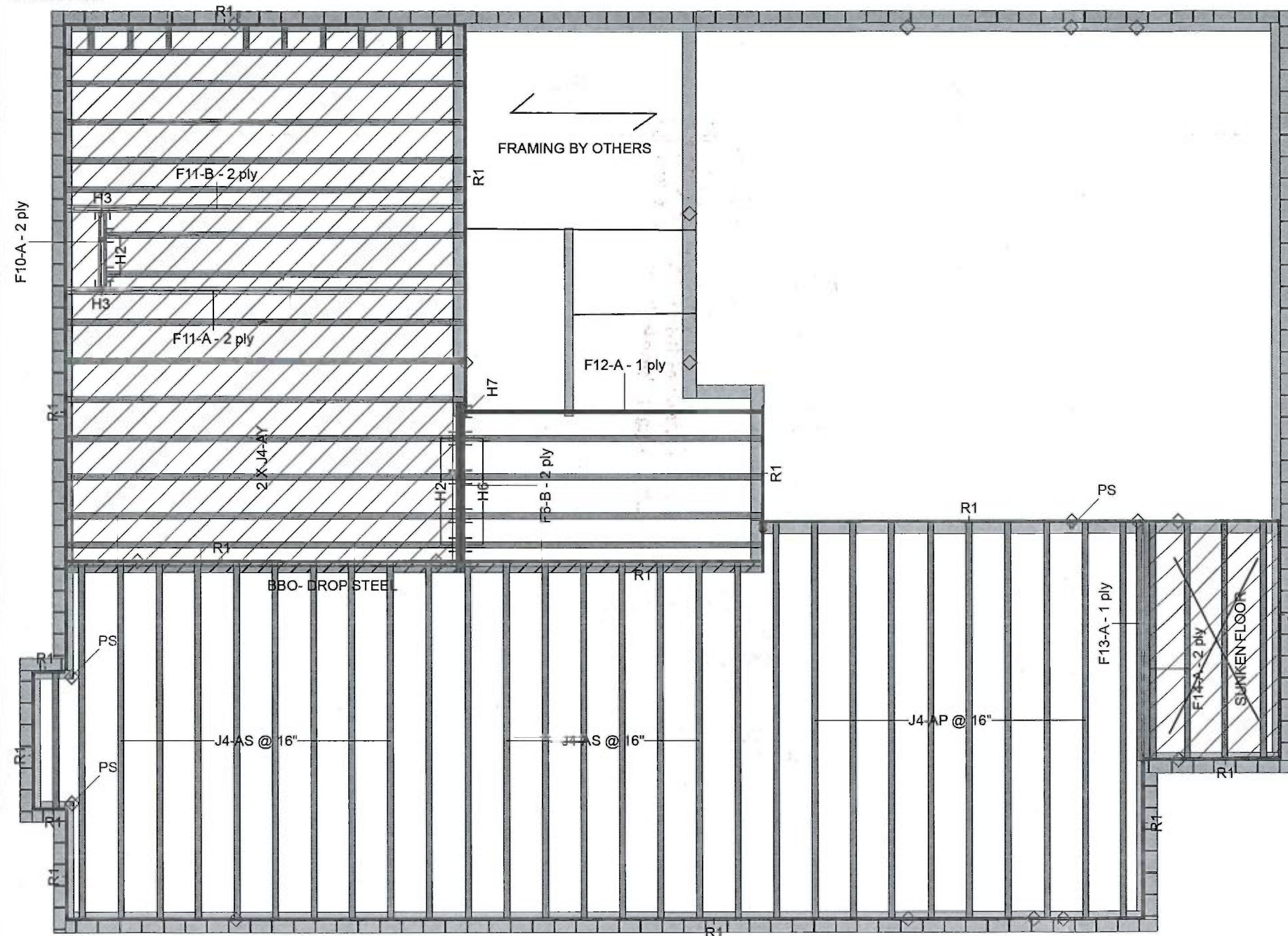


## Ground Floor



All work shall conform to the Ontario Building Code O. Reg. 332/12 as amended

For conventional wood framing framing shall conform to OBC.9.23

| Ground Floor LVL/LSL |                       |       |       |     |       |     |        |
|----------------------|-----------------------|-------|-------|-----|-------|-----|--------|
| Label                | Description           | Width | Depth | Qty | Plies | Pcs | Length |
| F12                  | Forex 2.0E-3000Fb LVL | 1.75  | 9.5   |     |       | 1   | 12-0-0 |
| F6                   | Forex 2.0E-3000Fb LVL | 1.75  | 9.5   | 1   | 2     | 2   | 6-0-0  |

| Joist |             |       |       |     |       |     |        |
|-------|-------------|-------|-------|-----|-------|-----|--------|
| Label | Description | Width | Depth | Qty | Plies | Pcs | Length |
| F11   | NJ          | 1.5   | 9.5   | 2   | 2     | 4   | 14-0-0 |
| F10   | NJ          | 1.5   | 9.5   | 1   | 2     | 2   | 4-0-0  |
| J4    | NJH         | 2.5   | 9.5   |     |       | 42  | 14-0-0 |
| J3    | NJH         | 2.5   | 9.5   |     |       | 4   | 12-0-0 |
| J2    | NJH         | 2.5   | 9.5   |     |       | 3   | 10-0-0 |
| J1    | NJH         | 2.5   | 9.5   |     |       | 1   | 6-0-0  |
| F14   | NJH         | 2.5   | 9.5   | 1   | 2     | 2   | 10-0-0 |
| F13   | NJH         | 2.5   | 9.5   |     |       | 1   | 10-0-0 |

| Rim Board |                                   |       |       |     |       |     |        |
|-----------|-----------------------------------|-------|-------|-----|-------|-----|--------|
| Label     | Description                       | Width | Depth | Qty | Plies | Pcs | Length |
| R1        | Norbord Rimboard Plus 1.125 X 9.5 | 1.125 | 9.5   |     |       | 14  | 12     |

| Blocking |             |       |       |       |       |        |        |
|----------|-------------|-------|-------|-------|-------|--------|--------|
| Label    | Description | Width | Depth | Qty   | Plies | Pcs    | Length |
| BLK1     | NJH         | 2.5   | 9.5   | LinFt |       | Varies | 8-0-0  |

| Hanger |     |             |      |             |           |                  |  |
|--------|-----|-------------|------|-------------|-----------|------------------|--|
|        |     |             |      | Beam/Girder |           | Supported Member |  |
| Label  | Pcs | Description | Skew | Slope       | fasteners | fasteners        |  |
| H2     | 6   | LT259       |      |             | 4 10d     | 2 10dx1 1/2      |  |
| H3     | 2   | LT2-159     |      |             | 4 10d     | 2 10dx1 1/2      |  |
| H6     | 4   | LF259       |      |             | 10 10d    | 1 #8x1 1/4WS     |  |
| H7     | 1   | HUS1.81/10  |      |             | 30 16d    | 10 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 face-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.

**NASCOR**

Layout Name  
MILLWOOD 1 EL-1 -2

Design Method  
LSD

Description  
GREENPARK HOMES  
MINNISALE HOME  
CORP., BRAMPTON, ON

Created  
June 26, 2018

Builder

Sales Rep

Designer  
S B

Shipping

Project

Builder's Project

**Kott Lumber Company**

14 Anderson Blvd  
Stouffville, Ontario  
Canada  
L4A 7X4  
905-642-4400

Ground Floor

Design Method LSD  
Building Code NBCC 2010 / OBC 2012

Floor

Loads  
Live 40  
Dead 15

Deflection Joist  
LL Span L/ 480  
TL Span L/ 360  
LL Cant 2L/ 480  
TL Cant 2L/ 360

Deflection Girder  
LL Span L/ 360  
TL Span L/ 240  
LL Cant 2L/ 480  
TL Cant 2L/ 360

Decking  
Deck OSB  
Thickness 3/4"  
Fastener Nailed & Glued  
Vibration

LOT 4

| Legend                            |                                  | Architectural Drawing Info   |
|-----------------------------------|----------------------------------|--|
| PS                                | Point Load Support               | JARDIN DESIGN GROUP<br>64 JARDIN DR, SUITE 3A<br>VAUGHAN, ON L4K 3P3<br><br>Project # 18-24<br>Model: Millwood 1 EL- 1-2<br>Date: AUGUST 09 2018 |
| ◇                                 | Load from Above                  |  |
| Wall                              | Wall                             |  |
| Norbord Rimboard Plus 1.125 X 9.5 | NJ 9.5                           |  |
| NJH 9.5                           | Forex 2.0E-3000Fb LVL 1.75 X 9.5 |  |
| 5.25 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)

JOISTS SPACING 16"O/C  
UNLESS  
NOTED OTHERWISE

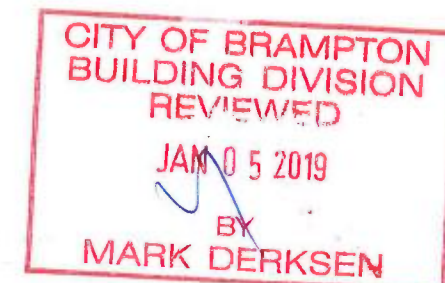
This certification is to confirm that:

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.



September 17, 2018



18-333285 000 00RR

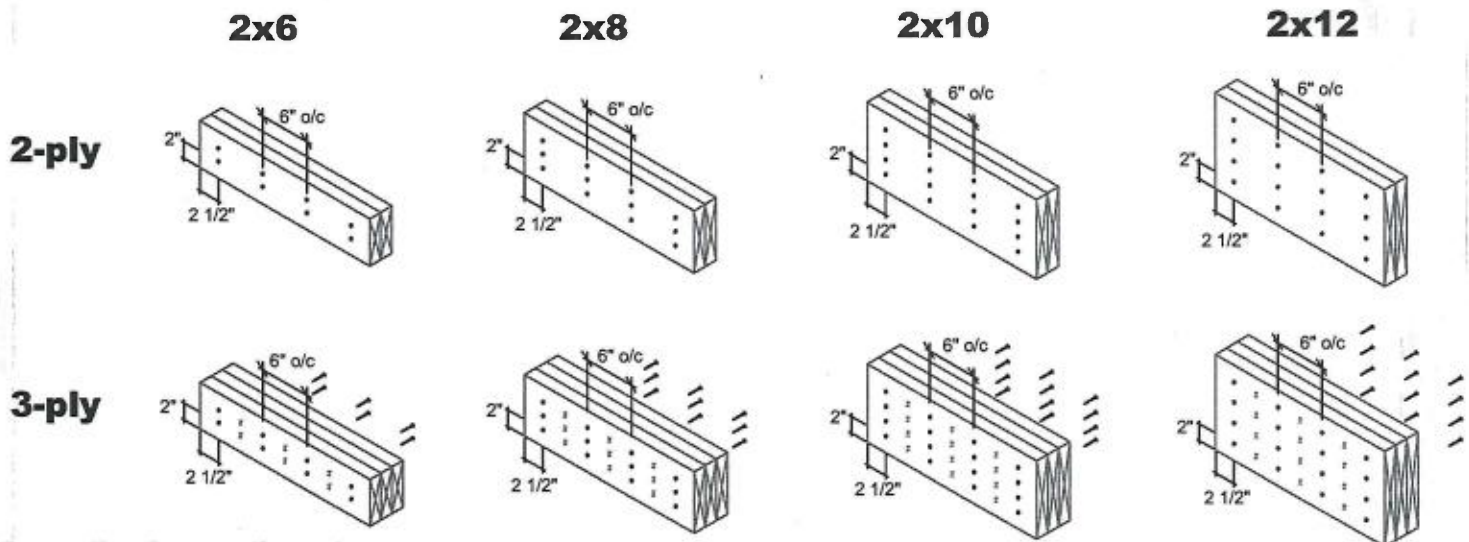



**KOTT**



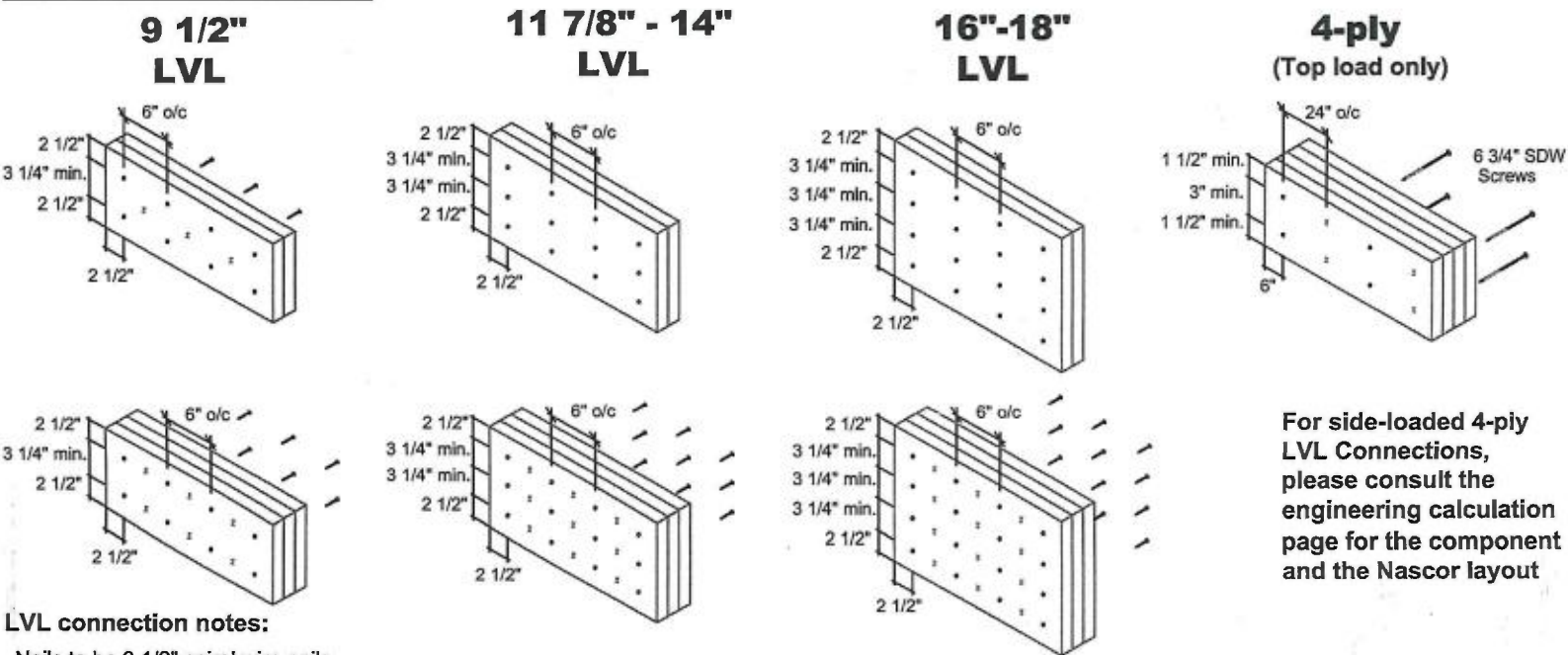
# MULTIPLE MEMBER CONNECTIONS

## 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.

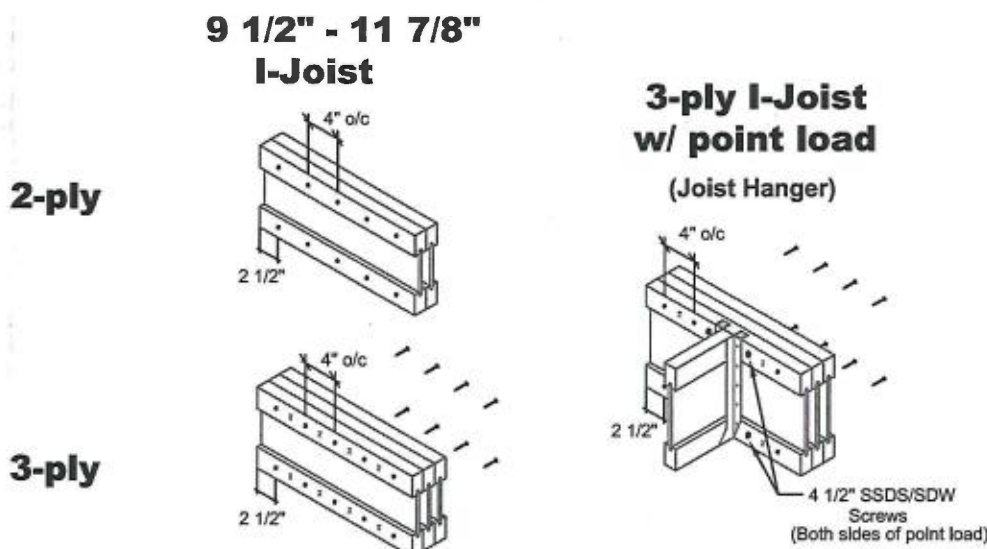
## LVL Connections (for uniform distributed loads)



**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.

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

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.

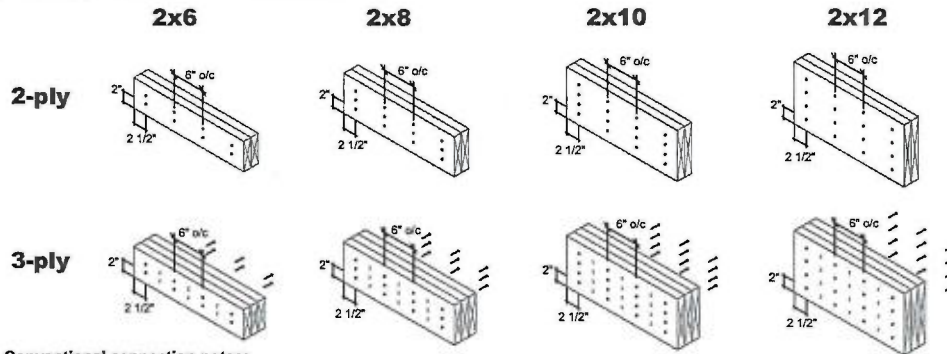
**HANDLING AND INSTALLATION**

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



# MULTIPLE MEMBER CONNECTIONS

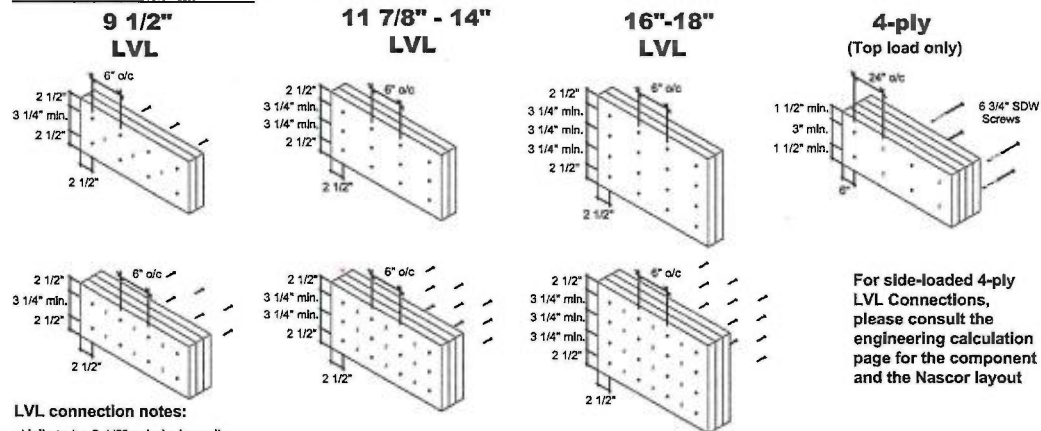
## Conventional Connections (for uniform distributed loads)



### 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)

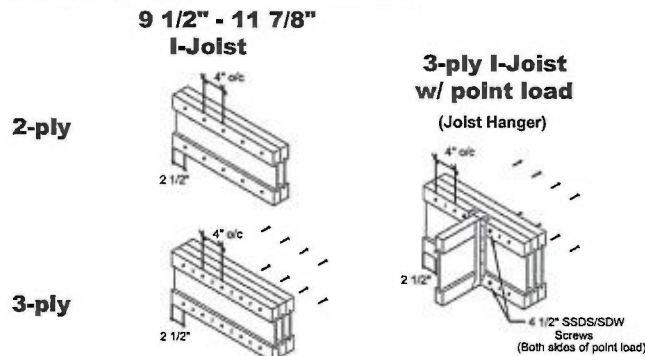


### LVL connection notes:

- 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, 2018

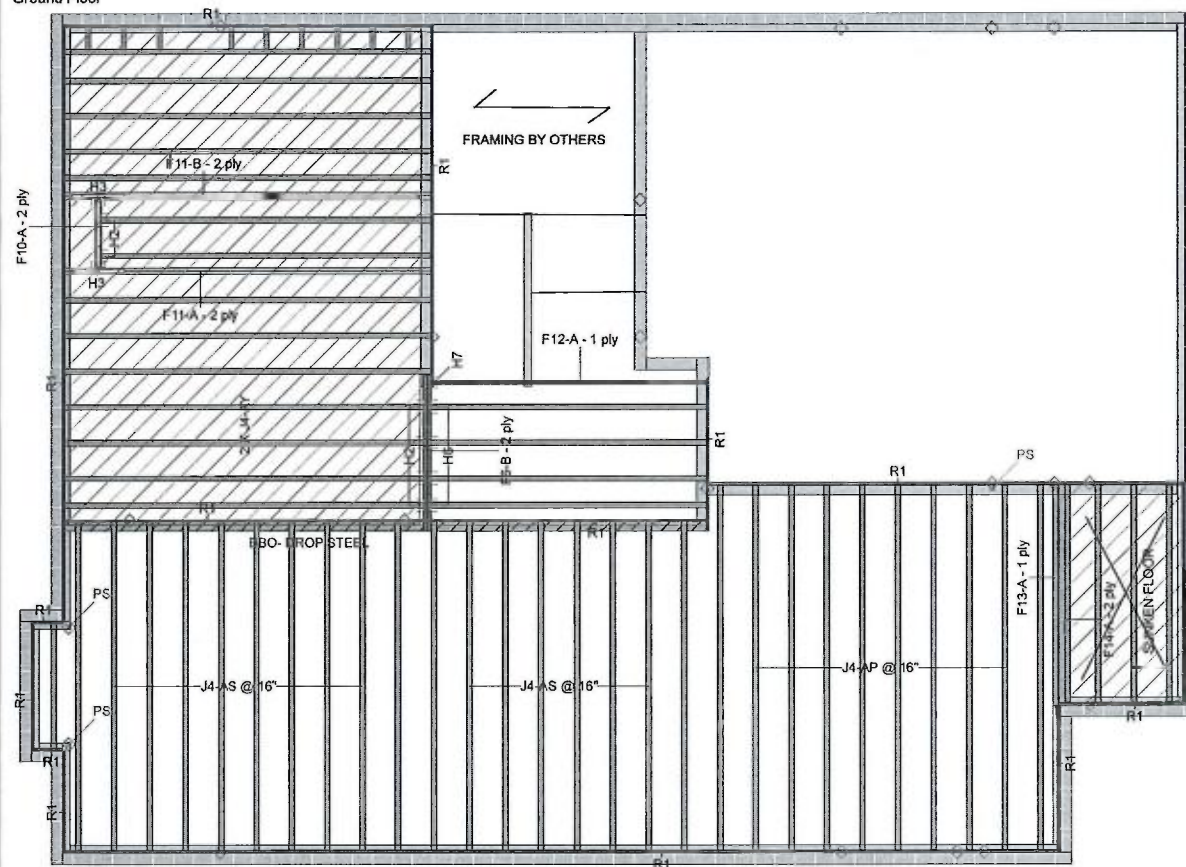
Scale: NTS

# KOTT

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

# KOTT

## Ground Floor



## Legend

|                                  |                                   |
|----------------------------------|-----------------------------------|
| PS                               | Point Load Support                |
| Load from Above                  |                                   |
| Wall                             | Norbord Rimboard Plus 1.125 X 9.5 |
| NJ 9.5                           |                                   |
| NJH 9.5                          |                                   |
| Forex 2.0E-3000Fb LVL 1.75 X 9.5 |                                   |
| 5.25 X 10.25 (Dropped)           |                                   |

Architectural Drawing Info  
JARDIN DESIGN GROUP  
64 JARDIN DR, SUITE 3A  
VAUGHAN, ON L4K 3P3

Project # 18-24  
Model: Millwood 1 EL-1-2  
Date: AUGUST 09 2018

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

JOISTS SPACING 16" O/C  
UNLESS  
NOTED OTHERWISE

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.



September 17, 2018

## Ground Floor

| Label | Description           | Width | Depth | Qty | Piles | Pcs | Length |
|-------|-----------------------|-------|-------|-----|-------|-----|--------|
| F12   | Forex 2.0E-3000Fb LVL | 1.75  | 9.5   |     |       | 1   | 12-0-0 |
| F8    | Forex 2.0E-3000Fb LVL | 1.75  | 9.5   | 1   | 2     | 2   | 9-0-0  |

## Joist

| Label | Description | Width | Depth | Qty | Piles | Pcs | Length |
|-------|-------------|-------|-------|-----|-------|-----|--------|
| F11   | NJ          | 1.5   | 9.5   | 2   | 2     | 4   | 14-0-0 |
| F10   | NJ          | 1.5   | 9.5   | 1   | 2     | 2   | 4-0-0  |
| J4    | NJH         | 2.5   | 9.5   |     |       | 42  | 14-0-0 |
| J3    | NJH         | 2.5   | 9.5   |     |       | 4   | 12-0-0 |
| J2    | NJH         | 2.5   | 9.5   |     |       | 3   | 10-0-0 |
| J1    | NJH         | 2.5   | 9.5   |     |       | 1   | 6-0-0  |
| F14   | NJH         | 2.5   | 9.5   | 1   | 2     | 2   | 10-0-0 |
| F13   | NJH         | 2.5   | 9.5   |     |       | 1   | 10-0-0 |

## Rim Board

| Label | Description                       | Width | Depth | Qty | Piles | Pcs | Length |
|-------|-----------------------------------|-------|-------|-----|-------|-----|--------|
| R1    | Norbord Rimboard Plus 1.125 X 9.5 | 1.125 | 9.5   |     |       | 14  | 12     |

## Blocking

| Label | Description | Width | Depth | Qty | Piles | Pcs    | Length |
|-------|-------------|-------|-------|-----|-------|--------|--------|
| BLK1  | NJH         | 2.5   | 9.5   |     |       | Varies | 8-0-0  |

## Hanger

| Label | Pcs | Description | Slow | Slope | fasteners | Supported Member |
|-------|-----|-------------|------|-------|-----------|------------------|
| H2    | 8   | LT259       |      |       | 4 10d     | 2 10dx1 1/2      |
| H3    | 2   | LT2-159     |      |       | 4 10d     | 2 10dx1 1/2      |
| H6    | 4   | LP259       |      |       | 10 10d    | 1 #8x1 1/4WS     |
| H7    | 1   | HUS1.81/10  |      |       | 30 16d    | 10 16d           |

## NOTES:

- Framer to verify dimensions on the architectural drawings.
- Double joist only require fiberbacker 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/joist.
- 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: 1-1/8" 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 6 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.

**NASCOR**

Layout Name  
MILLWOOD 1 EL-1-2

Design Method  
LSD

Description  
GREENPARK HOMES  
MINNSALE HOME  
CORP. BRAMPTON, ON

Created  
June 28, 2018

Builder

Sales Rep

Designer  
S B

Shipping

Project

Builder's Project

**Kott Lumber Company**

14 Anderson Blvd

Stouffville, Ontario

Canada

L4A 7X4

905-642-4400

Ground Floor

Design Method  
LSD

Building Code  
NBCC 2010 / OBC 2012

Floor

Loads

Live

Dead

Deflection Joist

LL Span 1/

TL Span 1/

LL Cant 2/

TL Cant 2/

Deflection Girder

LL Span 1/

TL Span 1/

LL Cant 2/

TL Cant 2/

Decking

Deck

Thickness

Fastener

Vibration

Nailed & Glued

**KOTT**





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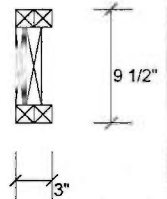
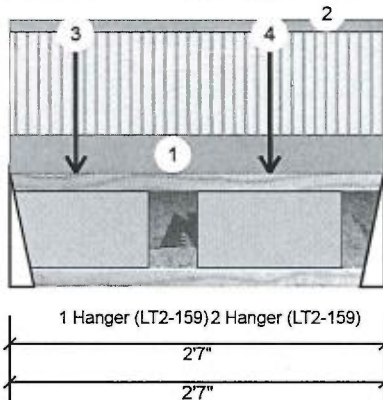
Client:  
Project:  
Address:

Date: 9/11/2018  
Designer: S B  
Job Name: MILLWOOD 1 EL-1  
Project #:

Page 1 of 1

**F10-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   | 311  | 150  | 0    | 0    |
| 2   | 262  | 127  | 0    | 0    |

**Bearings and Factored Reactions**

| Bearing    | Length | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb.  |
|------------|--------|------|--------------|-------|----------|------------|
| 1 - Hanger | 2.000" | 25%  | 187 / 466    | 653 L |          | 1.25D+1.5L |
| 2 - Hanger | 2.000" | 21%  | 159 / 393    | 552 L |          | 1.25D+1.5L |

**Analysis Results**

| Analysis      | Actual          | Location  | Allowed       | Capacity    | Comb.      | Case    |
|---------------|-----------------|-----------|---------------|-------------|------------|---------|
| Moment        | 364 ft-lb       | 1'9 7/16" | 7340 ft-lb    | 0.050 (5%)  | 1.25D+1.5L | L       |
| Unbraced      | 364 ft-lb       | 1'9 7/16" | 5436 ft-lb    | 0.067 (7%)  | 1.25D+1.5L | L       |
| Shear         | 647 lb          | 1 1/4"    | 3080 lb       | 0.210 (21%) | 1.25D+1.5L | L       |
| Perm Defl in. | 0.001 (L/25061) | 1'8 7/16" | 0.079 (L/360) | 0.010 (1%)  | D          | Uniform |
| LL Defl inch  | 0.002 (L/12149) | 1'8 3/8"  | 0.079 (L/360) | 0.030 (3%)  | L          | L       |
| TL Defl inch  | 0.003 (L/8182)  | 1'8 3/8"  | 0.119 (L/240) | 0.030 (3%)  | 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 flange braced at bearings.
- 6 Bottom flange braced at bearings.



September 17, 2018

| ID | Load Type     | Location       | Trib Width  | Side      | Dead   | Live   | Snow  | Wind  | Comments   |
|----|---------------|----------------|-------------|-----------|--------|--------|-------|-------|--|
| 1  | Tie-In        | 0-0-0 to 2-7-0 | (Span)1-3-7 | Top       | 15 PSF | 40 PSF | 0 PSF | 0 PSF |  |
| 2  | Part. Uniform | 0-0-0 to 2-7-0 |             | Top       | 3 PLF  | 0 PLF  | 0 PLF | 0 PLF |  |
| 3  | Point         | 0-5-7          |             | Near Face | 111 lb | 232 lb | 0 lb  | 0 lb  | Pass-Through Framing Squash Block is required at all point loads over bearings |
| 4  | Point         | 1-9-7          |             | Near Face | 133 lb | 274 lb | 0 lb  | 0 lb  |  |

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

**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. Joist not to be treated with fire retardant or corrosive chemicals

**Handling & Installation**

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

5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. Web stiffeners for point load as shown Minimum
7. For flat roofs provide ponding

**Manufacturer Info**

Nascor by Kott

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

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.

This design is valid until 11/10/2021

**NASCOR**



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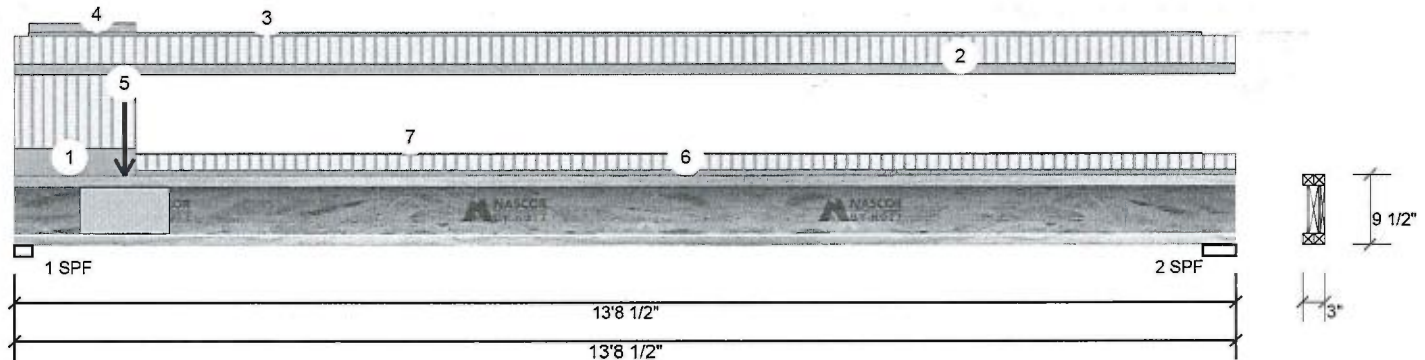
 Client:  
 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 Project #:

Page 1 of 1

**F11-A NJ 9.500" 2-Ply - PASSED**

Level: Ground Floor

**Member Information****Unfactored Reactions UNPATTERNED 1b (Uplift)**

|                     |        |                |                      |
|---------------------|--------|----------------|----------------------|
| Type:               | Girder | Application:   | Floor (Residential)  |
| Piles:              | 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   | 570  | 278  | 0    | 0    |
| 2   | 260  | 127  | 0    | 0    |

**Bearings and Factored Reactions**

| Bearing | Length | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb.  |
|---------|--------|------|--------------|-------|----------|------------|
| 1 - SPF | 2.375" | 45%  | 347 / 855    | 1202  | L        | 1.25D+1.5L |
| 2 - SPF | 4.375" | 18%  | 158 / 390    | 548   | L        | 1.25D+1.5L |

**Analysis Results**

| Analysis      | Actual         | Location   | Allowed       | Capacity     | Comb.      | Case    |
|---------------|----------------|------------|---------------|--------------|------------|---------|
| Moment        | 1978 ft-lb     | 5'11 1/16" | 7340 ft-lb    | 0.269 (27%)  | 1.25D+1.5L | L       |
| Unbraced      | 1978 ft-lb     | 5'11 1/16" | 1987 ft-lb    | 0.995 (100%) | 1.25D+1.5L | L       |
| Shear         | 1181 lb        | 1 5/8"     | 3080 lb       | 0.383 (38%)  | 1.25D+1.5L | L       |
| Perm Defl in. | 0.058 (L/2728) | 6'6 1/4"   | 0.442 (L/360) | 0.130 (13%)  | D          | Uniform |
| LL Defl inch  | 0.119 (L/1344) | 6'6 3/16"  | 0.442 (L/360) | 0.270 (27%)  | L          | L       |
| TL Defl inch  | 0.177 (L/900)  | 6'6 3/16"  | 0.664 (L/240) | 0.270 (27%)  | 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 flange must be laterally braced at a maximum of 4'8" o.c.
- 5 Bottom flange braced at bearings.



September 17, 2018

| ID | Load Type     | Location         | Trib Width   | Side     | Dead   | Live   | Snow  | Wind  | Comments   |
|----|---------------|------------------|--------------|----------|--------|--------|-------|-------|--|
| 1  | Tie-In        | 0-0-0 to 1-4-6   | (Span)2-10-0 | Top      | 15 PSF | 40 PSF | 0 PSF | 0 PSF |  |
| 2  | Tie-In        | 0-0-0 to 13-8-8  | (Span)1-1-1  | Top      | 15 PSF | 40 PSF | 0 PSF | 0 PSF |  |
| 3  | Part. Uniform | 0-1-15 to 13-4-0 |              | Top      | 3 PLF  | 0 PLF  | 0 PLF | 0 PLF |  |
| 4  | Part. Uniform | 0-2-1 to 1-4-6   |              | Top      | 7 PLF  | 0 PLF  | 0 PLF | 0 PLF |  |
| 5  | Point         | 1-2-14           |              | Far Face | 150 lb | 311 lb | 0 lb  | 0 PLF | Pass-Through Framing Squash Block is required at all point loads over bearings |
| 6  | Tie-In        | 1-4-6 to 13-8-8  | (Span)0-6-15 | Top      | 15 PSF | 40 PSF | 0 PSF | 0 PSF | Refer to Multiple Member Connection Details for plying or bolting requirements |
| 7  | Part. Uniform | 1-4-6 to 13-4-0  |              | Top      | 1 PLF  | 0 PLF  | 0 PLF | 0 PLF |  |

**Notes**

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

**Lumber**

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

**Handling & Installation**

1. Ljoist flanges must not be cut or drilled
2. 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
3. Damaged Ljoists must not be used
4. Design assumes top flange to be laterally restrained by attached sheathing or as specified in engineering notes.

5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. Web stiffeners for point load as shown Minimum
7. For flat roofs provide ponding

**Manufacturer Info**

Nascor by Kott

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

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.

This design is valid until 7/1/2021

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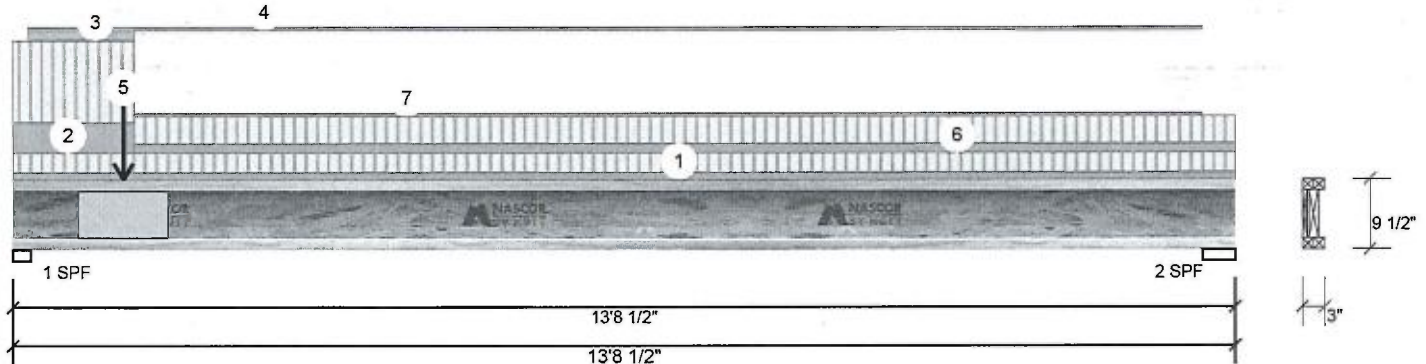
 Client:  
 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 Project #:

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**F11-B NJ 9.500" 2-Ply - PASSED**

Level: Ground Floor

**Member Information****Unfactored Reactions UNPATTERNED lb (Uplift)**

|                         |                                     |     |      |      |      |      |
|-------------------------|-------------------------------------|-----|------|------|------|------|
| Type: Girder            | Application: Floor (Residential)    | Brg | Live | Dead | Snow | Wind |
| Piles: 2                | Design Method: LSD                  | 1   | 505  | 248  | 0    | 0    |
| Moisture Condition: Dry | Building Code: NBCC 2010 / OBC 2012 | 2   | 244  | 120  | 0    | 0    |
| 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            |                                     |     |      |      |      |      |

**Bearings and Factored Reactions**

| Bearing | Length | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb.  |
|---------|--------|------|--------------|-------|----------|------------|
| 1 - SPF | 2.375" | 40%  | 310 / 757    | 1067  | L        | 1.25D+1.5L |
| 2 - SPF | 4.375" | 17%  | 150 / 365    | 516   | L        | 1.25D+1.5L |

**Analysis Results**

| Analysis      | Actual         | Location  | Allowed       | Capacity    | Comb.      | Case    |
|---------------|----------------|-----------|---------------|-------------|------------|---------|
| Moment        | 1837 ft-lb     | 6' 1/4"   | 7340 ft-lb    | 0.250 (25%) | 1.25D+1.5L | L       |
| Unbraced      | 1837 ft-lb     | 6' 1/4"   | 1848 ft-lb    | 0.994 (99%) | 1.25D+1.5L | L       |
| Shear         | 1048 lb        | 1 5/8"    | 3080 lb       | 0.340 (34%) | 1.25D+1.5L | L       |
| Perm Defl in. | 0.055 (L/2916) | 6'6 9/16" | 0.442 (L/360) | 0.120 (12%) | D          | Uniform |
| LL Defl inch  | 0.110 (L/1453) | 6'6 1/2"  | 0.442 (L/360) | 0.250 (25%) | L          | L       |
| TL Defl inch  | 0.164 (L/970)  | 6'6 1/2"  | 0.664 (L/240) | 0.250 (25%) | 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 flange must be laterally braced at a maximum of 4'10" o.c.
- Bottom flange braced at bearings.



September 17, 2018

| ID | Load Type     | Location        | Trib Width   | Side      | Dead   | Live   | Snow  | Wind  | Comments  |
|----|---------------|-----------------|--------------|-----------|--------|--------|-------|-------|---|
| 1  | Tie-In        | 0-0-0 to 13-8-8 | (Span)0-7-15 | Top       | 15 PSF | 40 PSF | 0 PSF | 0 PSF |   |
| 2  | Tie-In        | 0-0-0 to 1-4-6  | (Span)2-10-0 | Top       | 15 PSF | 40 PSF | 0 PSF | 0 PSF |   |
| 3  | Part. Uniform | 0-2-2 to 1-4-6  |              | Top       | 7 PLF  | 0 PLF  | 0 PLF | 0 PLF |   |
| 4  | Part. Uniform | 0-2-2 to 13-4-2 |              | Top       | 2 PLF  | 0 PLF  | 0 PLF | 0 PLF |   |
| 5  | Point         | 1-2-14          |              | Near Face | 127 lb | 262 lb | 0 lb  | 0 lb  | Pass-Thru Framing Squash Block is required at all point loads over bearings               |
| 6  | Tie-In        | 1-4-6 to 13-8-8 | (Span)0-11-1 | Top       | 15 PSF | 40 PSF | 0 PSF | 0 PSF |   |
| 7  | Part. Uniform | 1-4-6 to 13-4-2 |              | Top       | 2 PLF  | 0 PLF  | 0 PLF | 0 PLF | Refer to Multiple Member Connection Detail for ply to ply nailing or bolting requirements |

**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 & 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/installation 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
- For flat roofs provide ponding

**Manufacturer Info**

Nascor by Kott

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

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.

This design is valid until 7/10/2021

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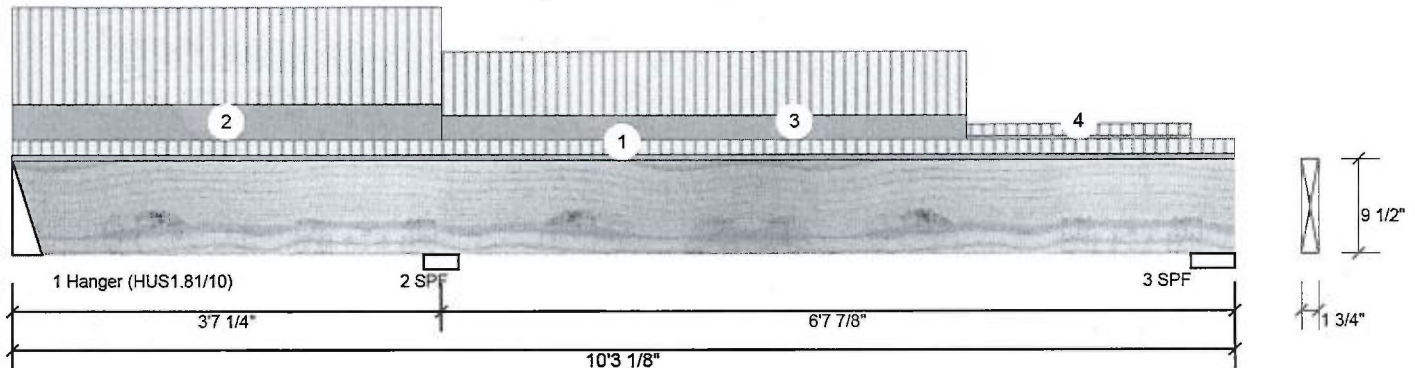
 Client:  
 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 Project #:

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**F12-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   | 171  | 68   | 0    | 0    |
| 2   | 670  | 276  | 0    | 0    |
| 3   | 159  | 71   | 0    | 0    |

**Bearings and Factored Reactions**

| Bearing    | Length | Cap. React | D/L lb     | Total     | Ld. Case | Ld. Comb.  |
|------------|--------|------------|------------|-----------|----------|------------|
| 1 - Hanger | 3.000" | 11%        | 78 / 363   | 441 (-30) | L        | 1.25D+1.5L |
| 2 - SPF    | 3.500" | 37%        | 354 / 1034 | 1388      | LL       | 1.25D+1.5L |
| 3 - SPF    | 4.375" | 7%         | 85 / 246   | 331       | L        | 1.25D+1.5L |

**Analysis Results**

| Analysis      | Actual          | Location   | Allowed       | Capacity    | Comb.      | Case    |
|---------------|-----------------|------------|---------------|-------------|------------|---------|
| Neg Moment    | -717 ft-lb      | 3'7 1/4"   | 11362 ft-lb   | 0.063 (6%)  | 1.25D+1.5L | LL      |
| Unbraced      | -717 ft-lb      | 3'7 1/4"   | 10999 ft-lb   | 0.065 (7%)  | 1.25D+1.5L | LL      |
| Pos Moment    | 582 ft-lb       | 7' 7/8"    | 11362 ft-lb   | 0.051 (5%)  | 1.25D+1.5L | L       |
| Unbraced      | 582 ft-lb       | 7' 7/8"    | 7023 ft-lb    | 0.083 (8%)  | 1.25D+1.5L | L       |
| Shear         | 548 lb          | 4'4 3/4"   | 4638 lb       | 0.118 (12%) | 1.25D+1.5L | LL      |
| Perm Defl in. | 0.004 (L/18084) | 6'10 5/8"  | 0.212 (L/360) | 0.020 (2%)  | D          | Uniform |
| LL Defl inch  | 0.011 (L/6896)  | 6'9 15/16" | 0.212 (L/360) | 0.050 (5%)  | L          | L       |
| TL Defl inch  | 0.015 (L/4993)  | 6'10 3/16" | 0.318 (L/240) | 0.050 (5%)  | D+L        | L       |

**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 30 lb (Combination 0.9D+1.5L, Load Case L).
- 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 10-3-2  | (Span)0-11-1 | Top  | 15 PSF | 40 PSF  | 0 PSF | 0 PSF |   |
| 2  | Part. Uniform | 0-0-0 to 3-7-4   |              | Top  | 45 PLF | 120 PLF | 0 PLF | 0 PLF | Pass-through Framing Squash Block is required at all point loads over bearings            |
| 3  | Part. Uniform | 3-7-4 to 8-0-4   |              | Top  | 30 PLF | 80 PLF  | 0 PLF | 0 PLF |   |
| 4  | Tie-In        | 8-0-4 to 9-10-12 | (Span)0-8-4  | Top  | 15 PSF | 40 PSF  | 0 PSF | 0 PSF | Refer to Multiple Member Connection Detail for ply to ply nailing or bolting requirements |
|    | 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-1 318

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

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.

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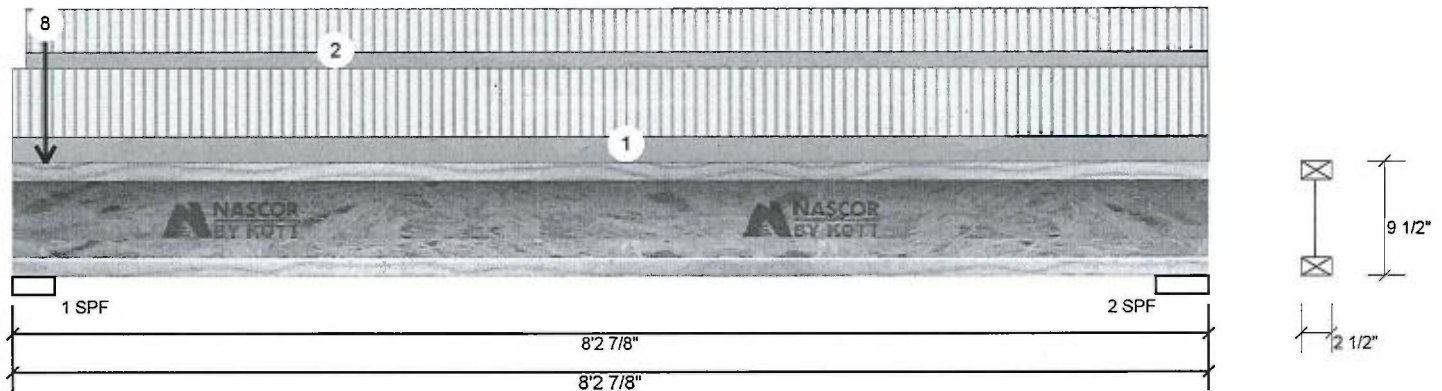
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 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 Project #:

Page 1 of 1

**F13-A NJH 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   | 137  | 116  | 54   | 0    |
| 2   | 76   | 29   | 0    | 0    |

**Bearings and Factored Reactions**

| Bearing | Length | Cap. React | D/L lb    | Total | Ld. Case | Ld. Comb.           |
|---------|--------|------------|-----------|-------|----------|---------------------|
| 1 - SPF | 3.500" | 24%        | 145 / 233 | 378   | L        | 1.25D+1.5L<br>+0.5S |
| 2 - SPF | 4.375" | 9%         | 36 / 114  | 150   | L        | 1.25D+1.5L          |

**Analysis Results**

| Analysis      | Actual             | Location  | Allowed       | Capacity    | Comb.      | Case    |
|---------------|--------------------|-----------|---------------|-------------|------------|---------|
| Moment        | 268 ft-lb          | 4'1"      | 3830 ft-lb    | 0.070 (7%)  | 1.25D+1.5L | L       |
| Unbraced      | 268 ft-lb          | 4'1"      | 1068 ft-lb    | 0.251 (25%) | 1.25D+1.5L | L       |
| Shear         | 139 lb             | 2 3/4"    | 1580 lb       | 0.088 (9%)  | 1.25D+1.5L | L       |
| Perm Defl in. | 0.004<br>(L/22525) | 4'1 1/16" | 0.257 (L/360) | 0.020 (2%)  | D          | Uniform |
| LL Defl inch  | 0.011 (L/8447)     | 4'1 1/16" | 0.257 (L/360) | 0.040 (4%)  | L+0.5S     | L       |
| TL Defl inch  | 0.015 (L/6143)     | 4'1 1/16" | 0.385 (L/240) | 0.040 (4%)  | D+L+0.5S   | L       |

**Design Notes**

- 1 Girders are designed to be supported on the bottom edge only.
- 2 Top flange braced at bearings.
- 3 Bottom flange braced at bearings.

| ID | Load Type | Location        | Trib Width   | Side | Dead   | Live   | Snow  | Wind                  |
|----|-----------|-----------------|--------------|------|--------|--------|-------|-----------------------|
| 1  | Tie-In    | 0-0-0 to 8-2-14 | (Span)0-6-12 | Top  | 15 PSF | 40 PSF | 0 PSF | 0 PSF                 |
| 2  | Tie-In    | 0-1-2 to 8-2-14 | (Span)0-4-4  | Top  | 15 PSF | 40 PSF | 0 PSF | 0 PSF                 |
| 4  | Point     | 0-2-12          |              | Top  | 1 lb   | 2 lb   | 0 lb  | 0 lb J2               |
| 5  | Point     | 0-2-12          |              | Top  | 1 lb   | 0 lb   | 0 lb  | 0 lb Wall Self Weight |
| 6  | Point     | 0-2-12          |              | Top  | 29 lb  | 0 lb   | 54 lb | 0 lb F1 F1            |
| 7  | Point     | 0-2-12          |              | Top  | 23 lb  | 61 lb  | 0 lb  | 0 lb                  |
| 8  | Point     | 0-2-12          |              | Top  | 34 lb  | 0 lb   | 0 lb  | 0 lb Wall Self Weight |



September 17, 2018

Pass-Thru Framing Squash Block is required at all point loads over bearings

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

**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. Joist not to be treated with fire retardant or corrosive chemicals

**chemicals****Handling & Installation**

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

5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. Web stiffeners for point load as shown Minimum point load bearing length  $\geq 3.5$  inches
7. For flat roofs provide ponding

This design is v

**Manufacturer Info**

Nascor by Kott

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

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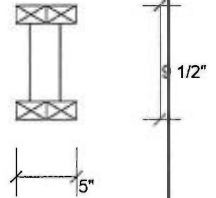
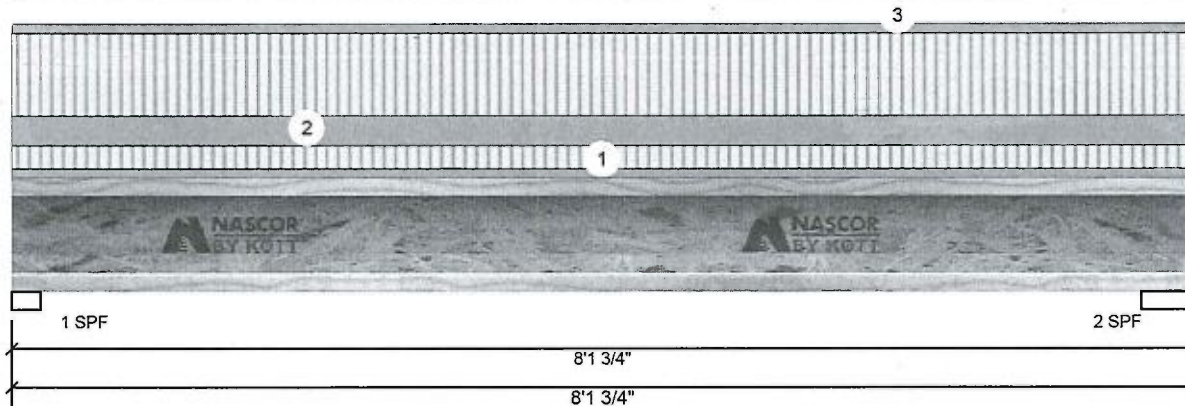
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 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 Project #:

Page 1 of 1

**F14-A NJH 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   | 128  | 60   | 0    | 0    |
| 2   | 133  | 62   | 0    | 0    |

**Bearings and Factored Reactions**

| Bearing | Length | Cap. React D/L lb | Total    | Ld. Case | Ld. Comb.  |
|---------|--------|-------------------|----------|----------|------------|
| 1 - SPF | 2.375" | 8%                | 75 / 192 | 267 L    | 1.25D+1.5L |
| 2 - SPF | 4.375" | 9%                | 78 / 200 | 278 L    | 1.25D+1.5L |

**Analysis Results**

| Analysis      | Actual          | Location    | Allowed       | Capacity    | Comb.      | Case    |
|---------------|-----------------|-------------|---------------|-------------|------------|---------|
| Moment        | 497 ft-lb       | 3'11 7/8"   | 7660 ft-lb    | 0.065 (6%)  | 1.25D+1.5L | L       |
| Unbraced      | 497 ft-lb       | 3'11 7/8"   | 2136 ft-lb    | 0.233 (23%) | 1.25D+1.5L | L       |
| Shear         | 258 lb          | 1 5/8"      | 3160 lb       | 0.082 (8%)  | 1.25D+1.5L | L       |
| Perm Defl in. | 0.004 (L/20605) | 3'11 15/16" | 0.257 (L/360) | 0.020 (2%)  | D          | Uniform |
| LL Defl inch  | 0.010 (L/9653)  | 3'11 15/16" | 0.257 (L/360) | 0.040 (4%)  | L          | L       |
| TL Defl inch  | 0.014 (L/6574)  | 3'11 15/16" | 0.385 (L/240) | 0.040 (4%)  | 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 flange braced at bearings.
- 5 Bottom flange braced at bearings.



September 17, 2018

| ID | Load Type     | Location        | Trib Width  | Side | Dead   | Live   | Snow  | Wind  | Comments |
|----|---------------|-----------------|-------------|------|--------|--------|-------|-------|----------|
| 1  | Tie-In        | 0-0-0 to 8-1-12 | (Span)0-4-4 | Top  | 15 PSF | 40 PSF | 0 PSF | 0 PSF |          |
| 2  | Tie-In        | 0-0-0 to 8-1-12 | (Span)1-3-0 | Top  | 15 PSF | 40 PSF | 0 PSF | 0 PSF |          |
| 3  | Part. Uniform | 0-0-1 to 8-1-12 |             | Top  | 3 PLF  | 0 PLF  | 0 PLF | 0 PLF |          |

Pass-Thru Framing Squash Block is required at all point loads over bearings

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

**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. Ljoist not to be treated with fire retardant or corrosive chemicals

**chemicals****Handling & Installation**

1. Ljoist flanges must not be cut or drilled
2. 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
3. Damaged Ljoists must not be used
4. Design assumes top flange to be laterally restrained by attached sheathing or as specified in engineering notes.

5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. Web stiffeners for point load as shown Minimum point load bearing length= 3.5 inches
7. For flat roofs pending

**Manufacturer Info**

Nascor by Kott

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

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.

This design





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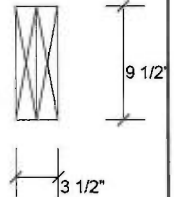
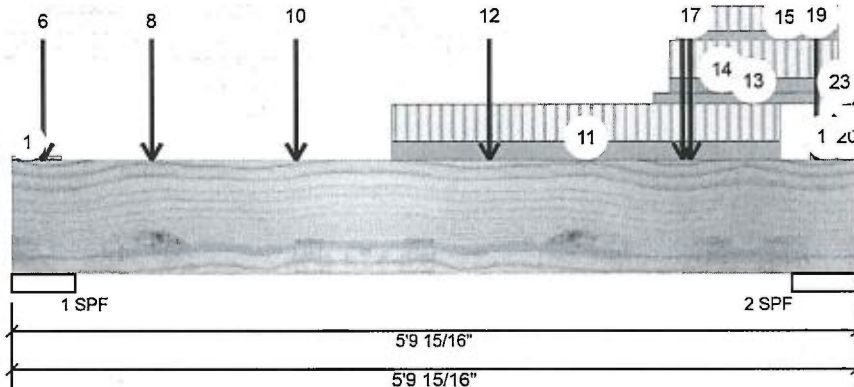
 Client:  
 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 Project #:

Page 1 of 2

**F6-B 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   | 2972 | 1328 | 0    | 0    |
| 2   | 2832 | 1293 | 0    | 0    |

**Bearings and Factored Reactions**

| Bearing | Length | Cap. React D/L lb | Total Ld. Case | Ld. Comb.  |
|---------|--------|-------------------|----------------|------------|
| 1 - SPF | 5.250" | 54% 1661 / 4457   | 6118 L         | 1.25D+1.5L |
| 2 - SPF | 5.313" | 51% 1617 / 4248   | 5865 L         | 1.25D+1.5L |

**Analysis Results**

| Analysis      | Actual         | Location   | Allowed       | Capacity    | Comb.      | Case    |
|---------------|----------------|------------|---------------|-------------|------------|---------|
| Moment        | 4370 ft-lb     | 3'3 9/16"  | 22724 ft-lb   | 0.192 (19%) | 1.25D+1.5L | L       |
| Unbraced      | 4370 ft-lb     | 3'3 9/16"  | 22724 ft-lb   | 0.192 (19%) | 1.25D+1.5L | L       |
| Shear         | 3980 lb        | 4'7 7/8"   | 9277 lb       | 0.429 (43%) | 1.25D+1.5L | L       |
| Perm Defl in. | 0.012 (L/5023) | 3'1 1/2"   | 0.169 (L/360) | 0.070 (7%)  | D          | Uniform |
| LL Defl inch  | 0.027 (L/2255) | 3'1 11/16" | 0.169 (L/360) | 0.160 (16%) | L          | L       |
| TL Defl inch  | 0.039 (L/1556) | 3'1 5/8"   | 0.254 (L/240) | 0.150 (15%) | 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.



September 17, 2018

| ID | Load Type | Location       | Trib Width  | Side | Dead   | Live    | Snow  | Wind  | Comments         |
|----|-----------|----------------|-------------|------|--------|---------|-------|-------|------------------|
| 1  | Tie-In    | 0-0-0 to 0-4-2 | (Span)1-1-0 | Top  | 15 PSF | 40 PSF  | 0 PSF | 0 PSF |                  |
| 2  | Point     | 0-2-10         |             | Top  | 19 lb  | 49 lb   | 0 lb  | 0 lb  | J4               |
| 3  | Point     | 0-2-10         |             | Top  | 16 lb  | 0 lb    | 0 lb  | 0 lb  | Wall Self Weight |
| 4  | Point     | 0-2-10         |             | Top  | 660 lb | 1557 lb | 0 lb  | 0 lb  | BM6 BM6          |
| 5  | Point     | 0-2-10         |             | Top  | 25 lb  | 68 lb   | 0 lb  | 0 lb  | J4               |

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

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.

This design





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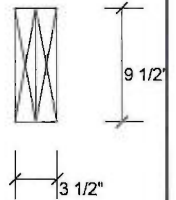
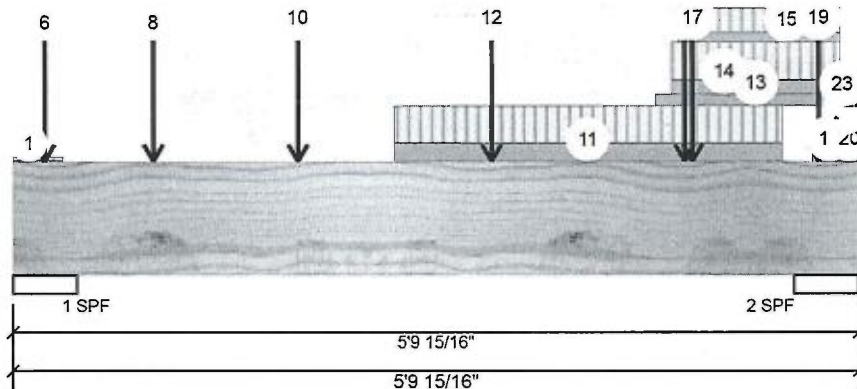
 Client:  
 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 Project #:

Page 2 of 2

F6-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         |
|----|---------------|-----------------|------------|-----------|---------|---------|-------|-------|------------------|
| 6  | Point         | 0-2-10          |            | Top       | 22 lb   | 0 lb    | 0 lb  | 0 lb  | Wall Self Weight |
| 7  | Point         | 0-11-9          |            | Far Face  | 99 lb   | 211 lb  | 0 lb  | 0 lb  | J4               |
| 8  | Point         | 0-11-9          |            | Near Face | 59 lb   | 158 lb  | 0 lb  | 0 lb  | J3               |
| 9  | Point         | 1-11-9          |            | Far Face  | 150 lb  | 313 lb  | 0 lb  | 0 lb  | J4               |
| 10 | Point         | 1-11-9          |            | Near Face | 88 lb   | 235 lb  | 0 lb  | 0 lb  | J3               |
| 11 | Part. Uniform | 2-7-9 to 5-3-9  |            | Far Face  | 130 PLF | 268 PLF | 0 PLF | 0 PLF |                  |
| 12 | Point         | 3-3-9           |            | Near Face | 101 lb  | 268 lb  | 0 lb  | 0 lb  | J3               |
| 13 | Part. Uniform | 4-5-3 to 5-8-6  |            | Top       | 82 PLF  | 0 PLF   | 0 PLF | 0 PLF | Wall Self Weight |
| 14 | Part. Uniform | 4-6-9 to 5-8-6  |            | Top       | 102 PLF | 272 PLF | 0 PLF | 0 PLF | J4               |
| 15 | Part. Uniform | 4-7-1 to 5-8-6  |            | Top       | 66 PLF  | 176 PLF | 0 PLF | 0 PLF | J3               |
| 16 | Point         | 4-7-9           |            | Near Face | 85 lb   | 227 lb  | 0 lb  | 0 lb  | J3               |
| 17 | Point         | 4-8-4           |            | Top       | 531 lb  | 1300 lb | 0 lb  | 0 lb  | BM6 BM6          |
| 18 | Part. Uniform | 5-6-1 to 5-8-6  |            | Top       | 44 PLF  | 118 PLF | 0 PLF | 0 PLF | J3               |
| 19 | Point         | 5-6-10          |            | Near Face | 51 lb   | 128 lb  | 0 lb  | 0 lb  | F12              |
| 20 | Part. Uniform | 5-8-6 to 5-9-15 |            | Top       | 51 PLF  | 136 PLF | 0 PLF | 0 PLF | J4               |
| 21 | Part. Uniform | 5-8-6 to 5-9-15 |            | Top       | 22 PLF  | 59 PLF  | 0 PLF | 0 PLF | J3               |
| 22 | Part. Uniform | 5-8-6 to 5-9-15 |            | Top       | 33 PLF  | 88 PLF  | 0 PLF | 0 PLF | J3               |
| 23 | Part. Uniform | 5-8-6 to 5-9-15 |            | Top       | 41 PLF  | 0 PLF   | 0 PLF | 0 PLF | Wall Self Weight |
|    | Self Weight   |                 |            |           | 8 PLF   |         |       |       |                  |

Pass-Thru Framing Squash Block is required at all point loads over bearings

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

## 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

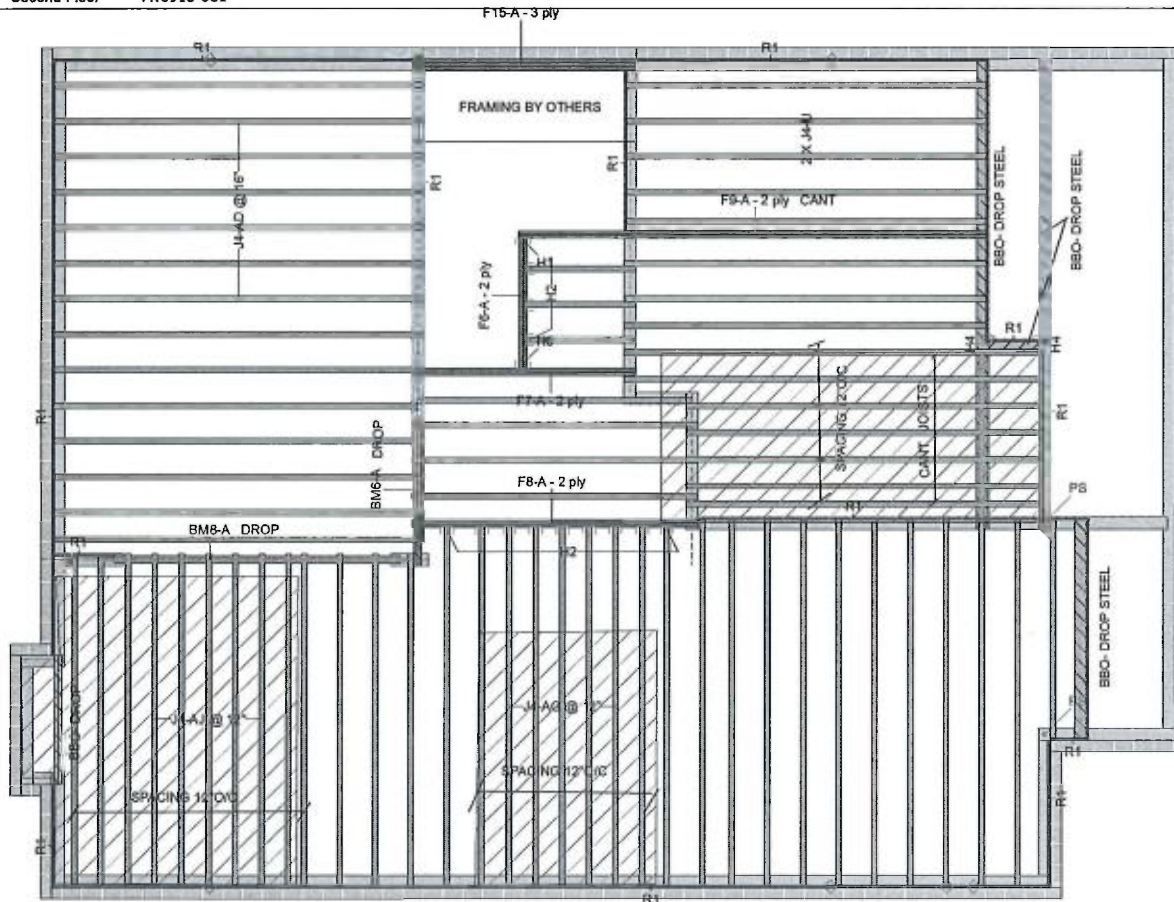
This design is valid until 7/10/2021

## Manufacturer Info

 Forex  
 APA: PR-L318

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

**NASCOR**

1. CBC 2012 O.Reg 332/12 as amended
2. Nascor CCMC - 13535-R
3. LVL CCMC - 12804-R
4. CANCSA-086-09
5. CCMC - 12787-R APA PR-L310(C)

JOISTS SPACING 16\"/>

## Architectural Drawing Info

JARDIN DESIGN GROUP  
64 JARDIN DR, SUITE 3A  
VAUGHAN, ON L4K 3P3

Project # 18-24  
Model: Millwood 1 EL-1  
Date: AUGUST 09 2018

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.



September 17, 2018

## Second Floor

## LVL/LSL (Flush)

| Label | Description           | Width | Depth | Qty | Piles | Pcs | Length |
|-------|-----------------------|-------|-------|-----|-------|-----|--------|
| F9    | Forex 2.0E-3000Fb LVL | 1.75  | 9.5   | 1   | 2     | 2   | 18-0-0 |
| F8    | Forex 2.0E-3000Fb LVL | 1.75  | 9.5   | 1   | 2     | 2   | 12-0-0 |
| F16   | Forex 2.0E-3000Fb LVL | 1.75  | 9.5   | 1   | 3     | 3   | 10-0-0 |
| F7    | Forex 2.0E-3000Fb LVL | 1.75  | 9.5   | 1   | 2     | 2   | 10-0-0 |
| F8    | Forex 2.0E-3000Fb LVL | 1.75  | 9.5   | 1   | 2     | 2   | 6-0-0  |

## LVL/LSL (Dropped)

| Label | Description           | Width | Depth | Qty | Piles | Pcs | Length |
|-------|-----------------------|-------|-------|-----|-------|-----|--------|
| BM8   | Forex 2.0E-3000Fb LVL | 1.75  | 9.5   | 1   | 2     | 2   | 12-0-0 |
| BM6   | Forex 2.0E-3000Fb LVL | 1.75  | 9.5   | 1   | 2     | 2   | 6-0-0  |

## Joist (Flush)

| Label | Description | Width | Depth | Qty | Piles | Pcs | Length |
|-------|-------------|-------|-------|-----|-------|-----|--------|
| J5    | NJH         | 2.5   | 9.5   |     |       | 2   | 16-0-0 |
| J4    | NJH         | 2.5   | 9.5   |     |       | 59  | 14-0-0 |
| J3    | NJH         | 2.5   | 9.5   |     |       | 4   | 12-0-0 |
| J2    | NJH         | 2.5   | 9.5   |     |       | 1   | 10-0-0 |
| J1    | NJH         | 2.5   | 9.5   |     |       | 3   | 6-0-0  |

## Rim Board

| Label | Description                       | Width | Depth | Qty | Piles | Pcs | Length |
|-------|-----------------------------------|-------|-------|-----|-------|-----|--------|
| R1    | Norbord Rimboard Plus 1.125 X 9.5 | 1.125 | 9.5   |     |       | 14  | 12     |

## Blocking

| Label | Description | Width | Depth | Qty | Piles | Pcs    | Length |
|-------|-------------|-------|-------|-----|-------|--------|--------|
| BLK1  | NJH         | 2.5   | 9.5   |     |       | Varies | 17-0-0 |

## Hanger

| Label | Pcs | Description    | Skew | Slope | fasteners | fasteners    |
|-------|-----|----------------|------|-------|-----------|--------------|
| H1    | 1   | HUC410 (Min)   |      |       | 14 16d    | 6 10d        |
| H2    | 12  | LF259          |      |       | 10 10d    | 1 #8x1 1/4WS |
| H4    | 2   | Unknown Hanger |      |       |           |              |
| H5    | 1   | HGUS410        |      |       | 48 16d    | 16 16d       |

## NOTES:

1. Framers to verify dimensions on the architectural drawings.
2. Double joist only require filler/backer ply when supporting another member using a face-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.

## Legend

|  |  |
|--|--|
| PS   | Point Load Support                         |
| ◇  | Load from Above                            |
| Wall                                       | Wall                                       |
| Norbord Rimboard Plus 1.125 X 9.5          | Norbord Rimboard Plus 1.125 X 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 9.5 (Dropped) | Forex 2.0E-3000Fb LVL 1.75 X 9.5 (Dropped) |
| 1.75 X 9.5 (Dropped)                       | 1.75 X 9.5 (Dropped)                       |
| 5.25 X 10.25 (Dropped)                     | 5.25 X 10.25 (Dropped)                     |

**NASCOR**

Layout Name

MILLWOOD 1 EL-1-2 OPT 4BEDRM

Design Method

LSD

Description

GREENPARK HOMES

MINNSALE HOME

CORP, BRAMPTON, ON

Created

June 26, 2018

Builder

Sales Rep

Designer

SB

Shipping

Project

Builder's Project

Kott Lumber Company

14 Anderson Blvd

Stouffville, Ontario

Canada

L4A 7X4

905-642-4400

Second Floor

Design Method

LSD

Building Code

NBC 2010 / OBC

2012

Floor

Loads

Live

40

Dead

15

Deflection Joist

LL Span 1/

480

TL Span 1/

360

TL Cant 2/

480

Deflection Girder

LL Span 1/

360

TL Span 1/

240

LL Cant 2/

480

TL Cant 2/

360

Decking

Deck

OSB

Thickness

5/8"

Fastener

Nailed &amp; Glued

Vibration

Ceiling:

Gypsum 1/2"

**KOTT**





isDesign™

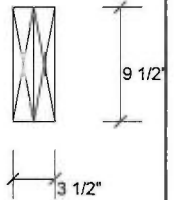
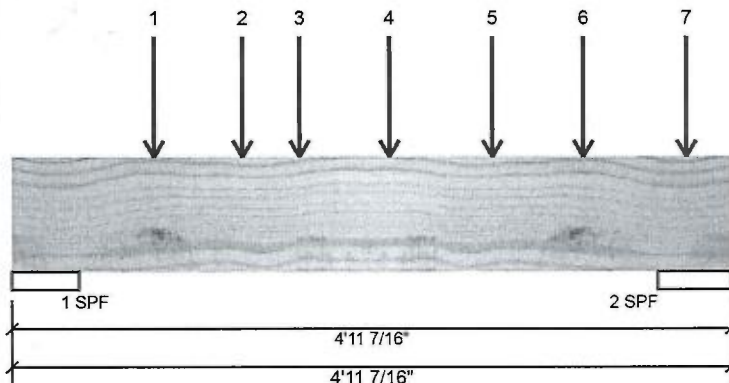
 Client:  
 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 Project #:

Page 1 of 2

**BM6-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   | 1557 | 660  | 0    | 0    |
| 2   | 1300 | 531  | 0    | 0    |

**Bearings and Factored Reactions**

| Bearing | Length | Cap. React D/L lb | Total      | Ld. Case | Ld. Comb.  |
|---------|--------|-------------------|------------|----------|------------|
| 1 - SPF | 5.500" | 27%               | 825 / 2335 | 3160 L   | 1.25D+1.5L |
| 2 - SPF | 6.094" | 20%               | 664 / 1950 | 2614 L   | 1.25D+1.5L |

**Analysis Results**

| Analysis      | Actual         | Location    | Allowed       | Capacity    | Comb.      | Case    |
|---------------|----------------|-------------|---------------|-------------|------------|---------|
| Moment        | 3514 ft-lb     | 1'11 11/16" | 22724 ft-lb   | 0.155 (15%) | 1.25D+1.5L | L       |
| Unbraced      | 3514 ft-lb     | 1'11 11/16" | 22724 ft-lb   | 0.155 (15%) | 1.25D+1.5L | L       |
| Shear         | 3040 lb        | 1'2 1/4"    | 9277 lb       | 0.328 (33%) | 1.25D+1.5L | L       |
| Perm Defl in. | 0.007 (L/7491) | 2'2 1/16"   | 0.137 (L/360) | 0.050 (5%)  | D          | Uniform |
| LL Defl inch  | 0.016 (L/3120) | 2'2 5/16"   | 0.137 (L/360) | 0.120 (12%) | L          | L       |
| TL Defl inch  | 0.022 (L/2203) | 2'2 3/16"   | 0.205 (L/240) | 0.110 (11%) | 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.



September 17, 2018

| ID | Load Type | Location | Trib Width | Side | Dead   | Live    | Snow | Wind | Comments |
|----|-----------|----------|------------|------|--------|---------|------|------|----------|
| 1  | Point     | 0-11-11  |            | Top  | 77 lb  | 206 lb  | 0 lb | 0 lb | J4       |
| 2  | Point     | 1-7-0    |            | Top  | 574 lb | 1316 lb | 0 lb | 0 lb | F8       |
| 3  | Point     | 1-11-11  |            | Top  | 117 lb | 311 lb  | 0 lb | 0 lb | J4       |
| 4  | Point     | 2-7-3    |            | Top  | 90 lb  | 240 lb  | 0 lb | 0 lb | J3       |
| 5  | Point     | 3-3-11   |            | Top  | 134 lb | 356 lb  | 0 lb | 0 lb | J4       |

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 & 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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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.

This design is v



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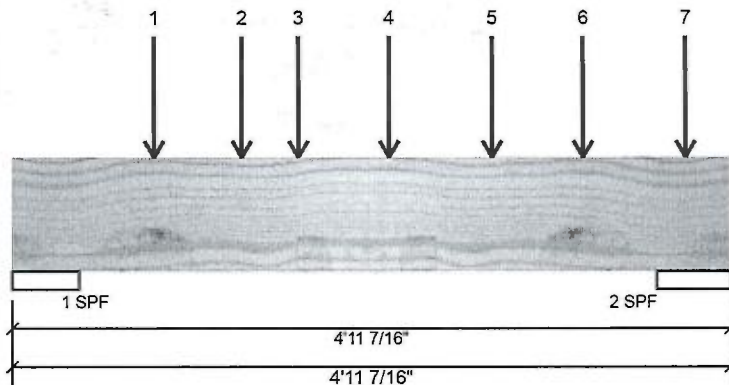
Client:  
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Date: 9/11/2018  
Designer: S B  
Job Name: MILLWOOD 1 EL-1  
Project #:

Page 2 of 2

**BM6-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 |
|----|-------------|----------|------------|------|--------|--------|------|------|----------|
| 6  | Point       | 3-11-3   |            | Top  | 102 lb | 272 lb | 0 lb | 0 lb | J3       |
| 7  | Point       | 4-7-11   |            | Top  | 59 lb  | 156 lb | 0 lb | 0 lb | J4       |
|    | Self Weight |          |            |      | 8 PLF  |        |      |      |          |

Pass-Thru Framing Squash Block is required at all point loads over bearings

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

**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 & 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

**NASCOR**

This design is valid until 7/10/2021





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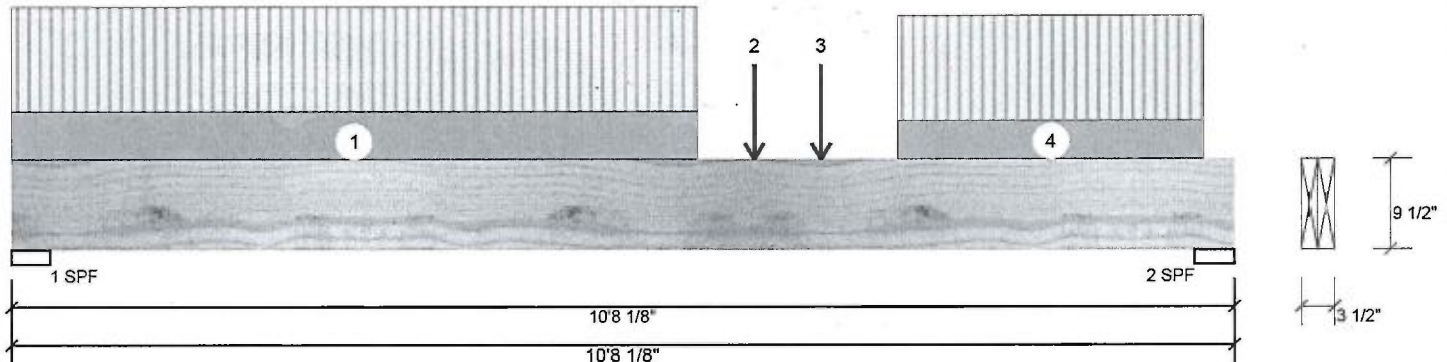
 Client:  
 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 Project #:

Page 1 of 1

**BM8-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)    | Brg | Live | Dead | Snow | Wind |
| Plies: 2                | Design Method: LSD                  | 1   | 1325 | 636  | 0    | 0    |
| Moisture Condition: Dry | Building Code: NBCC 2010 / OBC 2012 | 2   | 1258 | 557  | 0    | 0    |
| 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            |                                     |     |      |      |      |      |

## Bearings and Factored Reactions

| Bearing | Length | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb.  |
|---------|--------|------|--------------|-------|----------|------------|
| 1 - SPF | 4.000" | 32%  | 794 / 1987   | 2782  | L        | 1.25D+1.5L |
| 2 - SPF | 4.188" | 29%  | 696 / 1887   | 2583  | L        | 1.25D+1.5L |

## Analysis Results

| Analysis      | Actual         | Location   | Allowed       | Capacity    | Comb.      | Case    |
|---------------|----------------|------------|---------------|-------------|------------|---------|
| Moment        | 6648 ft-lb     | 5'3 11/16" | 22724 ft-lb   | 0.293 (29%) | 1.25D+1.5L | L       |
| Unbraced      | 6648 ft-lb     | 5'3 11/16" | 20700 ft-lb   | 0.321 (32%) | 1.25D+1.5L | L       |
| Shear         | 2225 lb        | 1' 3/4"    | 9277 lb       | 0.240 (24%) | 1.25D+1.5L | L       |
| Perm Defl in. | 0.060 (L/2024) | 5'3 5/8"   | 0.337 (L/360) | 0.180 (18%) | D          | Uniform |
| LL Defl inch  | 0.129 (L/944)  | 5'4"       | 0.337 (L/360) | 0.380 (38%) | L          | L       |
| TL Defl inch  | 0.189 (L/644)  | 5'3 15/16" | 0.506 (L/240) | 0.370 (37%) | 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.



September 17, 2018

| ID | Load Type     | Location        | Trib Width | Side | Dead    | Live    | Snow  | Wind  | Comments  |
|----|---------------|-----------------|------------|------|---------|---------|-------|-------|---|
| 1  | Part. Uniform | 0-0-0 to 6-0-0  |            | Top  | 114 PLF | 248 PLF | 0 PLF | 0 PLF |   |
| 2  | Point         | 6-6-0           |            | Top  | 90 lb   | 196 lb  | 0 lb  | 0 lb  | J4  |
| 3  | Point         | 7-1-0           |            | Top  | 89 lb   | 238 lb  | 0 lb  | 0 lb  | J4  |
| 4  | Part. Uniform | 7-9-0 to 10-5-0 |            | Top  | 93 PLF  | 248 PLF | 0 PLF | 0 PLF | Pass Thru Framing Squash Block is required at all point loads over bearings |
|    | Self Weight   |                 |            |      | 8 PLF   |         |       |       |   |

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

## 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

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This design is





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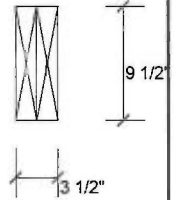
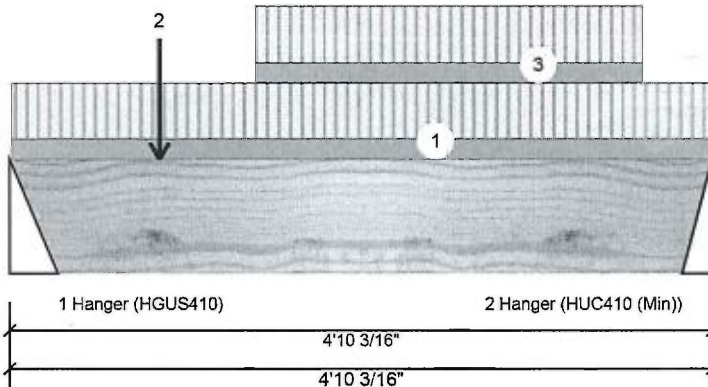
 Client:  
 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 Project #:

Page 1 of 1

**F6-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)  |
| Piles:              | 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   | 341  | 146  | 0    | 0    |
| 2   | 320  | 137  | 0    | 0    |

**Bearings and Factored Reactions**

| Bearing    | Length | Cap. | React D/L lb | Total | Ld. Case | Ld. Comb.  |
|------------|--------|------|--------------|-------|----------|------------|
| 1 - Hanger | 4.000" | 7%   | 183 / 511    | 694   | L        | 1.25D+1.5L |
| 2 - Hanger | 2.500" | 10%  | 171 / 480    | 651   | L        | 1.25D+1.5L |

**Analysis Results**

| Analysis      | Actual          | Location   | Allowed       | Capacity   | Comb.      | Case    |
|---------------|-----------------|------------|---------------|------------|------------|---------|
| Moment        | 743 ft-lb       | 2'5 13/16" | 22724 ft-lb   | 0.033 (3%) | 1.25D+1.5L | L       |
| Unbraced      | 743 ft-lb       | 2'5 13/16" | 22724 ft-lb   | 0.033 (3%) | 1.25D+1.5L | L       |
| Shear         | 597 lb          | 1' 3/4"    | 9277 lb       | 0.064 (6%) | 1.25D+1.5L | L       |
| Perm Defi in. | 0.002 (L/32529) | 2'5 13/16" | 0.148 (L/360) | 0.010 (1%) | D          | Uniform |
| LL Defi inch  | 0.004 (L/13776) | 2'5 13/16" | 0.148 (L/360) | 0.030 (3%) | L          | L       |
| TL Defi inch  | 0.005 (L/9678)  | 2'5 13/16" | 0.222 (L/240) | 0.020 (2%) | 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.

| ID | Load Type     | Location        | Trib Width   | Side      | Dead   | Live   | Snow  | Wind  | Comments  |
|----|---------------|-----------------|--------------|-----------|--------|--------|-------|-------|---|
| 1  | Tie-In        | 0-0-3 to 4-10-3 | (Span)3-8-14 | Top       | 15 PSF | 40 PSF | 0 PSF | 0 PSF |   |
| 2  | Point         | 1-0-7           |              | Near Face | 36 lb  | 96 lb  | 0 lb  | 0 PLF | Pass Thru Framing Squash Block is required at all point loads over bearings               |
| 3  | Part. Uniform | 1-8-7 to 4-4-7  |              | Near Face | 28 PLF | 76 PLF | 0 PLF | 0 PLF |   |
|    | Self Weight   |                 |              |           | 8 PLF  |        |       |       | Refer to Multiple Member Connection Detail for ply to ply nailing or bolting requirements |



September 17, 2018

**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 & 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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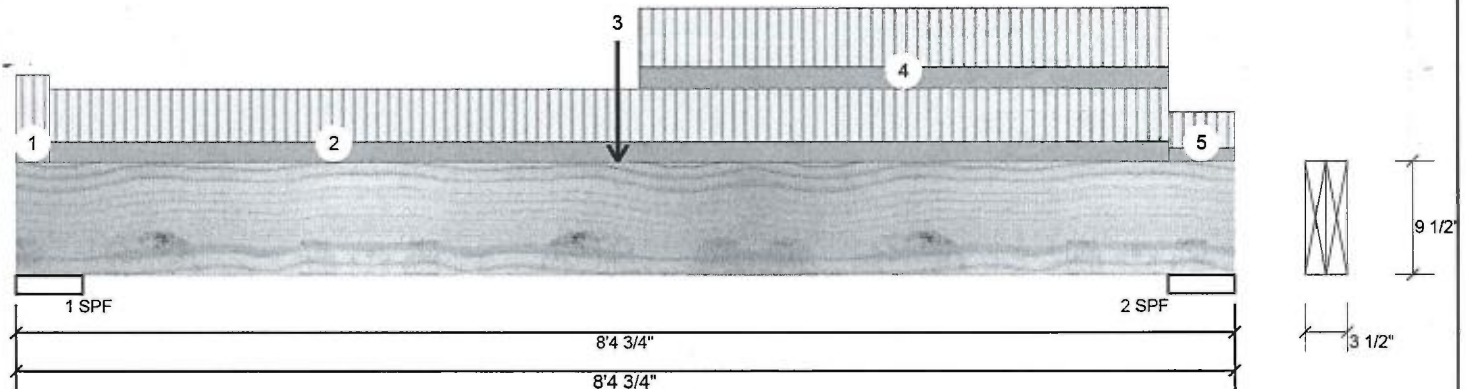
 Client:  
 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 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

## 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   | 284  | 148  | 0    | 0    |
| 2   | 320  | 161  | 0    | 0    |

## Bearings and Factored Reactions

| Bearing | Length | Cap. React D/L lb | Total Ld. Case | Ld. Comb.        |
|---------|--------|-------------------|----------------|------------------|
| 1 - SPF | 5.500" | 5%                | 185 / 427      | 611 L 1.25D+1.5L |
| 2 - SPF | 5.500" | 6%                | 201 / 480      | 681 L 1.25D+1.5L |

## Analysis Results

| Analysis      | Actual          | Location   | Allowed       | Capacity   | Comb.      | Case    |
|---------------|-----------------|------------|---------------|------------|------------|---------|
| Moment        | 1849 ft-lb      | 4'1 13/16" | 22724 ft-lb   | 0.081 (8%) | 1.25D+1.5L | L       |
| Unbraced      | 1849 ft-lb      | 4'1 13/16" | 21582 ft-lb   | 0.086 (9%) | 1.25D+1.5L | L       |
| Shear         | 592 lb          | 7'2 1/2"   | 9277 lb       | 0.064 (6%) | 1.25D+1.5L | L       |
| Perm Defl in. | 0.009 (L/10068) | 4'1 13/16" | 0.253 (L/360) | 0.040 (4%) | D          | Uniform |
| LL Defl inch  | 0.019 (L/4865)  | 4'1 13/16" | 0.253 (L/360) | 0.070 (7%) | L          | L       |
| TL Defl inch  | 0.028 (L/3280)  | 4'1 13/16" | 0.380 (L/240) | 0.070 (7%) | 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.



September 17, 2018

| ID | Load Type   | Location         | Trib Width   | Side     | Dead   | Live   | Snow  | Wind  | Comments  |
|----|-------------|------------------|--------------|----------|--------|--------|-------|-------|---|
| 1  | Tie-In      | 0-0-0 to 0-2-12  | (Span)1-3-5  | Top      | 15 PSF | 40 PSF | 0 PSF | 0 PSF |   |
| 2  | Tie-In      | 0-2-12 to 7-11-4 | (Span)1-0-13 | Top      | 15 PSF | 40 PSF | 0 PSF | 0 PSF |   |
| 3  | Point       | 4-1-13           |              | Far Face | 146 lb | 341 lb | 0 lb  | 0 PSF | Pass-Through Framing Squash Block is required at all point loads over bearings            |
| 4  | Tie-In      | 4-3-9 to 7-11-4  | (Span)1-2-3  | Top      | 15 PSF | 40 PSF | 0 PSF | 0 PSF |   |
| 5  | Tie-In      | 7-11-4 to 8-4-12 | (Span)0-8-11 | Top      | 15 PSF | 40 PSF | 0 PSF | 0 PSF | Refer to Multiple Member Connection Detail for ply to ply nailing or bolting requirements |
|    | 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

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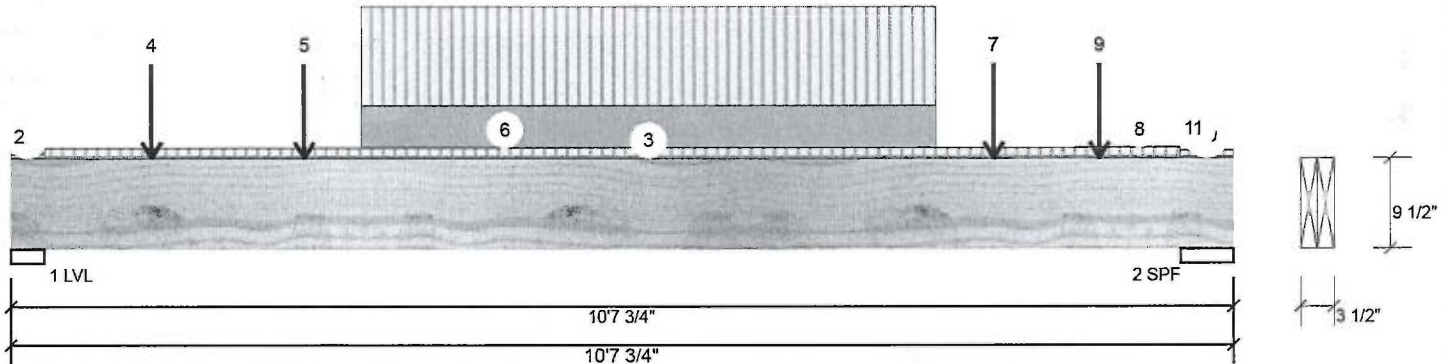
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 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 Project #:

Page 1 of 2

F8-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   | 1316 | 574  | 0    | 0    |
| 2   | 1394 | 616  | 0    | 0    |

## Bearings and Factored Reactions

| Bearing | Length | Cap. React D/L lb | Total Ld. Case | Ld. Comb.         |
|---------|--------|-------------------|----------------|-------------------|
| 1 - LVL | 3.500" | 30%               | 718 / 1974     | 2692 L 1.25D+1.5L |
| 2 - SPF | 5.500" | 24%               | 770 / 2091     | 2861 L 1.25D+1.5L |

## Analysis Results

| Analysis      | Actual         | Location   | Allowed       | Capacity    | Comb.      | Case    |
|---------------|----------------|------------|---------------|-------------|------------|---------|
| Moment        | 7318 ft-lb     | 5'3 1/16"  | 22724 ft-lb   | 0.322 (32%) | 1.25D+1.5L | L       |
| Unbraced      | 7318 ft-lb     | 5'3 1/16"  | 20741 ft-lb   | 0.353 (35%) | 1.25D+1.5L | L       |
| Shear         | 2804 lb        | 9'5 1/2"   | 9277 lb       | 0.302 (30%) | 1.25D+1.5L | L       |
| Perm Defl in. | 0.062 (L/1924) | 5'3"       | 0.334 (L/360) | 0.190 (19%) | D          | Uniform |
| LL Defl inch  | 0.141 (L/852)  | 5'2 15/16" | 0.334 (L/360) | 0.420 (42%) | L          | L       |
| TL Defl inch  | 0.204 (L/590)  | 5'3"       | 0.501 (L/240) | 0.410 (41%) | 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.



September 17, 2018

| ID | Load Type     | Location         | Trib Width   | Side      | Dead    | Live    | Snow  | Wind  | Comments |
|----|---------------|------------------|--------------|-----------|---------|---------|-------|-------|----------|
| 1  | Tie-In        | 0-0-0 to 0-3-8   | (Span)0-4-11 | Top       | 15 PSF  | 40 PSF  | 0 PSF | 0 PSF |          |
| 2  | Tie-In        | 0-0-0 to 0-3-8   | (Span)0-7-5  | Top       | 15 PSF  | 40 PSF  | 0 PSF | 0 PSF |          |
| 3  | Tie-In        | 0-3-8 to 10-2-4  | (Span)1-0-3  | Top       | 15 PSF  | 40 PSF  | 0 PSF | 0 PSF |          |
| 4  | Point         | 1-2-12           |              | Near Face | 122 lb  | 326 lb  | 0 lb  | 0 lb  | J4       |
| 5  | Point         | 2-6-12           |              | Near Face | 125 lb  | 307 lb  | 0 lb  | 0 lb  | J4       |
| 6  | Part. Uniform | 3-0-12 to 8-0-12 |              | Near Face | 112 PLF | 263 PLF | 0 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

- 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 supports 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

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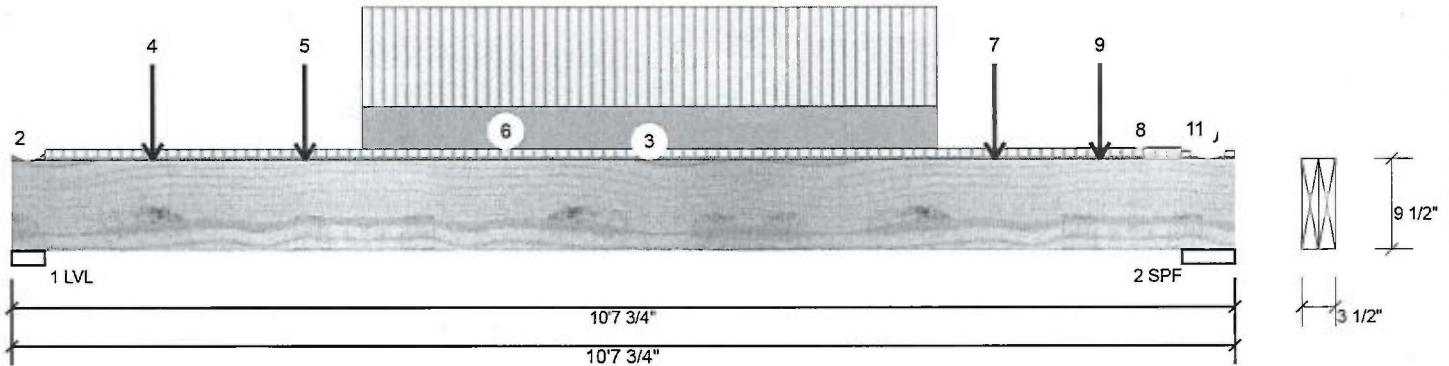
Client:  
Project:  
Address:

Date: 9/11/2018  
Designer: S B  
Job Name: MILLWOOD 1 EL-1  
Project #:

Page 2 of 2

F8-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         | 8-6-12            |              | Near Face | 108 lb | 252 lb | 0 lb  | 0 lb  | J4       |
| 8  | Part. Uniform | 9-3-4 to 10-2-4   |              | Top       | 2 PLF  | 0 PLF  | 0 PLF | 0 PLF |          |
| 9  | Point         | 9-5-12            |              | Near Face | 111 lb | 296 lb | 0 lb  | 0 lb  | J4       |
| 10 | Tie-In        | 10-2-4 to 10-7-12 | (Span)0-8-11 | Top       | 15 PSF | 40 PSF | 0 PSF | 0 PSF |          |
| 11 | Part. Uniform | 10-2-4 to 10-7-12 |              | Top       | 2 PLF  | 0 PLF  | 0 PLF | 0 PLF |          |
|    | Self Weight   |                   |              |           | 8 PLF  |        |       |       |          |

Pass-Thru Framing Squash Block is required at all point loads over bearings

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

## 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

This design is valid until 7/10/2021

## Manufacturer Info

Forex  
APA: PR-L318

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

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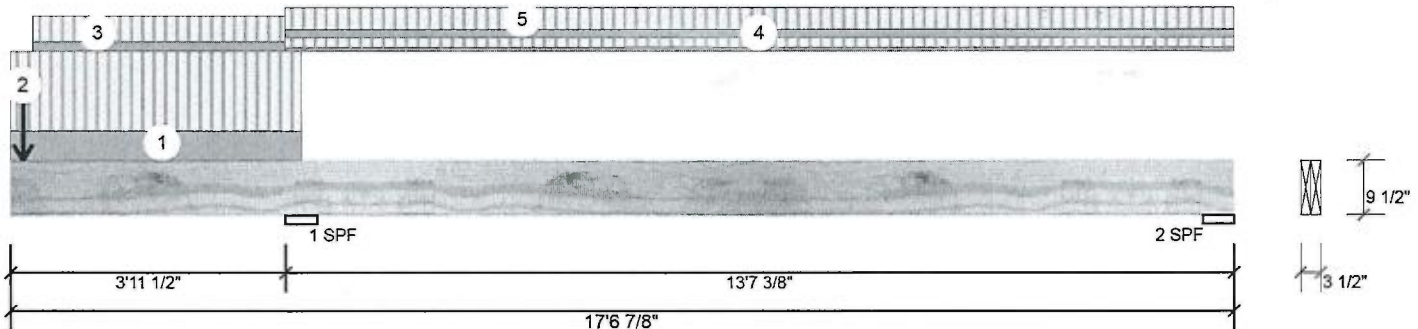
 Client:  
 Project:  
 Address:

 Date: 9/11/2018  
 Designer: S B  
 Job Name: MILLWOOD 1 EL-1  
 Project #:

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

Level: Second Floor



## Member Information

## Unfactored Reactions UNPATTERNED Ib (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   | 1117 | 527  | 0    | 0    |
| 2   | 63   | 67   | 0    | 0    |

## Bearings and Factored Reactions

| Bearing | Length | Cap. | React D/L lb | Total  | Ld. Case | Ld. Comb.  |
|---------|--------|------|--------------|--------|----------|------------|
| 1 - SPF | 5.500" | 20%  | 658 / 1675   | 2334   | LL       | 1.25D+1.5L |
| 2 - SPF | 5.250" | 4%   | 83 / 327     | 410    | L        | 1.25D+1.5L |
|         |        |      |              | (-154) |          |            |

## Analysis Results

| Analysis      | Actual          | Location   | Allowed        | Capacity    | Comb.      | Case           |
|---------------|-----------------|------------|----------------|-------------|------------|----------------|
| Neg Moment    | -4110 ft-lb     | 4'2 1/4"   | 22724 ft-lb    | 0.181 (18%) | 1.25D+1.5L | L <sub>-</sub> |
| Unbraced      | -4110 ft-lb     | 4'2 1/4"   | 19381 ft-lb    | 0.212 (21%) | 1.25D+1.5L | L <sub>-</sub> |
| Pos Moment    | 1022 ft-lb      | 11'10 3/8" | 21360 ft-lb    | 0.048 (5%)  | 1.25D+1.5L | L <sub>+</sub> |
| Unbraced      | 1022 ft-lb      | 11'10 3/8" | 19495 ft-lb    | 0.052 (5%)  | 1.25D+1.5L | L <sub>+</sub> |
| Shear         | 1325 lb         | 3'2"       | 9277 lb        | 0.143 (14%) | 1.25D+1.5L | L <sub>-</sub> |
| Perm Defl in. | 0.009 (L/17184) | 7'5 13/16" | 0.434 (L/360)  | 0.020 (2%)  | D          | Uniform        |
| LL Defl inch  | 0.075 (L/2072)  | 9'8 1/4"   | 0.434 (L/360)  | 0.170 (17%) | L          | L <sub>-</sub> |
| TL Defl inch  | 0.083 (L/1887)  | 9'4 1/4"   | 0.651 (L/240)  | 0.130 (13%) | D+L        | L <sub>-</sub> |
| LL Cant       | 0.160 (2L/593)  | Lt Cant    | 0.200 (2L/480) | 0.801 (80%) | L          | L <sub>-</sub> |
| TL Cant       | 0.206 (2L/462)  | Lt Cant    | 0.300 (2L/360) | 0.686 (69%) | D+L        | L <sub>-</sub> |

## 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.
- Tie-down connection required at bearing 2 for uplift 154 lb (Combination 0.9D+1.5L, Load Case L<sub>-</sub>).
- Top braced at bearings.
- Bottom braced at bearings.
- Lateral slenderness ratio based on full section width.



September 17, 2018

## 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

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.

This design is

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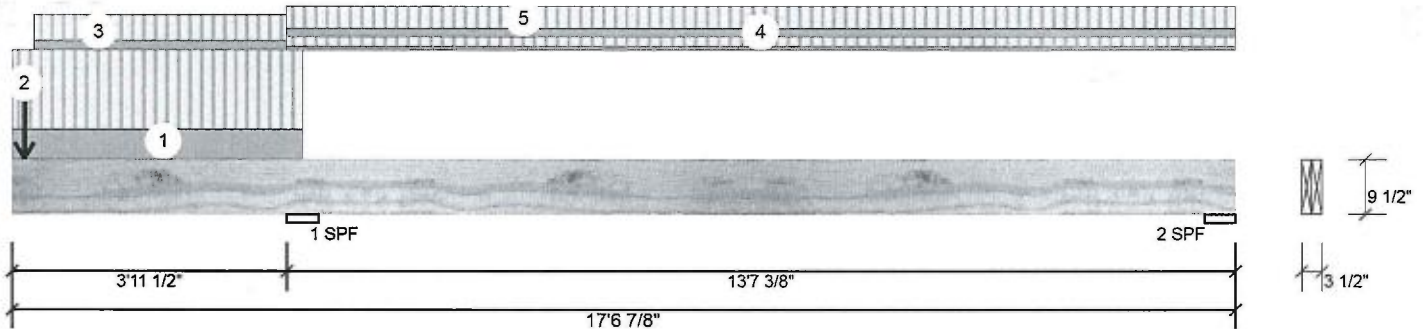
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| ID | Load Type     | Location          | Trib Width  | Side      | Dead   | Live   | Snow  | Wind  | Comments |
|----|---------------|-------------------|-------------|-----------|--------|--------|-------|-------|----------|
| 1  | Part. Uniform | 0-0-0 to 4-2-4    |             | Top       | 30 PLF | 80 PLF | 0 PLF | 0 PLF |          |
| 2  | Point         | 0-2-1             |             | Near Face | 137 lb | 320 lb | 0 lb  | 0 lb  | F6       |
| 3  | Tie-In        | 0-3-13 to 3-11-8  | (Span)1-3-8 | Top       | 15 PSF | 40 PSF | 0 PSF | 0 PSF |          |
| 4  | Tie-In        | 3-11-8 to 17-6-14 | (Span)0-6-0 | Top       | 15 PSF | 40 PSF | 0 PSF | 0 PSF |          |
| 5  | Tie-In        | 3-11-8 to 17-6-14 | (Span)1-1-0 | Top       | 15 PSF | 40 PSF | 0 PSF | 0 PSF |          |
|    | Self Weight   |                   |             |           | 8 PLF  |        |       |       |          |

Pass-Thru Framing Squash Block is required at all point loads over bearings

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

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This design is valid until 7/10/2021