must be laterally braced at a maximum of 8'10" o.c.
- 8 Lateral slenderness ratio based on full section width.



October 12, 2021

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

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 17-0-11	0-7-6	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Part. Uniform	0-0-0 to 0-1-2		Top	80 PLF	0 PLF	0 PLF	0 PLF	Wall Self Weight
3	Part. Uniform	0-0-0 to 9-8-10		Top	80 PLF	0 PLF	0 PLF	0 PLF	Wall Self Weight
4	Part. Uniform	0-0-7 to 0-0-7		Top	100 PLF	0 PLF	248 PLF	0 PLF	

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

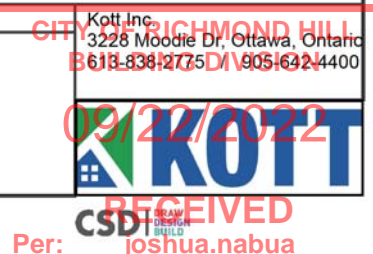
1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support 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

This design is valid until 5/24/2024



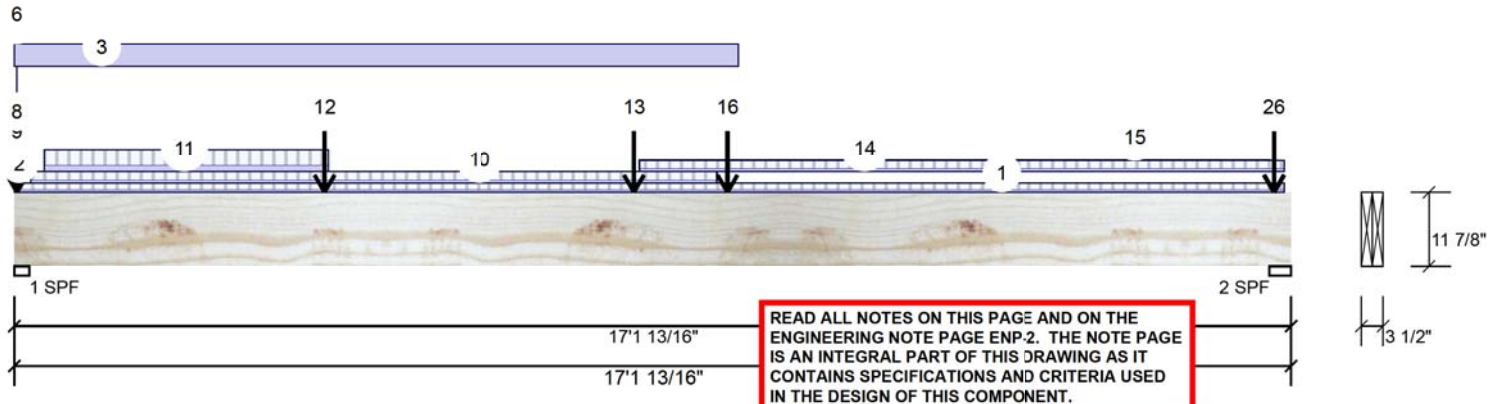


Client: GREENPARK
Project: TERRACOTA 45 1-2
Address: RICHMOND HILL, ON

Date: 9/30/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 4 of 25

F20-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED Level: Ground Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
5	Part. Uniform	0-0-7 to 0-0-7		Top	40 PLF	0 PLF	0 PLF	0 PLF	Wall Self Weight
6	Tapered Start	0-0-7		Top	1 PLF	2 PLF	0 PLF	0 PLF	
	End	0-0-7			1 PLF	2 PLF	0 PLF	0 PLF	
7	Part. Uniform	0-0-7 to 0-0-7		Top	40 PLF	0 PLF	0 PLF	0 PLF	Wall Self Weight
8	Point	0-0-7		Top	410 lb	0 lb	818 lb	0 lb	F10 F10
	Bearing Length	0-5-8							
9	Part. Uniform	0-0-7 to 0-0-7		Top	52 PLF	0 PLF	128 PLF	0 PLF	
10	Tapered Start	0-2-10		Top	11 PLF	31 PLF	0 PLF	0 PLF	
	End	9-5-3			11 PLF	31 PLF	0 PLF	0 PLF	
11	Part. Uniform	0-4-13 to 4-2-6		Top	23 PLF	60 PLF	0 PLF	0 PLF	
12	Point	4-1-13		Top	56 lb	150 lb	0 lb	0 lb	PL1
	Bearing Length	0-5-8							
13	Point	8-3-13		Near Face	178 lb	376 lb	0 lb	0 lb	F5
14	Tie-In	8-4-11 to 17-0-11	0-8-10	Top	15 PSF	40 PSF	0 PSF	0 PSF	
15	Part. Uniform	8-4-11 to 16-10-6		Top	3 PLF	0 PLF	0 PLF	0 PLF	
16	Point	9-6-14		Top	242 lb	586 lb	0 lb	0 lb	F16 F16
	Bearing Length	0-5-8							
17	Point	16-11-1		Top	1 lb	3 lb	0 lb	0 lb	
	Bearing Length	0-5-8							
18	Point	16-11-1		Top	3 lb	9 lb	0 lb	0 lb	J6
	Bearing Length	0-5-8							
19	Point	16-11-1		Top	12 lb	32 lb	0 lb	0 lb	J8
	Bearing Length	0-5-8							
20	Point	16-11-1		Top	22 lb	0 lb	0 lb	0 lb	Wall Self Weight
	Bearing Length	0-5-8							
21	Point	16-11-1		Top	1 lb	3 lb	0 lb	0 lb	
	Bearing Length	0-5-8							
22	Point	16-11-1		Top	17 lb	45 lb	0 lb	0 lb	J8
	Bearing Length	0-5-8							
23	Point	16-11-1		Top	23 lb	0 lb	0 lb	0 lb	Wall Self Weight

**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

This design is valid until 5/24/2024



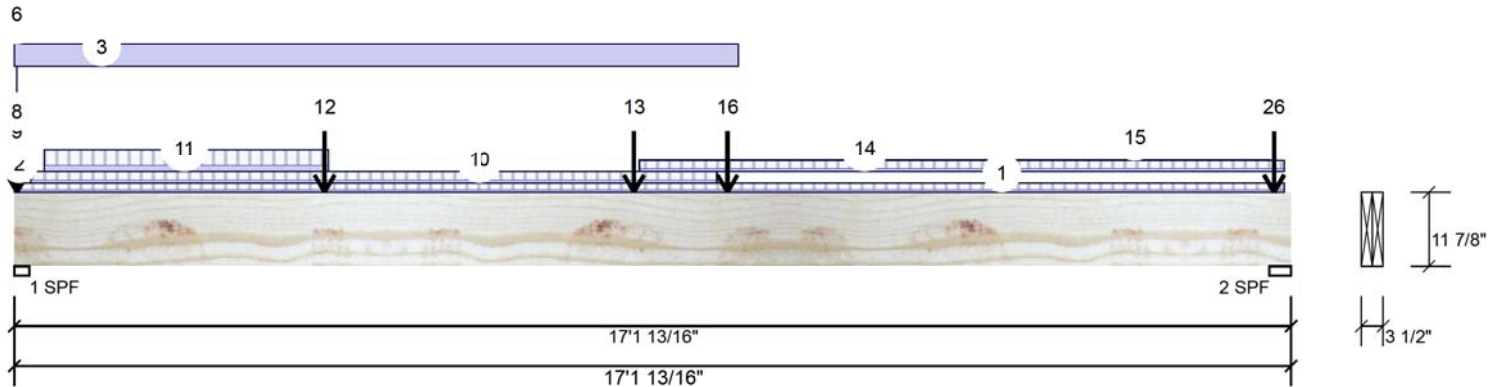


Client: GREENPARK
 Project:
 Address: TERRACOTA 45 1-2
 RICHMOND HILL, ON

Date: 9/30/2021
 Input by: W C
 Job Name: TC451-2 STANDARD
 Project #: ROUNDEL HOMES INC

Page 5 of 25

F20-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED Level: Ground Floor



...Continued from page 2

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
	Bearing Length	0-5-8							
24	Point	16-11-1		Top	1 lb	3 lb	0 lb	0 lb	
	Bearing Length	0-5-8							
25	Point	16-11-1		Top	14 lb	38 lb	0 lb	0 lb	J8
	Bearing Length	0-5-8							
26	Point	16-11-1		Top	20 lb	0 lb	0 lb	0 lb	Wall Self Weight
	Bearing Length	0-5-8							
	Self Weight				10 PLF				



October 12, 2021

READ ALL NOTES ON THIS PAGE AND ON THE
 ENGINEERING NOTE PAGE ENP-2. THE NOTE PAGE
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 IN THE DESIGN OF THIS COMPONENT.

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

This design is valid until 5/24/2024

Kott Inc.
 3228 Moodie Dr, Ottawa, Ontario
 613-838-2775 905-642-4400



Per: joshua.nabua



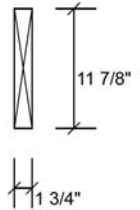
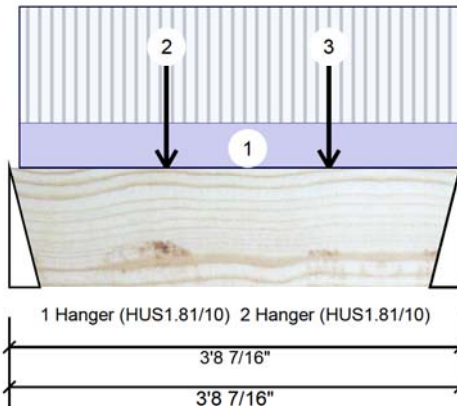
Client: GREENPARK
Project: TERRACOTA 45 1-2
Address: RICHMOND HILL, ON

Date: 9/30/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 6 of 25

F5-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" - PASSED

Level: Ground Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

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

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	376	178	0	0
2	Vertical	406	191	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - Hanger	3.000"	Vert	20%	223 / 565	788	L	1.25D+1.5L
2 - Hanger	3.000"	Vert	22%	239 / 608	848	L	1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	746 ft-lb	1'7 3/8"	17130 ft-lb	0.044 (4%)	1.25D+1.5L	L
Unbraced	746 ft-lb	1'7 3/8"	17130 ft-lb	0.044 (4%)	1.25D+1.5L	L
Shear	628 lb	2'5 9/16"	5798 lb	0.108 (11%)	1.25D+1.5L	L
Perm Defl in. (L/24257)	0.002	1'9 5/16"	0.111 (L/360)	0.015 (1%)	D	Uniform
LL Defl inch (L/11567)	0.003	1'9 7/16"	0.083 (L/480)	0.041 (4%)	L	L
TL Defl inch	0.005 (L/7832)	1'9 7/16"	0.166 (L/240)	0.031 (3%)	D+L	L

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fill all hanger nailing holes.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top must be continuously laterally braced.
- 5 Bottom must have sheathing attached or be continuously braced.



October 12, 2021

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Part. Uniform	0-1-0 to 3-8-7		Top	34 PLF	89 PLF	0 PLF	0 PLF	
2	Point	1-3-8		Far Face	120 lb	239 lb	0 lb	0 lb	J2
3	Point	2-7-8		Far Face	109 lb	221 lb	0 lb	0 lb	J2
	Self Weight				5 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 Inc.
3228 Moodie Dr, Ottawa, Ontario
K1M 1Y4
613-838-2775 / 905-642-4400



Per: joshua.nabua



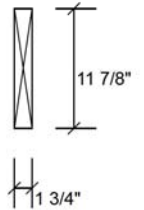
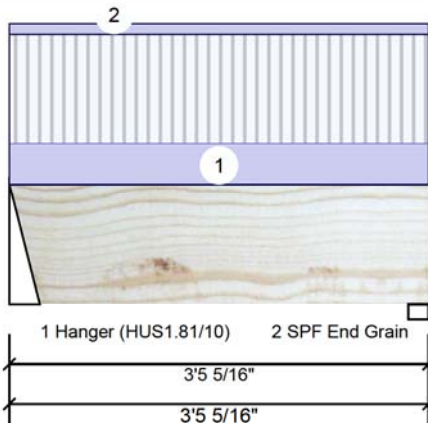
Client: GREENPARK
Project: TERRACOTA 45 1-2
Address: RICHMOND HILL, ON

Date: 9/30/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 7 of 25

F5-B Forex 2.0E-3000Fb LVL 1.750" X 11.875" - PASSED

Level: Ground Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	37	26	0	0
2	Vertical	35	25	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - Hanger	3.000"	Vert	2%	32 / 56	88	L	1.25D+1.5L
2 - SPF End Grain	2.004"	Vert	3%	31 / 53	84	L	1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	62 ft-lb	1'9 1/8"	17130 ft-lb	0.004 (0%)	1.25D+1.5L	L
Unbraced	62 ft-lb	1'9 1/8"	17130 ft-lb	0.004 (0%)	1.25D+1.5L	L
Shear	32 lb	2'3 7/16"	5798 lb	0.006 (1%)	1.25D+1.5L	L
Perm Defl in. (L/226271)	0.000	1'9 3/16"	0.105 (L/360)	0.002 (0%)	D	Uniform
LL Defl inch (L/157647)	0.000	1'9 3/16"	0.079 (L/480)	0.003 (0%)	L	L
TL Defl inch (L/92913)	0.000	1'9 3/16"	0.157 (L/240)	0.003 (0%)	D+L	L

Design Notes

- Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- Fill all hanger nailing holes.
- Girders are designed to be supported on the bottom edge only.
- Top must be continuously laterally braced.
- Bottom must be laterally braced at bearings.



October 12, 2021

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 3-5-5	0-6-5	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Part. Uniform	0-0-0 to 3-5-5		Top	2 PLF	0 PLF	0 PLF	0 PLF	
	Self Weight				5 PLF				

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

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 & 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 Inc.
3228 Moodie Dr, Ottawa, Ontario
K1M 1Y4
613-838-2775 / 905-642-4400



Per: joshua.nabua



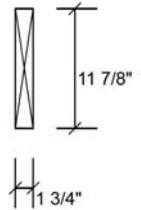
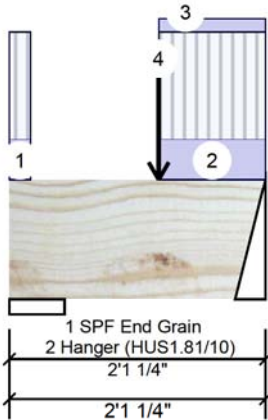
Client: GREENPARK
 Project: TERRACOTA 45 1-2
 Address: RICHMOND HILL, ON

Date: 9/30/2021
 Input by: W C
 Job Name: TC451-2 STANDARD
 Project #: ROUNDEL HOMES INC

Page 8 of 25

F5-C Forex 2.0E-3000Fb LVL 1.750" X 11.875" - PASSED

Level: Ground Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

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

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	56	33	0	0
2	Vertical	92	51	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	5.438"	Vert	2%	41 / 85	125	L	1.25D+1.5L
2 - Hanger	3.000"	Vert	5%	64 / 138	202	L	1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	80 ft-lb	1'2 11/16"	17130 ft-lb	0.005 (0%)	1.25D+1.5L	L
Unbraced	80 ft-lb	1'2 11/16"	17130 ft-lb	0.005 (0%)	1.25D+1.5L	L
Shear	64 lb	1'5 5/16"	5798 lb	0.011 (1%)	1.25D+1.5L	L
Perm Defl in. (L/145319)	0.000	1'2 3/4"	0.051 (L/360)	0.002 (0%)	D	Uniform
LL Defl inch (L/80416)	0.000	1'2 3/4"	0.038 (L/480)	0.006 (1%)	L	L
TL Defl inch (L/51769)	0.000	1'2 3/4"	0.076 (L/240)	0.005 (0%)	D+L	L

Design Notes

- Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- Fill all hanger nailing holes.
- Girders are designed to be supported on the bottom edge only.
- Top must be continuously laterally braced.
- Bottom must have sheathing attached or be continuously braced.



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 0-2-1	1-10-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	1-2-11 to 2-1-4	1-10-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Part. Uniform	1-2-11 to 2-1-4		Top	9 PLF	0 PLF	0 PLF	0 PLF	
4	Point	1-2-11		Far Face	37 lb	71 lb	0 lb	0 lb	J7
	Self Weight				5 PLF				

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

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

Handling & 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

This design is valid until 5/24/2024

Manufacturer Info

Forex
 APA: PR-L318

Kott Inc.
 3228 Moodie Dr, Ottawa, Ontario
 K1H 8B8
 613-838-2775, 905-642-4400



Per: joshua.nabua



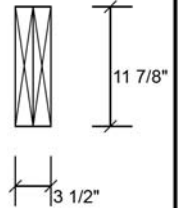
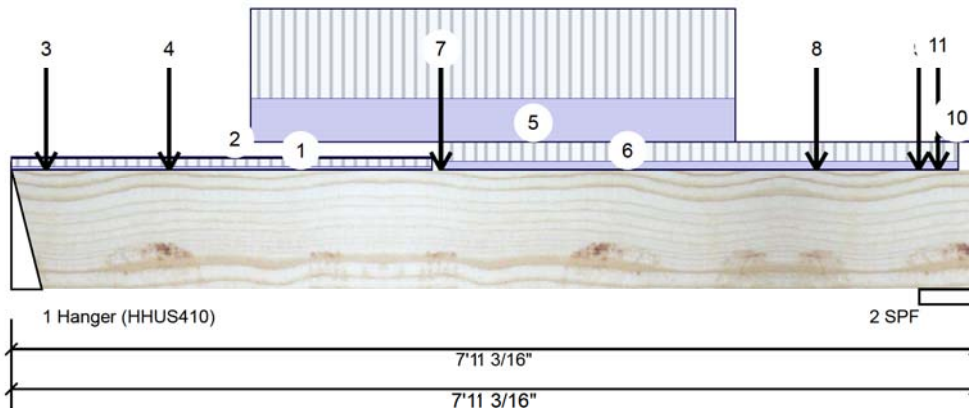
Client: GREENPARK
Project: TERRACOTA 45 1-2
Address: RICHMOND HILL, ON

Date: 9/30/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 9 of 25

F6-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Ground Floor


Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	1963	946	0	0
2	Vertical	2929	1313	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - Hanger	3.000"	Vert	53%	1182 / 2945	4128	L	1.25D+1.5L
2 - SPF	5.500"	Vert	51%	1641 / 4393	6034	L	1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	4209 ft-lb	3'9 1/4"	34261 ft-lb	0.123 (12%)	1.25D+1.5L	L
Unbraced	4209 ft-lb	3'9 1/4"	34261 ft-lb	0.123 (12%)	1.25D+1.5L	L
Shear	1904 lb	1'2 7/8"	11596 lb	0.164 (16%)	1.25D+1.5L	L
Perm Defl in.	0.013 (L/6850)	3'10 1/8"	0.245 (L/360)	0.053 (5%)	D	Uniform
LL Defl inch	0.025 (L/3535)	3'10 1/4"	0.184 (L/480)	0.136 (14%)	L	
TL Defl inch	0.038 (L/2332)	3'10 3/16"	0.367 (L/240)	0.103 (10%)	D+L	L

Design Notes

- 1 Performed Secondary Bearing Check (CSA 086-14 6.5.7.3). Assumed point load size: beam width X 3.
- 2 Performed Secondary Bearing Check (CSA 086-14 6.5.7.3). Assumed point load size: beam width X 4.5.
- 3 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 4 Fill all hanger nailing holes.
- 5 Girders are designed to be supported on the bottom edge only.
- 6 Multiple plies must be fastened together as per manufacturer's details.
- 7 Top loads must be supported equally by all plies.
- 8 Top must be continuously laterally braced.
- 9 Bottom must have sheathing attached or be continuously braced.
- 10 Lateral slenderness ratio based on full section width.



October 12, 2021

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Notes

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Lumber

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

chemicals
Handling & Installation

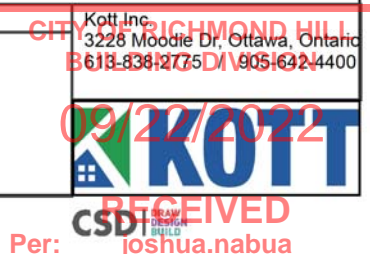
1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support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

6. For flat roofs provide proper drainage to prevent ponding

Manufacturer Info

Forex
APA: PR-L318

This design is valid until 5/24/2024





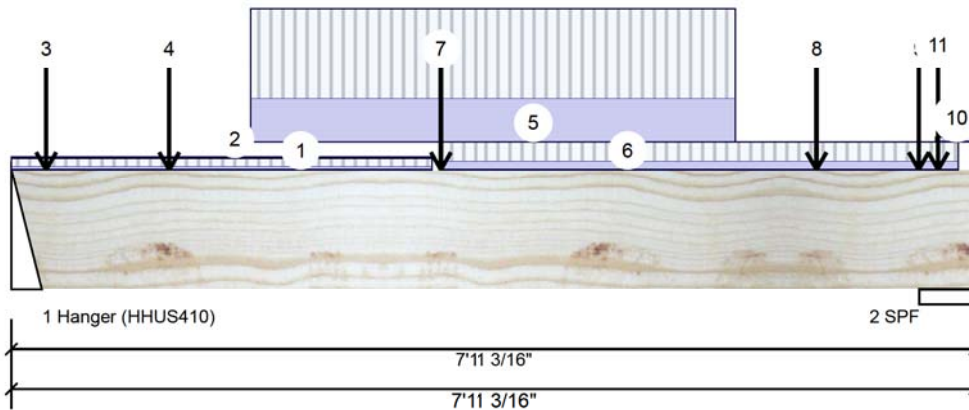
Client: GREENPARK
Project: TERRACOTA 45 1-2
Address: RICHMOND HILL, ON

Date: 9/30/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 10 of 25

F6-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Ground Floor



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 3-5-7	0-6-2	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Part. Uniform	0-0-0 to 3-5-6		Top	3 PLF	0 PLF	0 PLF	0 PLF	
3	Point	0-3-7		Top	482 lb	1096 lb	0 lb	0 lb	C7
	Bearing Length	0-3-8							
4	Point	1-3-9		Far Face	148 lb	295 lb	0 lb	0 lb	J3
5	Part. Uniform	1-11-9 to 5-11-9		Far Face	106 PLF	218 PLF	0 PLF	0 PLF	
6	Part. Uniform	3-6-5 to 7-9-8		Top	20 PLF	47 PLF	0 PLF	0 PLF	
7	Point	3-6-5		Near Face	51 lb	92 lb	0 lb	0 lb	F5
8	Point	6-7-9		Far Face	123 lb	254 lb	0 lb	0 lb	J3
9	Point	7-5-10		Top	811 lb	1965 lb	0 lb	0 lb	C1
	Bearing Length	0-3-8							
10	Tie-In	7-7-5 to 7-11-3	0-2-10	Top	15 PSF	40 PSF	0 PSF	0 PSF	
11	Point	7-7-9		Far Face	21 lb	44 lb	0 lb	0 lb	J3
	Self Weight				10 PLF				



October 12, 2021

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Notes

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Lumber

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

Handling & Installation

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

6. For flat roofs provide proper drainage to prevent ponding

Manufacturer Info

Forex
APA: PR-L318

This design is valid until 5/24/2024

Kott Inc.
3228 Moodie Dr, Ottawa, Ontario
K1M 1Y1
613-838-2775 / 905-642-4400



Per: joshua.nabua



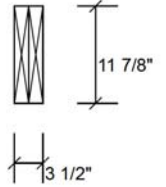
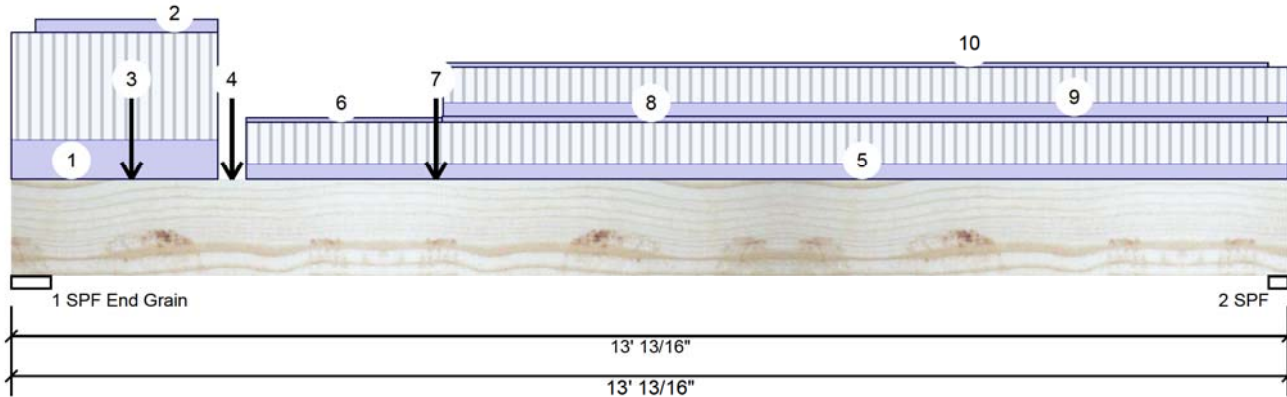
Client: GREENPARK
Project: TERRACOTA 45 1-2
Address: RICHMOND HILL, ON

Date: 9/30/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 11 of 25

F8-C Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Ground Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

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Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	2353	1200	0	0
2	Vertical	762	433	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	4.843"	Vert	40%	1500 / 3530	5030	L	1.25D+1.5L
2 - SPF	2.375"	Vert	33%	542 / 1143	1685	L	1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	9716 ft-lb	4'3 15/16"	34261 ft-lb	0.284 (28%)	1.25D+1.5L	L
Unbraced	9716 ft-lb	4'3 15/16"	34261 ft-lb	0.284 (28%)	1.25D+1.5L	L
Shear	4811 lb	1'4 11/16"	11596 lb	0.415 (41%)	1.25D+1.5L	L
Perm Defl in.	0.069 (L/2190)	5'11 11/16"	0.420 (L/360)	0.164 (16%)	D	Uniform
LL Defl inch	0.130 (L/1162)	5'10 11/16"	0.315 (L/480)	0.413 (41%)	L	L
TL Defl inch	0.199 (L/759)	5'11 1/16"	0.630 (L/240)	0.316 (32%)	D+L	L

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Multiple plies must be fastened together as per manufacturer's details.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be continuously laterally braced.
- 6 Bottom must be laterally braced at a maximum of 8'8 7/8" o.c.
- 7 Lateral slenderness ratio based on full section width.



October 12, 2021

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 2-1-4	1-10-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Part. Uniform	0-2-15 to 2-1-4		Top	9 PLF	0 PLF	0 PLF	0 PLF	
3	Point	1-2-11		Near Face	37 lb	72 lb	0 lb	0 lb	J7
4	Point	2-3-0		Near Face	946 lb	1963 lb	0 lb	0 lb	F6
5	Tie-In	2-4-12 to 13-0-13	0-8-10	Top	15 PSF	40 PSF	0 PSF	0 PSF	

Continued on page 2...

Notes

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Lumber

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

Handling & Installation

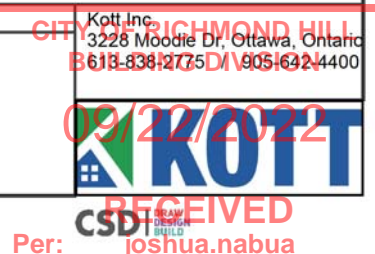
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5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

Manufacturer Info

Forex
APA: PR-L318

This design is valid until 5/24/2024





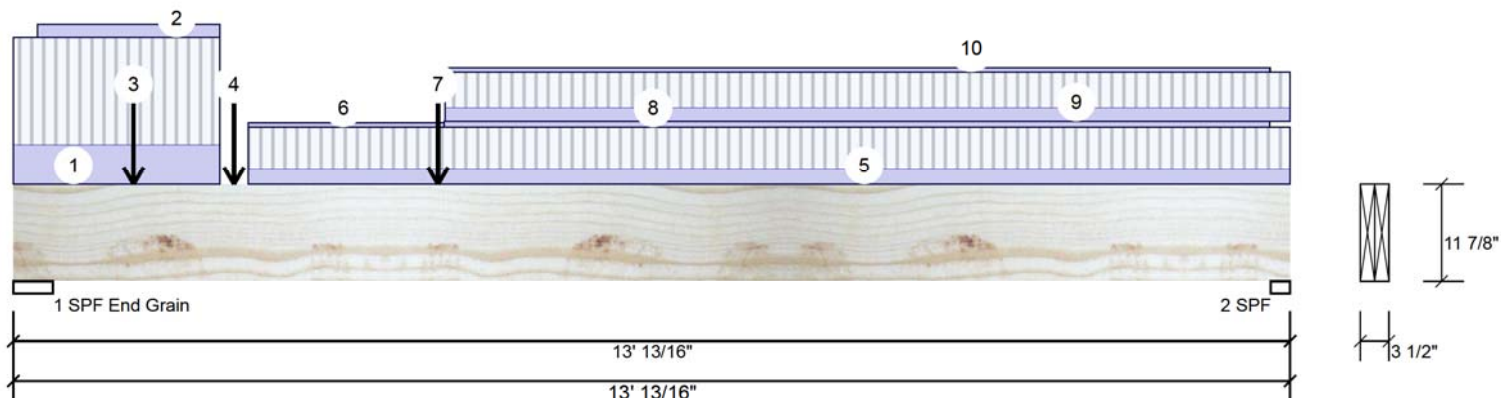
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 Project:
 Address: TERRACOTA 45 1-2
 RICHMOND HILL, ON

Date: 9/30/2021
 Input by: W C
 Job Name: TC451-2 STANDARD
 Project #: ROUNDEL HOMES INC

Page 12 of 25

F8-C Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Ground Floor



...Continued from page 1

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
6	Part. Uniform	2-4-12 to 4-4-11		Top	3 PLF	0 PLF	0 PLF	0 PLF	
7	Point	4-3-15		Far Face	191 lb	406 lb	0 lb	0 lb	F5
8	Part. Uniform	4-4-11 to 12-10-5		Top	4 PLF	0 PLF	0 PLF	0 PLF	
9	Tie-In	4-4-13 to 13-0-13	0-7-6	Top	15 PSF	40 PSF	0 PSF	0 PSF	
10	Part. Uniform	4-4-13 to 12-10-6		Top	3 PLF	0 PLF	0 PLF	0 PLF	
	Self Weight				10 PLF				



October 12, 2021

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

Handling & Installation

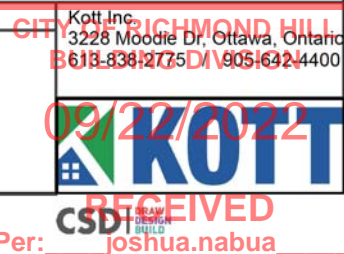
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6. For flat roofs provide proper drainage to prevent ponding

Manufacturer Info

Forex
 APA: PR-L318

This design is valid until 5/24/2024





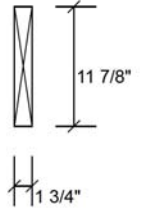
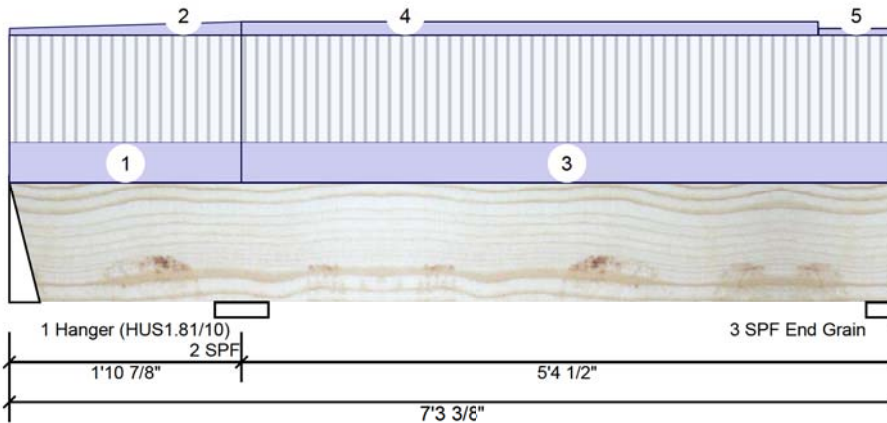
Client: GREENPARK
Project: TERRACOTA 45 1-2
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Date: 10/14/2021
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Project #: ROUNDEL HOMES INC

Page 3 of 6

F9-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" - PASSED

Level: Ground Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	1	0	0	0
2	Vertical	78	61	0	0
3	Vertical	40	31	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - Hanger	3.000"	Vert	1%	-6 / 24	18 (-40)	L_	0.9D+1.5L (1.25D+1.5L)
2 - SPF	5.250"	Vert	4%	88 / 134	222 LL		1.25D+1.5L
3 - SPF End Grain	2.750"	Vert	3%	36 / 56	91 _L		1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-107 ft-lb	1'10 7/8"	17130 ft-lb	0.006 (1%)	1.25D+1.5L	LL
Unbraced	-107 ft-lb	1'10 7/8"	8629 ft-lb	0.012 (1%)	1.25D+1.5L	LL
Pos Moment	90 ft-lb	5' 1/16"	17130 ft-lb	0.005 (1%)	1.25D+1.5L	_L
Unbraced	90 ft-lb	5' 1/16"	17130 ft-lb	0.005 (1%)	1.25D+1.5L	_L
Shear	83 lb	3'1 3/8"	5798 lb	0.014 (1%)	1.25D+1.5L	LL
Perm Defl in. (L/114857)	0.001	4'7 1/4"	0.174 (L/360)	0.003 (0%)	D	Uniform
LL Defl inch (L/90069)	0.001	4'7 3/16"	0.130 (L/480)	0.005 (1%)	L	_L
TL Defl inch (L/50482)	0.001	4'7 1/4"	0.261 (L/240)	0.005 (0%)	D+L	_L

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fill all hanger nailing holes.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Negligible uplift at end of short span.
- 5 Top must be continuously laterally braced.
- 6 Bottom must be laterally braced at bearings.



October 18, 2021

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Lumber

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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 Inc.
3228 Moodie Dr, Ottawa, Ontario
K1M 1Y1
613-838-2775 / 905-642-4400



Per: joshua.nabua



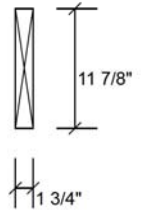
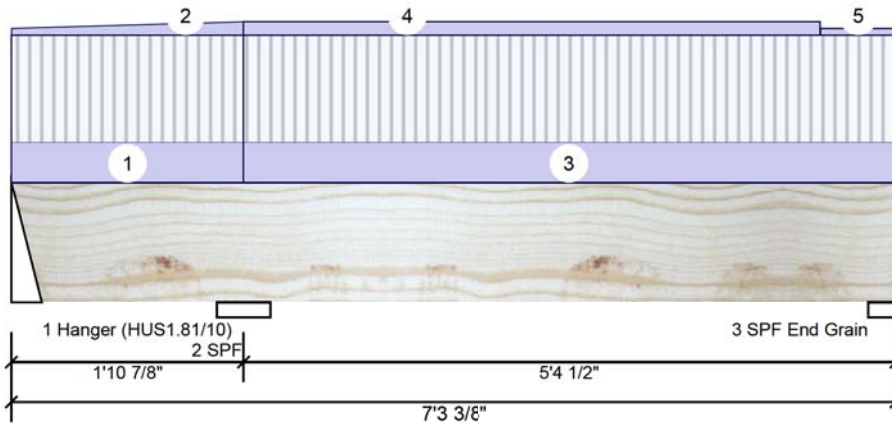
Client: GREENPARK
 Project:
 Address: TERRACOTA 45 1-2
 RICHMOND HILL, ON

Date: 10/14/2021
 Input by: W C
 Job Name: TC451-2 STANDARD
 Project #: ROUNDEL HOMES INC

Page 4 of 6

F9-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" - PASSED

Level: Ground Floor



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



October 18, 2021

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chemicals

Handling & Installation

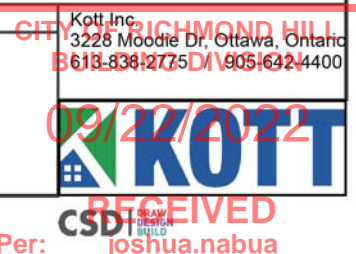
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5. Provide lateral support at bearing points to avoid lateral displacement and rotation

6. For flat roofs provide proper drainage to prevent ponding

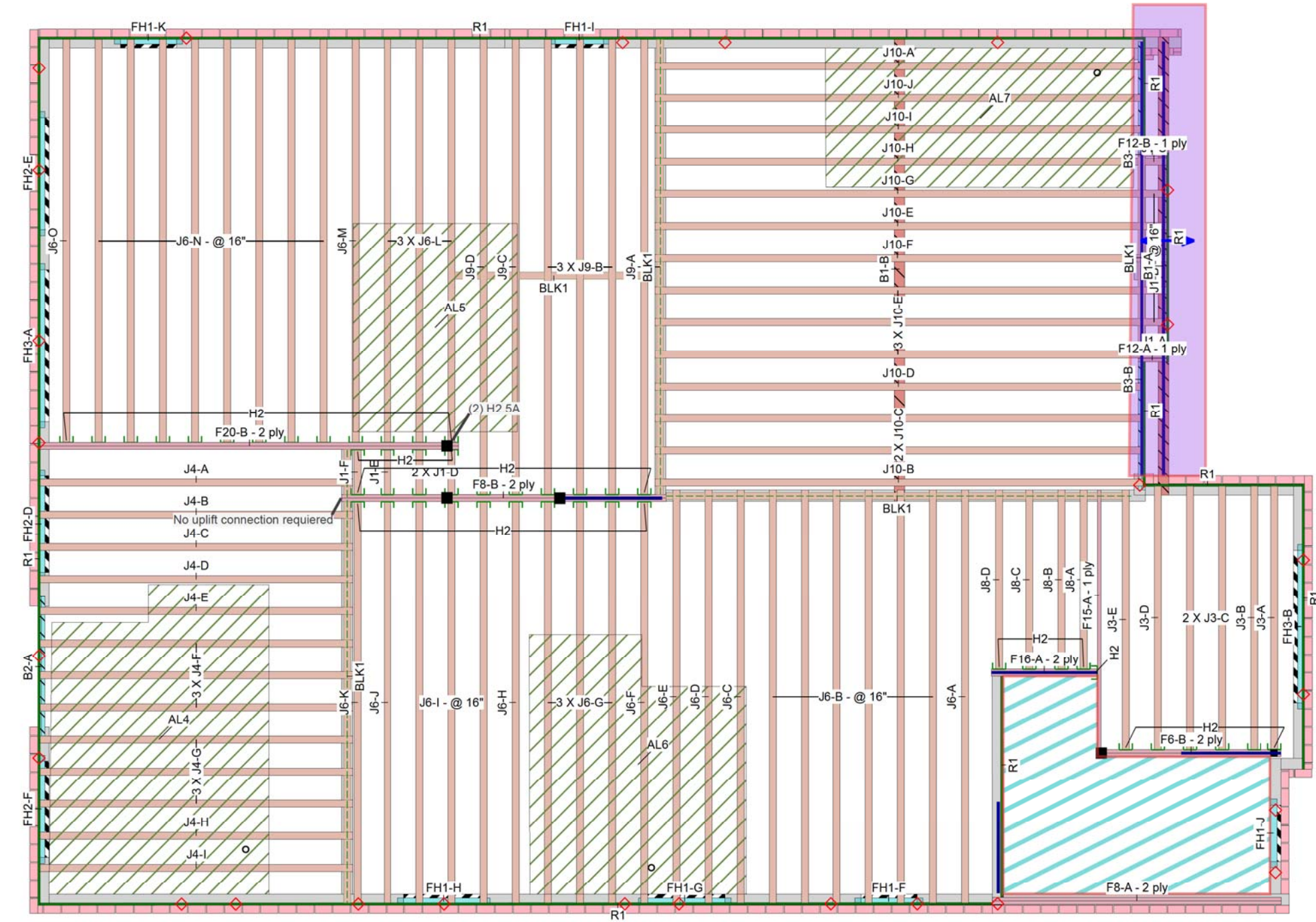
Manufacturer Info

Forex
 APA: PR-L318

This design is valid until 5/24/2024



Second Floor



Second Floor LVL/LSL							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
F20	Forex 2.0E-3000Fb LVL	1.75	11.875	1	2	2	18-0-0
F8	Forex 2.0E-3000Fb LVL	1.75	11.875	2	2	4	14-0-0
F15	Forex 2.0E-3000Fb LVL	1.75	11.875			1	12-0-0
F6	Forex 2.0E-3000Fb LVL	1.75	11.875	1	2	2	8-0-0
F16	Forex 2.0E-3000Fb LVL	1.75	11.875	1	2	2	6-0-0
F12	Forex 2.0E-3000Fb LVL	1.75	11.875			2	2-0-0
I Joist							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
J10	AJS 24	3.5	11.875			14	22-0-0
J9	AJS 24	3.5	11.875			6	20-0-0
J6	AJS 24	3.5	11.875			33	18-0-0
J4	AJS 24	3.5	11.875			13	14-0-0
J3	AJS 24	3.5	11.875			6	12-0-0
J8	AJS 24	3.5	11.875			4	8-0-0
J1	AJS 24	3.5	11.875			11	2-0-0
Rim Board							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
R1	Norbord Rimboard Plus 1.125 X 11.875	1.125	11.875			15	12-0-0
Blocking							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
BLK1	AJS 24	3.5	11.875	LinFt		Varies	58-0-0
Hanger							
				Beam/Girder		Supported Member	
Label	Pcs	Description	Skew	Slope	fasteners	fasteners	
H2	48	LF3511			12 10dx1 1/2	2 #8x1 1/4WS	
Custom							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
H2.5A						2	

JOB INFORMATION	
Builder	GREENPARK
Project	ROUNDEL HOMES INC
Shipping	TERRACOTA 45 1-2 RICHMOND HILL, ON
Sales Rep	RALPH MIRIGELLO
Designer	W C
Plotted	October 15, 2021
Layout Name	TC451-2 (5-BDRM OPT.)
Job Path	
DESIGN CRITERIA	
Second Floor	
Design Method	LSD (Canada)
Building Code	NBCC 2015 / OBC 2012
Floor Loads	
Live	40
Dead	15
Deflection Joist	
LL Span L/	480
TL Span L/	240
Deflection Flush Girder	
LL Span L/	480
TL Span L/	240
Deflection Dropped Girder	
LL Span L/	480
TL Span L/	240
Deflection Header	
LL Span L/	480
TL Span L/	240
Decking	OSB
CCMC References	
Boise - 12472-R, 12787-R	
LP - 12412-R	
Forex - 14056-R	
Kott Inc.	
3228 Moodie Dr, Ottawa	
14 Anderson Blvd, Uxbridge	
Ontario	
613-838-2775 / 905-642-4400	

Hatch Area represents where additional load has been applied. (e.g. 5 psf for ceramic tile)

AJS140 I-Joists can be substituted with LP20 I-Joists for 9.5" and 11.875" depths shown on this layout.

1. All blocking to be cut from 12' joists
2. 2' & 4' Lengths to be cut from 8' Length, 6' lengths to be cut from 12' Length
3. Ends of joists to be laterally supported
4. Packing of Steel beams and attachment by others
5. Shower and water closet flange locations are approximate only, consult architectural drawing for exact locations
6. Beams identified as "B" are dropped and supplied by others
7. Install 2x4 blocking @ 24" o/c under parallel non-loadbearing walls
8. Load transfer blocks to be installed under all point loads
9. Refer to Multiple Member Connection Detail for ply to ply nailing or bolting requirements
10. Hangers and Fasteners to be installed as per manufacturer
11. Framing shown on this layout may deviate from architectural drawings. Arch / Eng to review and approve the deviation prior to construction.

Legend

- WS Web Stiffener
- WS In Hanger Label Denotes Web Stiffener
- PS Point Load Support
- Load from Above
- Wall
- Wall Opening
- Norbord Rimboard Plus 1.125 X 11.875
- AJS 24 11.875
- Forex 2.0E-3000Fb LVL 1.75 X 11.875

CITY OF RICHMOND HILL
BUILDING DIVISION
09/22/2022
RECEIVED
Per: jpsmith



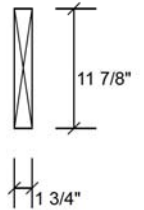
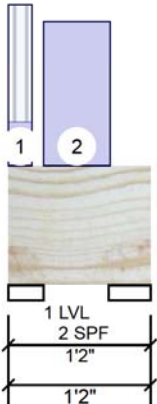
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Page 15 of 25

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

Level: Second Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	4	11	0	0
2	Vertical	0	10	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - LVL	3.459"	Vert	1%	14 / 6	21	L	1.25D+1.5L
2 - SPF	4.125"	Vert	1%	15 / 0	15	Uniform	1.4D

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2 ft-lb	6 11/16"	11135 ft-lb	0.000 (0%)	1.4D	Uniform
Unbraced	2 ft-lb	6 11/16"	11135 ft-lb	0.000 (0%)	1.4D	Uniform
Shear	9 lb	1'3 5/16"	3769 lb	0.002 (0%)	1.4D	Uniform
Perm Defl in.	0.000 (L/824026)	6 11/16"	0.022 (L/360)	0.000 (0%)	D	Uniform
LL Defl inch	0.000 (L/999)	0	999.000 (L/0)	0.000 (0%)		
TL Defl inch	0.000 (L/824026)	6 11/16"	0.033 (L/240)	0.000 (0%)	D+L	L



October 12, 2021

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Top must be continuously laterally braced.
- 4 Bottom must have sheathing attached or be continuously braced.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 0-2-5	0-6-9	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Part. Uniform	0-3-7 to 0-10-0		Top	27 PLF	0 PLF	0 PLF	0 PLF	Wall Self Weight
	Self Weight				5 PLF				

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

Notes

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Lumber

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

Handling & Installation

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

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 5/24/2024

Manufacturer Info

Forex
APA: PR-L318

Kott Inc.
3228 Moodie Dr, Ottawa, Ontario
K1M 1Y1
613-838-2775 / 905-642-4400



Per: joshua.nabua



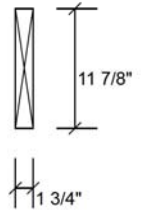
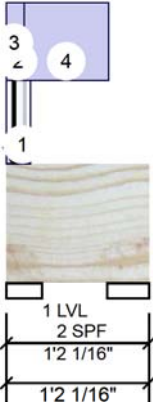
Client: GREENPARK
 Project:
 Address: TERRACOTA 45 1-2
 RICHMOND HILL, ON

Date: 9/30/2021
 Input by: W C
 Job Name: TC451-2 STANDARD
 Project #: ROUNDEL HOMES INC

Page 16 of 25

F12-B Forex 2.0E-3000Fb LVL 1.750" X 11.875" - PASSED

Level: Second Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	4	75	121	0
2	Vertical	0	10	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - LVL	3.500"	Vert	6%	94 / 186	280	L	1.25D+1.5S+L
2 - SPF	4.125"	Vert	7%	15 / 0	15	Uniform	1.4D

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2 ft-lb	6 11/16"	11135 ft-lb	0.000 (0%)	1.4D	Uniform
Unbraced	2 ft-lb	6 11/16"	11135 ft-lb	0.000 (0%)	1.4D	Uniform
Shear	11 lb	-(1 15/16")	3769 lb	0.003 (0%)	1.4D	Uniform
Perm Defl in.	0.000 (L/811236)	6 11/16"	0.022 (L/360)	0.000 (0%)	D	Uniform
LL Defl inch	0.000 (L/999)	0	999.000 (L/0)	0.000 (0%)		
TL Defl inch	0.000 (L/811236)	6 11/16"	0.033 (L/240)	0.000 (0%)	D+S+0.5L	L



October 12, 2021

Design Notes

- 1 Performed Secondary Bearing Check (CSA 086-14 6.5.7.3). Assumed point load size: beam width X 4.125.
- 2 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Top must be continuously laterally braced.
- 5 Bottom must have sheathing attached or be continuously braced.

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ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 0-2-6	0-6-5	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Part. Uniform	0-0-0 to 0-1-12		Top	27 PLF	0 PLF	0 PLF	0 PLF	Wall Self Weight
3	Point	0-0-12		Top	56 lb	0 lb	121 lb	0 lb	F7 F7
	Bearing Length	0-5-8							
4	Part. Uniform	0-1-12 to 0-10-1		Top	27 PLF	0 PLF	0 PLF	0 PLF	Wall Self Weight
	Self Weight				5 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

This design is valid until 5/24/2024

Kott Inc.
 3228 Moodie Dr, Ottawa, Ontario
 613-838-2775 / 905-642-4400



Per: joshua.nabua



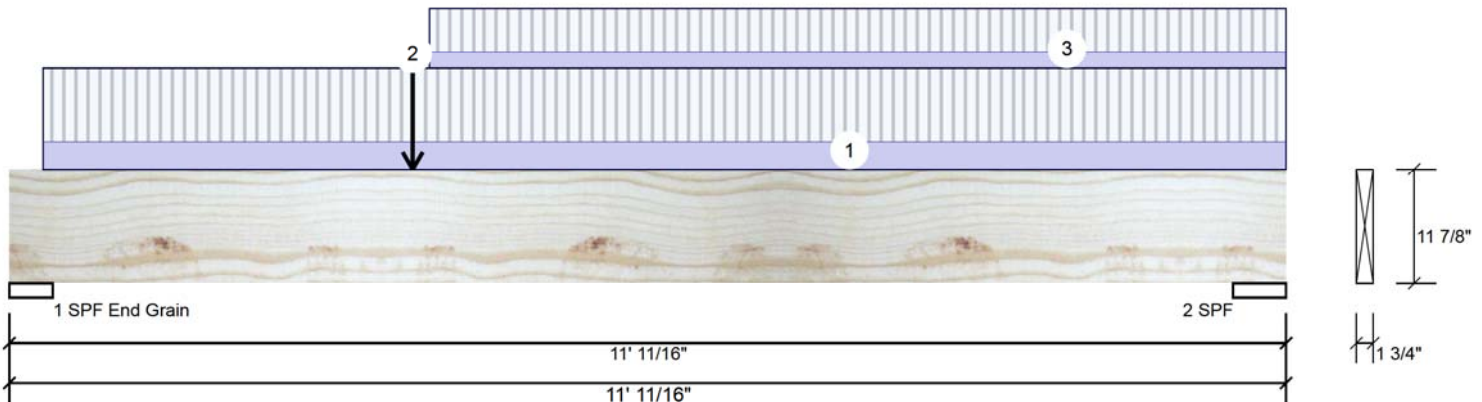
Client: GREENPARK
Project:
Address: TERRACOTA 45 1-2
RICHMOND HILL, ON

Date: 9/30/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 17 of 25

F15-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" - PASSED

Level: Second Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	461	213	0	0
2	Vertical	327	156	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	4.500"	Vert	16%	267 / 691	958	L	1.25D+1.5L
2 - SPF	5.500"	Vert	12%	194 / 491	685	L	1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2776 ft-lb	3'5 3/4"	17130 ft-lb	0.162 (16%)	1.25D+1.5L	L
Unbraced	2776 ft-lb	3'5 3/4"	17130 ft-lb	0.162 (16%)	1.25D+1.5L	L
Shear	909 lb	1'4 3/8"	5798 lb	0.157 (16%)	1.25D+1.5L	L
Perm Defl in.	0.025 (L/5064)	5' 13/16"	0.345 (L/360)	0.071 (7%)	D	Uniform
LL Defl inch	0.054 (L/2317)	5' 3/8"	0.259 (L/480)	0.207 (21%)	L	
TL Defl inch	0.078 (L/1590)	5' 7/16"	0.518 (L/240)	0.151 (15%)	D+L	L

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Top must be continuously laterally braced.
- 4 Bottom must be laterally braced at a maximum of 7'7" o.c.



October 12, 2021

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-3-8 to 11-0-11	0-6-10	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Point	3-5-12		Far Face	191 lb	454 lb	0 lb	0 lb	F16
3	Tie-In	3-7-8 to 11-0-11	0-3-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	
	Self Weight				5 PLF				

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Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

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

Handling & Installation

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

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 5/24/2024

Manufacturer Info

Forex
APA: PR-L318

Kott Inc.
3228 Moodie Dr, Ottawa, Ontario
K1M 1Y5
613-838-2775 | 905-642-4400



Per: joshua.nabua

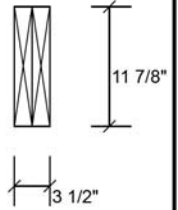
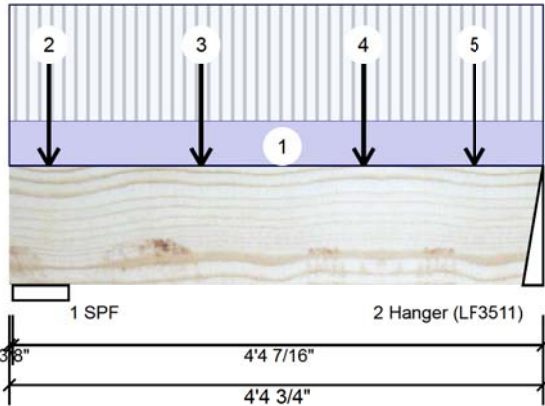


Client: GREENPARK
Project: TERRACOTA 45 1-2
Address: RICHMOND HILL, ON

Date: 9/30/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 18 of 25

F16-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED Level: Second Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	586	242	0	0
2	Vertical	454	191	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	5.500"	Vert	10%	303 / 878	1181	LL	1.25D+1.5L
2 - Hanger	2.000"	Vert	18%	239 / 681	920	_L	1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	894 ft-lb	2'4 5/16"	34261 ft-lb	0.026 (3%)	1.25D+1.5L	_L
Unbraced	894 ft-lb	2'4 5/16"	34261 ft-lb	0.026 (3%)	1.25D+1.5L	_L
Shear	714 lb	3'2 7/8"	11596 lb	0.062 (6%)	1.25D+1.5L	_L
Perm Defl in.	0.001 (L/44783)	2'3 5/8"	0.135 (L/360)	0.008 (1%)	D	Uniform
LL Defl inch	0.003 (L/18817)	2'3 5/8"	0.101 (L/480)	0.026 (3%)	L	_L
TL Defl inch	0.004 (L/13249)	2'3 5/8"	0.202 (L/240)	0.018 (2%)	D+L	_L
LL Cant	-0.000 (2L/22776)	Lt Cant	0.200 (2L/480)	0.000 (0%)	L	_L
TL Cant	-0.000 (2L/16053)	Lt Cant	0.300 (2L/240)	0.000 (0%)	D+L	_L

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Fill all hanger nailing holes.
- 3 Girders are designed to be supported on the bottom edge only.
- 4 Multiple plies must be fastened together as per manufacturer's details.
- 5 Top loads must be supported equally by all plies.
- 6 Top must be continuously laterally braced.
- 7 Bottom must have sheathing attached or be continuously braced.
- 8 Lateral slenderness ratio based on full section width.



October 12, 2021

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Notes

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Lumber

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

chemicals

Handling & Installation

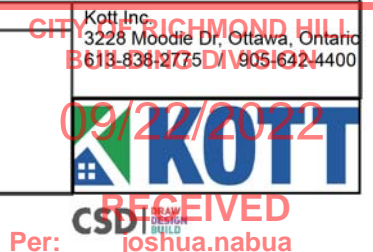
1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support 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

This design is valid until 5/24/2024



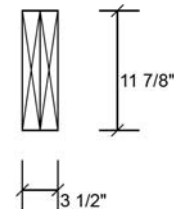
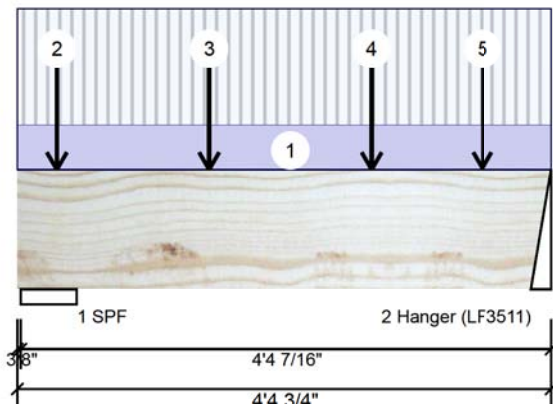


Client: GREENPARK
 Project:
 Address: TERRACOTA 45 1-2
 RICHMOND HILL, ON

Date: 9/30/2021
 Input by: W C
 Job Name: TC451-2 STANDARD
 Project #: ROUNDEL HOMES INC

Page 19 of 25

F16-A Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED Level: Second Floor



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Part. Uniform	0-0-0 to 4-4-12		Top	34 PLF	89 PLF	0 PLF	0 PLF	
2	Point	0-3-14		Far Face	71 lb	190 lb	0 lb	0 lb	J8
3	Point	1-6-14		Far Face	69 lb	185 lb	0 lb	0 lb	J8
4	Point	2-10-14		Far Face	60 lb	161 lb	0 lb	0 lb	J8
5	Point	3-9-14		Far Face	42 lb	112 lb	0 lb	0 lb	J8
	Self Weight				10 PLF				



October 12, 2021

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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

This design is valid until 5/24/2024

Kott Inc.
 3228 Moodie Dr, Ottawa, Ontario
 613-838-2775 / 905-642-4400



Per: joshua.nabua



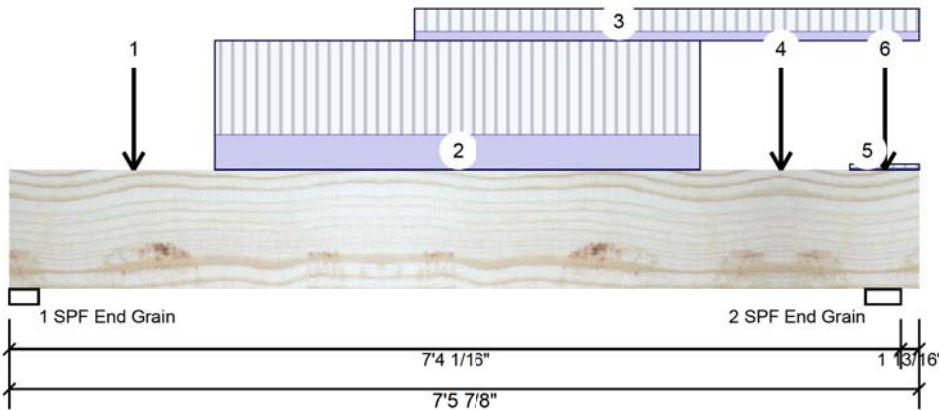
Client: GREENPARK
Project: TERRACOTA 45 1-2
Address: RICHMOND HILL, ON

Date: 10/14/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 5 of 6

F6-B Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Second Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	738	311	0	0
2	Vertical	1055	432	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	2.875"	Vert	20%	389 / 1107	1496	L_	1.25D+1.5L
2 - SPF End Grain	3.500"	Vert	23%	540 / 1583	2123	LL	1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-1 ft-lb	7'4 1/16"	25696 ft-lb	0.000 (0%)	1.25D+1.5L	L_
Pos Moment	2982 ft-lb	3'9 3/4"	34261 ft-lb	0.087 (9%)	1.25D+1.5L	L_
Unbraced	2982 ft-lb	3'9 3/4"	34261 ft-lb	0.087 (9%)	1.25D+1.5L	L_
Shear	1525 lb	6' 11/16"	11596 lb	0.131 (13%)	1.25D+1.5L	LL
Perm Defl in. (L/11682)	0.007	3'8 13/16"	0.234 (L/360)	0.031 (3%)	D	Uniform
LL Defl inch	0.017 (L/4836)	3'8 7/8"	0.175 (L/480)	0.099 (10%)	L	L_
TL Defl inch	0.025 (L/3420)	3'8 7/8"	0.351 (L/240)	0.070 (7%)	D+L	L_
LL Cant (2L/3912)	-0.001	Rt Cant (2L/480)	0.200	0.005 (0%)	L	L_
TL Cant (2L/2770)	-0.001	Rt Cant (2L/240)	0.300	0.004 (0%)	D+L	L_

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Multiple plies must be fastened together as per manufacturer's details.
- 4 Top loads must be supported equally by all plies.
- 5 Top must be continuously laterally braced.
- 6 Bottom must have sheathing attached or be continuously braced.
- 7 Lateral slenderness ratio based on full section width.



October 18, 2021

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Notes

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Lumber

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

Handling & Installation

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

6. For flat roofs provide proper drainage to prevent ponding

Manufacturer Info

Forex
APA: PR-L318

Kott Inc.
3228 Moodie Dr, Ottawa, Ontario
613-838-2775 / 905-642-4400



Per: joshua.nabua



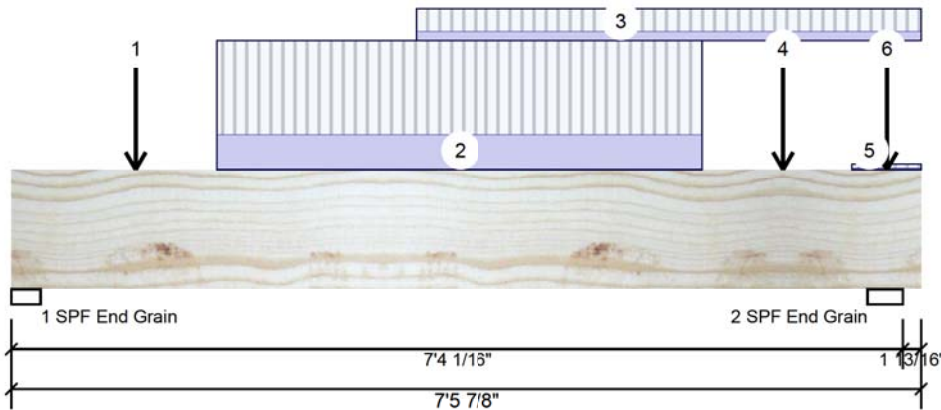
Client: GREENPARK
Project:
Address: TERRACOTA 45 1-2
RICHMOND HILL, ON

Date: 10/14/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 6 of 6

F6-B Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Second Floor



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Point	1-0-4		Far Face	96 lb	255 lb	0 lb	0 lb	J3
2	Part. Uniform	1-8-4 to 5-8-4		Far Face	80 PLF	215 PLF	0 PLF	0 PLF	
3	Part. Uniform	3-3-14 to 7-5-14		Top	20 PLF	52 PLF	0 PLF	0 PLF	
4	Point	6-4-4		Far Face	88 lb	235 lb	0 lb	0 lb	J3
5	Tie-In	6-11-1 to 7-5-14	0-2-13	Top	15 PSF	40 PSF	0 PSF	0 PSF	
6	Point	7-2-8		Far Face	83 lb	221 lb	0 lb	0 lb	J3
	Self Weight				10 PLF				



October 18, 2021

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Lumber

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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

This design is valid until 5/24/2024

Kott Inc.
3228 Moodie Dr, Ottawa, Ontario
613-838-2775 / 905-642-4400



Per: joshua.nabua

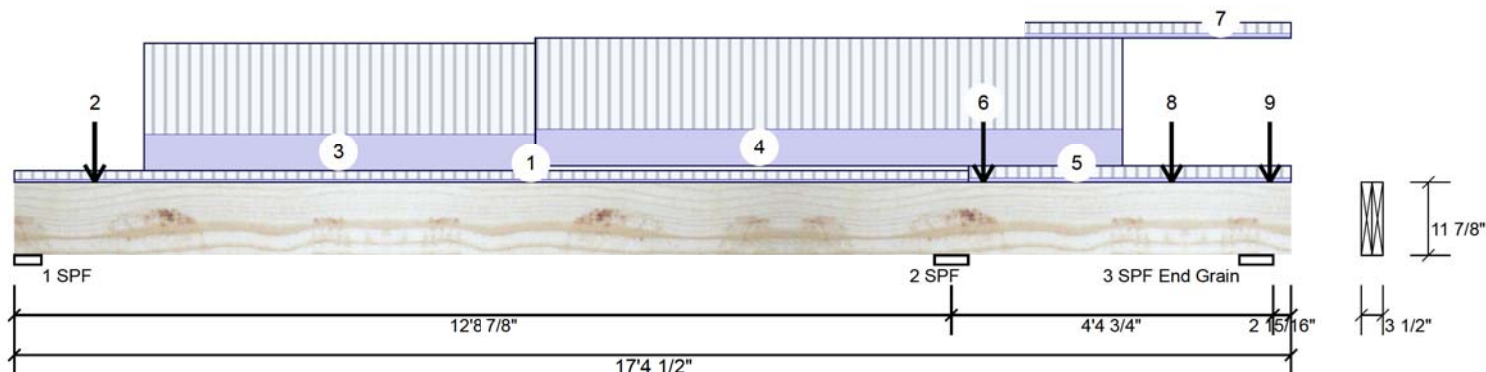


Client: GREENPARK
Project: TERRACOTA 45 1-2
Address: RICHMOND HILL, ON

Date: 9/30/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 22 of 25

F20-B Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED Level: Second Floor



Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	1785	781	0	0
2	Vertical	4679	2040	0	0
3	Vertical	0 (-2)	(-36)	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	4.400"	Vert	38%	956 / 2650	3606	L_L	1.25D+1.5L
2 - SPF	5.500"	Vert	83%	2629 / 7237	9865	LL_	1.25D+1.5L
3 - SPF	5.500"	Vert	12%	-75 / 1713	1638	_LL	0.9D+1.5L
End Grain					(-1291)		(1.25D+1.5L)

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-11129 ft-lb	12'8 7/8"	34261 ft-lb	0.325 (32%)	1.25D+1.5L	LL_
Pos Moment	9359 ft-lb	5'4 1/4"	34261 ft-lb	0.273 (27%)	1.25D+1.5L	L_L
Unbraced	9359 ft-lb	5'4 1/4"	34261 ft-lb	0.273 (27%)	1.25D+1.5L	L_L
Shear	4600 lb	11'6 1/4"	11596 lb	0.397 (40%)	1.25D+1.5L	LL_
Perm Defl in.	0.058 (L/2557)	6' 5/16"	0.414 (L/360)	0.141 (14%)	D	Uniform
LL Defl inch	0.137 (L/1089)	6' 9/16"	0.311 (L/480)	0.441 (44%)	L	L_L
TL Defl inch	0.195 (L/764)	6' 1/2"	0.622 (L/240)	0.314 (31%)	D+L	L_L
LL Cant	0.001 (2L/8775)	Rt Cant	0.200 (2L/480)	0.003 (0%)	L	L_L
TL Cant	0.001 (2L/7822)	Rt Cant	0.300 (2L/240)	0.002 (0%)	D+L	L_L

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Multiple plies must be fastened together as per manufacturer's details.
- 4 Top loads must be supported equally by all plies.
- 5 Tie-down connection required at bearing 3 for uplift 1291 lb (Combination 1.25D+1.5L, Load Case L_).
- 6 Top must be continuously laterally braced.
- 7 Bottom must have sheathing attached or be continuously braced.
- 8 Lateral slenderness ratio based on full section width.



October 12, 2021

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Lumber

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chemicals

Handling & Installation

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Manufacturer Info

Forex
APA: PR-L318

Kott Inc.
3228 Moodie Dr, Ottawa, Ontario
K1M 1Y1
613-838-2775 / 905-642-4400



Per: joshua.nabua

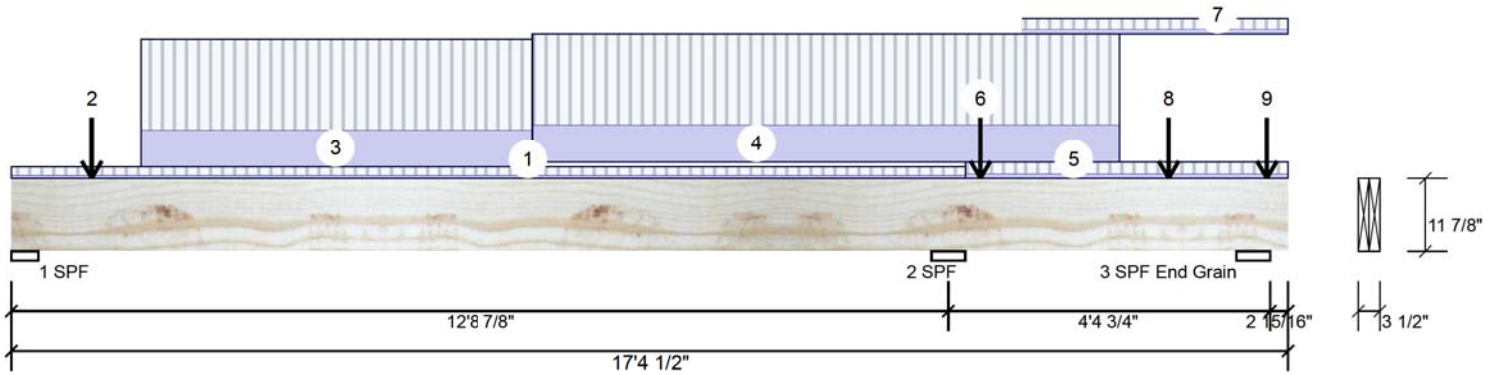


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Address: RICHMOND HILL, ON

Date: 9/30/2021
Input by: W C
Job Name: TC451-2 STANDARD
Project #: ROUNDEL HOMES INC

Page 23 of 25

F20-B Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED Level: Second Floor



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 12-11-10	0-9-2	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Point	1-1-1		Far Face	168 lb	409 lb	0 lb	0 lb	J6
3	Part. Uniform	1-9-1 to 7-1-1		Far Face	136 PLF	331 PLF	0 PLF	0 PLF	
4	Part. Uniform	7-1-1 to 15-1-1		Far Face	138 PLF	331 PLF	0 PLF	0 PLF	
5	Tie-In	12-11-10 to 17-4-8	1-0-15	Top	15 PSF	40 PSF	0 PSF	0 PSF	
6	Point	13-2-1		Near Face	9 lb	23 lb	0 lb	0 lb	J1
7	Part. Uniform	13-9-1 to 17-4-8		Near Face	15 PLF	41 PLF	0 PLF	0 PLF	
8	Point	15-9-1		Far Face	173 lb	442 lb	0 lb	0 lb	J6
9	Point	17-1-1		Far Face	166 lb	442 lb	0 lb	0 lb	J6
	Self Weight				10 PLF				



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Lumber

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Manufacturer Info

Forex
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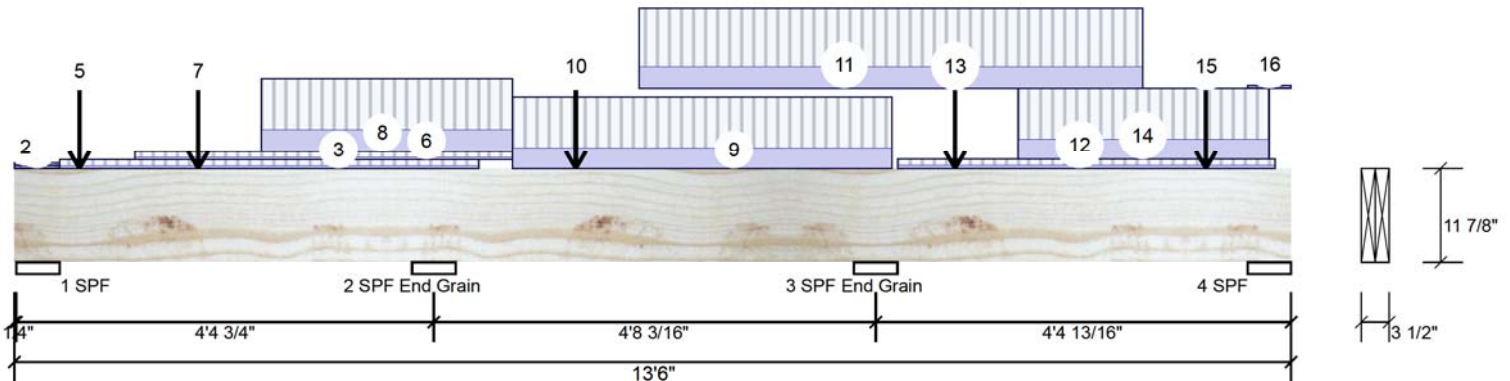
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F8-B Forex 2.0E-3000Fb LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Second Floor


Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	2	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012
Deflection LL:	480	Load Sharing:	No
Deflection TL:	240	Deck:	Not Checked
Importance:	Normal - II	Vibration:	Not Checked
General Load			
Floor Live:	40 PSF		
Dead:	15 PSF		

Unfactored Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind
1	Vertical	526	221	0	0
2	Vertical	2405	1019	0	0
3	Vertical	3450	1395	0	0
4	Vertical	1172	482	0	0

Bearings and Factored Reactions

Bearing	Length	Dir.	Cap. React	D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	5.500"	Vert	12%	270 / 979	1249 (-71)	LL__	1.25D+1.5L (0.9D+1.5L)
2 - SPF End Grain	5.500"	Vert	36%	1265 / 3943	5208	_LL_	1.25D+1.5L
3 - SPF End Grain	5.500"	Vert	51%	1782 / 5511	7292	L_LL	1.25D+1.5L
4 - SPF	5.500"	Vert	22%	579 / 1990	2569	_L_L	1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Neg Moment	-3023 ft-lb	9'1 3/16"	34261 ft-lb	0.088 (9%)	1.25D+1.5L	L_LL
Pos Moment	2135 ft-lb	11'4 3/16"	34261 ft-lb	0.062 (6%)	1.25D+1.5L	_L_L
Unbraced	2135 ft-lb	11'4 3/16"	34261 ft-lb	0.062 (6%)	1.25D+1.5L	_L_L
Shear	3420 lb	5'7 5/8"	11596 lb	0.295 (29%)	1.25D+1.5L	_LL_
Perm Defl in. (L/18604)	0.003	6'9 1/16"	0.156 (L/360)	0.019 (2%)	D	Uniform
LL Defl inch	0.009 (L/6055)	6'9 3/8"	0.117 (L/480)	0.079 (8%)	L	L_LL
TL Defl inch	0.012 (L/4568)	6'9 1/4"	0.234 (L/240)	0.053 (5%)	D+L	L_LL
LL Cant (2L/12470)	-0.000	Lt Cant	0.200 (2L/480)	0.000 (0%)	L	_L_L
TL Cant (2L/9333)	-0.000	Lt Cant	0.300 (2L/240)	0.000 (0%)	D+L	_L_L

Design Notes

- 1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Multiple plies must be fastened together as per manufacturer's details.
- 4 Top loads must be supported equally by all plies.
- 5 Tie-down connection required at bearing 1 for uplift 71 lb (Combination 0.9D+1.5L, Load Case __L__).
- 6 Top must be continuously laterally braced.
- 7 Bottom must have sheathing attached or be continuously braced.
- 8 Lateral slenderness ratio based on full section width.



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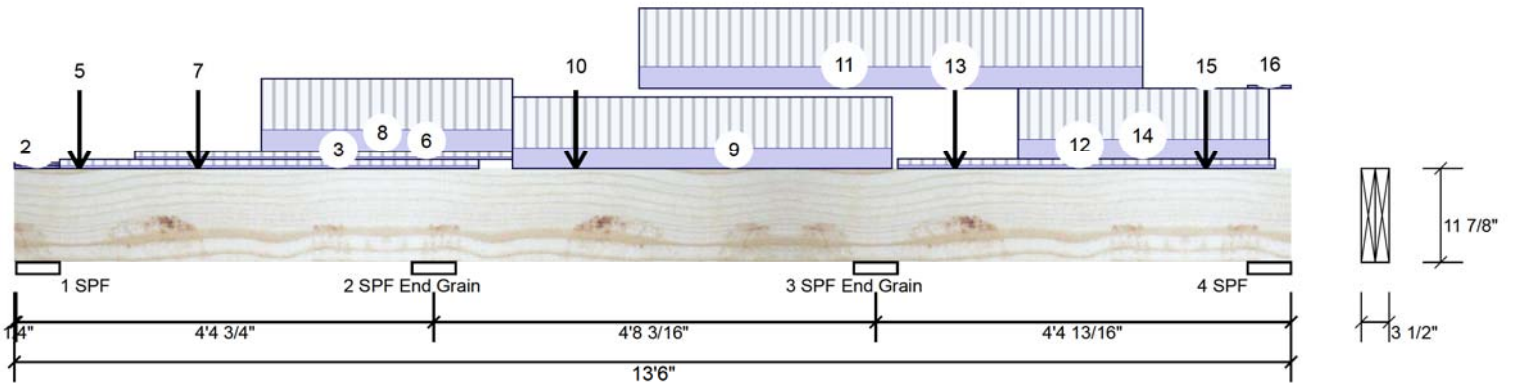
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Level: Second Floor



ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 0-5-12	0-3-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 0-5-12	0-4-2	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Tie-In	0-5-12 to 4-10-11	1-0-15	Top	15 PSF	40 PSF	0 PSF	0 PSF	
4	Point	0-8-3		Far Face	9 lb	23 lb	0 lb	0 lb	J1
5	Point	0-8-3		Near Face	90 lb	240 lb	0 lb	0 lb	J6
6	Part. Uniform	1-3-3 to 5-3-3		Far Face	14 PLF	37 PLF	0 PLF	0 PLF	
7	Point	1-11-3		Near Face	164 lb	426 lb	0 lb	0 lb	J6
8	Part. Uniform	2-7-3 to 5-3-3		Near Face	143 PLF	330 PLF	0 PLF	0 PLF	
9	Part. Uniform	5-3-3 to 9-3-3		Near Face	137 PLF	330 PLF	0 PLF	0 PLF	
10	Point	5-11-3		Far Face	185 lb	492 lb	0 lb	0 lb	J9
11	Part. Uniform	6-7-3 to 11-11-3		Far Face	140 PLF	375 PLF	0 PLF	0 PLF	
12	Part. Uniform	9-3-15 to 13-4-0		Top	20 PLF	40 PLF	0 PLF	0 PLF	
13	Point	9-11-3		Near Face	169 lb	439 lb	0 lb	0 lb	J6
14	Part. Uniform	10-7-3 to 13-3-3		Near Face	133 PLF	330 PLF	0 PLF	0 PLF	
15	Point	12-7-3		Far Face	126 lb	336 lb	0 lb	0 lb	J9
16	Tie-In	13-0-8 to 13-6-0	0-3-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	
	Self Weight				10 PLF				



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