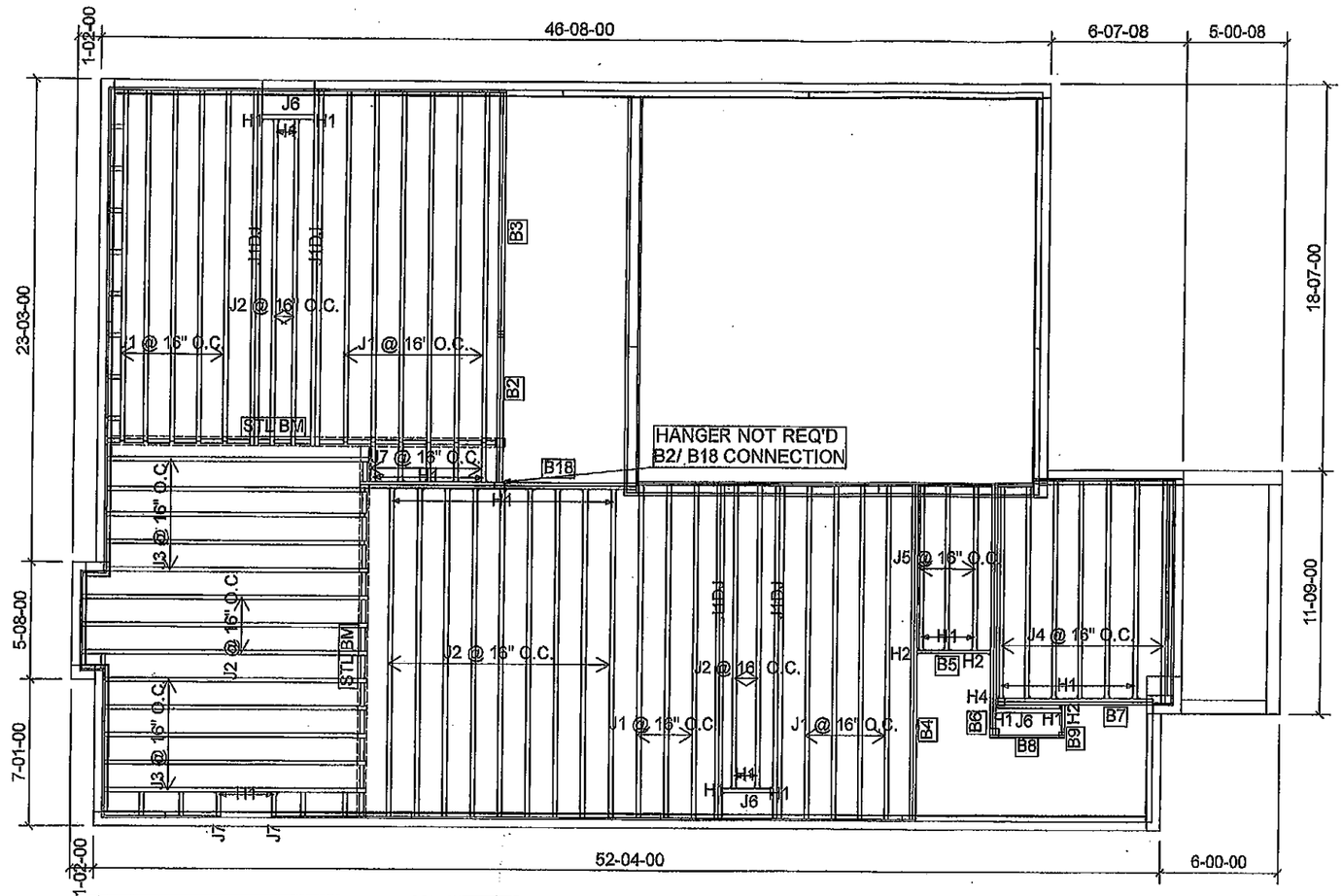


Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	11 7/8" NI-40x	1	18	MFD
J1DJ	18-00-00	11 7/8" NI-40x	2	8	MFD
J2	16-00-00	11 7/8" NI-40x	1	16	MFD
J3	14-00-00	11 7/8" NI-40x	1	10	MFD
J4	12-00-00	11 7/8" NI-40x	1	7	MFD
J5	8-00-00	11 7/8" NI-40x	1	3	MFD
J6	4-00-00	11 7/8" NI-40x	1	3	MFD
J7	2-00-00	11 7/8" NI-40x	1	7	MFD
B4	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B18	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B6	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B3	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B7	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B5	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B8	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B9	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD

Connector Summary		
Qty	Manuf	Product
4	H1	IUS2.56/11.88
21	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
3	H2	HUS1.81/10
1	H4	HGUS410

CITY OF HAMILTON
Building Division
Permit No. 21-106977
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW
These drawings and/or specifications have been reviewed by
FOR CHIEF BUILDING OFFICIAL
02/24/21
DATE

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED:

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: MOUNTAINASH 4

ELEVATION: 3

LOT: 312

CITY: WATERDOWN

SALESMAN: MARIO DICIANO
DESIGNER: AJ
REVISION:

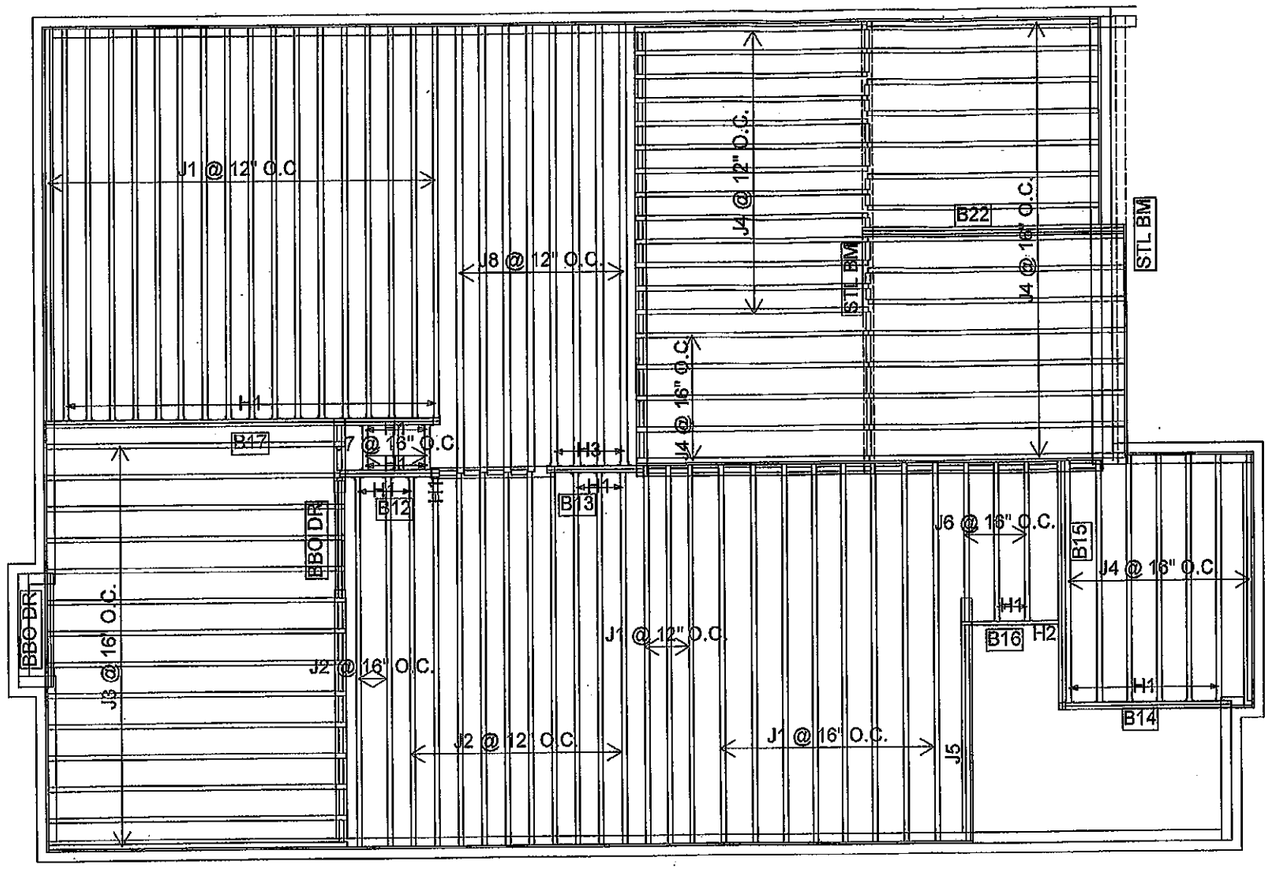
NOTES:
REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC TILE** APPLICATION AS PER O.B.C 9.30.6.

LOADING:
DESIGN LOADS: L/480,000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2020-02-18

1st FLOOR



CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

FEB 09 2021

REC'D BY _____ DATE _____
REF'D TO _____ DATE _____

Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	11 7/8" NI-40x	1	29	MFD
J2	16-00-00	11 7/8" NI-40x	1	12	MFD
J3	14-00-00	11 7/8" NI-40x	1	14	MFD
J4	12-00-00	11 7/8" NI-40x	1	40	MFD
J5	10-00-00	11 7/8" NI-40x	1	1	MFD
J6	8-00-00	11 7/8" NI-40x	1	3	MFD
J7	2-00-00	11 7/8" NI-40x	1	3	MFD
J8	20-00-00	11 7/8" NI-80	1	8	MFD
B17	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B15	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B22	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B14	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B16	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B12	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B13	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/11.88
36	H1	IUS2.56/11.88
1	H2	HUS1.81/10
4	H3	IUS3.56/11.88

CITY OF HAMILTON
Building Division

Permit No. 21-106977

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by

FOR CHIEF BUILDING OFFICIAL — DATE 02/24/21

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED:

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: MOUNTAINASH 4

ELEVATION: 3

LOT: 312

CITY: WATERDOWN

SALESMAN: MARIO DICIANO
DESIGNER: AJ
REVISION:

NOTES:
REFER TO THE NORDIC **INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION. **SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7 TABLES 1 & 2 OF THE INSTALLATION GUIDE. **CERAMIC TILE** APPLICATION AS PER O.B.C. 9.30.6

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2020-02-18

2nd FLOOR

NORDIC STRUCTURES	COMPANY Apr. 9, 2020 09:44	PROJECT J1 1ST FLOOR.wwb

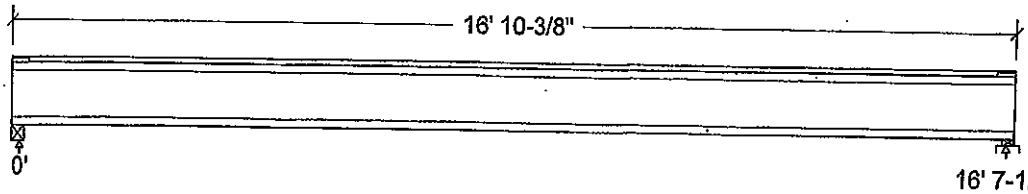
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Dead	Full Area				20.00		psf
Load2	Live	Full Area				40.00		psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	221		221
Live	442		442
Factored:			
Total	940		940
Bearing:			
Capacity			
Joist	2137		2102
Support	4036		3981
Des ratio			
Joist	0.44		0.45
Support	0.23		0.24
Load case	#2		#2
Length	2-5/8		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.00		1.09

Nordic 11-7/8" NI-40x Floor joist @ 16" o.c.

Supports: 1 - Lumber Beam, No.1/No.2; 2 - Lumber Sill plate, No.1/No.2;
Total length: 16' 10-3/8"; Clear span: 16' 5-3/8"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 940	Vr = 2336	lbs	Vf/Vr = 0.40
Moment(+)	Mf = 3901	Mr = 6255	lbs-ft	Mf/Mr = 0.62
Perm. Defl'n	0.11 = < L/999	0.55 = L/360	in	0.20
Live Defl'n	0.23 = L/879	0.41 = L/480	in	0.55
Total Defl'n	0.34 = L/586	0.83 = L/240	in	0.41
Bare Defl'n	0.27 = L/727	0.55 = L/360	in	0.49
Vibration	Lmax = 16'-7.1	Lv = 18'-1.3	ft	0.92
Defl'n	= 0.029	= 0.038	in	0.76

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM6035 - 20
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#2
EI	371.1 million		-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

```
Shear     : LC #2  = 1.25D + 1.5L
Moment(+) : LC #2  = 1.25D + 1.5L
Deflection: LC #1  = 1.0D  (permanent)
            LC #2  = 1.0D + 1.0L  (live)
            LC #2  = 1.0D + 1.0L  (total)
            LC #2  = 1.0D + 1.0L  (bare joist)
Bearing   : Support 1 - LC #2 = 1.25D + 1.5L
            Support 2 - LC #2 = 1.25D + 1.5L
Load Types: D=dead  W=wind  S=snow  H=earth,groundwater  E=earthquake
            L=live(use,occupancy)  Ls=live(storage,equipment)  f=fire
Load Patterns: s=S/2  L=L+Ls  _=no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output
```

CALCULATIONS:

EIeff = 459.76 lb-in^2 K= 6.18e06 lbs

"Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012 AMENDED 2020

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. YAM6035 -20
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY	PROJECT
Apr. 9, 2020 09:44	J1 2ND FLOOR.wwb

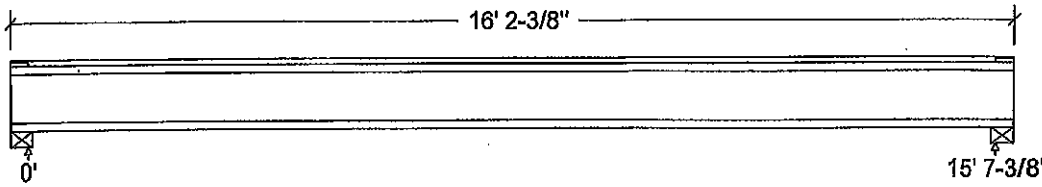
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	Location [ft] End	Magnitude Start	Magnitude End	Unit
Load1	Dead	Full Area				20.00		psf
Load2	Live	Full Area				40.00		psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	208		208
Live	416		416
Factored:			
Total	885		885
Bearing:			
Capacity			
Joist	2336		2336
Support	6734		6734
Des ratio			
Joist	0.38		0.38
Support	0.13		0.13
Load case	#2		#2
Length	4-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.00		1.00

Nordic 11-7/8" NI-40x Floor Joist @ 16" o.c.

Supports: All - Lumber Beam, No.1/No.2

Total length: 16' 2-3/8"; Clear span: 15' 5-5/8"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 885	Vr = 2336	lbs	Vf/Vr = 0.38
Moment(+)	Mf = 3454	Mr = 6255	lbs-ft	Mf/Mr = 0.55
Perm. Defl'n	0.09 = < L/999	0.52 = L/360	in	0.18
Live Defl'n	0.18 = < L/999	0.39 = L/480	in	0.47
Total Defl'n	0.28 = L/676	0.78 = L/240	in	0.35
Bare Defl'n	0.22 = L/861	0.52 = L/360	in	0.42
Vibration	Lmax = 15'-7.4	Lv = 17'-8.1	ft	0.88
Defl'n	= 0.028	= 0.041	in	0.68

LICENSED PROFESSIONAL ENGINEER S. KATSOULAKOS PROVINCE OF ONTARIO

DWG NO. YAM 6036-20
STRUCTURAL COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#2
EI	371.1 million		-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

```
Shear      : LC #2  = 1.25D + 1.5L
Moment(+)  : LC #2  = 1.25D + 1.5L
Deflection: LC #1  = 1.0D  (permanent)
            LC #2  = 1.0D + 1.0L  (live)
            LC #2  = 1.0D + 1.0L  (total)
            LC #2  = 1.0D + 1.0L  (bare joist)
Bearing    : Support 1 - LC #2 = 1.25D + 1.5L
            Support 2 - LC #2 = 1.25D + 1.5L
Load Types: D=dead  W=wind  S=snow  H=earth,groundwater  E=earthquake
            L=live(use,occupancy)  Ls=live(storage,equipment)  f=fire
Load Patterns: s=S/2  L=L+Ls  _=no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output
```

CALCULATIONS:

```
EIeff = 447.63 lb-in^2  K=  6.18e06 lbs
"Live" deflection is due to all non-dead loads (live, wind, snow...)
```

CONFORMS TO OBC 2012
AMENDED 2020

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.

DWG NO. YAM6036 -20
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY	PROJECT
Apr. 9, 2020 09:47	J8 2ND FLOOR.wwb

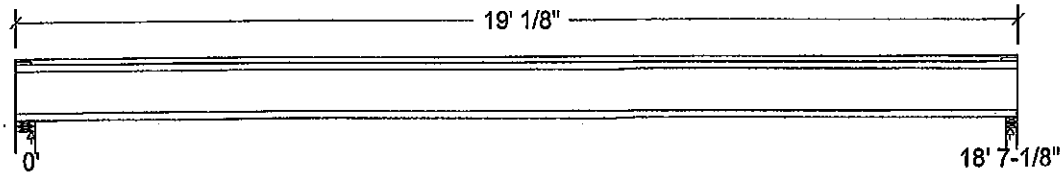
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Dead	Full Area				20.00		psf
Load2	Live	Full Area				40.00		psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	186		186
Live	372		372
Factored:			
Total	790		790
Bearing:			
Capacity			
Joist	2336		2188
Support	10841		5573
Des ratio			
Joist	0.34		0.36
Support	0.07		0.14
Load case	#2		#2
Length	4-3/8		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

Nordic 11-7/8" NI-80 Floor joist @ 12" o.c.

Supports: All - Lumber Wall, No.1/No.2

Total length: 19' 1/8"; Clear span: 18' 5-3/8"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 790	Vr = 2336	lbs	Vf/Vr = 0.34
Moment(+)	Mf = 3673	Mr = 11609	lbs-ft	Mf/Mr = 0.32
Perm. Defl'n	0.10 = < L/999	0.62 = L/360	in	0.16
Live Defl'n	0.20 = < L/999	0.46 = L/480	in	0.44
Total Defl'n	0.30 = L/735	0.93 = L/240	in	0.33
Bare Defl'n	0.22 = L/998	0.62 = L/360	in	0.36
Vibration	Lmax = 18'-7.1	Lv = 20'-5.8	ft	0.91
Defl'n	= 0.027	= 0.034	in	0.79

LICENSED PROFESSIONAL ENGINEERS — 41622 — S. KATSOULAKOS — PROVINCE OF ONTARIO

DWG NO. YAM6037-20
STRUCTURAL COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million		-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

```
 Shear      : LC #2  = 1.25D + 1.5L
 Moment(+)  : LC #2  = 1.25D + 1.5L
 Deflection: LC #1  = 1.0D  (permanent)
             LC #2  = 1.0D + 1.0L  (live)
             LC #2  = 1.0D + 1.0L  (total)
             LC #2  = 1.0D + 1.0L  (bare joist)
 Bearing    : Support 1 - LC #2 = 1.25D + 1.5L
              Support 2 - LC #2 = 1.25D + 1.5L
 Load Types: D=dead  W=wind  S=snow  H=earth,groundwater  E=earthquake
             L=live(use,occupancy)  Ls=live(storage,equipment)  f=fire
 Load Patterns: s=S/2  L=L+Ls  _=no pattern load in this span
 All Load Combinations (LCs) are listed in the Analysis output
```

CALCULATIONS:

```
 EIeff = 613.27 lb-in^2  K=  6.18e06 lbs
 "Live" deflection is due to all non-dead loads (live, wind, snow...)
```

CONFORMS TO OBC 2012
AMENDED 2020

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. YAM 6037-20
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

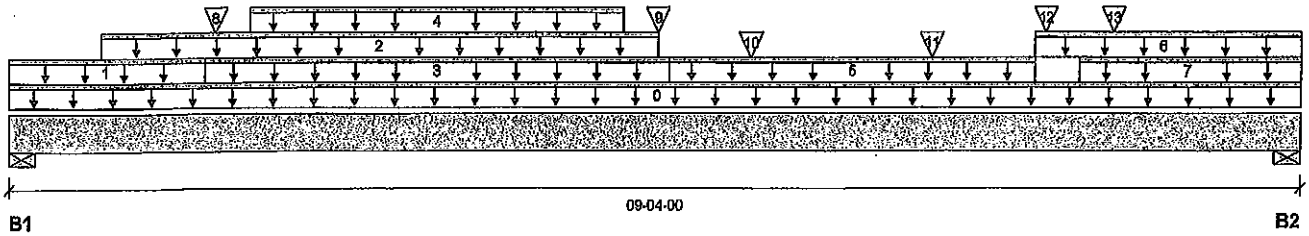
PASSED

2ND FLR FRAMING\Dropped Beams\B19A DR(I2421) (Dropped Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | February 18, 2020 08:54:51

Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 1.mmdl
Address:		Description:	2ND FLR FRAMING\Dropped Beams\B19A DR(I2421)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 09-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	999 / 0	945 / 0	405 / 0	
B2, 5-1/2"	1034 / 0	996 / 0	444 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-04-00	Top		10			00-00-00
1	R1(i1840)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top		41			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-08-00	04-08-00	Top	205	103			n\a
3	R1(i1840)	Unf. Lin. (lb/ft)	L	01-05-00	04-09-00	Top		81			n\a
4	R1(i1840)	Unf. Lin. (lb/ft)	L	01-09-00	04-05-00	Top	44	40	92		n\a
5	R1(i1840)	Unf. Lin. (lb/ft)	L	04-09-00	07-05-00	Top		41			n\a
6	R1(i1840)	Unf. Lin. (lb/ft)	L	07-05-00	09-04-00	Top		81			n\a
7	R1(i1840)	Unf. Lin. (lb/ft)	L	07-09-00	09-04-00	Top	44	40	92		n\a
8	R1(i1840)	Conc. Pt. (lbs)	L	01-06-00	01-06-00	Top	72	90	151		n\a
9	R1(i1840)	Conc. Pt. (lbs)	L	04-08-00	04-08-00	Top	75	93	156		n\a
10	J4(i1832)	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	273	137			n\a
11	J4(i1774)	Conc. Pt. (lbs)	L	06-08-00	06-08-00	Top	273	137			n\a
12	R1(i1840)	Conc. Pt. (lbs)	L	07-06-00	07-06-00	Top	72	90	151		n\a
13	J4(i1726)	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	253	126			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7076 ft-lbs	23220 ft-lbs	30.5%	1	04-05-00
End Shear	3013 lbs	11571 lbs	26.0%	1	01-01-08
Total Load Deflection	L/721 (0.144")	n\a	33.3%	35	04-06-08
Live Load Deflection	L/999 (0.087")	n\a	n\a	51	04-06-08
Max Defl.	0.144"	n\a	n\a	35	04-06-08
Span / Depth	10.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 3-1/2"	3084 lbs	16.5%	18.1%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	3240 lbs	12.6%	13.8%	Spruce-Pine-Fir

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 6038-20
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Dropped Beams\B19A DR(i2421) (Dropped Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — February 18, 2020 08:54:51

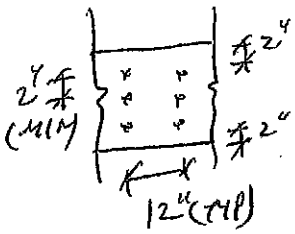
Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 1.mmdl
Address:		Description:	2ND FLR FRAMING\Dropped Beams\B19A DR(i2421)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

LICENSED PROFESSIONAL ENGINEER
41620
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 6038-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

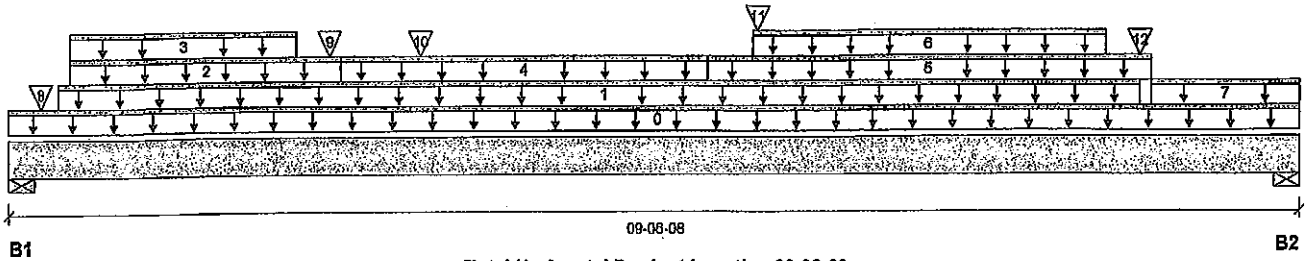
PASSED

2ND FLR FRAMING\Dropped Beams\B20A DR(i2266) (Dropped Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — February 18, 2020 08:54:51

Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 1.mmdl
Address:		Description:	2ND FLR FRAMING\Dropped Beams\B20A DR(i2266)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 09-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	1272 / 0	1070 / 0	399 / 0	
B2, 4"	1109 / 0	1043 / 0	462 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-06-08	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-08	08-04-08	Top	102	52			n\a
2	R1(i1840)	Unf. Lin. (lb/ft)	L	00-05-08	02-05-08	Top		81			n\a
3	R1(i1840)	Unf. Lin. (lb/ft)	L	00-05-08	02-01-08	Top	44	40	92		n\a
4	R1(i1840)	Unf. Lin. (lb/ft)	L	02-05-08	05-01-08	Top		41			n\a
5	R1(i1840)	Unf. Lin. (lb/ft)	L	05-01-08	08-05-08	Top		81			n\a
6	R1(i1840)	Unf. Lin. (lb/ft)	L	05-05-08	08-01-08	Top	44	40	92		n\a
7	R1(i1840)	Unf. Lin. (lb/ft)	L	08-05-08	09-06-08	Top		41			n\a
8	-	Conc. Pt. (lbs)	L	00-02-14	00-02-14	Top	328	164			n\a
9	R1(i1840)	Conc. Pt. (lbs)	L	02-04-08	02-04-08	Top	75	93	156		n\a
10	J4(i1794)	Conc. Pt. (lbs)	L	03-00-08	03-00-08	Top	273	137			n\a
11	-	Conc. Pt. (lbs)	L	05-05-14	05-05-14	Top	345	227	151		n\a
12	-	Conc. Pt. (lbs)	L	08-04-08	08-04-08	Top	348	230	156		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7786 ft-lbs	23220 ft-lbs	33.5%	1	05-02-08
End Shear	3399 lbs	11571 lbs	29.4%	1	08-05-00
Total Load Deflection	L/614 (0.179")	n\a	39.1%	35	04-09-00
Live Load Deflection	L/999 (0.108")	n\a	n\a	51	04-09-00
Max Defl.	0.179"	n\a	n\a	35	04-09-00
Span / Depth	11.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2" x 3-1/2"	3645 lbs	39.0%	42.7%	Spruce-Pine-Fir
B2	Wall/Plate	4" x 3-1/2"	3430 lbs	18.4%	20.1%	Spruce-Pine-Fir

LICENSED PROFESSIONAL ENGINEER
4/6/20
S. KATSOULAKOS
PROVINCE OF ONTARIO

BWB NO. TAM 6039 -20
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Dropped Beams\B20A DR(I2266) (Dropped Beam)

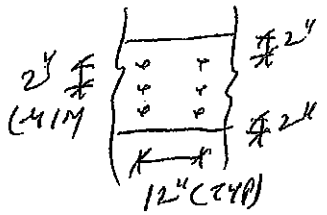
BC CALC® Member Report — Dry | 1 span | No cant. — February 18, 2020 08:54:51
Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 1.mmdl
Address:		Description:	2ND FLR FRAMING\Dropped Beams\B20A DR(I2266)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-01-11, Bottom: 00-01-11.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DWG NO. YAM 6039-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

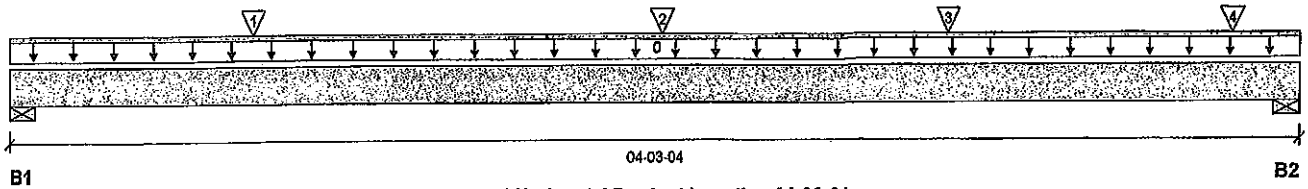
2ND FLR FRAMING\Flush Beams\B12(i2257) (Flush Beam)

Dry | 1 span | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B12(i2257)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 04-03-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	602 / 0	326 / 0		
B2, 4"	903 / 0	477 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-03-04	Top		12			00-00-00
1	-	Conc. Pt. (lbs)	L	00-09-12	00-09-12	Top	382	191			n\a
2	-	Conc. Pt. (lbs)	L	02-01-13	02-01-13	Top	428	215			n\a
3	J2(i2353)	Conc. Pt. (lbs)	L	03-01-04	03-01-04	Top	317	158			n\a
4	-	Conc. Pt. (lbs)	L	04-00-10	04-00-10	Top	378	188			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1459 ft-lbs	35392 ft-lbs	4.1%	1	02-01-04
End Shear	1045 lbs	14464 lbs	7.2%	1	02-11-06
Total Load Deflection	L/999 (0.003")	n\a	n\a	4	02-01-04
Live Load Deflection	L/999 (0.002")	n\a	n\a	5	02-01-04
Max Defl.	0.003"	n\a	n\a	4	02-01-04
Span / Depth	3.9				

LICENSED PROFESSIONAL ENGINEER
4162
S. KATSOULAKOS
PROVINCE OF ONTARIO

Bearing Supports

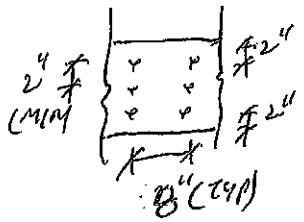
		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-3/4" x 3-1/2"	1310 lbs	22.1%	11.2%	Spruce-Pine-Fir
B2	Wall/Plate	4" x 3-1/2"	1951 lbs	22.7%	11.4%	Spruce-Pine-Fir

DWG NO. YAM 6040-20
STRUCTURAL
COMPONENT ONLY

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 8" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

Disclosure

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Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

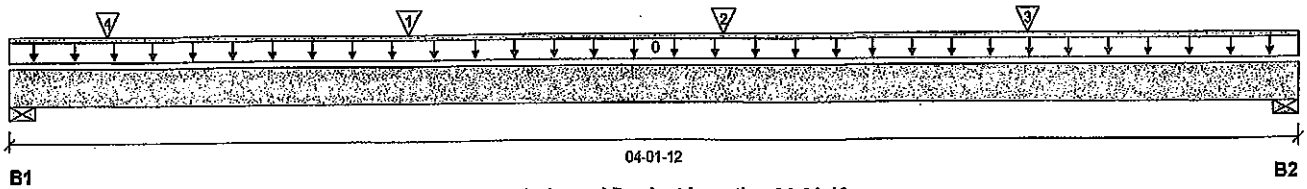
PASSED

2ND FLR FRAMING\Flush Beams\B13(I2387) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — February 18, 2020 08:54:51

Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 1.mmdl
Address:		Description:	2ND FLR FRAMING\Flush Beams\B13(I2387)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 04-01-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1278 / 0	664 / 0		
B2, 3-3/4"	1032 / 0	541 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-01-12	Top		12			00-00-00
1	-	Conc. Pt. (lbs)	L	01-03-07	01-03-07	Top	694	347			n\a
2	-	Conc. Pt. (lbs)	L	02-03-07	02-03-07	Top	694	347			n\a
3	-	Conc. Pt. (lbs)	L	03-03-05	03-03-05	Top	545	273			n\a
4	J8(I2418)	Conc. Pt. (lbs)	L	00-03-12	00-03-12	Top	376	188			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2393 ft-lbs	35392 ft-lbs	6.8%	1	02-03-00
End Shear	1870 lbs	14464 lbs	12.9%	1	01-03-14
Total Load Deflection	L/999 (0.004")	n\a	n\a	4	02-00-15
Live Load Deflection	L/999 (0.003")	n\a	n\a	5	02-00-15
Max Defl.	0.004"	n\a	n\a	4	02-00-15
Span / Depth	3.7				

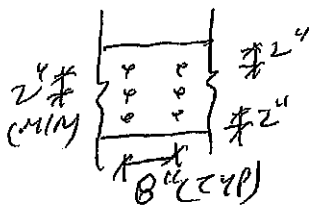
DWG NO. TAM 6041-20
STRUCTURAL
COMPONENT ONLY

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 3-1/2"	2747 lbs	31.9%	16.1%	Spruce-Pine-Fir
B2	Wall/Plate	3-3/4" x 3-1/2"	2224 lbs	27.6%	13.9%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
CONFORMS TO OBC 2012
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
AMENDED 2020
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 8 " O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

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Boise Cascade

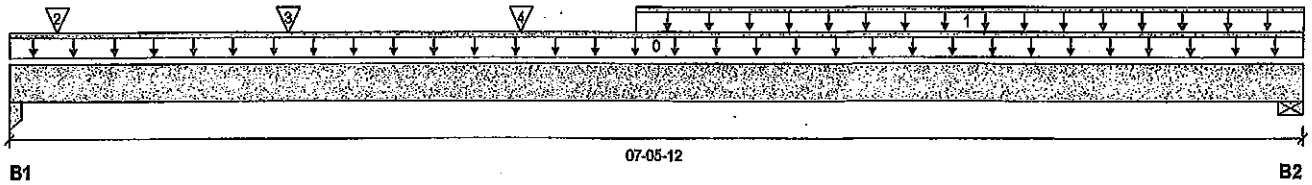
Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B14(i1719) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — February 18, 2020 08:54:51
Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 1.mmdl
Address:		Description:	2ND FLR FRAMING\Flush Beams\B14(i1719)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 07-05-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	748 / 0	417 / 0		
B2, 5-1/2"	893 / 0	492 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-05-12	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	03-07-06	07-05-12	Top	222	111			n\a
2	J4(i1797)	Conc. Pt. (lbs)	L	00-03-06	00-03-06	Top	206	103			n\a
3	J4(i1843)	Conc. Pt. (lbs)	L	01-07-06	01-07-06	Top	163	82			n\a
4	J4(i2389)	Conc. Pt. (lbs)	L	02-11-06	02-11-06	Top	413	206			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3010 ft-lbs	35392 ft-lbs	8.5%	1	02-11-06
End Shear	1337 lbs	14464 lbs	9.2%	1	06-00-06
Total Load Deflection	L/999 (0.019")	n\a	n\a	4	03-07-06
Live Load Deflection	L/999 (0.012")	n\a	n\a	5	03-07-06
Max Defl.	0.019"	n\a	n\a	4	03-07-06
Span / Depth	7.1				

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

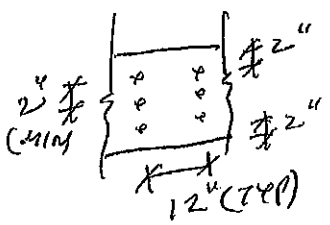
DWG NO. TAM 6042-20
STRUCTURAL COMPONENT ONLY

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 3-1/2"	1643 lbs	33.0%	22.0%	Unspecified
B2	Wall/Plate	5-1/2" x 3-1/2"	1955 lbs	16.5%	8.3%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria. CONFORMS TO OBC 2012
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

Disclosure

Boise Cascade

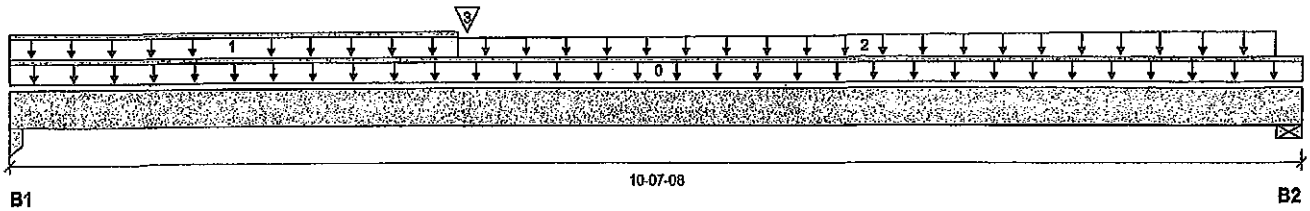
Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B15(i1830) (Flush Beam)

BC CALC® Member Report
Build 7239
Dry | 1 span | No cant.
February 18, 2020 08:54:51

Job name:		File name:	MOUNTAINASH 4 EL 1.mmdl
Address:		Description:	2ND FLR FRAMING\Flush Beams\B15(i1830)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 10-07-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	501 / 0	290 / 0		
B2, 5-1/2"	394 / 0	234 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-07-08	Top		6			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-08-00	Top	3				n\a
2	FC2 Floor Material	Trapezoidal (lb/ft)	L	03-08-00		Top	30	15			n\a
					10-04-12		40	20			
3	B16(i1764)	Conc. Pt. (lbs)	L	03-08-14	03-08-14	Top	647	336			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3813 ft-lbs	17696 ft-lbs	21.5%	1	03-08-14
End Shear	1096 lbs	7232 lbs	15.2%	1	01-03-06
Total Load Deflection	L/999 (0.085")	n\a	n\a	4	04-11-02
Live Load Deflection	L/999 (0.054")	n\a	n\a	5	04-11-02
Max Defl.	0.085"	n\a	n\a	4	04-11-02
Span / Depth	10.1				

LICENSED PROFESSIONAL ENGINEER
4/16/20
S. KATSOULAKOS
PROVINCE OF ONTARIO

OWS NO. YAM6043-20
STRUCTURAL
COMPONENT ONLY

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	1113 lbs	22.4%	14.9%	Unspecified
B2	Wall/Plate	5-1/2" x 1-3/4"	883 lbs	14.9%	7.5%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
CONFORMS TO OBC 2012
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
AMENDED 2020
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

Disclosure

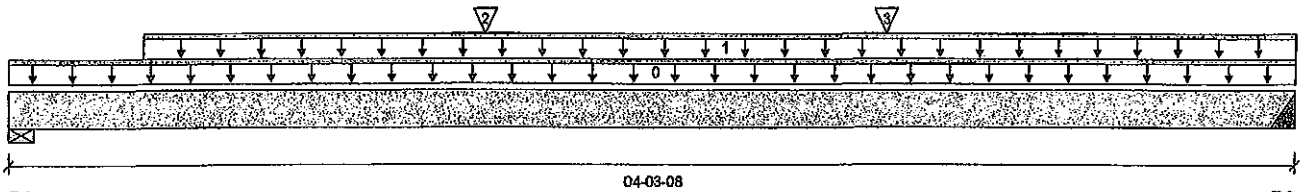
Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B16(I1764) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — February 18, 2020 08:54:51
Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 1.mmdl
Address:		Description:	2ND FLR FRAMING\Flush Beams\B16(i1764)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 04-03-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	632 / 0	330 / 0		
B2, 2"	664 / 0	345 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-03-08	Top		6			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-05-08	04-03-08	Top	240	120			n\a
2	J6(I1825)	Conc. Pt. (lbs)	L	01-07-00	01-07-00	Top	181	91			n\a
3	J6(I1743)	Conc. Pt. (lbs)	L	02-11-00	02-11-00	Top	191	96			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1419 ft-lbs	17696 ft-lbs	8.0%	1	02-04-00
End Shear	837 lbs	7232 lbs	11.6%	1	01-05-06
Total Load Deflection	L/999 (0.005")	n\a	n\a	4	02-03-08
Live Load Deflection	L/999 (0.004")	n\a	n\a	5	02-03-08
Max Defl.	0.005"	n\a	n\a	4	02-03-08
Span / Depth	3.8				

LICENSED PROFESSIONAL ENGINEER
100136620
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. YAM6044 -20
STRUCTURAL
COMPONENT ONLY

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	1361 lbs	23.0%	11.6%	Spruce-Pine-Fir
B2	Hanger	2" x 1-3/4"	1427 lbs	n\a	33.4%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B2 is a Single 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
CONFORMS TO OBC 2012
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
AMENDED 2020
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

Disclosure

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

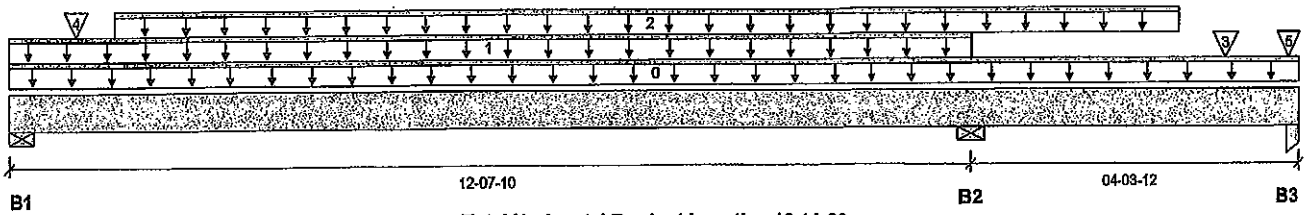
2ND FLR FRAMING\Flush Beams\B17(I2170) (Flush Beam)

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

Dry | 2 spans | No cant.

February 18, 2020 08:54:51

File name: MOUNTAINASH 4 EL 1.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B17(I2170)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 16-11-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	1695 / 16	906 / 0		
B2, 5-1/2"	4638 / 0	2482 / 0		
B3, 3-1/2"	939 / 1231	0 / 164		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	16-11-06	Top		12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-07-10	Top	19	9			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-14	15-04-14	Top	333	167			n\a
3	-	Conc. Pt. (lbs)	L	15-11-09	15-11-09	Top	377	158			n\a
4	J1(I2296)	Conc. Pt. (lbs)	L	00-10-14	00-10-14	Top	293	147			n\a
5	J1(I2172)	Conc. Pt. (lbs)	L	16-09-10	16-09-10	Top	316	158			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9514 ft-lbs	35392 ft-lbs	26.9%	2	04-10-14
Neg. Moment	-11329 ft-lbs	-35392 ft-lbs	32.0%	1	12-07-10
End Shear	3318 lbs	14464 lbs	22.9%	2	01-04-04
Cont. Shear	5044 lbs	14464 lbs	34.9%	1	11-05-00
Total Load Deflection	L/934 (0.158")	n\a	25.7%	9	05-10-14
Live Load Deflection	L/999 (0.104")	n\a	n\a	12	05-10-14
Total Neg. Defl.	L/999 (-0.014")	n\a	n\a	9	14-04-02
Max Defl.	0.158"	n\a	n\a	9	05-10-14
Span / Depth	12.5				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 3-1/2"	3675 lbs	39.0%	19.7%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	10059 lbs	84.9%	42.8%	Spruce-Pine-Fir
B3	Column	3-1/2" x 3-1/2"	1262 lbs	12.7%	8.4%	Unspecified
B3	Uplift		2051 lbs			

Cautions

Uplift of 2051 lbs found at bearing B3. (Simpson I-T522 @ 5.33)

LICENSED PROFESSIONAL ENGINEER
41620
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM6045 -20
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B17(I2170) (Flush Beam)

Dry | 2 spans | No cant.

February 18, 2020 08:54:51

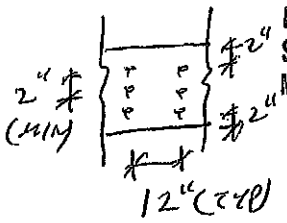
BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B17(I2170)
Specifier:
Designer: AJ
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DWG NO. YAM 6045-20
STRUCTURAL COMPONENT ONLY

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER® , AJS™, ALLJOIST® , BC RIM BOARD™, BCI® , BOISE GLULAM™, BC FloorValue® , VERSA-LAM®, VERSA-RIM PLUS® ,

Boise Cascade

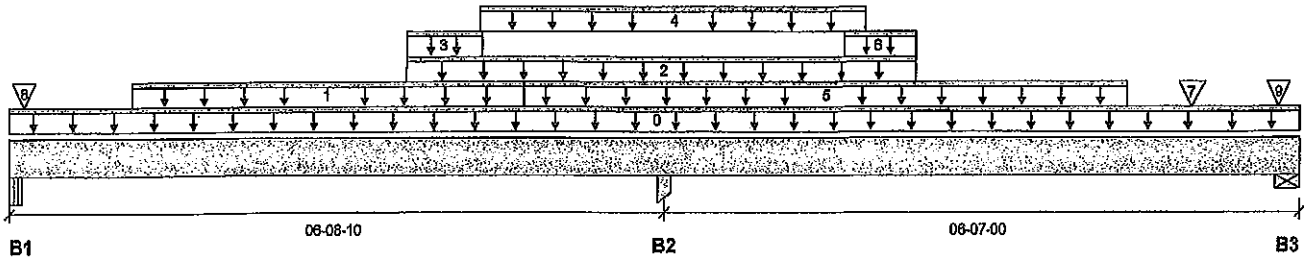
Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B18(I3879) (Flush Beam)

BC CALC® Member Report — Dry | 2 spans | No cant. — February 18, 2020 08:54:51
Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 1.mmdl
Address:		Description:	1ST FLR FRAMING\Flush Beams\B18(I3879)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 13-03-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	1388 / 344	605 / 0		
B2, 6"	7432 / 0	4243 / 0		
B3, 5-1/2"	2738 / 310	2808 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-03-10	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-04	05-03-04	Top	363	182			n\a
2	5(I592)	Unf. Lin. (lb/ft)	L	04-01-02	09-04-02	Top		81			n\a
3	5(I592)	Unf. Lin. (lb/ft)	L	04-01-02	04-10-02	Top	1209	638			n\a
4	5(I592)	Unf. Lin. (lb/ft)	L	04-09-14	08-09-14	Top	698	349			n\a
5	Smoothed Load	Unf. Lin. (lb/ft)	L	05-03-04	11-06-08	Top	348	174			n\a
6	5(I592)	Unf. Lin. (lb/ft)	L	08-07-02	09-04-02	Top	2107	1087			n\a
7	J2(I3755)	Conc. Pt. (lbs)	L	12-02-08	12-02-08	Top	522	267			n\a
8	4(I589)	Conc. Pt. (lbs)	L	00-01-14	00-01-14	Top	178	118			n\a
9	1(I533)	Conc. Pt. (lbs)	L	13-00-14	13-00-14	Top	1208	2139			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6231 ft-lbs	35392 ft-lbs	17.6%	3	09-04-02
Neg. Moment	-9047 ft-lbs	-35392 ft-lbs	25.6%	1	06-08-10
End Shear	2710 lbs	14464 lbs	18.7%	3	11-10-04
Cont. Shear	7571 lbs	14464 lbs	52.3%	1	07-11-08
Total Load Deflection	L/999 (0.027")	n\a	n\a	10	09-09-08
Live Load Deflection	L/999 (0.02")	n\a	n\a	13	09-09-08
Total Neg. Defl.	L/999 (-0.006")	n\a	n\a	10	04-10-02
Max Defl.	0.027"	n\a	n\a	10	09-09-08
Span / Depth	6.4				

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM6046-20
STRUCTURAL
COMPONENT ONLY

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 3-1/2"	2838 lbs	28.9%	12.7%	Unspecified
B2	Column	6" x 3-1/2"	16451 lbs	96.5%	64.2%	Unspecified
B3	Wall/Plate	5-1/2" x 3-1/2"	7617 lbs	64.3%	32.4%	Spruce-Pine-Fir

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B18(I3879) (Flush Beam)

BC CALC® Member Report — Dry | 2 spans | No cant. — February 18, 2020 08:54:51

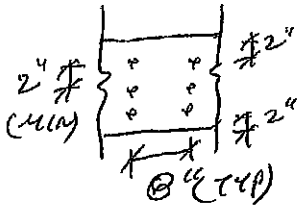
Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 1.mmdl
Address:		Description:	1ST FLR FRAMING\Flush Beams\B18(I3879)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 8 " O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DWG NO. TAM 6046-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

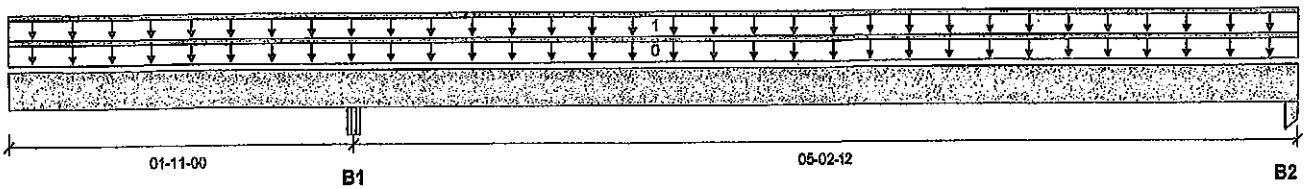
PASSED

1ST FLR FRAMING\Flush Beams\B2(i3880) (Flush Beam)

BC CALC® Member Report — Dry | 2 spans | L cant. — February 18, 2020 08:54:51

Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 1.mmdl
Address:		Description:	1ST FLR FRAMING\Flush Beams\B2(i3880)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 07-01-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	90 / 0	103 / 0		
B2, 1-3/4"	49 / 7	49 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-01-12	Top		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-01-12	Top	19	9			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	157 ft-lbs	35392 ft-lbs	0.4%	3	04-07-14
Neg. Moment	-100 ft-lbs	-35392 ft-lbs	0.3%	1	01-11-00
End Shear	73 lbs	14464 lbs	0.6%	3	06-00-02
Cont. Shear	94 lbs	14464 lbs	0.6%	1	03-01-08
Total Load Deflection	L/999 (0.001")	n\a	n\a	10	04-06-13
Live Load Deflection	2xL/1998 (-0")	n\a	n\a	13	00-00-00
Total Neg. Defl.	2xL/1998 (-0")	n\a	n\a	10	00-00-00
Max Defl.	0.001"	n\a	n\a	10	04-06-13
Span / Depth	5.2				

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

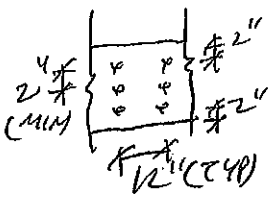
DWG NO. TAM6047-20
STRUCTURAL COMPONENT ONLY

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 3-1/2"	264 lbs	2.7%	1.2%	Unspecified
B2	Column	1-3/4" x 3-1/2"	135 lbs	2.7%	1.8%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets User specified (2xL/360) Live load deflection criteria. CONFORMS TO OBC 2012
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

Disclosure

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BC CALC®, BC FRAMER® , AJS™, ALLJOIST® , BC RIM BOARD™, BCI® , BOISE GLULAM™, BC FloorValue® , VERSA-LAM®, VERSA-RIM PLUS® ,

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

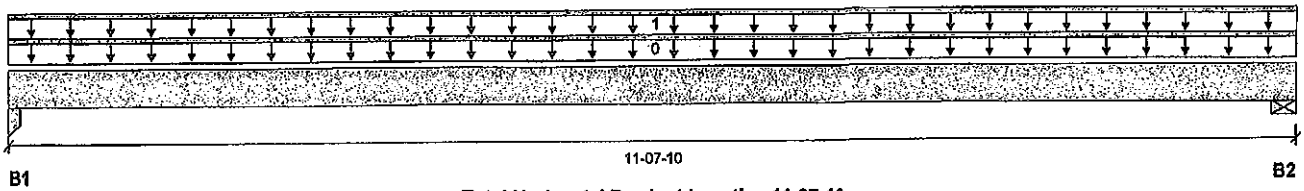
1ST FLR FRAMING\Flush Beams\B3(I3832) (Flush Beam)

Dry | 1 span | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B3(I3832)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 11-07-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	108 / 0	124 / 0		
B2, 1-7/8"	108 / 0	124 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-07-10	Top		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-07-10	Top	19	9			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	894 ft-lbs	35392 ft-lbs	2.5%	1	05-09-12
End Shear	255 lbs	14464 lbs	1.8%	1	01-01-10
Total Load Deflection	L/999 (0.016")	n\a	n\a	4	05-09-12
Live Load Deflection	L/999 (0.007")	n\a	n\a	5	05-09-12
Max Defl.	0.016"	n\a	n\a	4	05-09-12
Span / Depth	11.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 3-1/2"	316 lbs	6.4%	4.2%	Unspecified
B2	Wall/Plate	1-7/8" x 3-1/2"	317 lbs	7.9%	4.0%	Spruce-Pine-Fir

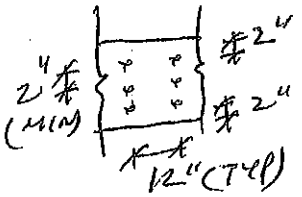
LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM6048 -20
STRUCTURAL
COMPONENT ONLY

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

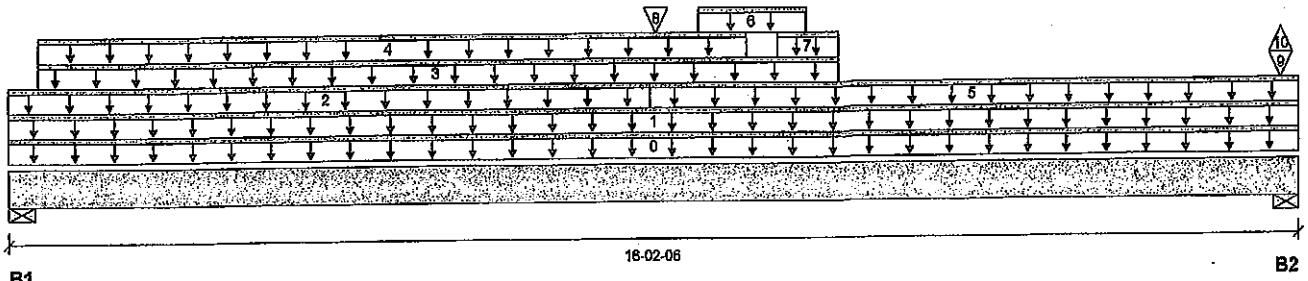
1ST FLR FRAMING\Flush Beams\B4(i3765) (Flush Beam)

Dry | 1 span | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B4(i3765)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 16-02-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-7/8"	1167 / 0	1263 / 0		
B2, 5-1/2"	1277 / 5	1062 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	16-02-06	Top		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	16-02-06	Top	26	13			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-00-08	Top	6	3			n\a
3	6(i614)	Unf. Lin. (lb/ft)	L	00-04-06	10-04-10	Top		81			n\a
4	6(i614)	Unf. Lin. (lb/ft)	L	00-04-06	09-02-14	Top	35	23			n\a
5	FC1 Floor Material	Unf. Lin. (lb/ft)	L	08-00-08	16-02-06	Top	7	4			n\a
6	6(i614)	Unf. Lin. (lb/ft)	L	08-07-12	09-11-12	Top	487	254			n\a
7	6(i614)	Unf. Lin. (lb/ft)	L	09-07-10	10-04-10	Top	279	139			n\a
8	B5(i3861)	Conc. Pt. (lbs)	L	08-01-06	08-01-06	Top	709	365			n\a
9	2(i532)	Conc. Pt. (lbs)	L	15-11-10	15-11-10	Top	36	41			n\a
10	2(i532)	Conc. Pt. (lbs)	L	15-11-10	15-11-10	Top	-5				n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	18495 ft-lbs	35392 ft-lbs	52.3%	1	08-01-06
End Shear	3234 lbs	14464 lbs	22.4%	1	01-01-12
Total Load Deflection	L/343 (0.549")	n\a	69.9%	6	08-00-08
Live Load Deflection	L/642 (0.294")	n\a	56.1%	8	08-01-06
Max Defl.	0.549"	n\a	n\a	6	08-00-08
Span / Depth	15.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	1-7/8" x 3-1/2"	3330 lbs	82.5%	41.6%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	3244 lbs	27.4%	13.8%	Spruce-Pine-Fir

LICENSED PROFESSIONAL ENGINEER
41620
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM6049 -20
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B4(I3765) (Flush Beam)

Dry | 1 span | No cant.

February 18, 2020 08:54:51

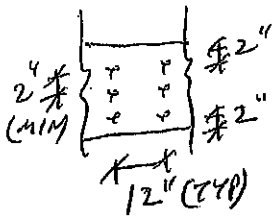
BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B4(I3765)
Specifier:
Designer: AJ
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DWG NO. YAM6049-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER® , AJS™, ALLJOIST® , BC RIM BOARD™, BCI® , BOISE GLULAM™, BC FloorValue® , VERSA-LAM®, VERSA-RIM PLUS® ,

Boise Cascade

Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

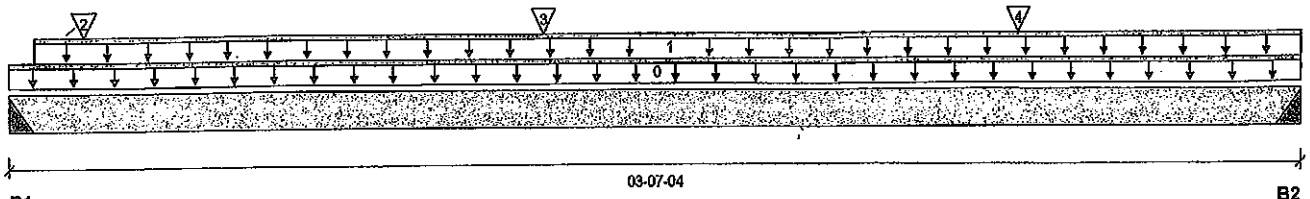
1ST FLR FRAMING\Flush Beams\B5(I3861) (Flush Beam)

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

February 18, 2020 08:54:51

File name: MOUNTAINASH 4 EL 1.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B5(I3861)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 03-07-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	699 / 0	360 / 0		
B2, 2"	663 / 0	343 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-07-04	Top		6			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-14	03-07-04	Top	240	120			n\a
2	J5(I3844)	Conc. Pt. (lbs)	L	00-02-08	00-02-08	Top	129	64			n\a
3	J5(I3855)	Conc. Pt. (lbs)	L	01-05-12	01-05-12	Top	206	103			n\a
4	J5(I3872)	Conc. Pt. (lbs)	L	02-09-12	02-09-12	Top	180	90			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1204 ft-lbs	17696 ft-lbs	6.8%	1	01-07-03
End Shear	684 lbs	7232 lbs	9.5%	1	02-05-06
Total Load Deflection	L/999 (0.004")	n\a	n\a	4	01-09-12
Live Load Deflection	L/999 (0.002")	n\a	n\a	5	01-09-12
Max Defl.	0.004"	n\a	n\a	4	01-09-12
Span / Depth	3.4				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 1-3/4"	1499 lbs	n\a	35.1%	HUS1.81/10
B2	Hanger	2" x 1-3/4"	1423 lbs	n\a	33.3%	HUS1.81/10

PROFESSIONAL ENGINEERS
LICENSED
41620
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 6050 -20
STRUCTURAL
COMPONENT ONLY

Cautions

Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.
Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020

Disclosure

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Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

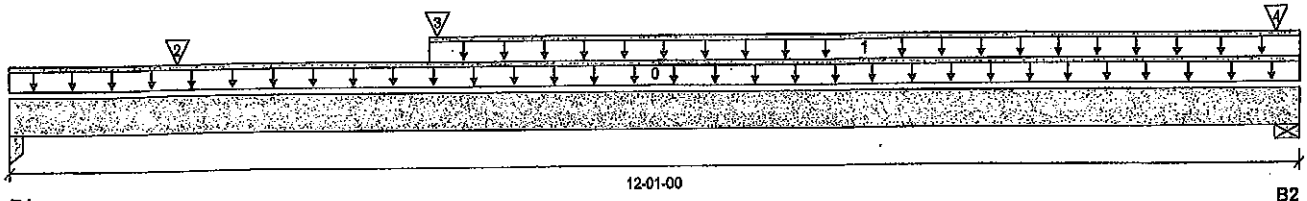
1ST FLR FRAMING\Flush Beams\B6(i3876) (Flush Beam)

Dry | 1 span | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B6(i3876)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 12-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2577 / 0	1554 / 0		
B2, 5-1/2"	772 / 0	520 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-01-00	Top		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-11-02	12-01-00	Top	27	13			n\a
2	-	Conc. Pt. (lbs)	L	01-07-02	01-07-02	Top	2325	1374			n\a
3	B5(i3861)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	654	338			n\a
4	2(i532)	Conc. Pt. (lbs)	L	11-10-04	11-10-04	Top	127	95			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9181 ft-lbs	35392 ft-lbs	25.9%	1	04-00-00
End Shear	5775 lbs	14464 lbs	39.9%	1	01-03-06
Total Load Deflection	L/995 (0.138")	n\a	24.1%	4	05-04-03
Live Load Deflection	L/999 (0.086")	n\a	n\a	5	05-04-03
Max Defl.	0.138"	n\a	n\a	4	05-04-03
Span / Depth	11.6				

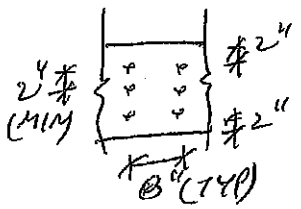
Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 3-1/2"	5808 lbs	58.4%	38.9%	Unspecified
B2	Wall/Plate	5-1/2" x 3-1/2"	1807 lbs	15.3%	7.7%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 8" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM6051 -20
STRUCTURAL
COMPONENT ONLY

Disclosure

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Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

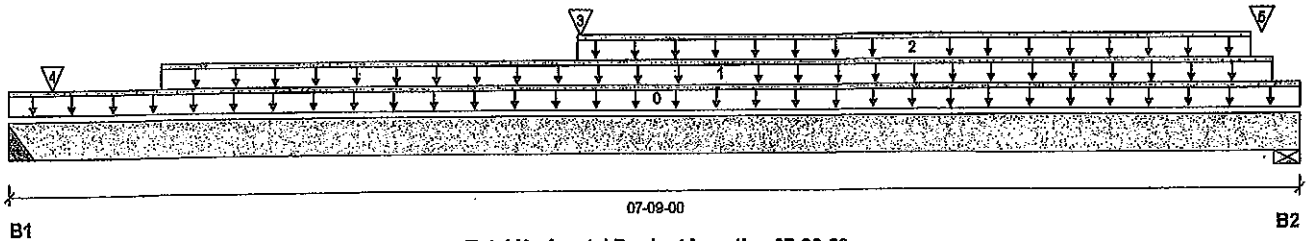
1ST FLR FRAMING\Flush Beams\B7(i3864) (Flush Beam)

Dry | 1 span | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B7(i3864)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 07-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	2280 / 0	1354 / 0		
B2, 3-1/2"	1726 / 0	976 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-09-00	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-00	07-07-00	Top	216	108			n\a
2	STAIR	Unf. Lin. (lb/ft)	L	03-04-11	07-05-08	Top	120	60			n\a
3	B9(i3871)	Conc. Pt. (lbs)	L	03-04-14	03-04-14	Top	63	36			n\a
4	-	Conc. Pt. (lbs)	L	00-03-04	00-03-04	Top	1439	884			n\a
5	E10(i425)	Conc. Pt. (lbs)	L	07-06-04	07-06-04	Top	545	338			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4497 ft-lbs	35392 ft-lbs	12.7%	1	04-03-00
End Shear	2014 lbs	14464 lbs	13.9%	1	06-05-10
Total Load Deflection	L/999 (0.03")	n\a	n\a	4	03-11-08
Live Load Deflection	L/999 (0.019")	n\a	n\a	5	03-11-08
Max Defl.	0.03"	n\a	n\a	4	03-11-08
Span / Depth	7.3				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	4" x 3-1/2"	5113 lbs	n\a	29.9%	HGUS410
B2	Wall/Plate	3-1/2" x 3-1/2"	3809 lbs	50.5%	25.5%	Spruce-Pine-Fir

Cautions

Header for the hanger HGUS410 at B1 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

LICENSED PROFESSIONAL ENGINEER
41610
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM6052-20
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B7(i3864) (Flush Beam)

Dry | 1 span | No cant.

February 18, 2020 08:54:51

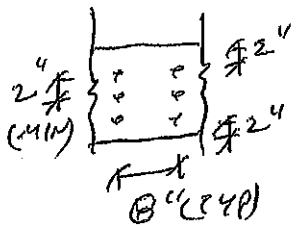
BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B7(i3864)
Specifier:
Designer: AJ
Company:

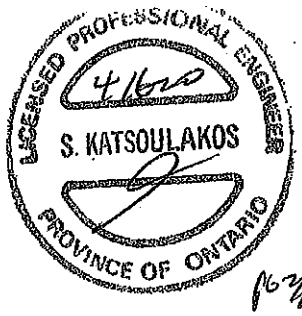
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 8 "O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



DWG NO. TAM6052-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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Boise Cascade

Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

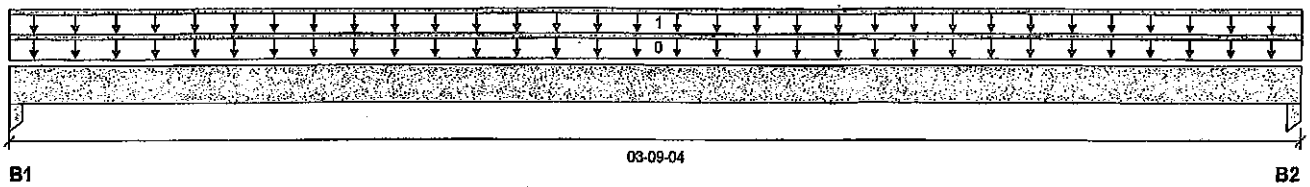
PASSED

1ST FLR FRAMING\Flush Beams\B8(i3867) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — February 18, 2020 08:54:51

Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 1.mmdl
Address:		Description:	1ST FLR FRAMING\Flush Beams\B8(I3867)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 03-09-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	52 / 0	38 / 0		
B2, 3-1/2"	48 / 0	35 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-09-04	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-09-04	Top	27	13			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	80 ft-lbs	17696 ft-lbs	0.5%	1	01-11-08
End Shear	34 lbs	7232 lbs	0.5%	1	01-05-02
Total Load Deflection	L/999 (0")	n\a	n\a	4	01-11-08
Live Load Deflection	L/999 (0")	n\a	n\a	5	01-11-08
Max Defl.	0"	n\a	n\a	4	01-11-08
Span / Depth	3.2				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	5-1/4" x 1-3/4"	126 lbs	1.7%	1.1%	Unspecified
B2	Column	3-1/2" x 1-3/4"	116 lbs	2.3%	1.6%	Unspecified

LICENSED PROFESSIONAL ENGINEERS
41620
S. KATSOULAKOS
PROVINCE OF ONTARIO

OWC NO. TAM6053 -20
STRUCTURAL
COMPONENT ONLY

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
CONFORMS TO OBC 2012
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
AMENDED 2020
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

Disclosure

Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

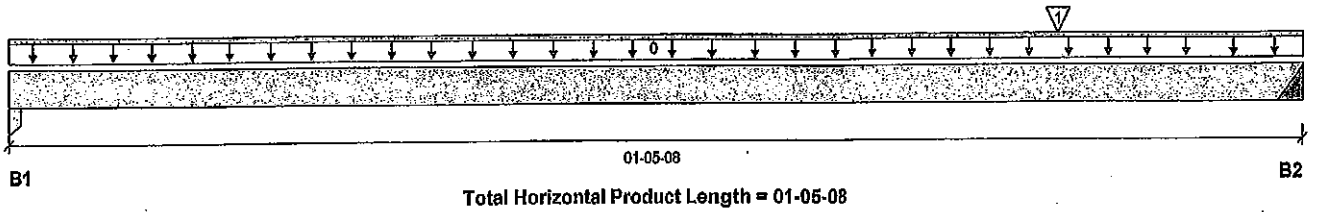
1ST FLR FRAMING\Flush Beams\B9(i3871) (Flush Beam)

Dry | 1 span | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B9(i3871)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 01-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	8 / 0	8 / 0		
B2, 2"	55 / 0	32 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-05-08	Top		6			00-00-00
1	J6(i3869)	Conc. Pt. (lbs)	L	01-02-04	01-02-04	Top	63	32			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	20 ft-lbs	17696 ft-lbs	0.1%	1	01-02-04
End Shear	14 lbs	7232 lbs	0.2%	1	01-01-10
Span / Depth	1.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Column	1-3/4" x 1-3/4"	23 lbs	0.9%	0.6%	Unspecified
B2 Hanger	2" x 1-3/4"	123 lbs	n\a	2.9%	HUS1.81/10

LICENSED PROFESSIONAL ENGINEER
4162
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 6054 -20
STRUCTURAL
COMPONENT ONLY

Cautions

Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

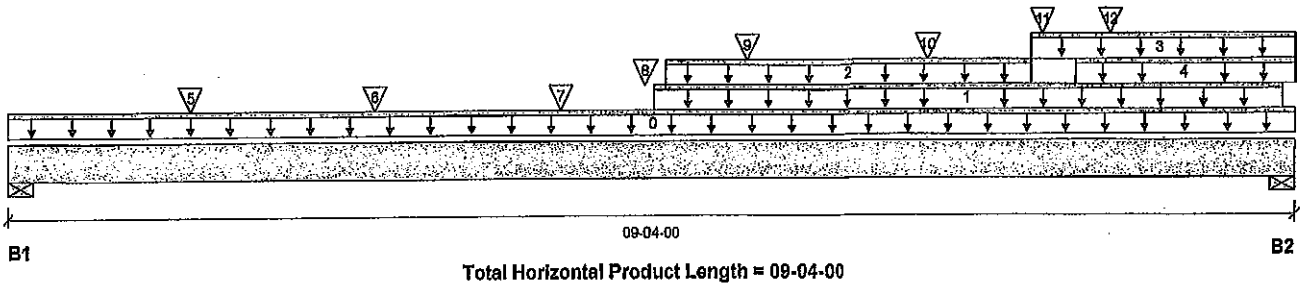
PASSED

2ND FLR FRAMING\Dropped Beams\B19 DR(i4489) (Dropped Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — February 18, 2020 09:06:05

Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 2.mmdl
Address:		Description:	2ND FLR FRAMING\Dropped Beams\B19 DR(i4489)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 09-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1206 / 0	1090 / 0	524 / 0	
B2, 5-1/2"	1274 / 0	1230 / 0	780 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-04-00	Top		10			00-00-00
1	ROOF	Unf. Lin. (lb/ft)	L	04-08-00	09-02-14	Top	33	30	63		n\a
2	R1(i4465)	Unf. Lin. (lb/ft)	L	04-09-00	07-05-00	Top		41			n\a
3	R1(i4465)	Unf. Lin. (lb/ft)	L	07-05-00	09-04-00	Top		81			n\a
4	R1(i4465)	Unf. Lin. (lb/ft)	L	07-09-00	09-04-00	Top	44	40	92		n\a
5	J4(i4437)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	414	342	170		n\a
6	J4(i4460)	Conc. Pt. (lbs)	L	02-08-00	02-08-00	Top	394	331	127		n\a
7	J4(i4484)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	286	237	87		n\a
8	B21(i4467)	Conc. Pt. (lbs)	L	04-07-04	04-07-04	Top	282	331	197		n\a
9	J4(i4447)	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	244	136	69		n\a
10	J4(i4129)	Conc. Pt. (lbs)	L	06-08-00	06-08-00	Top	273	137			n\a
11	R1(i4465)	Conc. Pt. (lbs)	L	07-06-00	07-06-00	Top	72	90	151		n\a
12	J4(i3973)	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	286	156	69		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9223 ft-lbs	23220 ft-lbs	39.7%	1	04-07-04
End Shear	3683 lbs	11571 lbs	31.8%	1	01-01-08
Total Load Deflection	L/561 (0.185")	n\a	42.8%	35	04-07-04
Live Load Deflection	L/999 (0.114")	n\a	n\a	51	04-07-04
Max Defl.	0.185"	n\a	n\a	35	04-07-04
Span / Depth	10.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 3-1/2"	3696 lbs	32.5%	21.6%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	4227 lbs	16.5%	18.0%	Spruce-Pine-Fir

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 6055 -20
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Dropped Beams\B19 DR(I4489) (Dropped Beam)

Dry | 1 span | No cant.

February 18, 2020 09:06:05

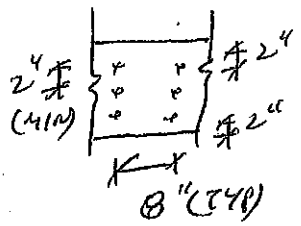
BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 2.mmdl
Description: 2ND FLR FRAMING\Dropped Beams\B19 DR(I4489)
Specifier:
Designer: AJ
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 01-01-08, Bottom: 01-01-08.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 8 " O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DWG NO. TAM 6055 -20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER® , AJS™, ALLJOIST® , BC RIM BOARD™, BCI® , BOISE GLULAM™, BC FloorValue® , VERSA-LAM®, VERSA-RIM PLUS® ,

Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

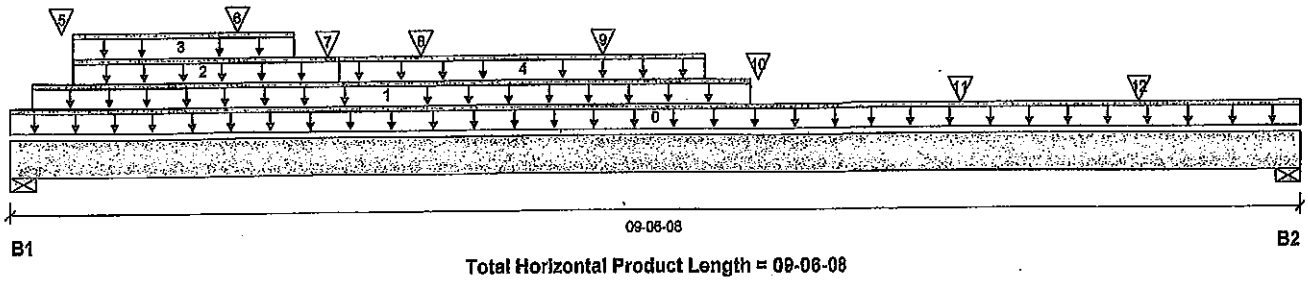
2ND FLR FRAMING\Dropped Beams\B20 DR(i4444) (Dropped Beam)

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

February 18, 2020 09:06:05

File name: MOUNTAINASH 4 EL 2.mmdl
Description: 2ND FLR FRAMING\Dropped Beams\B20 DR(i4444)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 09-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	1316 / 0	1199 / 0	738 / 0	
B2, 4"	1285 / 0	1195 / 0	623 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-06-08	Top		10			00-00-00
1	ROOF	Unf. Lin. (lb/ft)	L	00-02-00	05-05-08	Top	33	30	63		n\a
2	R1(i4438)	Unf. Lin. (lb/ft)	L	00-05-08	02-05-08	Top		81			n\a
3	R1(i4438)	Unf. Lin. (lb/ft)	L	00-05-08	02-01-08	Top	44	40	92		n\a
4	R1(i4438)	Unf. Lin. (lb/ft)	L	02-05-08	05-01-08	Top		41			n\a
5	J4(i4000)	Conc. Pt. (lbs)	L	00-04-08	00-04-08	Top	174	87			n\a
6	J4(i3957)	Conc. Pt. (lbs)	L	01-08-08	01-08-08	Top	303	165	69		n\a
7	R1(i4438)	Conc. Pt. (lbs)	L	02-04-08	02-04-08	Top	75	93	156		n\a
8	J4(i4129)	Conc. Pt. (lbs)	L	03-00-08	03-00-08	Top	273	137			n\a
9	J4(i4461)	Conc. Pt. (lbs)	L	04-04-08	04-04-08	Top	295	161	69		n\a
10	-	Conc. Pt. (lbs)	L	05-06-03	05-06-03	Top	430	478	260		n\a
11	J4(i4479)	Conc. Pt. (lbs)	L	07-00-08	07-00-08	Top	371	320	125		n\a
12	J4(i4471)	Conc. Pt. (lbs)	L	08-04-08	08-04-08	Top	427	362	195		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9800 ft-lbs	23220 ft-lbs	42.2%	1	04-09-00
End Shear	4031 lbs	11571 lbs	34.8%	1	08-05-00
Total Load Deflection	L/482 (0.228")	n\a	49.8%	35	04-09-00
Live Load Deflection	L/777 (0.142")	n\a	46.3%	51	04-09-00
Max Defl.	0.228"	n\a	n\a	35	04-09-00
Span / Depth	11.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2" x 3-1/2"	4211 lbs	45.1%	49.3%	Spruce-Pine-Fir
B2	Wall/Plate	4" x 3-1/2"	4044 lbs	35.6%	23.7%	Spruce-Pine-Fir

LICENSED PROFESSIONAL ENGINEERS
4162
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM60056 -20
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Dropped Beams\B20 DR(I4444) (Dropped Beam)

Dry | 1 span | No cant.

February 18, 2020 09:06:05

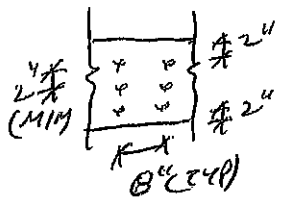
BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 2.mmdl
Description: 2ND FLR FRAMING\Dropped Beams\B20 DR(I4444)
Specifier:
Designer: AJ
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 01-02-04, Bottom: 01-02-04.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 6 "O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DWG NO. TAM6056-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER® , AJS™, ALLJOIST® , BC RIM BOARD™, BCI® , BOISE GLULAM™, BC FloorValue® , VERSA-LAM®, VERSA-RIM PLUS® ,

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

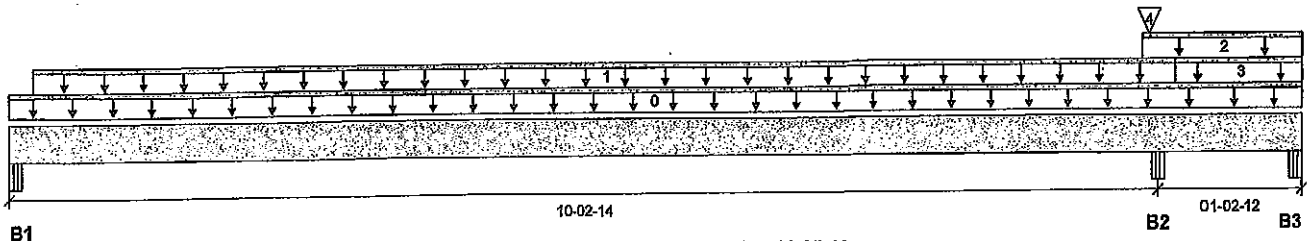
2ND FLR FRAMING\Flush Beams\B21(i4467) (Flush Beam)

Dry | 2 spans | No cant.

February 18, 2020 09:06:05

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 2.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B21(i4467)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 11-05-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	105 / 0	103 / 0	0 / 0	
B2, 3-1/2"	620 / 0	650 / 0	206 / 0	
B3, 5-1/4"	38 / 350	0 / 293	50 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-05-10	Top		12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	10-04-10	Top	27	13			n\a
2	ROOF	Unf. Lin. (lb/ft)	L	10-01-02	11-05-10	Top	33	30	63		n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	10-04-10	11-05-10	Top	15	7			n\a
4	E21(i1667)	Conc. Pt. (lbs)	L	10-01-14	10-01-14	Top	81	136	169		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	517 ft-lbs	35392 ft-lbs	1.5%	44	04-02-04
Neg. Moment	-806 ft-lbs	-35392 ft-lbs	2.3%	1	10-02-14
End Shear	919 lbs	14464 lbs	6.4%	44	11-00-06
Cont. Shear	998 lbs	14464 lbs	6.9%	19	10-04-10
Total Load Deflection	L/999 (0.005")	n\a	n\a	107	04-08-00
Live Load Deflection	L/999 (0.003")	n\a	n\a	159	04-08-00
Total Neg. Defl.	L/999 (-0")	n\a	n\a	107	10-07-03
Max Defl.	0.005"	n\a	n\a	107	04-08-00
Span / Depth	10.0				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 3-1/2"	287 lbs	2.9%	1.3%	Unspecified
B2	Beam	3-1/2" x 3-1/2"	1948 lbs	13.0%	13.0%	VL 2.0 3100 SP
B3	Beam	5-1/4" x 3-1/2"	0 lbs	n\a	n\a	Unspecified
B3	Uplift		892 lbs			

Cautions

Uplift of 892 lbs found at bearing B3. (SIMPSON 2-H2.5A @ 0.33)

DWG NO. TAM6057 -20
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B21(i4467) (Flush Beam)

Dry | 2 spans | No cant.

February 18, 2020 09:06:05

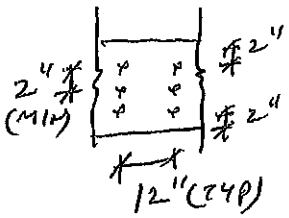
BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 2.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B21(i4467)
Specifier:
Designer: AJ
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DWG NO. TAM 6057-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER® , AJS™, ALLJOIST® , BC RIM BOARD™, BCI® , BOISE GLULAM™, BC FloorValue® , VERSA-LAM®, VERSA-RIM PLUS® ,

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

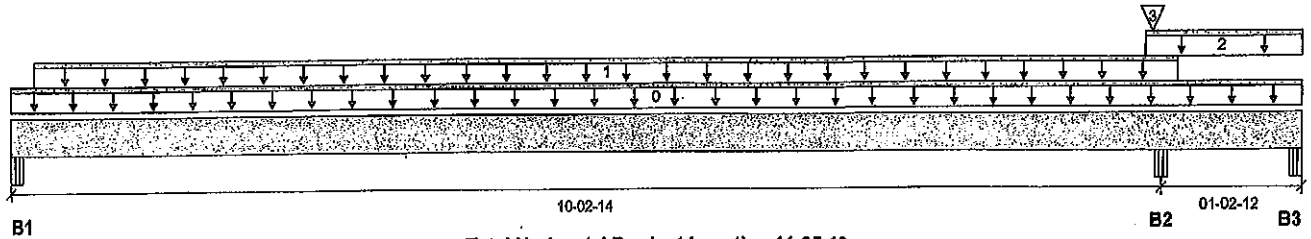
2ND FLR FRAMING\Flush Beams\B22(i4454) (Flush Beam)

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

Dry | 2 spans | No cant.

February 18, 2020 09:06:05

File name: MOUNTAINASH 4 EL 2.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B22(i4454)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 11-05-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	211 / 0	156 / 0	0 / 0	
B2, 3-1/2"	1088 / 0	876 / 0	118 / 0	
B3, 5-1/4"	27 / 699	0 / 474	50 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-05-10	Top		12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	10-04-10	Top	53	27			n\a
2	ROOF	Unf. Lin. (lb/ft)	L	10-01-02	11-05-10	Top	33	30	63		n\a
3	E19(i1665)	Conc. Pt. (lbs)	L	10-01-14	10-01-14	Top	39	107	81		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	926 ft-lbs	35392 ft-lbs	2.6%	44	04-02-04
Neg. Moment	-1440 ft-lbs	-35392 ft-lbs	4.1%	1	10-02-14
End Shear	1664 lbs	14464 lbs	11.5%	44	11-00-06
Cont. Shear	1731 lbs	14464 lbs	12.0%	1	10-04-10
Total Load Deflection	L/999 (0.009")	n\a	n\a	107	04-08-00
Live Load Deflection	L/999 (0.005")	n\a	n\a	159	04-08-00
Total Neg. Defl.	L/999 (-0")	n\a	n\a	107	10-07-03
Max Defl.	0.009"	n\a	n\a	107	04-08-00
Span / Depth	10.0				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 3-1/2"	511 lbs	5.2%	2.3%	Unspecified
B2	Beam	3-1/2" x 3-1/2"	2845 lbs	19.0%	19.0%	VL 2.0 3100 SP
B3	Beam	5-1/4" x 3-1/2"	0 lbs	n\a	n\a	Unspecified
B3	Uplift		1641 lbs			

Cautions

Uplift of 1641 lbs found at bearing B3. (SIMPSON 2-H2.5A + 4-3½" ADJACENT TOE-NAILS @ B3).

LICENSED PROFESSIONAL ENGINEER
4162
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. YAM6056-20
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B22(I4454) (Flush Beam)

BC CALC® Member Report — Dry | 2 spans | No cant. — February 18, 2020 09:06:05

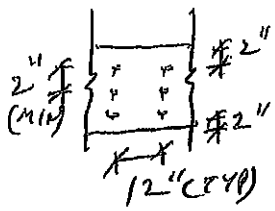
Build 7239

Job name:		File name:	MOUNTAINASH 4 EL 2.mmdl
Address:		Description:	2ND FLR FRAMING\Flush Beams\B22(i4454)
City, Province, Postal Code:	WATERDOWN	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DWG NO. TAM6058-20
STRUCTURAL COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

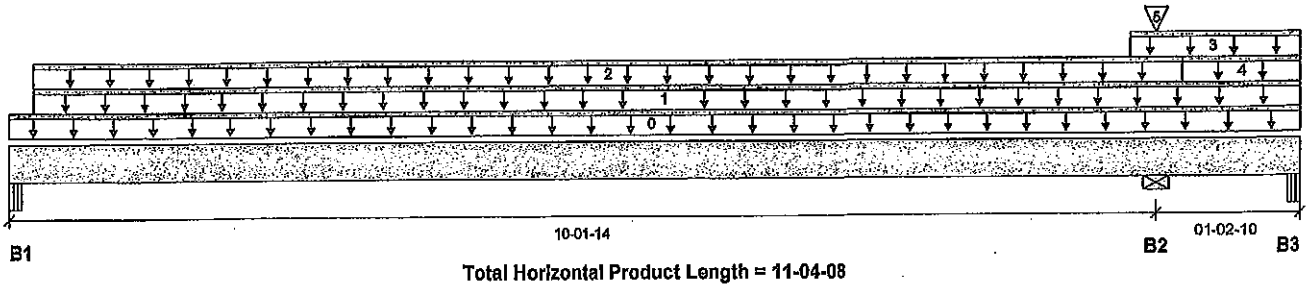
2ND FLR FRAMING\Flush Beams\B22(I4484) (Flush Beam)

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

Dry | 2 spans | No cant.

February 18, 2020 09:19:26

File name: MOUNTAINASH 4 EL 3 OPT.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B22(I4484)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 11-04-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	105 / 0	102 / 0	0 / 0	
B2, 5-1/2"	504 / 0	494 / 0	46 / 0	
B3, 4-1/8"	34 / 311	0 / 260	46 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-04-08	Top		12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	11-04-08	Top	7	4			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	10-04-10	Top	20	10			n\a
3	ROOF	Unf. Lin. (lb/ft)	L	09-11-02	11-04-08	Top	33	30	63		n\a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	10-04-10	11-04-08	Top	6	3			n\a
5	E20(I1666)	Conc. Pt. (lbs)	L	10-01-14	10-01-14	Top		14			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	511 ft-lbs	35392 ft-lbs	1.4%	44	04-01-08
Neg. Moment	-788 ft-lbs	-35392 ft-lbs	2.2%	1	10-01-14
End Shear	813 lbs	14464 lbs	5.6%	44	11-00-06
Cont. Shear	886 lbs	14464 lbs	6.1%	1	10-04-10
Total Load Deflection	L/999 (0.005")	n\a	n\a	107	04-07-02
Live Load Deflection	L/999 (0.003")	n\a	n\a	159	04-07-02
Total Neg. Defl.	L/999 (-0")	n\a	n\a	107	10-06-09
Max Defl.	0.005"	n\a	n\a	107	04-07-02
Span / Depth	9.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 3-1/2"	285 lbs	2.9%	1.3%	Unspecified
B2	Wall/Plate	5-1/2" x 3-1/2"	1420 lbs	12.0%	6.0%	Spruce-Pine-Fir
B3	Beam	4-1/8" x 3-1/2"	0 lbs	n\a	n\a	Unspecified
B3	Uplift		792 lbs			

Cautions

Uplift of 792 lbs found at bearing B3. (SIMPSON 2-H2.5A @ B7. 33)

LICENSED PROFESSIONAL ENGINEER
#1620
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM6059 -20
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B22(I4484) (Flush Beam)

Dry | 2 spans | No cant.

February 18, 2020 09:19:26

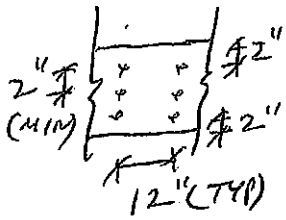
BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 3 OPT.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B22(I4484)
Specifier:
Designer: AJ
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DWG NO. TAM 6059-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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Boise Cascade

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

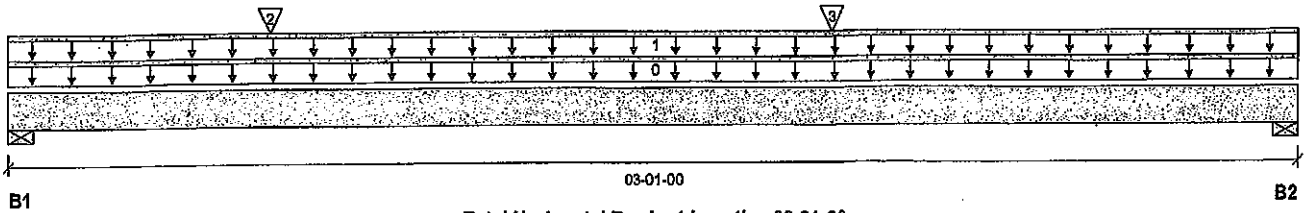
1ST FLR FRAMING\Flush Beams\B1A(i4890) (Flush Beam)

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

April 16, 2020 07:54:23

File name: MOUNTAINASH 4 EL 1 DECK CONDITION.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B1A(i4890)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	818 / 0	552 / 0		
B2, 3"	689 / 0	487 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top		12			00-00-00
1	E1(I429)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	262	212			n\a
2	J3(I4853)	Conc. Pt. (lbs)	L	00-07-08	00-07-08	Top	349	174			n\a
3	J3(I4853)	Conc. Pt. (lbs)	L	01-11-08	01-11-08	Top	349	174			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1140 ft-lbs	35392 ft-lbs	3.2%	1	01-08-12
End Shear	722 lbs	14464 lbs	5.0%	1	01-10-02
Total Load Deflection	L/999 (0.001")	n\a	n\a	4	01-06-08
Live Load Deflection	L/999 (0.001")	n\a	n\a	5	01-06-08
Max Defl.	0.001"	n\a	n\a	4	01-06-08
Span / Depth	2.7				

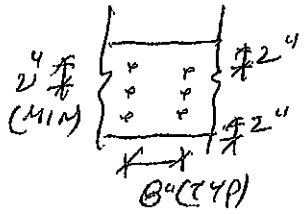
Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3" x 3-1/2"	1917 lbs	29.7%	15.0%	Spruce-Pine-Fir
B2	Wall/Plate	3" x 3-1/2"	1643 lbs	25.4%	12.8%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 8 "O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DWG NO. TAM 6060-20
STRUCTURAL
COMPONENT ONLY

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Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

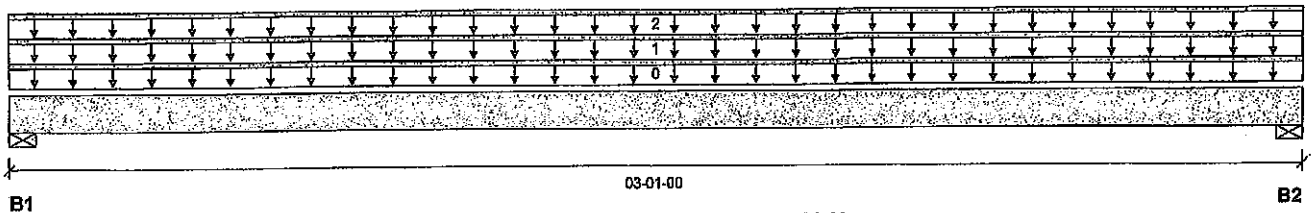
1ST FLR FRAMING\Flush Beams\B1B(i4889) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — April 16, 2020 07:54:23

Build 7239

Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1 DECK CONDITION.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B1B(i4889)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	79 / 0	192 / 0		
B2, 3"	79 / 0	192 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top		12			00-00-00
1	E5(i427)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	25	99			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	27	13			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	160 ft-lbs	23005 ft-lbs	0.7%	0	01-06-08
End Shear	53 lbs	9401 lbs	0.6%	0	01-02-14
Total Load Deflection	L/999 (0")	n\a	n\a	4	01-06-08
Live Load Deflection	L/999 (0")	n\a	n\a	5	01-06-08
Max Defl.	0"	n\a	n\a	4	01-06-08
Span / Depth	2.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3" x 3-1/2"	268 lbs	6.4%	3.2%	Spruce-Pine-Fir
B2	Wall/Plate 3" x 3-1/2"	268 lbs	6.4%	3.2%	Spruce-Pine-Fir

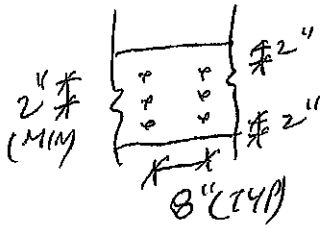
LICENSED PROFESSIONAL ENGINEER
41620
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. FAM 6061 -20
STRUCTURAL
COMPONENT ONLY

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 8 " O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

Disclosure

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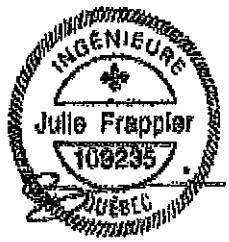


Maximum Floor Spans

Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	16'-5"	15'-5"	14'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-6"	18'-5"	17'-3"	16'-7"	15'-6"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	15'-10"
11-7/8"	NI-20	17'-10"	16'-10"	16'-0"	14'-10"	18'-6"	17'-1"	16'-0"	14'-10"
	NI-40x	19'-4"	17'-11"	17'-3"	15'-10"	19'-11"	18'-6"	17'-9"	15'-10"
	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-1"
	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
14"	NI-40x	21'-5"	19'-10"	18'-11"	17'-5"	22'-1"	20'-6"	19'-6"	17'-5"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
16"	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-9"	16'-1"	15'-1"	13'-11"	17'-9"	16'-1"	15'-1"	13'-11"
	NI-60	18'-1"	16'-5"	15'-5"	14'-3"	18'-1"	16'-5"	15'-5"	14'-3"
	NI-70	19'-10"	17'-11"	16'-9"	15'-6"	19'-10"	17'-11"	16'-9"	15'-6"
	NI-80	20'-2"	18'-3"	17'-1"	15'-10"	20'-2"	18'-3"	17'-1"	15'-10"
11-7/8"	NI-20	18'-10"	17'-1"	16'-0"	14'-10"	18'-10"	17'-1"	16'-0"	14'-10"
	NI-40x	21'-3"	19'-3"	17'-9"	15'-10"	21'-3"	19'-3"	17'-9"	15'-10"
	NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"	18'-5"	17'-1"
	NI-70	23'-4"	21'-5"	20'-1"	18'-6"	23'-8"	21'-5"	20'-1"	18'-6"
	NI-80	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"	20'-5"	18'-11"
	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"
14"	NI-40x	24'-2"	21'-5"	19'-6"	17'-5"	24'-2"	21'-5"	19'-6"	17'-5"
	NI-60	24'-9"	22'-5"	21'-0"	19'-6"	24'-9"	22'-5"	21'-0"	19'-6"
	NI-70	26'-1"	24'-3"	22'-9"	21'-0"	26'-8"	24'-3"	22'-9"	21'-0"
	NI-80	26'-6"	24'-7"	23'-3"	21'-6"	27'-1"	24'-10"	23'-3"	21'-6"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"
16"	NI-60	27'-3"	24'-11"	23'-5"	21'-7"	27'-6"	24'-11"	23'-5"	21'-7"
	NI-70	28'-8"	26'-8"	25'-3"	23'-4"	29'-3"	26'-11"	25'-3"	23'-4"
	NI-80	29'-1"	27'-0"	25'-9"	23'-10"	29'-8"	27'-6"	25'-10"	23'-10"
	NI-90x	29'-11"	27'-10"	26'-6"	24'-10"	30'-6"	28'-5"	26'-11"	24'-10"

1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-Joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans

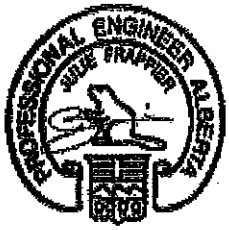
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

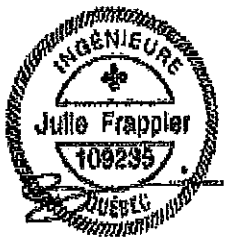
Depth	Series	Bare, On Centre Spacing				1/2" Gypsum Ceiling, On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
14"	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
16"	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

Depth	Series	Mid-Span Blocking, On Centre Spacing				Mid-Span Blocking and 1/2" Gypsum Ceiling, On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-8"	15'-3"	14'-5"	N/A	16'-8"	15'-3"	14'-5"	N/A
	NI-40x	17'-11"	16'-11"	16'-1"	N/A	18'-5"	17'-1"	16'-1"	N/A
	NI-60	18'-2"	17'-1"	16'-4"	N/A	18'-7"	17'-4"	16'-4"	N/A
	NI-70	19'-2"	17'-10"	17'-2"	N/A	19'-7"	18'-3"	17'-7"	N/A
	NI-80	19'-5"	18'-0"	17'-4"	N/A	19'-10"	18'-5"	17'-8"	N/A
11-7/8"	NI-20	19'-6"	18'-1"	17'-3"	N/A	19'-11"	18'-3"	17'-3"	N/A
	NI-40x	21'-0"	19'-6"	18'-8"	N/A	21'-7"	20'-2"	19'-2"	N/A
	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-6"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-8"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	NI-40x	23'-7"	21'-11"	20'-11"	N/A	24'-3"	22'-7"	21'-7"	N/A
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

NORDIC ENGINEERED WOOD





Maximum Floor Spans

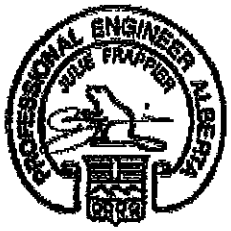
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

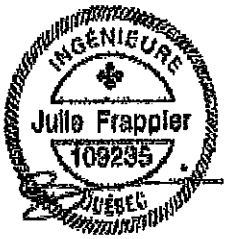
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	16'-7"	15'-11"	15'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-7"	18'-5"	17'-3"	16'-7"	15'-11"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-10"	16'-10"	16'-2"	15'-6"	18'-6"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-6"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
14"	NI-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
16"	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"
	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"
	NI-70	20'-0"	18'-7"	17'-9"	16'-7"	20'-5"	18'-11"	17'-10"	16'-7"
	NI-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10"
11-7/8"	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	17'-5"	16'-2"
	NI-40x	21'-10"	20'-4"	19'-4"	17'-8"	22'-5"	20'-6"	19'-4"	17'-8"
	NI-60	22'-1"	20'-7"	19'-7"	18'-4"	22'-8"	20'-10"	19'-8"	18'-4"
	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	22'-3"	21'-2"	19'-9"
	NI-80	23'-7"	21'-11"	20'-11"	19'-9"	24'-1"	22'-6"	21'-5"	20'-0"
	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"
14"	NI-40x	24'-5"	22'-9"	21'-8"	19'-5"	25'-1"	23'-2"	21'-9"	19'-5"
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10"
	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"	23'-9"	22'-4"
	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"
16"	NI-60	27'-3"	25'-5"	24'-2"	22'-10"	28'-0"	26'-2"	24'-9"	23'-1"
	NI-70	28'-8"	26'-8"	25'-4"	23'-11"	29'-3"	27'-4"	26'-1"	24'-8"
	NI-80	29'-1"	27'-0"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"
	NI-90x	29'-11"	27'-10"	26'-6"	25'-0"	30'-6"	28'-5"	27'-2"	25'-8"

1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-Joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

NORDIC ENGINEERED WOOD





Maximum Floor Spans

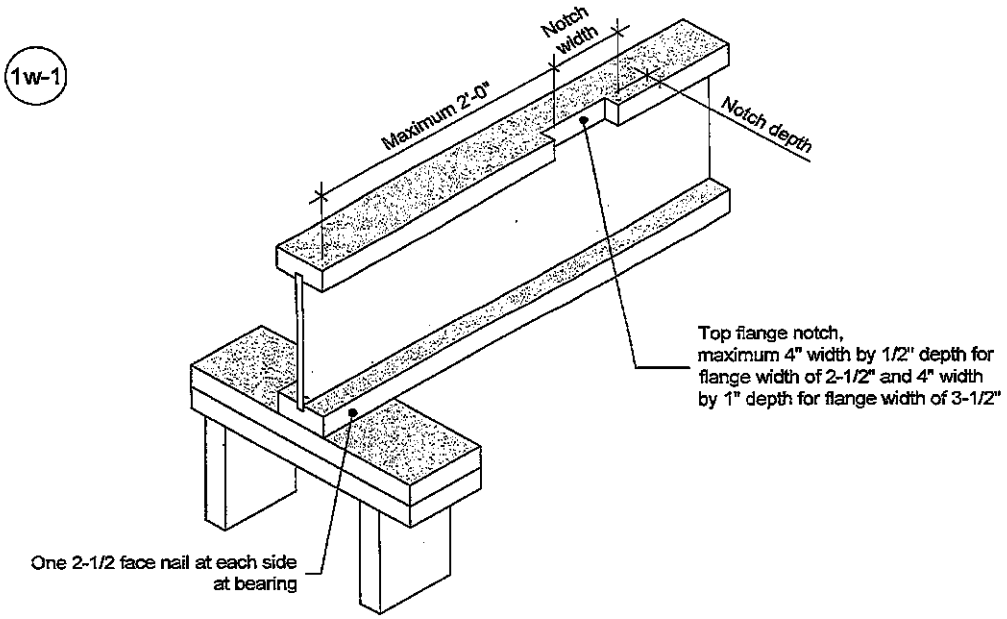
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

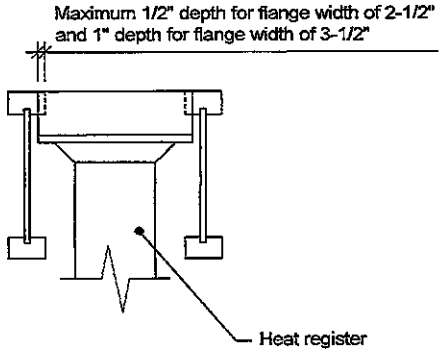
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
14"	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
16"	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	17'-9"	16'-1"	15'-1"	N/A	17'-9"	16'-1"	15'-1"	N/A
	NI-60	18'-1"	16'-4"	15'-4"	N/A	18'-1"	16'-4"	15'-4"	N/A
	NI-70	19'-2"	17'-10"	16'-9"	N/A	19'-7"	17'-10"	16'-9"	N/A
	NI-80	19'-5"	18'-0"	17'-1"	N/A	19'-10"	18'-3"	17'-1"	N/A
11-7/8"	NI-20	18'-9"	17'-0"	16'-0"	N/A	18'-9"	17'-0"	16'-0"	N/A
	NI-40x	21'-0"	19'-3"	17'-9"	N/A	21'-3"	19'-3"	17'-9"	N/A
	NI-60	21'-4"	19'-8"	18'-5"	N/A	21'-8"	19'-8"	18'-5"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-4"	20'-0"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-5"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	NI-40x	23'-7"	21'-5"	19'-6"	N/A	24'-1"	21'-5"	19'-6"	N/A
	NI-60	24'-0"	22'-3"	21'-0"	N/A	24'-8"	22'-5"	21'-0"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-9"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	24'-10"	23'-4"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

1w-1





Notes:

1. Blocking required at bearing for lateral support, not shown for clarity.
2. The maximum dimensions for a notch on the side of the top flange are 4-inch width by 1/2-inch depth for flange width of 2-1/2 inches, and 4-inch width by 1-inch depth for flange width of 3-1/2 inches.
3. This detail applies to simple-span joists and multiple-span joists where the notch is located at the end half-span.
4. For other applications, contact Nordic Structures.

NORDIC STRUCTURES
T 514-871-8526
1 866 817-3418
nordic.ca

TITLE	DOCUMENT	
Notch in I-joist for Heat Register	-	
CATEGORY	DATE	NUMBER
I-joist - Typical Floor Framing and Construction Details	2018-04-10	1w-1

Construction Detail
Limit States Design

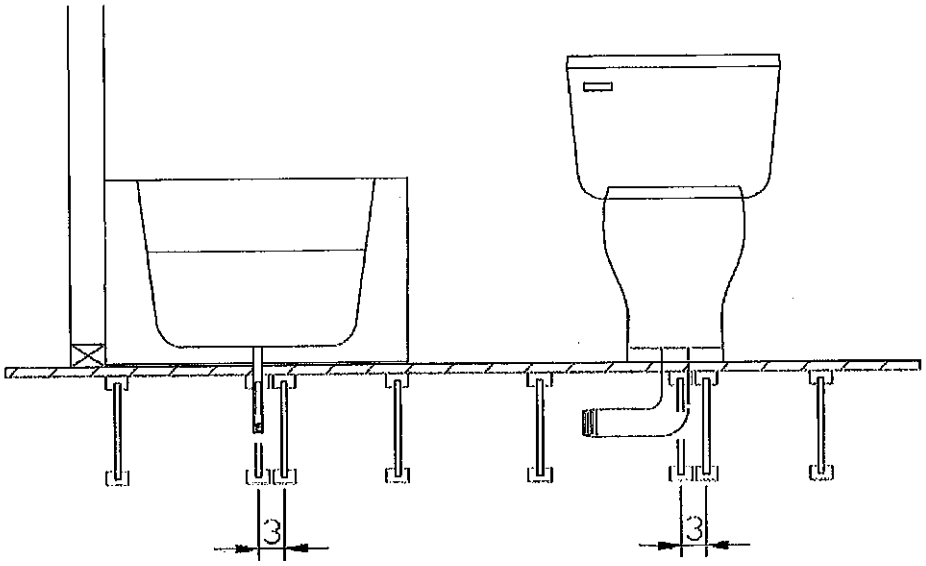
Allowance for Piping (Installation Notes)

The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.

Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced for shorter spans; contact your distributor for additional information.

The detail below shows the 3-inch allowance for piping. Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference. For other applications, please contact your distributor.

ALLOWANCE FOR PIPING



Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference.

Revised April 12, 2012