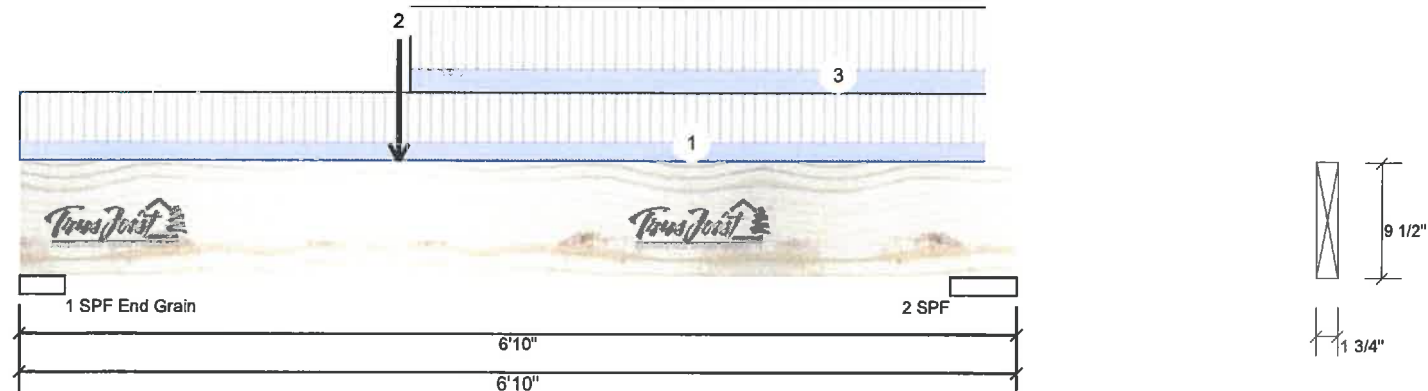


FB11-A	2.0E Microllam LVL	1.750" X 9.500" - PASSED
--------	--------------------	--------------------------

Level: Ground Floor Elev A



### Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / 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 PATTERNED Ib (Uplift)

Brg	Live	Dead	Snow	Wind
1	163	61	0	0
2	191	71	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.750"	4%	76 / 245	321	L	1.25D+1.5L
2 - SPF	5.500"	6%	89 / 286	375	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	608 ft-lb	3' 7/16"	9793 ft-lb	0.062 (6%)	1.25D+1.5L	L
Unbraced	608 ft-lb	3' 7/16"	5991 ft-lb	0.102 (10%)	1.25D+1.5L	L
Shear	274 lb	5' 3/4"	5265 lb	0.052 (5%)	1.25D+1.5L	L
Perm Defl in.	0.004 (L/19094)	3' 3/8"	0.206 (L/360)	0.020 (2%)	D	Uniform
LL Defl inch	0.010 (L/7133)	3' 3/8"	0.206 (L/360)	0.050 (5%)	L	L
TL Defl inch	0.014 (L/5193)	3' 3/8"	0.309 (L/240)	0.050 (5%)	D+L	L

## Design Notes

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

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 6-7-4	0-7-1	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Point	2-7-2		Near Face	30 lb	81 lb	0 lb	0 lb	FB5
3	Tie-In	2-8-0 to 6-7-4	0-8-15	Top	15 PSF	40 PSF	0 PSF	0 PSF	



## 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.

## 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

Weyerhaeuser  
Seattle, WA  
(888) 453-8358  
[www.weyerhaeuser.com/  
woodproducts/](http://www.weyerhaeuser.com/woodproducts/)  
CCMC: 08675-R

Argo Lumber	
-------------	--

This design is valid until 1/8/2023

isDesign

Client: Esquire Homes

Project: Northglen

Address: Bowmanville, Ontario

Date: 4/15/2020

Input by: Scott Sostar

Job Name: 33-1

Project #: Northglen

Page 2 of 10

E20-895 (2 of 10)

FB12-B 2.0E Microllam LVL 1.750" X 9.500" - PASSED

Level: Ground Floor Elev A

1

2

3

1 SPF End Grain

8'11 7/8"

8'11 7/8"

2 SPF

9 1/2"

1 3/4"

Member Information

Type: Girder

Plies: 1

Moisture Condition: Dry

Deflection LL: 360

Deflection TL: 240

Importance: Normal

General Load

Floor Live: 40 PSF

Dead: 15 PSF

Application: Floor (Residential)

Design Method: LSD

Building Code: NBCC 2015 / OBC 2012

Load Sharing: No

Deck: Not Checked

Vibration: Not Checked

Unfactored Reactions PATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind
1	137	51	0	0
2	206	77	0	0

Bearings and Factored Reactions

Bearing	Length	Cap. React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	5.500"	3%	64 / 206	270 L	1.25D+1.5L
2 - SPF	2.375"	16%	96 / 309	406 L	1.25D+1.5L

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	894 ft-lb	5'4 7/8"	9793 ft-lb	0.091 (9%)	1.25D+1.5L	L
Unbraced	894 ft-lb	5'4 7/8"	4383 ft-lb	0.204 (20%)	1.25D+1.5L	L
Shear	333 lb	8' 3/4"	5265 lb	0.063 (6%)	1.25D+1.5L	L
Perm Defl in. (L/11425)	0.009	4'11 3/8"	0.282 (L/360)	0.030 (3%)	D	Uniform
LL Defl inch (L/4267)	0.024	4'11 3/8"	0.282 (L/360)	0.080 (8%)	L	L
TL Defl inch (L/3107)	0.033	4'11 3/8"	0.423 (L/240)	0.080 (8%)	D+L	L

Design Notes

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

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-1-12 to 8-11-14	0-5-1	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Point	5-4-14		Far Face	42 lb	113 lb	0 lb	0 lb	FB5
3	Tie-In	5-5-12 to 8-11-14	0-6-15	Top	15 PSF	40 PSF	0 PSF	0 PSF	

Notes

Calculated Structural Design 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

Weyerhaeuser  
Seattle, WA  
(888) 453-6358  
www.weyerhaeuser.com/  
woodproducts/  
CCMC: 08675-R

Argo Lumber

This design is valid until 1/8/2023

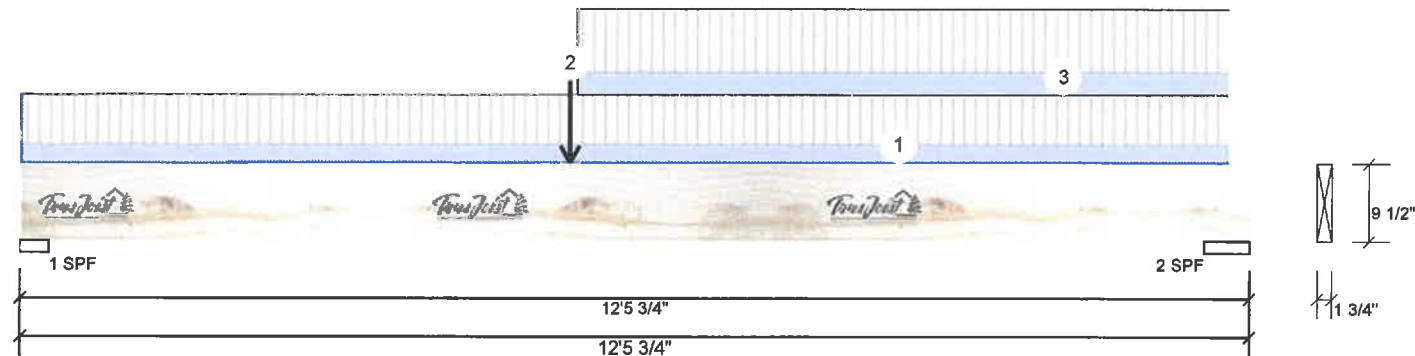
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CERTIFIED COPY  
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PERMIT DRAWINGS

LICENSED PROFESSIONAL ENGINEER  
R. S. LEE  
90243759  
APR 15, 2020  
PROVINCE OF ONTARIO

Version 20.20.002 Powered by iStruct™

CSD

FB13-A 2.0E Microllam LVL 1.750" X 9.500" - PASSED Level: Ground Floor Elev A



### Member Information

Type:	Girder
Plies:	1
Moisture Condition:	Dry
Deflection LL:	360
Deflection TL:	240
Importance:	Normal
General Load	
Floor Live:	40 PSF
Dead:	15 PSF

Application:	Floor (Residential)
Design Method:	LSD
Building Code:	NBCC 2015 / OBC 2012
Load Sharing:	No
Deck:	Not Checked
Vibration:	Not Checked

### Unfactored Reactions PATTERNED Ib (Uplift)

Brg	Live	Dead	Snow	Wind
1	333	124	0	0
2	399	150	0	0

### Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	17%	156 / 499	654	L	1.25D+1.5L
2 - SPF	5.500"	13%	187 / 599	786	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2779 ft-lb	5'6 7/8"	9793 ft-lb	0.284 (28%)	1.25D+1.5L	L
Unbraced	2779 ft-lb	5'6 7/8"	3127 ft-lb	0.889 (89%)	1.25D+1.5L	L
Shear	685 lb	11'3 1/2"	5265 lb	0.130 (13%)	1.25D+1.5L	L
Perm Defl in.	0.052 (L/2720)	6'1 5/16"	0.395 (L/360)	0.130 (13%)	D	Uniform
LL Defl inch	0.140 (L/1017)	6'1 5/16"	0.395 (L/360)	0.350 (35%)	L	L
TL Defl inch	0.192 (L/740)	6'1 5/16"	0.593 (L/240)	0.320 (32%)	D+L	L

### Design Notes

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

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 12-3-0	0-7-1	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Point	5-6-14		Near Face	92 lb	247 lb	0 lb	0 lb	FB6
3	Tie-In	5-7-12 to 12-3-0	0-8-15	Top	15 PSF	40 PSF	0 PSF	0 PSF	



## Notes

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

**Lumber**

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

## chemicals

## Handling & Installation

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

6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 1/8/2023

### Manufacturer Info

Weyerhaeuser  
Seattle, WA  
(888) 453-8358  
[www.weyerhaeuser.com/  
woodproducts/](http://www.weyerhaeuser.com/woodproducts/)  
CCMC: 08675-R

Argo Lumber

isDesign

Client: Esquire Homes

Project: Northglen

Address: Bowmanville, Ontario

Date: 4/15/2020

Input by: Scott Sostar

Job Name: 33-1

Project #: Northglen

Page 4 of 10

E20-895 (4 of 10)

FB7-A 2.0E Microllam LVL 1.750" X 9.500" - PASSED

Level: Ground Floor Elev A

2

4

1

3

1 SPF

2 SPF End Grain

10'5 1/8"

10'5 1/8"

9 1/2"

1 3/4"

Member Information

Type: Girder

Plies: 1

Moisture Condition: Dry

Deflection LL: 360

Deflection TL: 240

Importance: Normal

General Load

Floor Live: 40 PSF

Dead: 15 PSF

Application: Floor (Residential)

Design Method: LSD

Building Code: NBCC 2015 / OBC 2012

Load Sharing: No

Deck: Not Checked

Vibration: Not Checked

Unfactored Reactions PATTERNED lb (Uplift)

Brg	Live	Dead	Snow	Wind
1	310	110	0	0
2	475	171	0	0

Bearings and Factored Reactions

Bearing	Length	Cap. React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	2.375"	24%	137 / 464	601 L	1.25D+1.5L
2 - SPF	3.750"	13%	214 / 713	927 L	1.25D+1.5L

End Grain

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	2631 ft-lb	5'6"	9793 ft-lb	0.269 (27%)	1.25D+1.5L	L
Unbraced	2631 ft-lb	5'6"	3691 ft-lb	0.713 (71%)	1.25D+1.5L	L
Shear	780 lb	9'4 5/8"	5265 lb	0.148 (15%)	1.25D+1.5L	L
Perm Defl in.	0.034 (L/3590)	5'5 11/16"	0.335 (L/360)	0.100 (10%)	D	Uniform
LL Defl inch	0.095 (L/1263)	5'5 11/16"	0.335 (L/360)	0.280 (28%)	L	L
TL Defl inch	0.129 (L/935)	5'5 11/16"	0.502 (L/240)	0.260 (26%)	D+L	L

Design Notes

1 Girders are designed to be supported on the bottom edge only.

2 Top braced at bearings.

3 Bottom braced at bearings.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 5-5-2	0-3-7	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 10-5-2	0-2-9	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Tie-In	5-5-2 to 10-5-2	1-6-14	Top	15 PSF	40 PSF	0 PSF	0 PSF	
4	Point	5-6-0		Far Face	106 lb	319 lb	0 lb	0 lb	FB5

Notes

Calculated Structural Design 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

Weyerhaeuser  
Seattle, WA  
(888) 453-6358  
www.weyerhaeuser.com/  
woodproducts/  
CCMC: 08675-R

Argo Lumber

This design is valid until 1/8/2023

CSD

GRAU DESIGN

2018





isDesign

Client: Esquire Homes

Project: Northglen

Address: Bowmanville, Ontario

Date: 4/15/2020

Input by: Scott Sostar

Job Name: 33-1

Project #: Northglen

Page 6 of 10

E20-895 (6 of 10)

FB8-B 2.0E Microllam LVL 1.750" X 9.500" - PASSED

Level: Ground Floor Elev A

2

1

4

3

5

1 SPF

2 SPF

14'8 3/4"

14'8 3/4"

9 1/2"

1 3/4"

Member Information

Unfactored Reactions PATTERNED lb (Uplift)

Type: Girder

Plies: 1

Moisture Condition: Dry

Deflection LL: 360

Deflection TL: 240

Importance: Normal

General Load

Floor Live: 40 PSF

Dead: 15 PSF

Application: Floor (Residential)

Design Method: LSD

Building Code: NBCC 2015 / OBC 2012

Load Sharing: No

Deck: Not Checked

Vibration: Not Checked

Brg

Live

Dead

Snow

Wind

1

586

202

0

0

2

715

237

0

0

Bearings and Factored Reactions

Bearing

Length

Cap. React D/L lb

Total

Ld. Case

Ld. Comb.

1 - SPF 2.375"

44%

252 / 880

1132

L

1.25D+1.5L

2 - SPF 2.375"

54%

296 / 1073

1369

L

1.25D+1.5L

Analysis Results

Analysis

Actual

Location

Allowed

Capacity

Comb.

Case

Moment

5790 ft-lb

7'7 5/16"

9793 ft-lb

0.591 (59%)

1.25D+1.5L

L

Unbraced

5790 ft-lb

7'7 5/16"

5815 ft-lb

0.996 (100%)

1.25D+1.5L

L

Shear

1353 lb

13'9 5/8"

5265 lb

0.257 (26%)

1.25D+1.5L

L

Perm Defl in.

0.160 (L/1086)

7'5 9/16"

0.482 (L/360)

0.330 (33%)

D

Uniform

LL Defl inch

0.472 (L/367)

7'5 7/8"

0.482 (L/360)

0.980 (98%)

L

L

TL Defl inch

0.632 (L/274)

7'5 13/16"

0.723 (L/240)

0.870 (87%)

D+L

L

Design Notes

1 Girders are designed to be supported on the bottom edge only.

2 Top must be laterally braced at a maximum of 6'4 1/2" o.c.

3 Bottom braced at bearings.

ID

Load Type

Location

Trib Width

Side

Dead

Live

Snow

Wind

Comments

1

Tie-In

0-0-0 to 14-8-12

0-2-9

Top

15 PSF

40 PSF

0 PSF

0 PSF

2

Tie-In

0-0-0 to 5-5-2

0-3-7

Top

15 PSF

40 PSF

0 PSF

0 PSF

3

Tie-In

5-5-2 to 10-5-2

1-6-14

Top

15 PSF

40 PSF

0 PSF

0 PSF

4

Point

5-6-0

Near Face

106 lb

319 lb

0 lb

0 lb

FB5

5

Point

10-9-5

Top

144 lb

480 lb

0 lb

0 lb

PL1

Notes

chemicals

Handling & Installation

Lumber

6. For flat roofs provide proper drainage to prevent ponding

Manufacturer Info

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

Weyerhaeuser  
Seattle, WA  
(888) 453-8358  
www.weyerhaeuser.com/  
woodproducts/  
CCMC: 08675-R

Argo Lumber

This design is valid until 1/8/2023

LICENSED PROFESSIONAL ENGINEER

R. S. LEE

90243759

APR 15, 2020

PROVINCE OF ONTARIO

MUNICIPALITY OF CLARINGTON

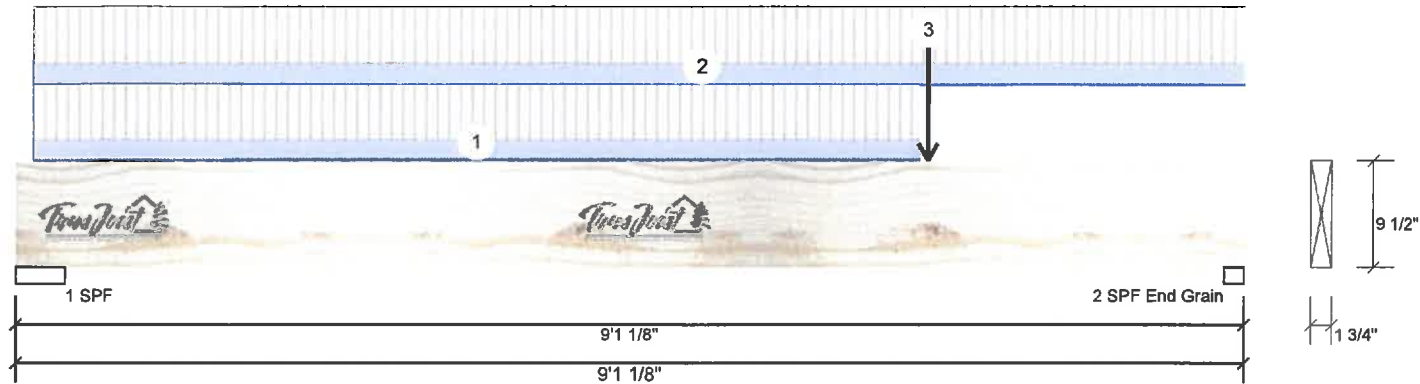
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Version 20.20.002 Powered by iStruct™

CSD | DRAW DESIGN BUILD

FB12-A	2.0E Microllam LVL	1.750" X 9.500" - PASSED	Level: Second Floor Elev A
--------	--------------------	--------------------------	----------------------------



## Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / 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 PATTERNED Ib (Uplift)

Brg	Live	Dead	Snow	Wind
1	188	70	0	0
2	294	110	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	4.375"	8%	88 / 281	369	L	1.25D+1.5L
2 - SPF	1.750"	17%	138 / 440	578	L	1.25D+1.5L
End Grain						

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	1234 ft-lb	6'9"	9793 ft-lb	0.126 (13%)	1.25D+1.5L	L
Unbraced	1234 ft-lb	6'9"	4257 ft-lb	0.290 (29%)	1.25D+1.5L	L
Shear	555 lb	8'2 5/8"	5265 lb	0.105 (11%)	1.25D+1.5L	L
Perm Defl in.	0.013 (L/7903)	5' 7/16"	0.290 (L/360)	0.050 (5%)	D	Uniform
LL Defl inch	0.035 (L/2968)	5' 7/16"	0.290 (L/360)	0.120 (12%)	L	L
TL Defl inch	0.048 (L/2158)	5' 7/16"	0.435 (L/240)	0.110 (11%)	D+L	L

## Design Notes

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

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-1-10 to 6-8-2	0-3-15	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-1-10 to 9-1-2	0-4-1	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Point	6-9-0		Far Face	103 lb	274 lb	0 lb	0 lb	FB6



## 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.

## 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

Weyerhaeuser  
Seattle, WA  
(888) 453-8358  
[www.weyerhaeuser.com/  
woodproducts/](http://www.weyerhaeuser.com/woodproducts/)  
CCMC: 08675-R

Argo Lumber	
-------------	--

isDesign

Client: Esquire Homes

Project: Northglen

Address: Bowmanville, Ontario

Date: 4/15/2020

Input by: Scott Sostar

Job Name: 33-1

Project #: Northglen

Page 8 of 10

E20-895 (8 of 10)

FB15-A 2.0E Microllam LVL 1.750" X 9.500" 2-Ply - PASSED

Level: Second Floor Elev A

2

4

3

5

1

1 SPF

2 SPF

14'9 7/8"

14'9 7/8"

9 1/2"

3 1/2"

Member Information

Unfactored Reactions PATTERNED lb (Uplift)

Type: Girder

Piles: 2

Moisture Condition: Dry

Deflection LL: 360

Deflection TL: 240

Importance: Normal

General Load

Floor Live: 40 PSF

Dead: 15 PSF

Application: Floor (Residential)

Design Method: LSD

Building Code: NBCC 2015 / OBC 2012

Load Sharing: No

Deck: Not Checked

Vibration: Not Checked

Brg

Live

Dead

Snow

Wind

1

1536

577

0

0

2

645

242

0

0

Bearings and Factored Reactions

Bearing

Length

Cap. React D/L lb

Total

Ld. Case

Ld. Comb.

1 - SPF 5.500"

26%

721 / 2304

3025

L

1.25D+1.5L

2 - SPF 4.375"

13%

303 / 968

1270

L

1.25D+1.5L

Analysis Results

Analysis

Actual

Location

Allowed

Capacity

Comb.

Case

Moment

10351 ft-lb

3'11"

19587 ft-lb

0.528 (53%)

1.25D+1.5L

L

Unbraced

10351 ft-lb

3'11"

10360 ft-lb

0.999 (100%)

1.25D+1.5L

L

Shear

2978 lb

1'2 1/4"

10529 lb

0.283 (28%)

1.25D+1.5L

L

Perm Defl in.

0.119 (L/1429)

6'7 7/8"

0.471 (L/360)

0.250 (25%)

D

Uniform

LL Defl inch

0.316 (L/536)

6'7 7/8"

0.471 (L/360)

0.670 (67%)

L

L

TL Defl inch

0.435 (L/390)

6'7 7/8"

0.706 (L/240)

0.620 (62%)

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 must be laterally braced at a maximum of 7'1 7/8" o.c.

5 Bottom braced at bearings.

6 Lateral slenderness ratio based on single ply width.

ID

Load Type

Location

Trib Width

Side

Dead

Live

Snow

Wind

Comments

1

Tie-In

0-0-0 to 3-9-4

0-3-2

Top

15 PSF

40 PSF

0 PSF

0 PSF

2

Tie-In

0-0-0 to 0-2-12

0-2-14

Top

15 PSF

40 PSF

0 PSF

0 PSF

3

Tie-In

0-2-12 to 14-9-14

0-2-14

Top

15 PSF

40 PSF

0 PSF

0 PSF

4

Point

3-11-0

Far Face

682 lb

1816 lb

0 lb

0 lb

FB14

5

Tie-In

4-0-12 to 14-9-14

0-5-2

Top

15 PSF

40 PSF

0 PSF

0 PSF

Notes

chemicals

Handling & Installation

Lumber

6. For flat roofs provide proper drainage to prevent ponding

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

Manufacturer Info

Weyerhaeuser

Seattle, WA

(888) 453-8358

www.weyerhaeuser.com/woodproducts/

CCMC: 08675-R

Argo Lumber

This design is valid until 1/8/2023

LICENSED PROFESSIONAL ENGINEER

R. S. LEE

90243759

APR 15, 2020

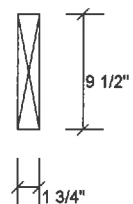
PROVINCE OF ONTARIO

Version 20.20.002 Powered by iStruct™

CSD | DRAW DESIGN BUILD



Level: Second Floor Elev A



### Unfactored Reactions PATTERNED Ib (Uplift)

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	18%	271 / 933	1204	L	1.25D+1.5L +S
2 - SPF	4.375"	22%	254 / 801	1055	L	1.25D+1.5L +S

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	1280 ft-lb	2'1"	9793 ft-lb	0.131 (13%)	1.25D+1.5L +S	L
Unbraced	1280 ft-lb	2'1"	7981 ft-lb	0.160 (16%)	1.25D+1.5L +S	L
Shear	1037 lb	3'7 3/4"	5265 lb	0.197 (20%)	1.25D+1.5L +S	L
Perm Defl in.	0.005 (L/11032)	2'3 1/2"	0.140 (L/360)	0.030 (3%)	D	Uniform
LL Defl inch	0.013 (L/3988)	2'3 3/16"	0.140 (L/360)	0.090 (9%)	L+0.5S	L
TL Defl inch	0.017 (L/2929)	2'3 1/4"	0.210 (L/240)	0.080 (8%)	D+L+0.5S	L

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

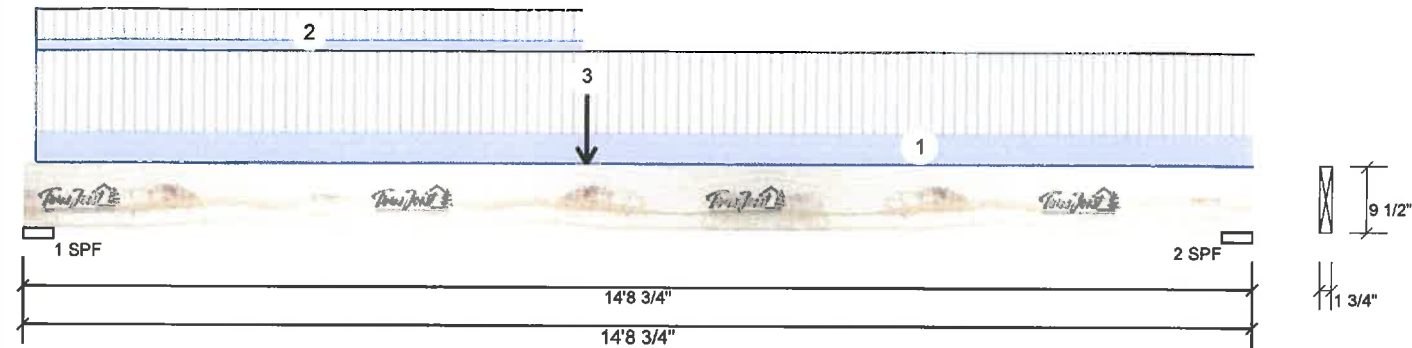
ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Part. Uniform	0-0-0 to 3-6-8		Top	36 PLF	120 PLF	0 PLF	0 PLF	
2	Point	0-9-0		Near Face	67 lb	179 lb	0 lb	0 lb	J2
3	Point	2-1-0		Near Face	81 lb	215 lb	0 lb	0 lb	J2
4	Point	3-2-0		Near Face	54 lb	143 lb	0 lb	0 lb	J2
5	Point	3-8-4		Near Face	87 lb	144 lb	61 lb	0 lb	FB14
6	Tie-In	3-10-0 to 4-8-14	0-3-2	Top	15 PSF	40 PSF	0 PSF	0 PSF	

6. For flat roofs provide proper drainage to prevent ponding

Argo Lumber

**FB8-A 2.0E Microllam LVL 1.750" X 9.500" - PASSED**

Level: Second Floor Elev A



### Member Information

Type:	Girder	Application:	Floor (Residential)
Plies:	1	Design Method:	LSD
Moisture Condition:	Dry	Building Code:	NBCC 2015 / 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 PATTERNED 1b (Uplift)

Brg	Live	Dead	Snow	Wind
1	358	134	0	0
2	306	115	0	0

## Bearings and Factored Reactions

Bearing	Length	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	4.375"	15%	168 / 537	705	L	1.25D+1.5L
2 - SPF	4.375"	13%	143 / 459	602	L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	3255 ft-lb	6'9"	9793 ft-lb	0.332 (33%)	1.25D+1.5L	L
Unbraced	3255 ft-lb	6'9"	3259 ft-lb	0.999 (100%)	1.25D+1.5L	L
Shear	648 lb	1'1 1/8"	5265 lb	0.123 (12%)	1.25D+1.5L	L
Perm Defl in.	0.082 (L/2069)	7'1 1/2"	0.471 (L/360)	0.170 (17%)	D	Uniform
LL Defl inch	0.219 (L/774)	7'1 1/2"	0.471 (L/360)	0.470 (47%)	L	L
TL Defl inch	0.301 (L/563)	7'1 1/2"	0.706 (L/240)	0.430 (43%)	D+L	L

## Design Notes

- 1 Girders are designed to be supported on the bottom edge only.
- 2 Top must be laterally braced at a maximum of 11'4 1/2" o.c.
- 3 Bottom braced at bearings.

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-1-10 to 14-8-12	0-6-9	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-1-10 to 6-8-2	0-2-7	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Point	6-9-0		Near Face	109 lb	292 lb	0 lb	0 lb	FB6



## 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.

## 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

Weyerhaeuser  
Seattle, WA  
(888) 453-8358  
[www.weyerhaeuser.com/  
woodproducts/](http://www.weyerhaeuser.com/woodproducts/)  
CCMC: 08675-R

Argo Lumber	
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This design is valid until 1/8/2023

isDesign

Client: Esquire Homes

Project: Northglen

Address: Bowmanville, Ontario

Date: 4/15/2020

Input by: Scott Sostar

Job Name: 33-1

Project #: Northglen

Page 1 of 2

Nordic Request: 2004-058

FB3-A NI-20 9.500" - PASSED

Level: Ground Floor Elev A

2

3

4

1

NORDIC

STRUCTURES

NORDIC

STRUCTURES

NORDIC

STRUCTURES

1 SPF

2 SPF

12'1 7/8"

12'1 7/8"

9 1/2"

12 1/2"

Member Information

Unfactored Reactions PATTERNED lb (Uplift)

Type: Girder

Plies: 1

Moisture Condition: Dry

Deflection LL: 360

Deflection TL: 240

Importance: Normal

General Load

Floor Live: 40 PSF

Dead: 15 PSF

Application: Floor (Residential)

Design Method: LSD

Building Code: NBCC 2015 / OBC 2012

Load Sharing: No

Deck: Not Checked

Vibration: Not Checked

Brg

Live

Dead

Snow

Wind

1

261

98

0

0

2

202

76

0

0

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	1413 ft-lb	5'2 9/16"	4310 ft-lb	0.328 (33%)	1.25D+1.5L	L
Unbraced	1413 ft-lb	5'2 9/16"	1417 ft-lb	0.997 (100%)	1.25D+1.5L	L
Shear	508 lb	1 5/8"	1770 lb	0.287 (29%)	1.25D+1.5L	L
Perm Defl in.	0.051 (L/2798)	5'11 1/4"	0.395 (L/360)	0.130 (13%)	D	Uniform
LL Defl inch	0.136 (L/1046)	5'11 5/16"	0.395 (L/360)	0.340 (34%)	L	L
TL Defl inch	0.187 (L/761)	5'11 5/16"	0.593 (L/240)	0.320 (32%)	D+L	L

Design Notes

1 Girders are designed to be supported on the bottom edge only.

2 Top flange must be laterally braced at a maximum of 7'2" o.c.

3 Bottom flange braced at bearings.

Component suitability needs to be validated

Notes

Handling & Installation

Manufacturer Info

Argo Lumber

Version 20.20.002 Powered by iStruct™

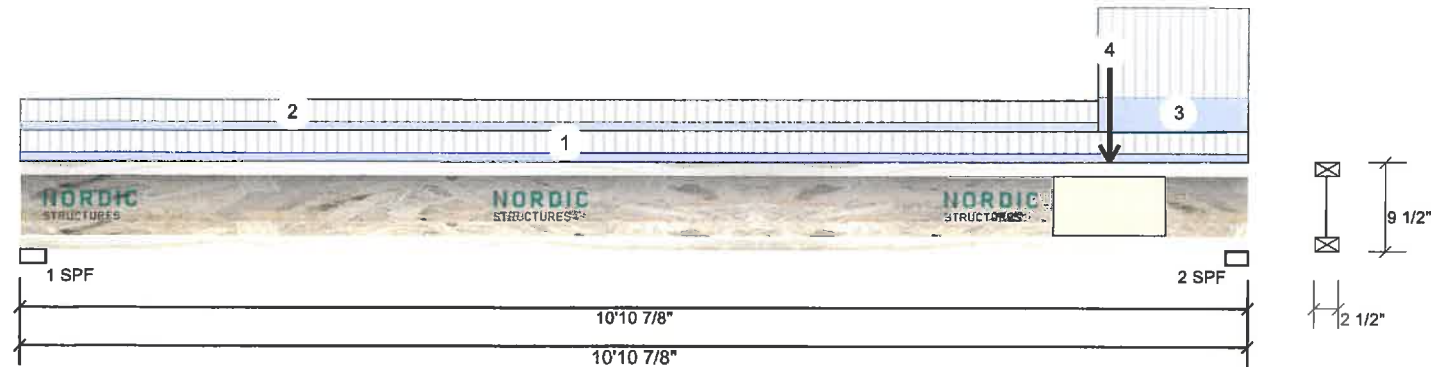
(Nordic, Ludovic Raymond P.Eng) This document doesn't validate component suitability. Building design overseen by other.

CSD

Argo Lumber (Maple, ON)

FB9-A	NI-20	9.500" - PASSED
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Level: Ground Floor Elev A



## Member Information

Type:	Girder	Application:	Floor (Residential)	Brg	Live	Dead	Snow	Wind
Piles:	1	Design Method:	LSD	1	258	97	0	0
Moisture Condition:	Dry	Building Code:	NBCC 2015 / OBC 2012	2	593	222	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							
				<b>Bearings and Factored Reactions</b>				
				Bearing	Length	Cap. React D/L lb	Total Ld. Case	Ld. Comb.
				1 - SPF	2.750"	30% 121 / 386	507 L	1.25D+1.5L
				2 - SPF	2.375"	70% 278 / 890	1168 L	1.25D+1.5L

## Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	1550 ft-lb	6'5 5/16"	4310 ft-lb	0.360 (36%)	1.25D+1.5L	L
Unbraced	1550 ft-lb	6'5 5/16"	1561 ft-lb	0.993 (99%)	1.25D+1.5L	L
Shear	1141 lb	10'9 1/4"	1770 lb	0.645 (64%)	1.25D+1.5L	L
Perm Defl in.	0.048 (L/2655)	5'9"	0.353 (L/360)	0.140 (14%)	D	Uniform
LL Defl inch	0.128 (L/995)	5'9"	0.353 (L/360)	0.360 (36%)	L	L
TL Defl inch	0.176 (L/724)	5'9"	0.530 (L/240)	0.330 (33%)	D+L	L

### Design Notes

- 1 See manufacture installation guide note 1h for installation details
- 2 Girders are designed to be supported on the bottom edge only.
- 3 Top flange must be laterally braced at a maximum of 6'10" o.c.
- 4 Bottom flange braced at bearings.



Component suitability needs to be validated

ID	Load Type	Location	Trib Width	Side	Dead	Live	Snow	Wind	Comments
1	Tie-In	0-0-0 to 10-10-14	0-6-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	
2	Tie-In	0-0-0 to 9-6-12	0-6-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	
3	Tie-In	9-6-12 to 10-10-14	2-0-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	
4	Point	9-8-0		Near Face	125 lb	334 lb	0 lb	0 lb	FB2

## Notes

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.

## Handling & Installation

1. Engineered wood products must not be cut or drilled. Damaged products shall not be used.
2. Refer to the latest version of the installation guide for construction details, hole specifications, multiple-member connections, and handling guidelines.
3. Provide lateral support at bearing points to prevent lateral displacement and rotation.
4. For flat roof, provide proper drainage to prevent ponding.
5. Design assumes top flange to be laterally restrained.

by attached sheathing or as specified in engineering notes.

This design is valid until 1/8/2023

Manufacturer Info
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Nordic Engineered Wood  
1100 Avenue des Canadiens-de-  
Montréal, Suite 504  
Montreal, Québec, Canada H3B 2S2  
(866) 871-8526  
[www.nordic.com](http://www.nordic.com)  
CGMC 13032-R, ON: 06-05-149

Argo Lumber	
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Argo Lumber Inc.  
10275 Keele Street  
Maple ON L6A 1S7  
Tel: 905.832.2251

Project  
Northglen

Layout Name  
33-1

Builder  
Esquire Homes

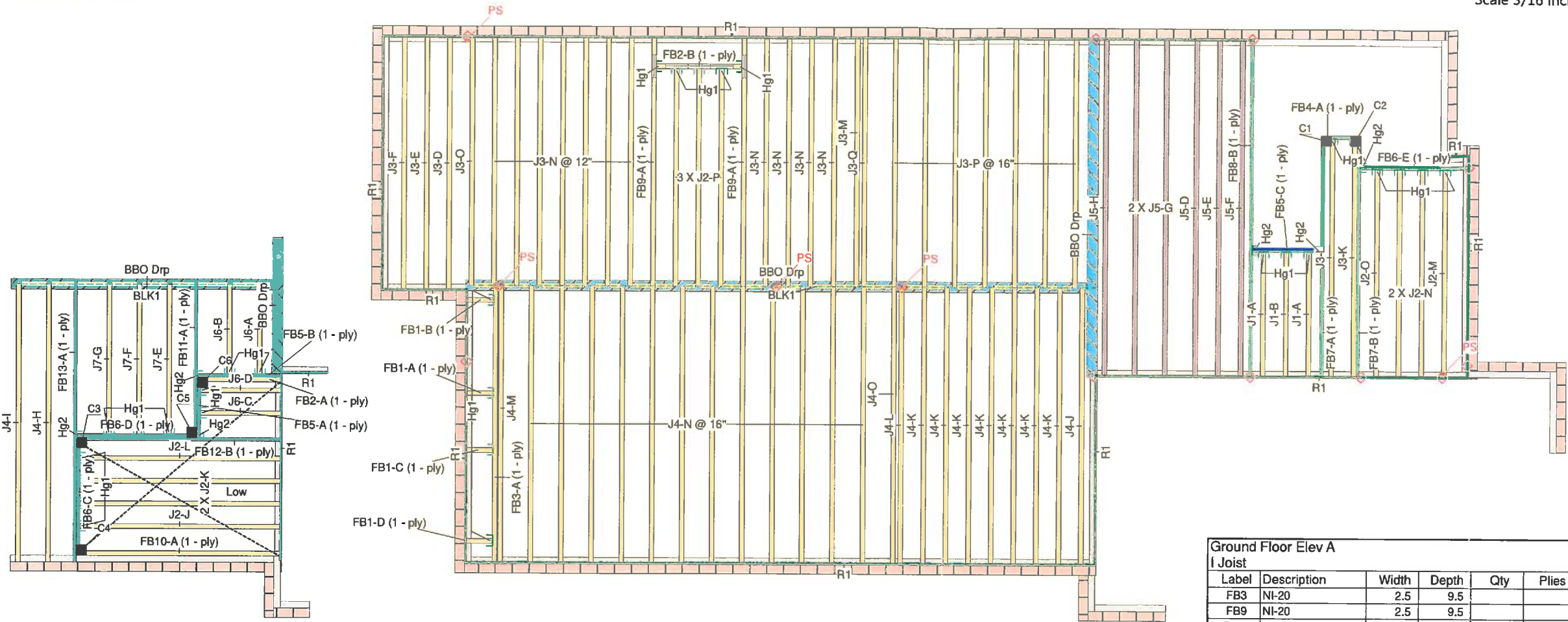
Shipping  
Northglen  
Bowmanville, Ontario

Design Method  
LSD

Revised  
February 22, 2020

Description

Designer  
Scott Sostar



**Legend**

PS  
◇ Point Load Support  
Load from Above  
Wall

Common Rim Board 1.125 X 9.5  
NI-20 9.5  
NI-40x 9.5  
2.0E Microllam LVL 1.75 X 9.5  
5.5 X 9.5 (Dropped)

**Ground Floor Elev A**  
Design Method LSD (Canada)  
Building Code NBCC 2015 / OBC 2012

<b>Floor Loads</b>	
Live	40
Dead	15
<b>Deflection Joist</b>	
LL Span L/	360
TL Span L/	240
LL Cant 2L/	360
TL Cant 2L/	240
<b>Deflection Girder</b>	
LL Span L/	360
TL Span L/	240
LL Cant 2L/	360
TL Cant 2L/	240
<b>Decking</b>	
Decking	SPF Plywood
Thickness	3/4"
Fastener	Nailed & Glued
<b>Vibration</b>	

See attached sealed span charts  
for all uniformly loaded beams.  
\*ALL JOISTS UNDER TILED APPLICATIONS  
SHALL CONFORM TO OBC 9.30.06\*

- THIS LAYOUT SHOULD ONLY BE USED FOR THE PLACEMENT OF THE JOISTS / BEAMS  
- TO TRANSFER LOADS FROM ABOVE, RIM BOARDS, SQUASH BLOCKS OR BLOCKING PANELS  
SHALL BE USED FOR EXTERIOR WALLS AND INTERIOR BEARING WALLS OR BEAMS.  
- FOR FOUNDATION WALLS REQUIRED TO BE Laterally SUPPORTED, PROVIDE JOIST  
BLOCKING @24" O/C (MAY NOT BE SHOWN ON LAYOUT)  
- ARGO LUMBER IS NOT RESPONSIBLE FOR THE OVERALL STABILITY OF THE STRUCTURE.

EWP manufacturers are responsible for the structural integrity of their  
respective products.  
All "C#" callouts are End Grain Bearing Columns by Other

Ground Floor Elev A							
Joist							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
FB3	NI-20	2.5	9.5			1	14-0-0
FB9	NI-20	2.5	9.5			2	12-0-0
FB10	NI-20	2.5	9.5			1	10-0-0
FB2	NI-20	2.5	9.5			2	4-0-0
FB1	NI-20	2.5	9.5			4	2-0-0
J4	NI-20	2.5	9.5			25	14-0-0
J3	NI-20	2.5	9.5			26	12-0-0
J2	NI-20	2.5	9.5			11	10-0-0
J7	NI-20	2.5	9.5			3	8-0-0
J1	NI-20	2.5	9.5			3	6-0-0
J6	NI-20	2.5	9.5			4	4-0-0
J5	NI-40x	2.5	9.5			6	16-0-0
Blocking							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
BLK1	NI-20	2.5	9.5	LinFt		Varies	27-0-0
LVL/SL							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
FB8	2.0E Microllam LVL	1.75	9.5			1	16-0-0
FB13	2.0E Microllam LVL	1.75	9.5			1	14-0-0
FB7	2.0E Microllam LVL	1.75	9.5			2	12-0-0
FB12	2.0E Microllam LVL	1.75	9.5			1	10-0-0
FB11	2.0E Microllam LVL	1.75	9.5			1	8-0-0
FB6	2.0E Microllam LVL	1.75	9.5			3	6-0-0
FB5	2.0E Microllam LVL	1.75	9.5			3	4-0-0
FB4	2.0E Microllam LVL	1.75	9.5			1	2-0-0
Rim Board							
Label	Description	Width	Depth	Qty	Plies	Pcs	Length
R1	Common Rim Board 1.125 X 9.5	1.125	9.5			12	12-0-0
Hanger							
				Beam/Girder		Supported Member	
Label	Pcs	Description	Skew	Slope	fasteners	fasteners	
Hg1	29	LT259			4 10dx1 1/2	2 10dx1 1/2	
Hg2	6	HUS1.81/10			30 10dx1 1/2	10 16d	

1. This layout does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. It is meant to be used as an installation guide only; in conjunction with the architectural and structural drawings, not to replace them.

2. Minimum required bearings for joists is 1.75" and 3.5" for intermediate bearings

3. Minimum required bearings for LVL shall be 3" or the minimum required length indicated on the individual beam/girder member component design, whichever is greater. Each ply of the member shall be supported for the full member width for the full required minimum length of the bearing.

4. Unless otherwise noted, continuous lateral support must be provided to the compression edge of all joist/girder/beam members. Full support is considered to be a maximum unbraced length of 24". This restraint is normally provided by sheathing and/or framing members which must be adequately anchored to the member and supporting structure.

5. Provide lateral support to all joist/girder/beam member components at all bearing locations to prevent lateral displacement and rotation.

6. All joist/girder/beam member components are limited to dry service conditions where the average equilibrium moisture content of sawn lumber is less than 16 percent.

7. Point loads from above shall be solidly blocked (squash blocks) to solid bearing below.

8. All floor sheathing must be attached (as indicated - nailed only or nailed and glued) for the entire length of the joist.

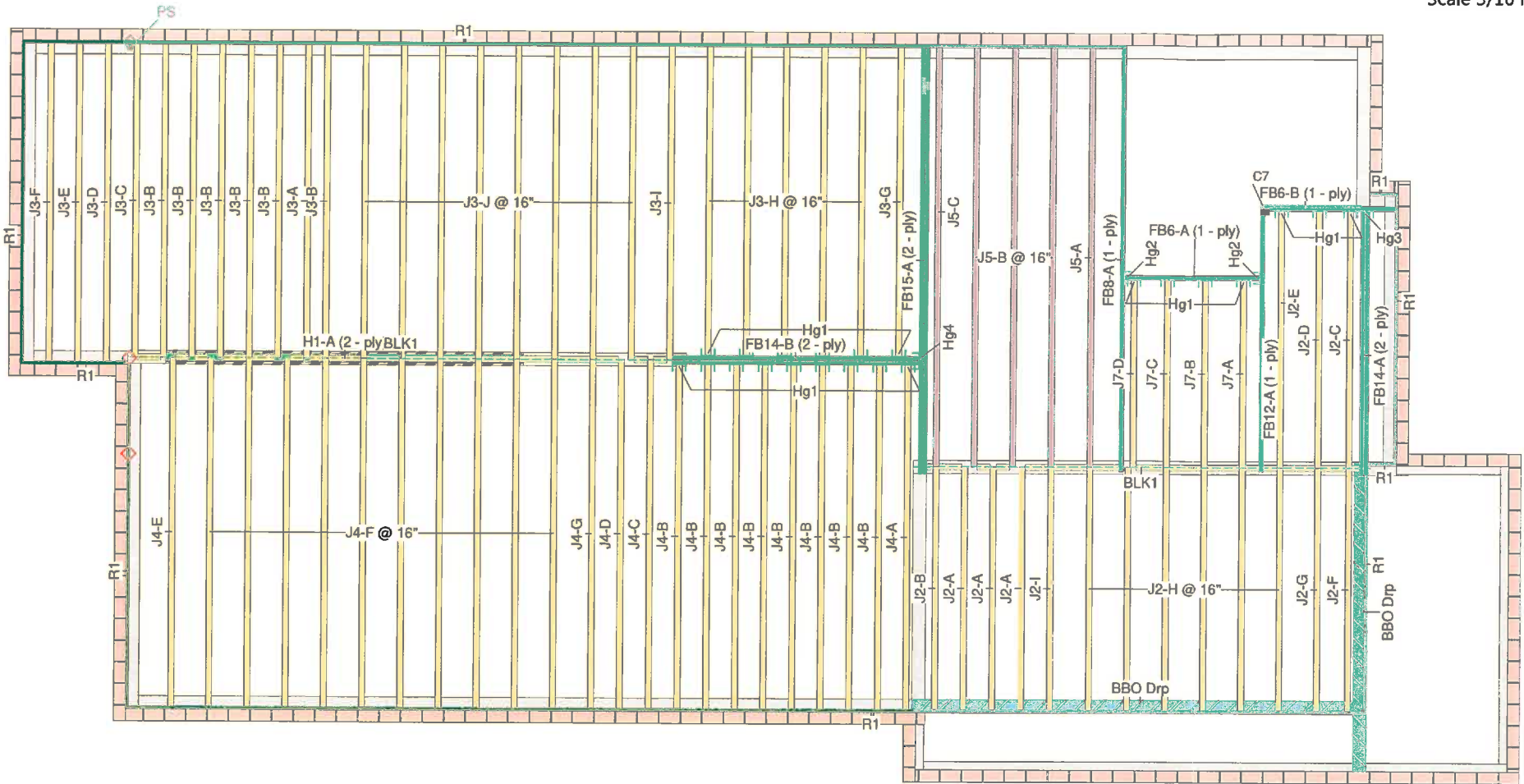
9. Blocking required over all interior supports under load bearing walls or when floor joists are not continuous over support, for cantilevered joists or when indicated on the layout.

10. All lengths and quantities must be verified prior to installation.



Second Floor Elev A

Scale 3/16 inch : 1 ft.



Legend

PS	Point Load Support
Load from Above	
Wall	
Wall Opening	
Common Rim Board 1.125 X 9.5	
NI-20 9.5	
NI-40x 9.5	
2.0E Microllam LVL 1.75 X 9.5	
2.0E Microllam LVL 1.75 X 11.875 (Dropped)	
5.5 X 9.5 (Dropped)	

See attached sealed span charts for all uniformly loaded beams.  
\*ALL JOISTS UNDER TILED APPLICATIONS SHALL CONFORM TO OBC 9.30.06"

- THIS LAYOUT SHOULD ONLY BE USED FOR THE PLACEMENT OF THE JOISTS / BEAMS  
- TO TRANSFER LOADS FROM ABOVE, RIM BOARDS, SQUASH BLOCKS OR BLOCKING PANELS SHALL BE USED FOR EXTERIOR WALLS AND INTERIOR BEARING WALLS OR BEAMS.  
- FOR FOUNDATION WALLS REQUIRED TO BE LATERALLY SUPPORTED, PROVIDE JOIST BLOCKING @24" O/C (MAY NOT BE SHOWN ON LAYOUT)  
- ARGOLUMBER IS NOT RESPONSIBLE FOR THE OVERALL STABILITY OF THE STRUCTURE.

EWP manufacturers are responsible for the structural integrity of their respective products.  
All "C#" callouts are End Grain Bearing Columns by Other

Second Floor Elev A

Design Method LSD (Canada)  
Building Code NBCC 2015 / OBC 2012

Floor

Loads	
Live	40
Dead	15
Deflection Joist	
LL Span L/	360
TL Span L/	240
LL Cant 2L/	360
TL Cant 2L/	240
Deflection Girder	
LL Span L/	360
TL Span L/	240
LL Cant 2L/	360
TL Cant 2L/	240
Decking	
Decking	SPF Plywood
Thickness	5/8"
Fastener	Nailed & Glued
Vibration	



Argo Lumber Inc.  
10275 Keele Street  
Maple ON L6A 1S7  
Tel: 905.832.2251

Project

Northglen

Layout Name

33-1

Builder

Esquire Homes

Shipping

Northglen  
Bowmanville, Ontario

Design Method

LSD

Revised

February 22, 2020

Description

Designer

Scott Sostar

Second Floor Elev A

Joist

Label	Description	Width	Depth	Qty	Plies	Pcs	Length
J4	NI-20	2.5	9.5			23	14-0-0
J3	NI-20	2.5	9.5			26	12-0-0
J2	NI-20	2.5	9.5			16	10-0-0
J7	NI-20	2.5	9.5			4	8-0-0
J5	NI-40x	2.5	9.5			5	16-0-0

Blocking

Label	Description	Width	Depth	Qty	Plies	Pcs	Length
BLK1	NI-20	2.5	9.5	LinFt		Varies	26-0-0

LVL/LSL

Label	Description	Width	Depth	Qty	Plies	Pcs	Length
FB15	2.0E Microllam LVL	1.75	9.5	1	2	2	16-0-0
FB8	2.0E Microllam LVL	1.75	9.5			1	16-0-0
FB14	2.0E Microllam LVL	1.75	9.5	2	2	4	10-0-0
FB12	2.0E Microllam LVL	1.75	9.5			1	10-0-0
FB6	2.0E Microllam LVL	1.75	9.5			2	6-0-0
H1	2.0E Microllam LVL	1.75	11.875	1	2	2	14-0-0

Rim Board

Label	Description	Width	Depth	Qty	Plies	Pcs	Length
R1	Common Rim Board 1.125 X 9.5	1.125	9.5			11	12-0-0

Hanger

		Beam/Girder			Supported Member	
Label	Pcs	Description	Skew	Slope	fasteners	fasteners
Hg1	22	LT259			4 10dx1 1/2	2 10dx1 1/2
Hg2	2	HUS1.81/10			30 10dx1 1/2	10 16d
Hg3	1	LF359			10 10dx1 1/2	2 #8x1 1/4WS
Hg4	1	HHUS410			30 16d	10 16d

1. This layout does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. It is meant to be used as an installation guide only; in conjunction with the architectural and structural drawings, not to replace them.
2. Minimum required bearings for joists is 1.75" and 3.5" for intermediate bearings
3. Minimum required bearings for LVL shall be 3" or the minimum required length indicated on the individual beam/girder member component design, whichever is greater. Each ply of the member shall be supported for the full member width for the full required minimum length of the bearing.
4. Unless otherwise noted, continuous lateral support must be provided to the compression edge of all joist/girder/beam members. Full support is considered to be a maximum unbraced length of 24". This restraint is normally provided by sheathing and/or framing members which must be adequately anchored to the member and supporting structure.
5. Provide lateral support to all joist/girder/beam member components at all bearing locations to prevent lateral displacement and rotation.
6. All joist/girder/beam member components are limited to dry service conditions where the average equilibrium moisture content of sawn lumber is less than 16 percent.
7. Point loads from above shall be solidly blocked (squash blocks) to solid bearing below.
8. All floor sheathing must be attached (as indicated - nailed only or nailed and glued) for the entire length of the joist.
9. Blocking required over all interior supports under load bearing walls or when floor joists are not continuous over support, for cantilevered joists or when indicated on the layout.
10. All lengths and quantities must be verified prior to installation.