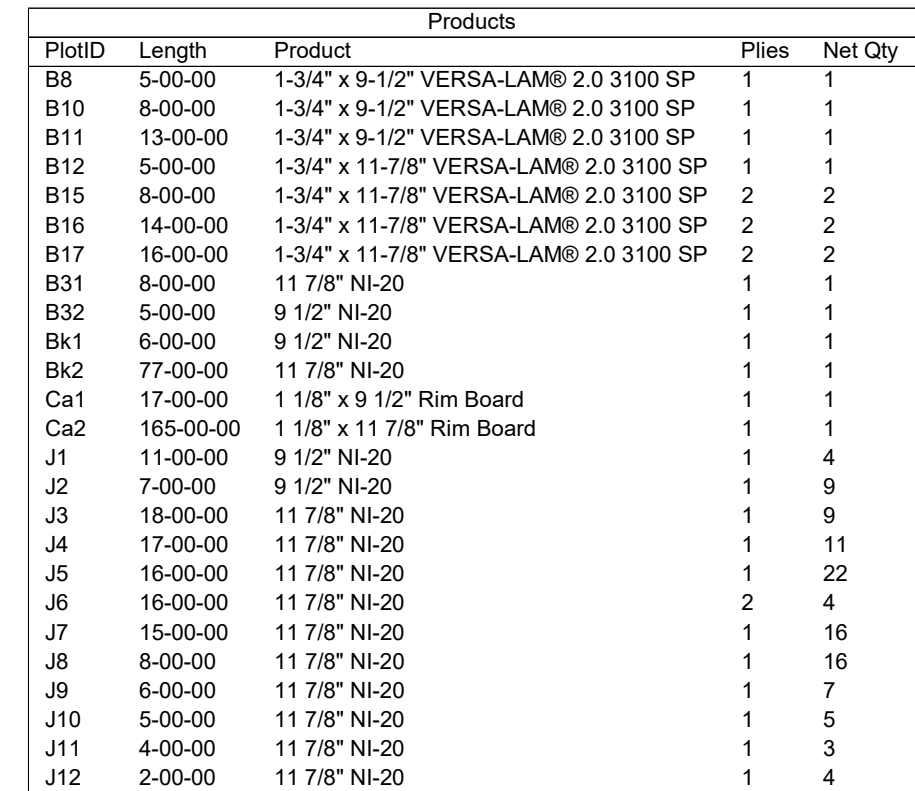




Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HUCQ1.81/9-SDS
H3	46		LT251188
H4	25		LT259

Ceramic Tile

Ceramic tile application as per O.B.C. 9.30.6

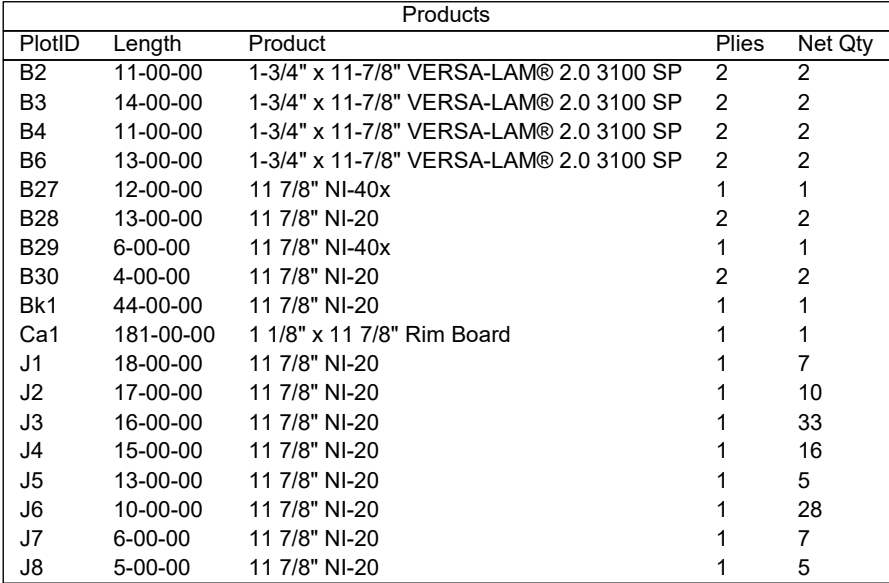
Blocking panels are required over all interior supports
Squash blocks are required under concentrated loads.

Refer to manufacturer's specifications:
(Nordic Engineered Wood Products - Construction
Details Nordic Joist) NS-DC3 latest edition.

First Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: 5008 - EL.A
+OPT. LOGGIA & REAR UPG.
+ W.O.D. CONDITION



Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HU410
H3	52		LT251188

DESIGN LOADING:

LIVE LOAD = 40 PSF

DEAD LOAD = 15 PSF

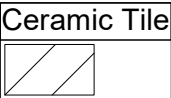
DEAD LOAD @TILE = 20 PSF

RIMBOARD
1- 1/8" X 11 7/8" O.S.B.
SUBFLOOR - 3/4" NAILED & GLUED**
APP - AS PER PLAN
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6

Blocking panels are required over all interior supports
Squash blocks are required under concentrated loads.

Refer to manufacturer's specifications:
(Nordic Engineered Wood Products - Construction
Details Nordic Joist) NS-DC3 latest edition.

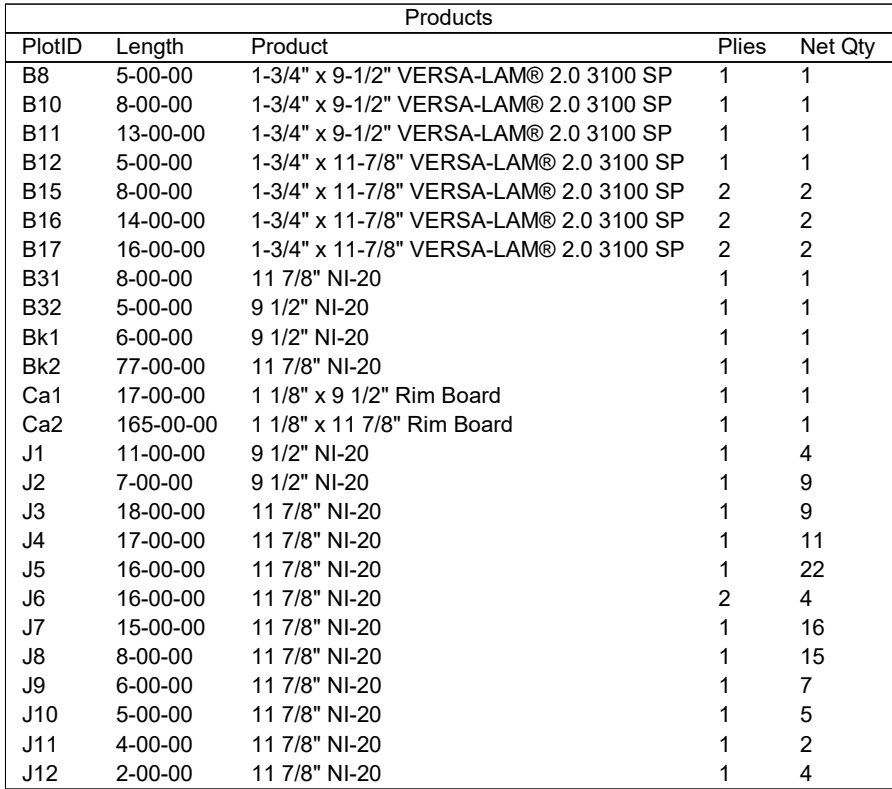


Second Floor Framing

Do not scale - refer to architectural plans for dimensions

REVISIONS		
321529		106927
REV. NO.	DATE	PL. NO.
1	2022/08/27	118899

**MODEL: 5008 - EL.A
W/OPT. 2ND FLOOR
+OPT. LOGGIA & REAR UPG.**

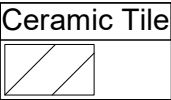


Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HUCQ1.81/9-SDS
H3	40		LT251188
H4	25		LT259

LIVE LOAD = 40 PSF
DEAD LOAD = 15 PSF
DEAD LOAD @TILE = 20 PSF

Blocking panels are required over all interior supports.
Squash blocks are required under concentrated loads.

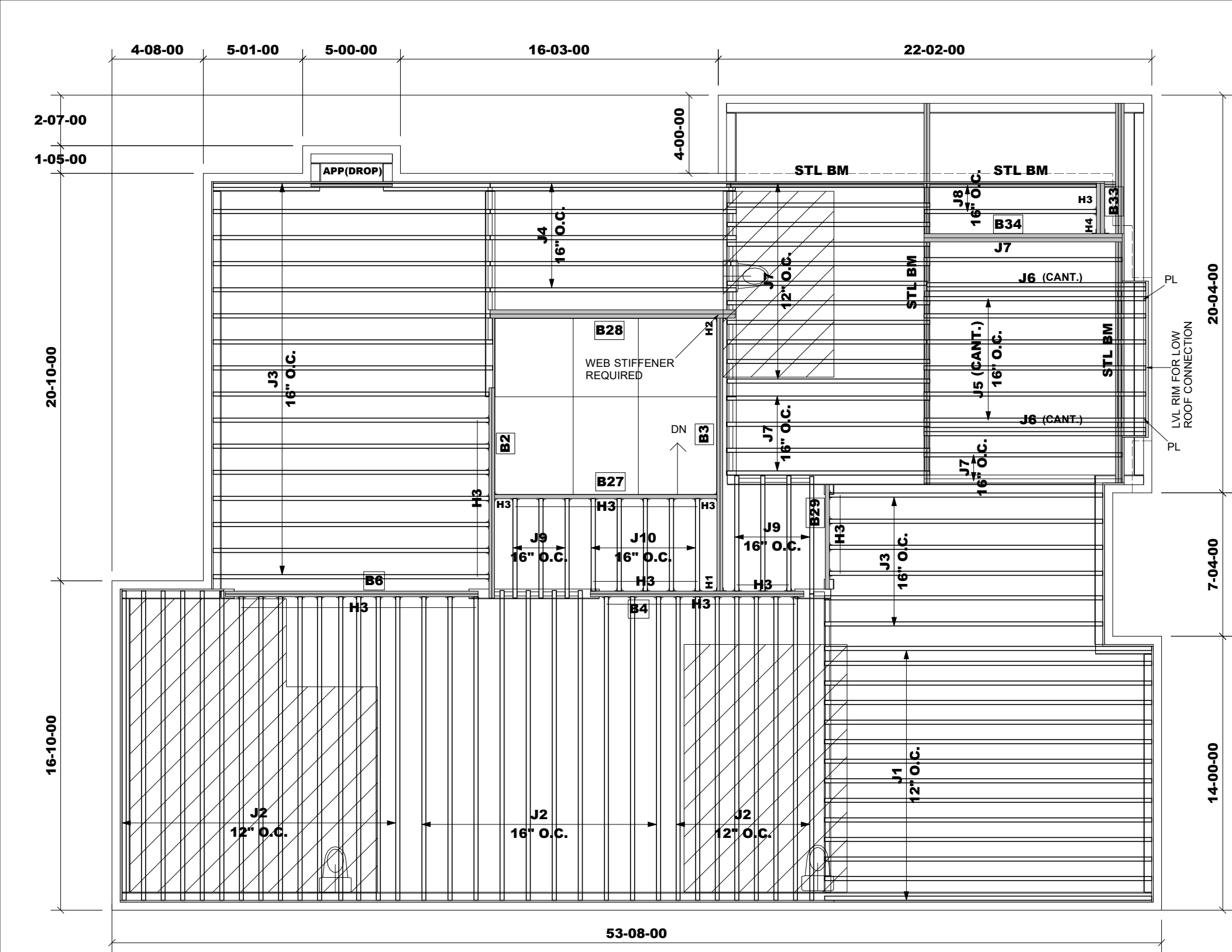
Refer to manufacturer's specifications:
(Nordic Engineered Wood Products - Construction
Details Nordic Joist) NS-DC3 latest edition.



First Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: 5008 - EL.A
W/L.O.D. & W.O.B. COND.
+OPT. LOGGIA



Products				
PlotID	Length	Product	Plies	Net Qty
B2	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B4	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	13-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B27	12-00-00	11 7/8" NI-40x	1	1
B28	13-00-00	11 7/8" NI-20	2	2
B29	6-00-00	11 7/8" NI-40x	1	1
B33	3-00-00	11 7/8" NI-20	2	2
B34	11-00-00	11 7/8" NI-20	2	2
Bk1	50-00-00	11 7/8" NI-20	1	1
Ca1	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
Ca2	176-00-00	1 1/8" x 11 7/8" Rim Board	1	1
J1	17-00-00	11 7/8" NI-20	1	14
J2	16-00-00	11 7/8" NI-20	1	33
J3	15-00-00	11 7/8" NI-20	1	22
J4	13-00-00	11 7/8" NI-20	1	5
J5	12-00-00	11 7/8" NI-20	1	6
J6	12-00-00	11 7/8" NI-20	2	4
J7	11-00-00	11 7/8" NI-20	1	18
J8	9-00-00	11 7/8" NI-20	1	2
J9	6-00-00	11 7/8" NI-20	1	7
J10	5-00-00	11 7/8" NI-20	1	5

RIMBOARD
1- 1/8" X 11 7/8" O.S.B.
SUBFLOOR - 3/4" NAILED & GLUED**
APP - AS PER PLAN
BBO - BEAM BY OTHERS

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HU410
H3	55		LT251188
H4	1		MIT311.88-2

DESIGN LOADING:

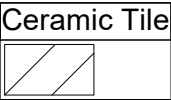
LIVE LOAD = 40 PSF
DEAD LOAD = 15 PSF
DEAD LOAD @TILE = 20 PSF

Ceramic tile application as per O.B.C. 9.30.6

Provide I-Joist Blocking between cantilevered joists (along bearing) and rimboard closure at ends.

Blocking panels are required over all interior supports
Squash blocks are required under concentrated loads.

Refer to manufacturer's specifications:
(Nordic Engineered Wood Products - Construction Details Nordic Joist) NS-DC3 latest edition.

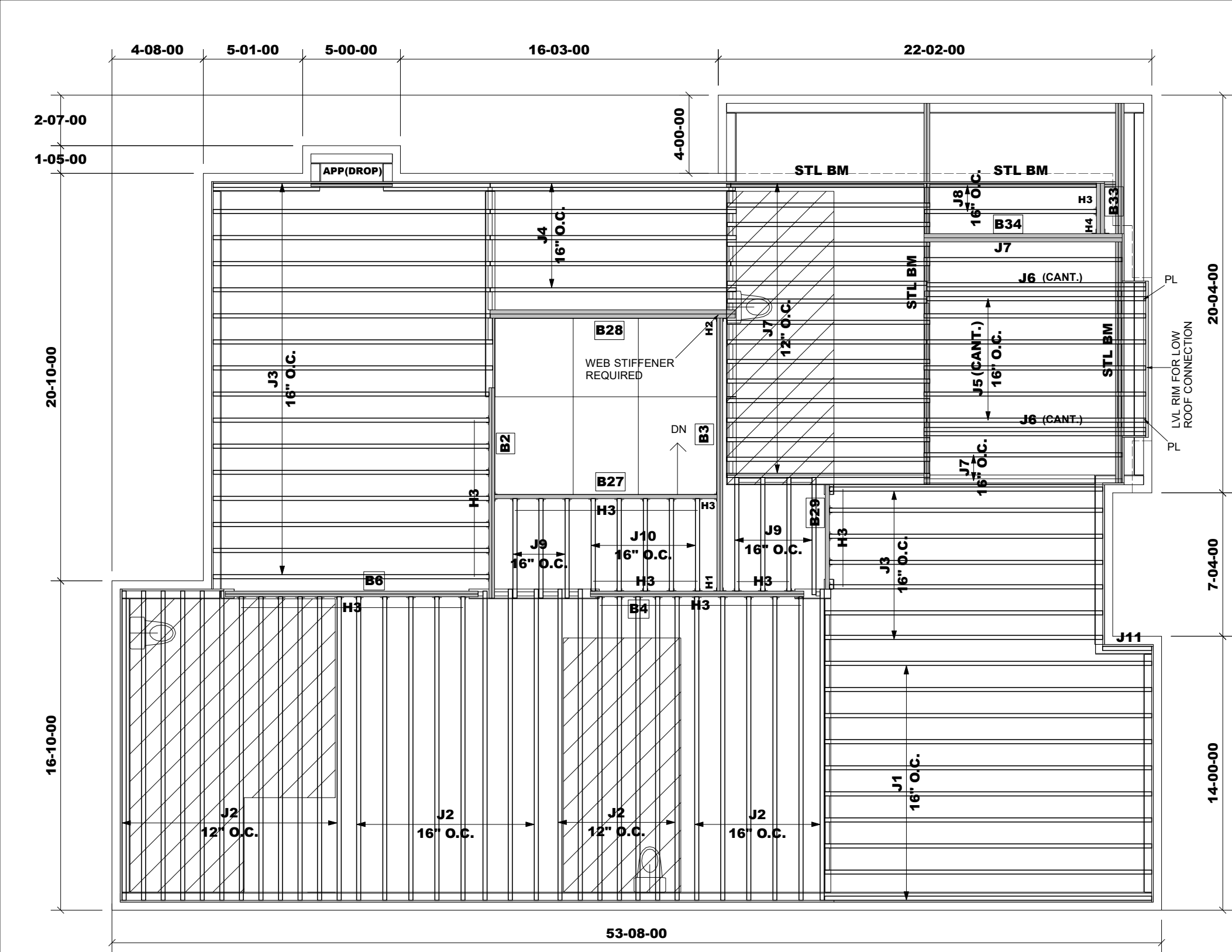


REVISIONS		
321529		106927
REV. NO.	DATE	PL. NO.
1	2022/08/29	118899

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: 5008 - EL.B
+OPT. LOGGIA



Products				
PlotID	Length	Product	Plies	Net Qty
B2	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B4	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	13-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B27	12-00-00	11 7/8" NI-40x	1	1
B28	13-00-00	11 7/8" NI-20	2	2
B29	6-00-00	11 7/8" NI-40x	1	1
B33	3-00-00	11 7/8" NI-20	2	2
B34	11-00-00	11 7/8" NI-20	2	2
Bk1	49-00-00	11 7/8" NI-20	1	1
Ca1	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
Ca2	176-00-00	1 1/8" x 11 7/8" Rim Board	1	1
J1	17-00-00	11 7/8" NI-20	1	10
J2	16-00-00	11 7/8" NI-20	1	33
J3	15-00-00	11 7/8" NI-20	1	23
J4	13-00-00	11 7/8" NI-20	1	5
J5	12-00-00	11 7/8" NI-20	1	6
J6	12-00-00	11 7/8" NI-20	2	4
J7	11-00-00	11 7/8" NI-20	1	19
J8	9-00-00	11 7/8" NI-20	1	2
J9	6-00-00	11 7/8" NI-20	1	7
J10	5-00-00	11 7/8" NI-20	1	5
J11	3-00-00	11 7/8" NI-20	1	1

RIMBOARD
1- 1/8" X 11 7/8" O.S.B.

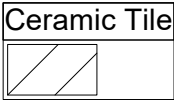
SUBFLOOR - 3/4" NAILED & GLUED**

APP - AS PER PLAN
BBO - BEAM BY OTHERS

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HU410
H3	55		LT251188
H4	1		MIT311.88-2

DESIGN LOADING:

LIVE LOAD = 40 PSF
DEAD LOAD = 15 PSF
DEAD LOAD @TILE = 20 PSF



Ceramic tile application as per O.B.C. 9.30.6

Provide I-Joist Blocking between cantilevered joists (along bearing) and rimboard closure at ends.

Blocking panels are required over all interior supports
Squash blocks are required under concentrated loads.

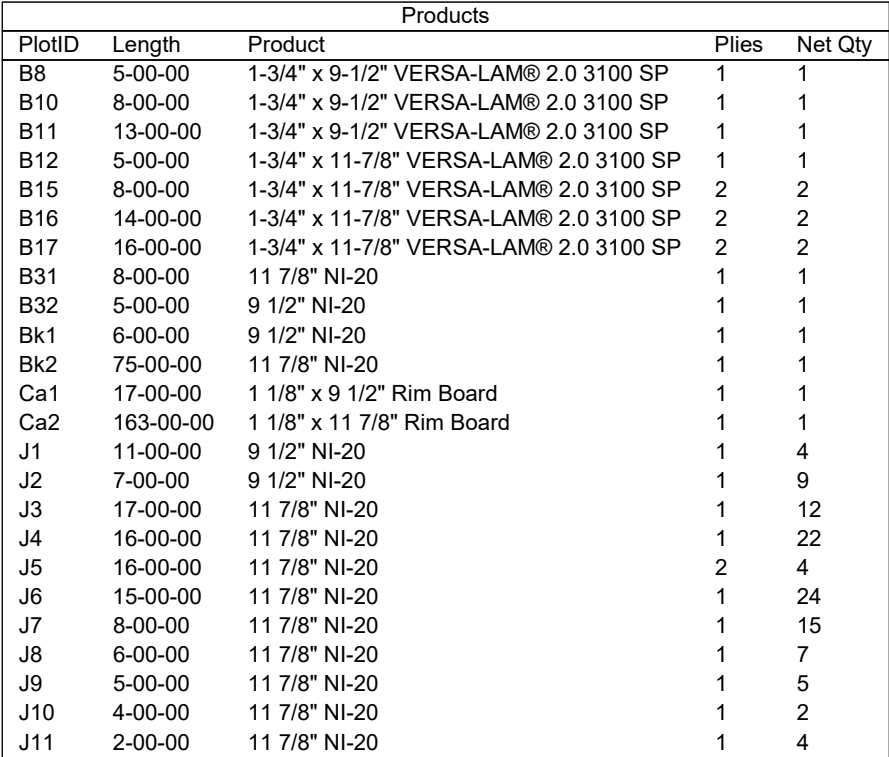
Refer to manufacturer's specifications:
(Nordic Engineered Wood Products - Construction Details Nordic Joist) NS-DC3 latest edition.

REVISIONS		
321529		106927
REV. NO.	DATE	PL. NO.
1	2022/08/29	118899

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: 5008 - EL.B
W/OPT. 2ND FLOOR
+OPT. LOGGIA

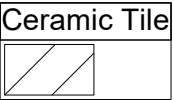


Connector Summary		
PlotID	Qty	Manuf Product
H1	1	HGUS410
H2	1	HUCQ1.81/9-SDS
H3	40	LT251188
H4	25	LT259

LIVE LOAD = 40 PSF
DEAD LOAD = 15 PSF
DEAD LOAD @TILE = 20 PSF

Blocking panels are required over all interior supports
Squash blocks are required under concentrated loads

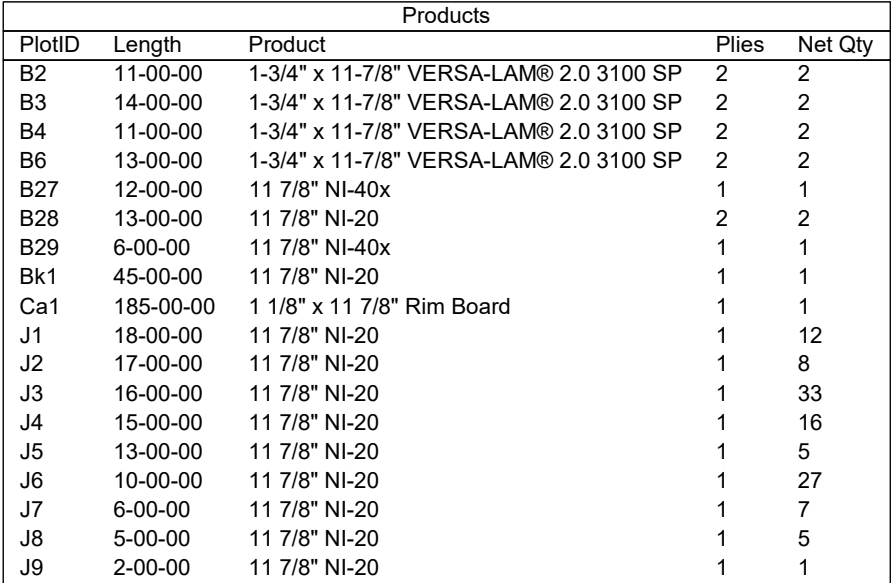
Refer to manufacturer's specifications:
Nordic Engineered Wood Products - Construction
Details Nordic Joist) NS-DC3 latest edition.



First Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: 5008 - EL.B
W/L.O.D. & W.O.B. COND.
+OPT. LOGGIA



Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HU410
H3	53		LT251188

DESIGN LOADING:

LIVE LOAD = 40 PSF

DEAD LOAD = 15 PSF

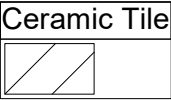
DEAD LOAD @TILE = 20 PSF

RIMBOARD
1- 1/8" X 11 7/8" O.S.B.
SUBFLOOR - 3/4" NAILED & GLUED**
APP - AS PER PLAN
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6

Blocking panels are required over all interior supports
Squash blocks are required under concentrated loads.

Refer to manufacturer's specifications:
(Nordic Engineered Wood Products - Construction
Details Nordic Joist) NS-DC3 latest edition.

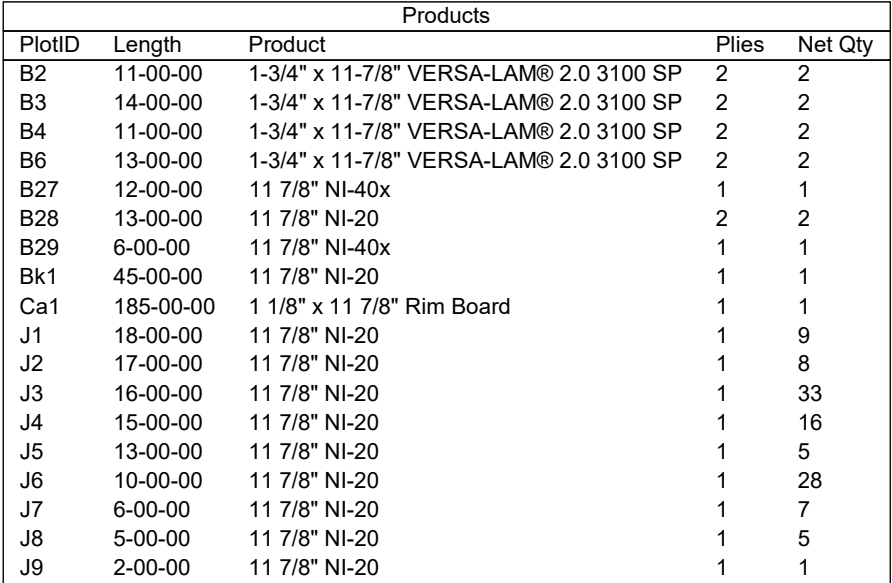


REVISIONS		
321529		106927
REV. NO.	DATE	PL. NO.
1	2022/08/29	118899

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

**MODEL: 5008 - EL.C
+OPT. LOGGIA**



Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HU410
H3	52		LT251188

DESIGN LOADING:

LIVE LOAD = 40 PSF

DEAD LOAD = 15 PSF

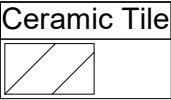
DEAD LOAD @TILE = 20 PSF

RIMBOARD
1- 1/8" X 11 7/8" O.S.B.
SUBFLOOR - 3/4" NAILED & GLUED**
APP - AS PER PLAN
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6

Blocking panels are required over all interior supports
Squash blocks are required under concentrated loads.

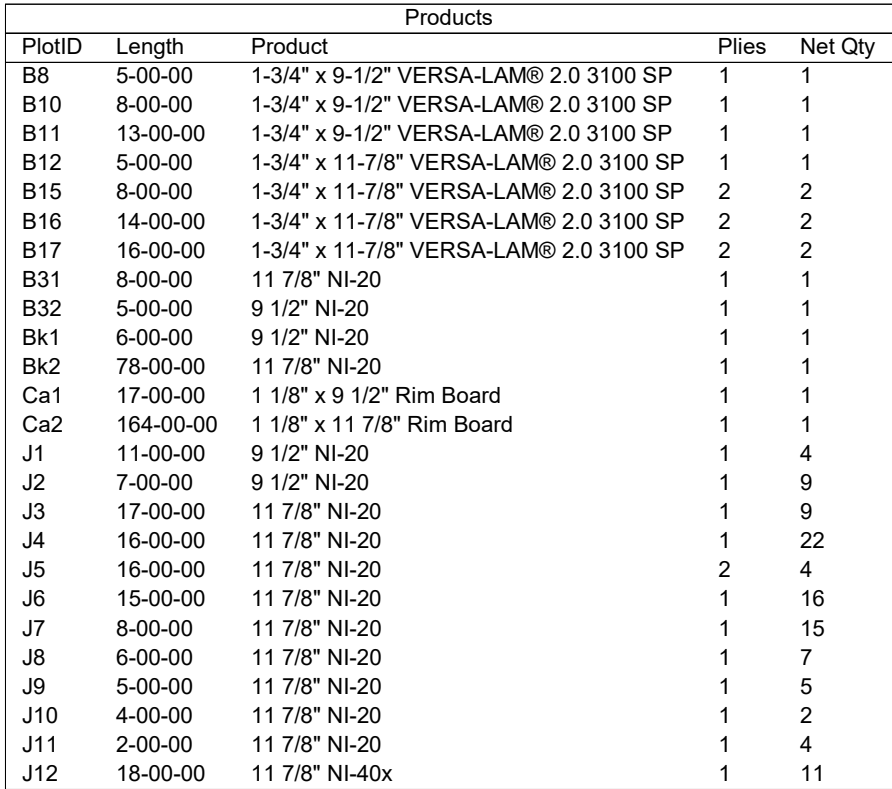
Refer to manufacturer's specifications:
(Nordic Engineered Wood Products - Construction
Details Nordic Joist) NS-DC3 latest edition.



REVISIONS		
321529		106927
REV. NO.	DATE	PL. NO.
1	2022/08/29	118899

Do not scale - refer to architectural plans for dimensions

**MODEL: 5008 - EL.C
W/OPT. 2ND FLOOR
+OPT. LOGGIA**

RIMBOARD

1- 1/8" X 9 1/2" O.S.B.
1- 1/8" X 11 7/8" O.S.B.

SUBFLOOR - 3/4" NAILED & GLUED**

APP - AS PER PLAN
BBO - BEAM BY OTHERS

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HUCQ1.81/9-SDS
H3	40		LT251188
H4	25		LT259

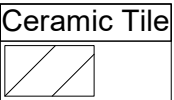
DESIGN LOADING:

LIVE LOAD = 40 PSF
DEAD LOAD = 15 PSF
DEAD LOAD @TILE = 20 PSF

Ceramic tile application as per O.B.C. 9.30.6

Blocking panels are required over all interior supports.
Squash blocks are required under concentrated loads.

Refer to manufacturer's specifications:
(Nordic Engineered Wood Products - Construction
Details Nordic Joist) NS-DC3 latest edition.



First Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: 5008 - EL.C
W/L.O.D. & W.O.B. COND.
+OPT. LOGGIA



Job Track: **45147**

Layout ID: **321529-348237**

Plan Log: **118899**

Builder: **Gold Park**
Project: **Pine Valley**
Model: **5008**

Location:	Vaughan
SalesPerson:	Derek
Yard:	Home Lumber

Sheet: **12 of 12**
Date: **2022/08/29**
Designer: **NL**

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Mitek V. 8.5.3.233

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

2nd Floor - Supply/BOM\Flush Beams\B1(i46686) (Flush Beam)

PASSED

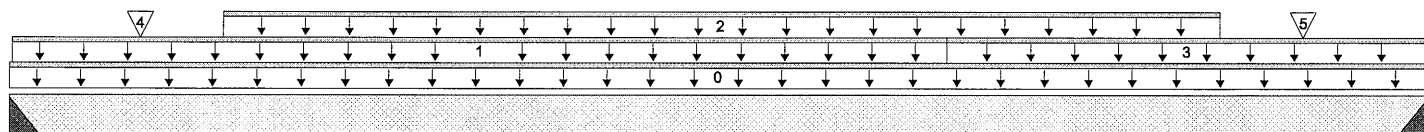
BC CALC® Member Report
Build 7493
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports:

Dry | 1 span | No cant.

June 25, 2020 08:59:20

File name: 5008 EL. A.mmdl
Description: 2nd Floor - Supply/BOM\Flush Beams\B1(i46686)
Specifier:
Designer:
Company:

CCMC 12472-R



B1

11-04-08

B2

Total Horizontal Product Length = 11-04-08

Reaction Summary (Down / Uplift) (lbs)

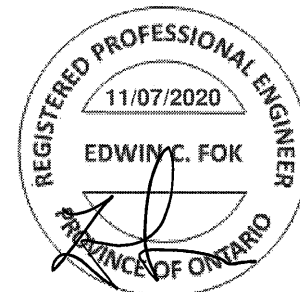
Bearing	Live	Dead	Snow	Wind
B1, 2"	683 / 0	491 / 0		
B2, 2"	1309 / 0	660 / 0		

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		6			00-00-00
1	W1(i37142)	Unf. Lin. (lb/ft)	L	00-00-04	07-06-04	Top		26			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-08-08	09-08-08	Top	102	51			n/a
3	User Load	Unf. Lin. (lb/ft)	L	07-06-04	11-04-08	Top	240	90			n/a
4	J8(i46727)	Conc. Pt. (lbs)	L	01-00-08	01-00-08	Top	128	64			n/a
5	J8(i46697)	Conc. Pt. (lbs)	L	10-04-08	10-04-08	Top	126	63			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5711 ft-lbs	17696 ft-lbs	32.3%	1	06-04-08
End Shear	2191 lbs	7232 lbs	30.3%	1	10-02-10
Total Load Deflection	L/716 (0.187")	n/a	33.5%	4	05-10-08
Live Load Deflection	L/999 (0.116")	n/a	n/a	5	05-10-08
Max Defl.	0.187"	n/a	n/a	4	05-10-08
Span / Depth	11.3				



Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1639 lbs	n/a	38.4%	HUS1.81/10
B2	Hanger 2" x 1-3/4"	2789 lbs	n/a	65.3%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user.

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

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®,

SE020614

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2nd Floor - Supply/BOM\Flush Beams\B2(i46740) (Flush Beam)

PASSED

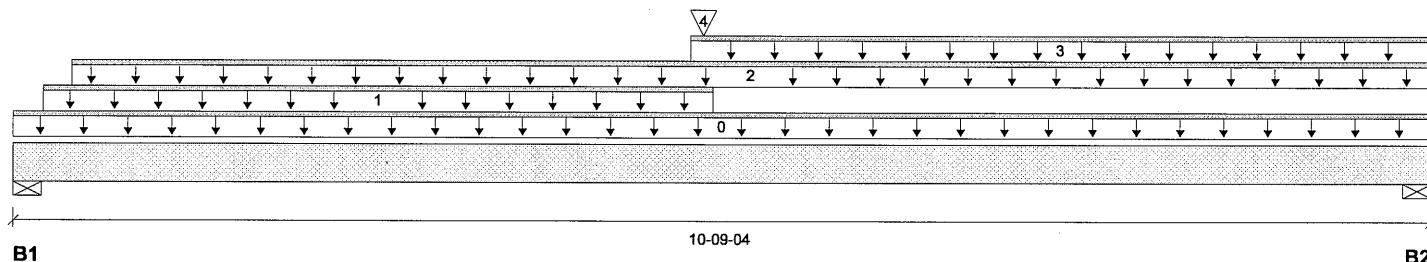
BC CALC® Member Report
Build 7493
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports:

Dry | 1 span | No cant.

June 25, 2020 08:59:20

File name: 5008 EL. A.mmdl
Description: 2nd Floor - Supply/BOM\Flush Beams\B2(i46740)
Specifier:
Designer:
Company:

CCMC 12472-R



Total Horizontal Product Length = 10-09-04

Reaction Summary (Down / Uplift) (lbs)

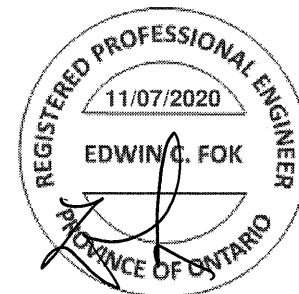
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1835 / 0	1142 / 0		
B2, 5-1/2"	2011 / 0	1401 / 0		

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	10-09-04	Top		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	05-03-12	Top	24	12			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-05-06	10-09-04	Top	293	146			n/a
3	11(i37137)	Unf. Lin. (lb/ft)	L	05-01-12	10-09-04	Top		61			n/a
4	B1(i46686)	Conc. Pt. (lbs)	L	05-02-14	05-02-14	Top	691	494			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	12688 ft-lbs	35392 ft-lbs	35.8%	1	05-02-14
End Shear	3833 lbs	14464 lbs	26.5%	1	01-05-06
Total Load Deflection	L/773 (0.155")	n/a	31.0%	4	05-03-12
Live Load Deflection	L/999 (0.093")	n/a		5	05-03-12
Max Defl.	0.155"	n/a		4	05-03-12
Span / Depth	10.1				



Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	4179 lbs	35.3%	17.8%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	4767 lbs	40.3%	20.3%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
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

Nail one ply to another with
3 1/2" spiral nails @ 12"
o.c, staggered in 2 rows

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

2nd Floor - Supply/BOM\Flush Beams\B3(i46531) (Flush Beam)

PASSED

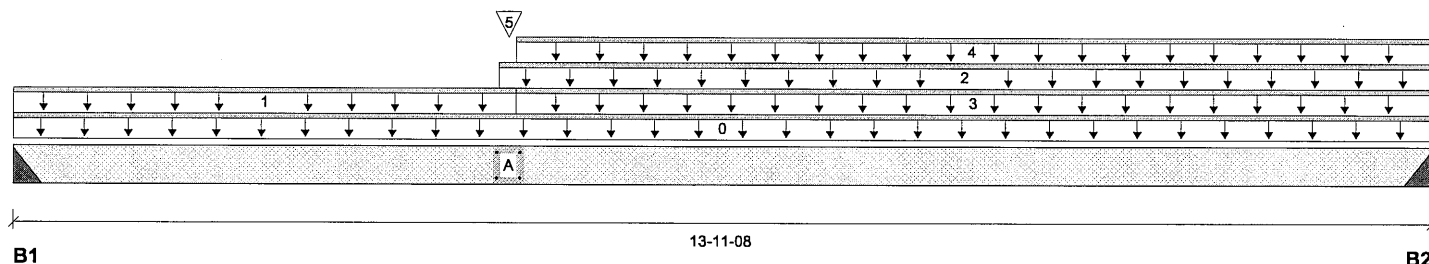
BC CALC® Member Report
Build 7493
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports:

Dry | 1 span | No cant.

June 25, 2020 08:59:20

File name: 5008 EL. A.mmdl
Description: 2nd Floor - Supply/BOM\Flush Beams\B3(i46531)
Specifier:
Designer:
Company:

CCMC 12472-R



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	1078 / 0	794 / 0		
B2, 2"	751 / 0	806 / 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	13-11-08	Top		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-11-04	Top	23	11			n/a
2	14(i37144)	Unf. Lin. (lb/ft)	L	04-09-04	13-11-08	Top		61			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-11-04	13-11-08	Top	6	3			n/a
4	User Load	Unf. Lin. (lb/ft)	L	04-11-04	13-11-04	Top	40	15			n/a
5	B1(i46686)	Conc. Pt. (lbs)	L	04-10-06	04-10-06	Top	1302	657			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	11667 ft-lbs	35392 ft-lbs	33.0%	1	04-10-06
End Shear	2536 lbs	14464 lbs	17.5%	1	01-01-14
Total Load Deflection	L/641 (0.258")	n/a	37.5%	4	06-07-14
Live Load Deflection	L/1161 (0.142")	n/a	31.0%	5	06-06-07
Max Defl.	0.258"	n/a	n/a	4	06-07-14
Span / Depth	13.9				

Bearing Supports

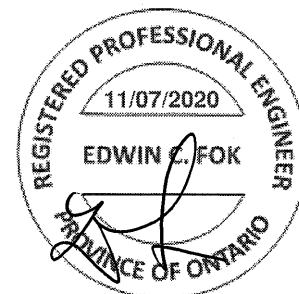
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	2609 lbs	n/a	30.6%	HGUS410
B2	Hanger 2" x 3-1/2"	2134 lbs	n/a	25.0%	HGUS410

Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 11-7/8" LVL Beam.
Hanger model HGUS410 and seat length were input by the user.

Header for the hanger HGUS410 is a Single 1-3/4" x 11-7/8" LVL Beam.

Nail one ply to another with
3 1/2" spiral nails @ 12"
o.c, staggered in 2 rows



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

2nd Floor - Supply/BOM\Flush Beams\B4(i46773) (Flush Beam)

PASSED

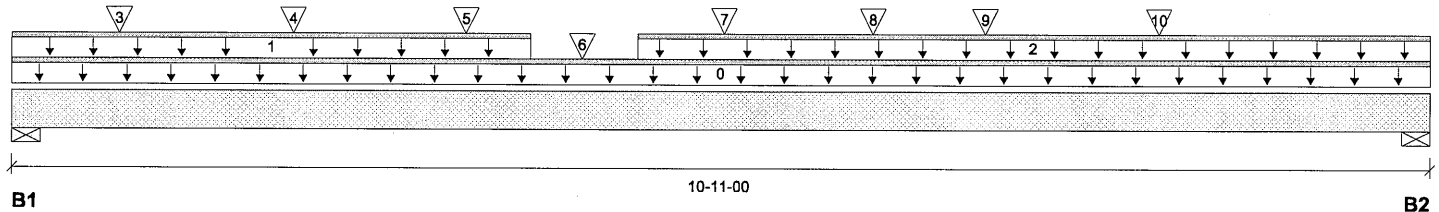
BC CALC® Member Report
 Build 7493
 Job name:
 Address:
 City, Province, Postal Code:
 Customer:
 Code reports:

Dry | 1 span | No cant.

June 25, 2020 08:59:19

File name: 5008 EL. A.mmdl
 Description: 2nd Floor - Supply/BOM\Flush Beams\B4(i46773)
 Specifier:
 Designer:
 Company:

CCMC 12472-R



Total Horizontal Product Length = 10-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2628 / 0	1477 / 0		
B2, 5-1/2"	2909 / 0	1675 / 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	10-11-00	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	03-11-14	Top	118	59			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	04-09-12	10-11-00	Top	320	160			n/a
3	J3(i46553)	Conc. Pt. (lbs)	L	00-09-14	00-09-14	Top	414	207			n/a
4	J3(i46498)	Conc. Pt. (lbs)	L	02-01-14	02-01-14	Top	414	207			n/a
5	J3(i46560)	Conc. Pt. (lbs)	L	03-05-14	03-05-14	Top	362	181			n/a
6	-	Conc. Pt. (lbs)	L	04-04-10	04-04-10	Top	446	223			n/a
7	J8(i46697)	Conc. Pt. (lbs)	L	05-05-12	05-05-12	Top	126	63			n/a
8	B3(i46531)	Conc. Pt. (lbs)	L	06-07-08	06-07-08	Top	1071	789			n/a
9	J7(i46694)	Conc. Pt. (lbs)	L	07-05-14	07-05-14	Top	118	59			n/a
10	J7(i46593)	Conc. Pt. (lbs)	L	08-09-14	08-09-14	Top	159	79			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	16653 ft-lbs	35392 ft-lbs	47.1%	1	06-05-14
End Shear	5530 lbs	14464 lbs	38.2%	1	09-05-10
Total Load Deflection	L/567 (0.214")	n/a	42.3%	4	05-07-06
Live Load Deflection	L/901 (0.135")	n/a	39.9%	5	05-05-14
Max Defl.	0.214"	n/a	n/a	4	05-07-06
Span / Depth	10.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	5788 lbs	48.9%	24.6%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	6458 lbs	54.5%	27.5%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 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
 Nail one ply to another with
 3 1/2" spiral nails @ 10'
 o.c, staggered in 2 rows



SG020617

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

2nd Floor - Supply/BOM\Flush Beams\B5(i46463) (Flush Beam)

PASSED

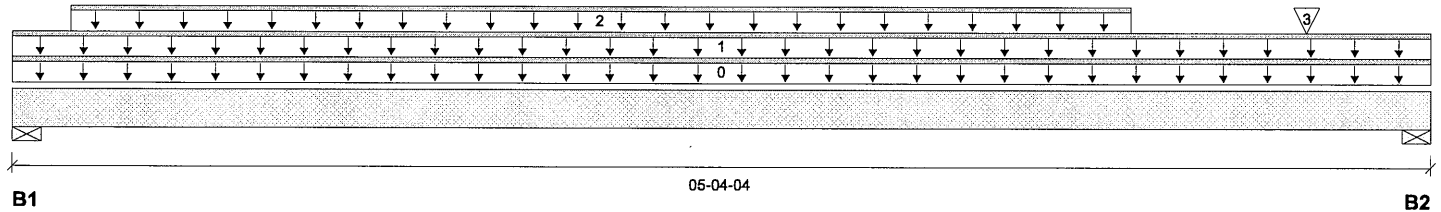
BC CALC® Member Report
 Build 7493
 Job name:
 Address:
 City, Province, Postal Code:
 Customer:
 Code reports:

Dry | 1 span | No cant.

June 25, 2020 08:59:20

File name: 5008 EL. A.mmdl
 Description: 2nd Floor - Supply/BOM\Flush Beams\B5(i46463)
 Specifier:
 Designer:
 Company:

CCMC 12472-R



Total Horizontal Product Length = 05-04-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-3/4"	820 / 0	427 / 0		
B2, 5-1/2"	952 / 0	492 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-04-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-04-04	Top	4	2			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-10	04-02-10	Top	335	168			n/a
3	J1(i46462)	Conc. Pt. (lbs)	L	04-10-10	04-10-10	Top	409	204			n/a

Controls Summary

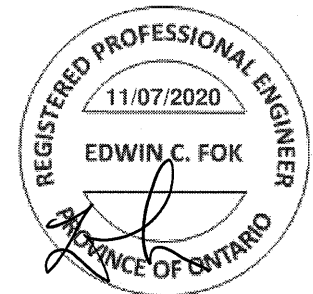
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1871 ft-lbs	17696 ft-lbs	10.6%	1	02-02-10
End Shear	1179 lbs	7232 lbs	16.3%	1	01-05-10
Total Load Deflection	L/999 (0.01")	n/a	n/a	4	02-08-02
Live Load Deflection	L/999 (0.006")	n/a	n/a	5	02-08-02
Max Defl.	0.01"	n/a	n/a	4	02-08-02
Span / Depth	4.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-3/4" x 1-3/4"	1763 lbs	28.5%	14.4%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 1-3/4"	2043 lbs	34.5%	17.4%	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



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™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

SE020618

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

2nd Floor - Supply/BOM\Flush Beams\B6(i46524) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

June 25, 2020 08:59:19

Build 7493

Job name:

File name: 5008 EL. A.mmdl

Address:

Description: 2nd Floor - Supply/BOM\Flush Beams\B6(i46524)

City, Province, Postal Code:

Specifier:

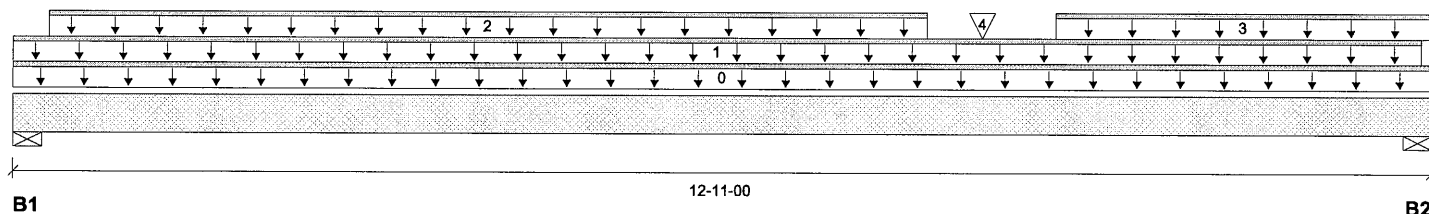
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 12-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1960 / 0	1058 / 0		
B2, 5-1/2"	2237 / 0	1196 / 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	12-11-00	Top		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-09-14	Top	9	4			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-14	08-03-14	Top	310	155			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	09-05-14	12-11-00	Top	362	181			n/a
4	J3(i46769)	Conc. Pt. (lbs)	L	08-09-14	08-09-14	Top	362	181			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	12774 ft-lbs	35392 ft-lbs	36.1%	1	06-09-14
End Shear	3905 lbs	14464 lbs	27.0%	1	11-05-10
Total Load Deflection	L/595 (0.245")	n/a	40.4%	4	06-06-14
Live Load Deflection	L/914 (0.159")	n/a	39.4%	5	06-06-14
Max Defl.	0.245"	n/a	n/a	4	06-06-14
Span / Depth	12.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	4261 lbs	36.0%	18.1%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	4850 lbs	41.0%	20.7%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

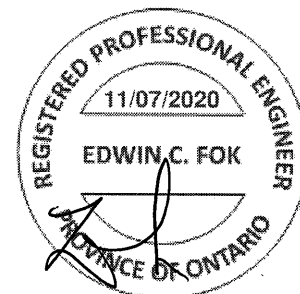
Calculations assume member is fully braced.

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

Nail one ply to another with
3 1/2" spiral nails @ 10"
o.c. staggered in 2 rows


BC CALC® Member Report

Dry | 1 span | No cant.

June 25, 2020 08:59:20

Build 7493

Job name:

File name: 5008 EL. A.mmdl

Address:

Description: 2nd Floor - Supply/BOM\Flush Beams\B7(i46556)

City, Province, Postal Code:

Specifier:

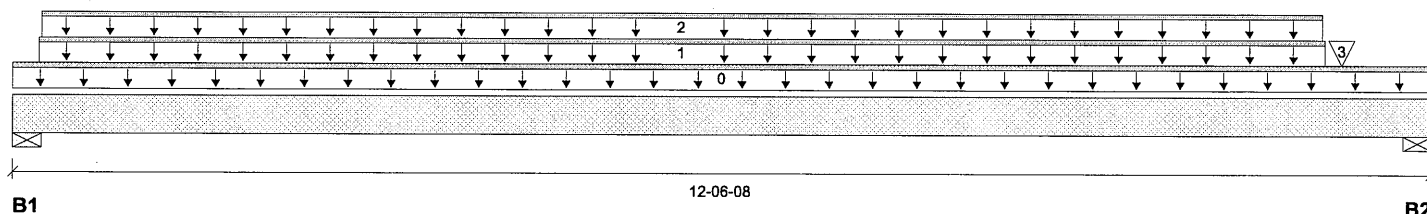
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 12-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	196 / 0	517 / 0		
B2, 5-1/2"	893 / 0	1251 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-06-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	11-07-04	Top	29	14			n/a
2	13(i37139)	Unf. Lin. (lb/ft)	L	00-03-00	11-07-00	Top		61			n/a
3	-	Conc. Pt. (lbs)	L	11-09-00	11-09-00	Top	760	831			n/a

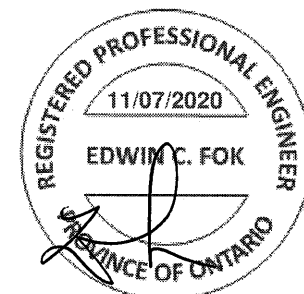
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2266 ft-lbs	11502 ft-lbs	19.7%	0	06-05-09
End Shear	968 lbs	4701 lbs	20.6%	0	11-01-02
Total Load Deflection	L/999 (0.124")	n/a	n/a	4	06-03-12
Live Load Deflection	L/999 (0.037")	n/a	n/a	5	06-03-12
Max Defl.	0.124"	n/a	n/a	4	06-03-12
Span / Depth	12.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/4" x 1-3/4"	724 lbs	37.6%	19.0%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 1-3/4"	2904 lbs	49.0%	24.7%	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



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®,

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

Ground Floor - Supply/BOM/Flush Beams\B8(i47837) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

June 25, 2020 09:22:31

Build 7493

Job name:

File name: 5008 EL. A.mmdl

Address:

Description: Ground Floor - Supply/BOM/Flush Beams\B8(i47837)

City, Province, Postal Code:

Specifier:

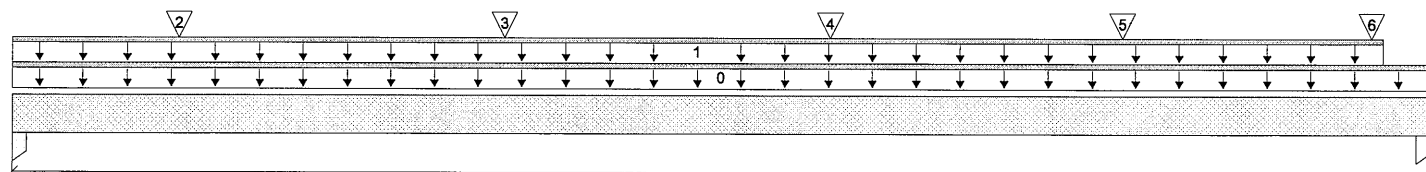
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1

04-04-04

B2

Total Horizontal Product Length = 04-04-04

Reaction Summary (Down / Uplift) (lbs)

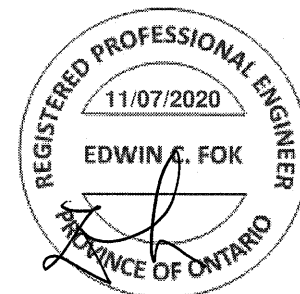
Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	581 / 0	280 / 0		
B2, 3-1/2"	716 / 0	375 / 0		

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	04-04-04	Top		5			00-00-00
1	User Load	Unf. Lin. (lb/ft)	L	00-00-00	04-02-08	Top	80	30			n/a
2	J1(i48269)	Conc. Pt. (lbs)	L	00-06-02	00-06-02	Top	187	94			n/a
3	J1(i48165)	Conc. Pt. (lbs)	L	01-06-02	01-06-02	Top	210	105			n/a
4	J1(i48256)	Conc. Pt. (lbs)	L	02-06-02	02-06-02	Top	199	99			n/a
5	J1(i48167)	Conc. Pt. (lbs)	L	03-04-14	03-04-14	Top	172	86			n/a
6	-	Conc. Pt. (lbs)	L	04-02-01	04-02-01	Top	193	124			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1213 ft-lbs	11610 ft-lbs	10.4%	1	02-03-14
End Shear	882 lbs	5785 lbs	15.2%	1	03-03-04
Total Load Deflection	L/999 (0.01")	n/a	n/a	4	02-00-14
Live Load Deflection	L/999 (0.007")	n/a	n/a	5	02-00-14
Max Defl.	0.01"	n/a	n/a	4	02-00-14
Span / Depth	5.1				



Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	1222 lbs	38.2%	32.7%	Unspecified
B2	Column 3-1/2" x 1-3/4"	1543 lbs	24.1%	20.7%	Unspecified

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

Disclosure

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

SE020621

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

Ground Floor - Supply/BOM/Flush Beams\B9(i48153) (Flush Beam)

PASSED

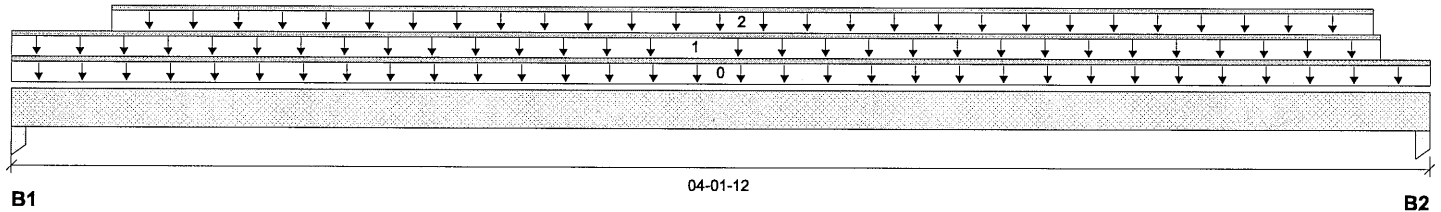
BC CALC® Member Report
 Build 7493
 Job name:
 Address:
 City, Province, Postal Code:
 Customer:
 Code reports:

Dry | 1 span | No cant.

June 25, 2020 09:22:31

File name: 5008 EL. A.mmdl
 Description: Ground Floor - Supply/BOM/Flush Beams\B9(i48153)
 Specifier:
 Designer:
 Company:

CCMC 12472-R



Total Horizontal Product Length = 04-01-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	325 / 0	136 / 0		
B2, 1-3/4"	318 / 0	132 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-01-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-00-00	Top	13	7			n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-03-08	03-11-12	Top	160	60			n/a

Controls Summary

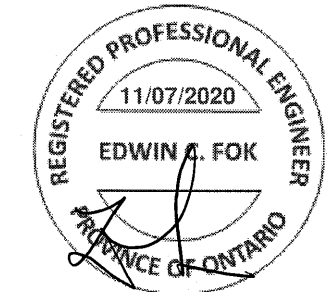
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	640 ft-lbs	11610 ft-lbs	5.5%	1	02-01-12
End Shear	614 lbs	5785 lbs	10.6%	1	03-02-08
Total Load Deflection	L/999 (0.005")	n/a	n/a	4	02-01-12
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	02-01-12
Max Defl.	0.005"	n/a	n/a	4	02-01-12
Span / Depth	4.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	657 lbs	10.3%	8.8%	Unspecified
B2	Column 1-3/4" x 1-3/4"	641 lbs	20.1%	17.2%	Unspecified

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: 00-00-00, Bottom: 00-00-00.
 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

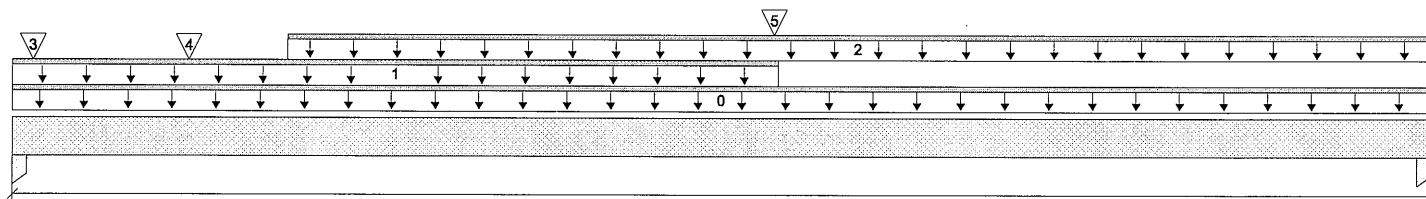


Disclosure

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.

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SG020622



B1

07-02-14

B2

Total Horizontal Product Length = 07-02-14

Reaction Summary (Down / Uplift) (lbs)

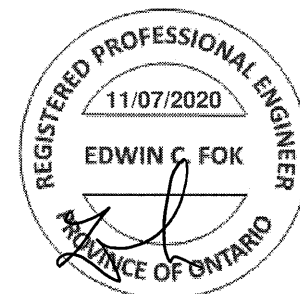
Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	807 / 0	382 / 0		
B2, 1-3/4"	706 / 0	344 / 0		

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	07-02-14	Top		5			00-00-00
1	User Load	Unf. Lin. (lb/ft)	L	00-00-00	03-10-14	Top	70	27			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-12	07-02-14	Top	133	67			n/a
3	J2(i48299)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	64	32			n/a
4	J2(i48212)	Conc. Pt. (lbs)	L	00-10-12	00-10-12	Top	116	58			n/a
5	User Load	Conc. Pt. (lbs)	L	03-10-10	03-10-10	Top	280	105			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3167 ft-lbs	11610 ft-lbs	27.3%	1	03-10-09
End Shear	1379 lbs	5785 lbs	23.8%	1	00-11-14
Total Load Deflection	L/999 (0.074")	n/a	n/a	4	03-07-10
Live Load Deflection	L/999 (0.051")	n/a	n/a	5	03-07-10
Max Defl.	0.074"	n/a	n/a	4	03-07-10
Span / Depth	8.9				



Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Column	2-3/8" x 1-3/4"	1688 lbs	38.9%	33.3%	Unspecified
B2 Column	1-3/4" x 1-3/4"	1489 lbs	46.6%	39.8%	Unspecified

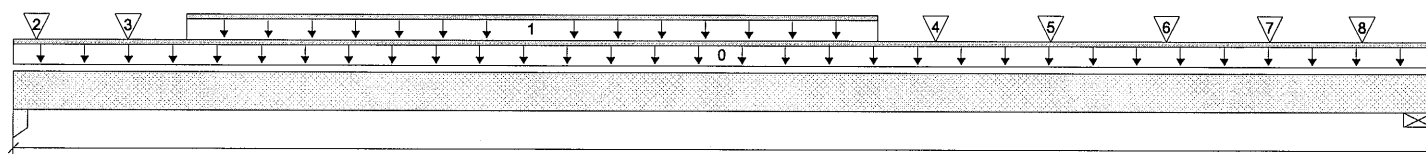
Notes

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

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B1

Total Horizontal Product Length = 12-03-08

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	838 / 0	448 / 0		
B2, 5-1/2"	1028 / 0	557 / 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	12-03-08	Top		5			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-05-14	07-05-14	Top	130	65			n/a
2	J2(i48299)	Conc. Pt. (lbs)	L	00-02-06	00-02-06	Top	64	32			n/a
3	J2(i48212)	Conc. Pt. (lbs)	L	00-11-14	00-11-14	Top	116	58			n/a
4	J1(i48269)	Conc. Pt. (lbs)	L	07-11-14	07-11-14	Top	205	102			n/a
5	J1(i48165)	Conc. Pt. (lbs)	L	08-11-14	08-11-14	Top	210	105			n/a
6	J1(i48256)	Conc. Pt. (lbs)	L	09-11-14	09-11-14	Top	199	99			n/a
7	J1(i48167)	Conc. Pt. (lbs)	L	10-10-10	10-10-10	Top	172	86			n/a
8	-	Conc. Pt. (lbs)	L	11-08-03	11-08-03	Top	120	74			n/a

Controls Summary

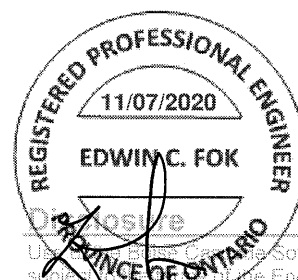
	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5597 ft-lbs	11610 ft-lbs	48.2%	1	06-11-14
End Shear	2011 lbs	5785 lbs	34.8%	1	11-00-08
Total Load Deflection	L/358 (0.391")	n/a	67.0%	4	06-02-14
Live Load Deflection	L/548 (0.255")	n/a	65.6%	5	06-02-14
Max Defl.	0.391"	n/a	n/a	4	06-02-14
Span / Depth	14.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	1817 lbs	28.4%	24.3%	Unspecified
B2	Wall/Plate 5-1/2" x 1-3/4"	2238 lbs	22.3%	19.1%	Unspecified

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: 00-00-00, Bottom: 00-00-00.
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



USE OF BOISE CASCADE SOFTWARE IS
SUBJECT TO THE End User
License Agreement (EULA).

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must be reviewed and verified by a
qualified engineer or other appropriate
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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®,

BC CALC® Member Report
 Build 7493

Dry | 1 span | No cant.

June 25, 2020 09:22:31

Job name:

File name: 5008 EL. A.mmdl

Address:

Description: Ground Floor - Supply/BOM\Flush Beams\B12(i47851)

City, Province, Postal Code:

Specifier:

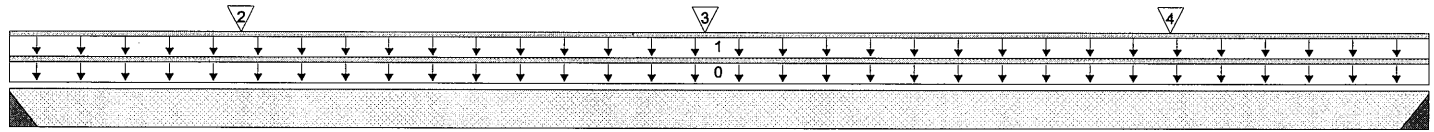
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1 04-00-12 B2

Total Horizontal Product Length = 04-00-12

Reaction Summary (Down / Uplift) (lbs)

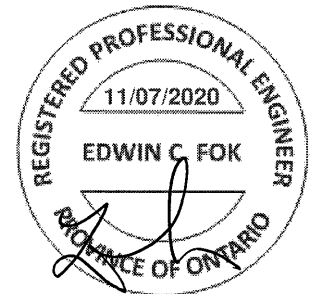
Bearing	Live	Dead	Snow	Wind
B1, 2"	223 / 0	104 / 0		
B2, 2"	219 / 0	102 / 0		

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	04-00-12	Top		6			00-00-00
1	User Load	Unf. Lin. (lb/ft)	L	00-00-00	04-00-12	Top	80	30			n/a
2	J13(i47905)	Conc. Pt. (lbs)	L	00-07-14	00-07-14	Top	38	19			n/a
3	J13(i47793)	Conc. Pt. (lbs)	L	01-11-14	01-11-14	Top	44	22			n/a
4	J13(i47874)	Conc. Pt. (lbs)	L	03-03-14	03-03-14	Top	35	18			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	442 ft-lbs	17696 ft-lbs	2.5%	1	01-11-14
End Shear	233 lbs	7232 lbs	3.2%	1	01-01-14
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	02-00-09
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	02-00-09
Max Defl.	0.002"	n/a	n/a	4	02-00-09
Span / Depth	3.9				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 1-3/4"	465 lbs	n/a	10.9%	HU9X (One flange concealed)
B2 Hanger	2" x 1-3/4"	455 lbs	n/a	10.7%	HUS1.81/10

Cautions

Header for the hanger HU9X (One flange concealed) is a Double 1-3/4" x 11-7/8" LVL Beam.
 Header model HU9X (One flange concealed) and seat length were input by the user.

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.
 Header model HUS1.81/10 and seat length were input by the user.

BC CALC® Member Report
 Build 7493

Dry | 1 span | No cant.

June 25, 2020 09:22:31

Job name:

File name: 5008 EL. A.mmdl

Address:

Description: Ground Floor - Supply/BOM\Flush Beams\B13(i47883)

City, Province, Postal Code:

Specifier:

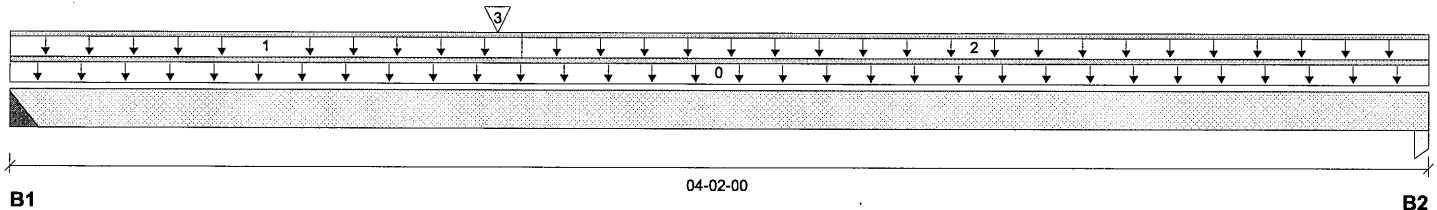
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 04-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	190 / 0	103 / 0		
B2, 1-3/4"	101 / 0	61 / 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	04-02-00	Top		6			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-06-00	Top	27	13			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-06-00	04-02-00	Top	12	6			n/a
3	B12(i47851)	Conc. Pt. (lbs)	L	01-05-02	01-05-02	Top	219	102			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	481 ft-lbs	17696 ft-lbs	2.7%	1	01-05-02
End Shear	339 lbs	7232 lbs	4.7%	1	01-01-14
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	01-11-03
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-11-03
Max Defl.	0.002"	n/a	n/a	4	01-11-03
Span / Depth	4.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Hanger	2" x 1-3/4"	413 lbs	n/a	9.7%	HUS1.81/10
B2 Column	1-3/4" x 1-3/4"	228 lbs	7.1%	6.1%	Unspecified

Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.
 Hanger model HUS1.81/10 and seat length were input by the user.

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


Disclosure

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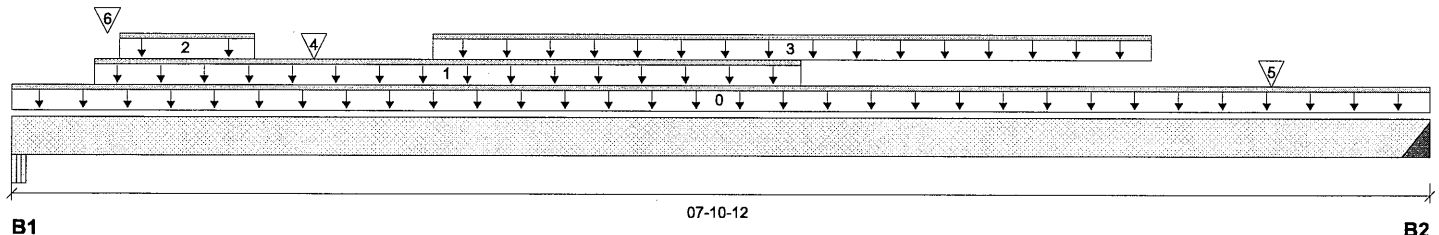
BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCi®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

36020626

Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports:

CCMC 12472-R

File name: 5008 EL. A.mmdl
Description: Ground Floor - Supply/BOM\Flush Beams\B14(i47908)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 07-10-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	933 / 0	433 / 0		
B2, 2"	555 / 0	278 / 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	07-10-12	Top		6			00-00-00
1	User Load	Unf. Lin. (lb/ft)	L	00-05-08	04-04-12	Top	200	80			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-07-02	01-04-02	Top	102	51			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	02-04-02	06-04-02	Top	100	50			n/a
4	J10(i47880)	Conc. Pt. (lbs)	L	01-08-02	01-08-02	Top	64	32			n/a
5	J10(i47911)	Conc. Pt. (lbs)	L	07-00-02	07-00-02	Top	120	60			n/a
6	FC2 Floor Material	Conc. Pt. (lbs)	L	00-06-05	00-06-05	Top	27	14			n/a

Controls Summary

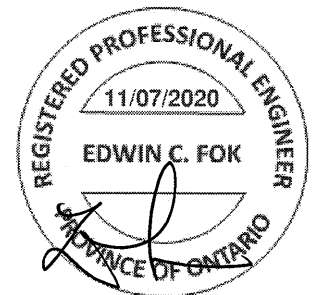
	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3080 ft-lbs	17696 ft-lbs	17.4%	1	03-07-02
End Shear	1507 lbs	7232 lbs	20.8%	1	01-05-06
Total Load Deflection	L/999 (0.042")	n/a	n/a	4	04-00-02
Live Load Deflection	L/999 (0.029")	n/a	n/a	5	03-11-02
Max Defl.	0.042"	n/a	n/a	4	04-00-02
Span / Depth	7.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam 5-1/2" x 1-3/4"	1941 lbs	32.8%	16.5%	Unspecified
B2	Hanger 2" x 1-3/4"	1181 lbs	n/a	27.7%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user.



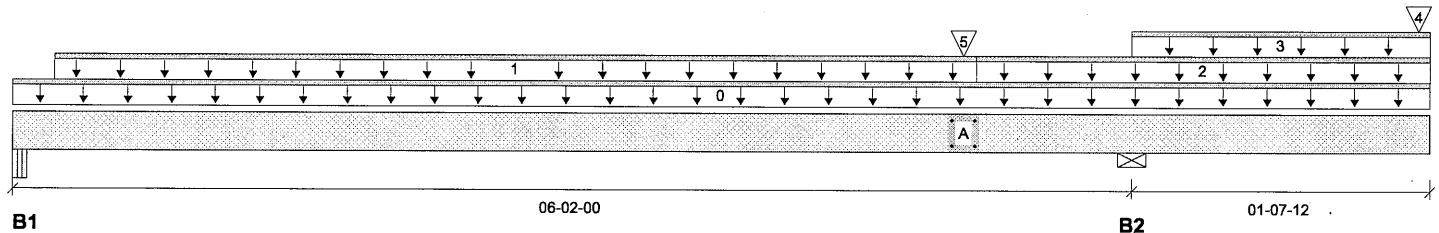
BC CALC® Member Report
 Build 7493
 Job name:
 Address:
 City, Province, Postal Code:
 Customer:
 Code reports:

Dry | 2 spans | R cant.

June 25, 2020 09:22:31

File name: 5008 EL. A.mmdl
 Description: Ground Floor - Supply/BOM\Flush Beams\B15(i47910)
 Specifier:
 Designer:
 Company:

CCMC 12472-R



Total Horizontal Product Length = 07-09-12

Reaction Summary (Down / Uplift) (lbs)

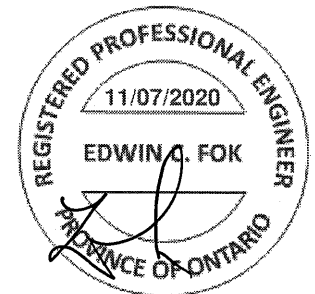
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	198 / 65	81 / 0		
B2, 3-1/2"	855 / 0	633 / 0		

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	07-09-12	Top		12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	05-03-12	Top	37	18			n/a
2	W6(i37164)	Unf. Lin. (lb/ft)	L	05-03-12	07-09-12	Top		26			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	06-02-00	07-09-12	Top	19	9			n/a
4	-	Conc. Pt. (lbs)	L	07-09-00	07-09-00	Top	223	172			n/a
5	B14(i47908)	Conc. Pt. (lbs)	L	05-02-14	05-02-14	Top	547	274			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	773 ft-lbs	35392 ft-lbs	2.2%	2	04-05-10
Neg. Moment	-987 ft-lbs	-35392 ft-lbs	2.8%	1	06-02-00
End Shear	281 lbs	14464 lbs	1.9%	2	01-05-06
Cont. Shear	1113 lbs	14464 lbs	7.7%	1	05-00-06
Total Load Deflection	2xL/1998 (0.003")	n/a	n/a	10	07-09-12
Live Load Deflection	2xL/1998 (-0.003")	n/a	n/a	12	07-09-12
Total Neg. Defl.	2xL/1998 (-0.002")	n/a	n/a	9	07-09-12
Max Defl.	0.003"	n/a	n/a	9	03-05-09
Span / Depth	5.8				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/2" x 3-1/2"	398 lbs	3.4%	1.7%	Unspecified
B2 Wall/Plate	3-1/2" x 3-1/2"	2074 lbs	16.2%	13.9%	Unspecified

Notes

Design meets User specified (2xL/240) Total load deflection criteria.
 Design meets User specified (2xL/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
 Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

Nail one ply to another with
 3 1/2" spiral nails @ 12"
 o.c, staggered in 2 rows.

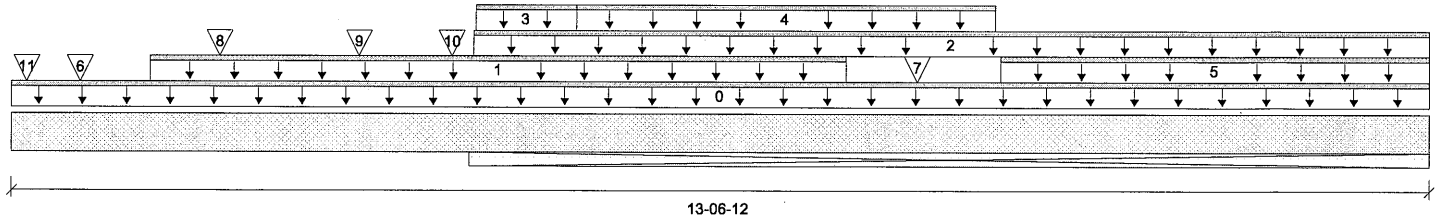
BC CALC® Member Report
 Build 7493

Dry | 1 span | L cant.

June 25, 2020 09:22:31

 Job name:
 Address:
 City, Province, Postal Code:
 Customer:
 Code reports:

CCMC 12472-R

 File name: 5008 EL. A.mmdl
 Description: Ground Floor - Supply/BOM\Flush Beams\B16(i47718)
 Specifier:
 Designer:
 Company:


13-06-12

B1

Total Horizontal Product Length = 13-06-12

Reaction Summary (Down / Uplift) (lbs)

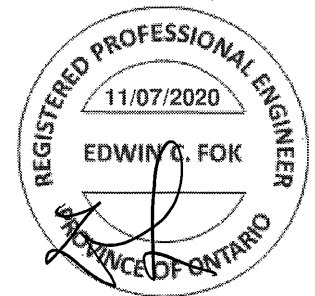
Bearing	Live	Dead	Snow	Wind
B1, 110-1/4"	2974 / 0	2510 / 0		

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	13-06-12	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-14	07-11-14	Top	120	60			n/a
2	15(i37165)	Unf. Lin. (lb/ft)	L	04-05-00	13-06-12	Top		68			n/a
3	15(i37165)	Unf. Lin. (lb/ft)	L	04-05-04	05-04-14	Top	116	58			n/a
4	-	Unf. Lin. (lb/ft)	L	05-04-14	09-04-14	Top	113	57			n/a
5	FC2 Floor Material	Unf. Lin. (lb/ft)	L	09-05-08	13-06-12	Top	19	9			n/a
6	-	Conc. Pt. (lbs)	L	00-07-14	00-07-14	Top	152	57			n/a
7	J9(i47833)	Conc. Pt. (lbs)	L	08-07-14	08-07-14	Top	126	63			n/a
8	J13(i47793)	Conc. Pt. (lbs)	L	01-11-14	01-11-14	Top	44				n/a
9	J13(i47874)	Conc. Pt. (lbs)	L	03-03-14	03-03-14	Top	35				n/a
10	-	Conc. Pt. (lbs)	L	04-02-08	04-02-08	Top	229	142			n/a
11	User Load	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	855	633			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	0 ft-lbs	35392 ft-lbs	n/a	1	00-00-00
Neg. Moment	-11336 ft-lbs	-35392 ft-lbs	32.0%	1	04-04-08
End Shear	2928 lbs	14464 lbs	20.2%	1	03-04-10
Total Load Deflection	2xL/1998 (0.087")	n/a	n/a	4	00-00-00
Live Load Deflection	2xL/1998 (0.051")	n/a	n/a	5	00-00-00
Span / Depth	4.4				
Dist. Load (B1)	388.10 lb/ft	57645.00 lb/ft	0.7%		
Conc. Load (B1)	460 lbs	16813 lbs	2.7%		


Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 110-1/4" x 3-1/2"	7599 lbs	3.2%	1.6%	Spruce-Pine-Fir

 Nail one ply to another with
 3 1/2" spiral nails @ 12"
 o.c, staggered in 2 rows

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

Ground Floor - Supply/BOM\Flush Beams\B17(i47738) (Flush Beam)

PASSED

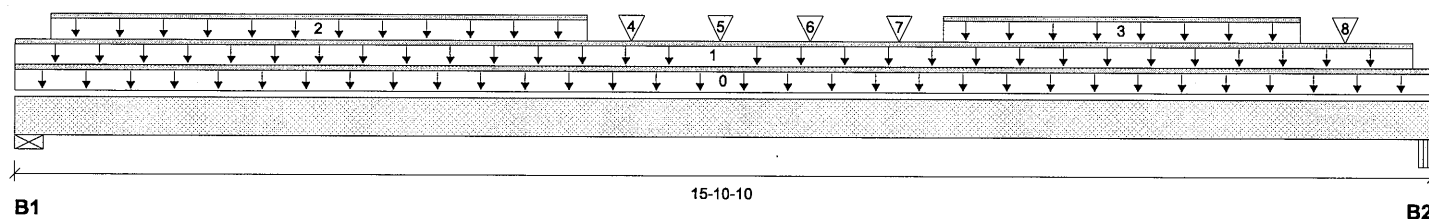
BC CALC® Member Report
Build 7493
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports:

Dry | 1 span | No cant.

June 25, 2020 09:22:31

File name: 5008 EL. A.mmdl
Description: Ground Floor - Supply/BOM\Flush Beams\B17(i47738)
Specifier:
Designer:
Company:

CCMC 12472-R



Total Horizontal Product Length = 15-10-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	1314 / 0	750 / 0		
B2, 5-1/2"	1327 / 0	759 / 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	15-10-10	Top		12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	15-07-14	Top	21	10			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-12	06-04-12	Top	156	78			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	10-04-12	14-04-12	Top	157	78			n/a
4	J8(i47762)	Conc. Pt. (lbs)	L	06-10-12	06-10-12	Top	178	89			n/a
5	J8(i47731)	Conc. Pt. (lbs)	L	07-10-12	07-10-12	Top	125	63			n/a
6	J8(i47759)	Conc. Pt. (lbs)	L	08-10-12	08-10-12	Top	125	63			n/a
7	J8(i47728)	Conc. Pt. (lbs)	L	09-10-12	09-10-12	Top	178	89			n/a
8	J8(i47733)	Conc. Pt. (lbs)	L	14-10-12	14-10-12	Top	143	71			n/a

Controls Summary

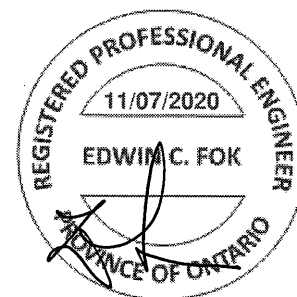
	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	11380 ft-lbs	35392 ft-lbs	32.2%	1	07-10-12
End Shear	2741 lbs	14464 lbs	19.0%	1	01-02-04
Total Load Deflection	L/524 (0.352")	n/a	45.8%	4	07-10-12
Live Load Deflection	L/822 (0.224")	n/a	43.8%	5	07-10-12
Max Defl.	0.352"	n/a	n/a	4	07-10-12
Span / Depth	15.5				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 2-3/8" x 3-1/2"	2909 lbs	56.9%	28.7%	Spruce-Pine-Fir
B2	Beam 5-1/2" x 3-1/2"	2939 lbs	24.8%	12.5%	Unspecified

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: 00-00-00, Bottom: 00-00-00.
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

Nail one ply to another with
3 1/2" spiral nails @ 12"
o.c, staggered in 2 rows



BC CALC® Member Report

Dry | 1 span | No cant.

June 25, 2020 10:52:17

Build 7493

Job name:

File name: 5008 EL. B.mmdl

Address:

Description: 2nd Floor - Supply/BOM/Flush Beams\B18(i50722)

City, Province, Postal Code:

Specifier:

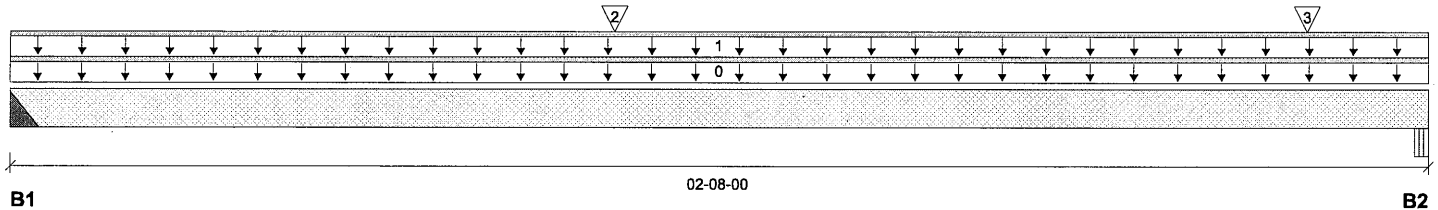
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 02-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	121 / 0	284 / 0	150 / 0	
B2, 5-1/2"	110 / 0	348 / 0	186 / 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	02-08-00	Top		6			00-00-00
1	5(i37127)	Unf. Lin. (lb/ft)	L	00-00-00	02-08-00	Top		182	126		n/a
2	J9(i50961)	Conc. Pt. (lbs)	L	01-01-10	01-01-10	Top	231	115			n/a
3	4(i37129)	Conc. Pt. (lbs)	L	02-05-04	02-05-04	Top		15			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	476 ft-lbs	17696 ft-lbs	2.7%	1	01-01-10
End Shear	258 lbs	7232 lbs	3.6%	1	01-01-14
Total Load Deflection	L/999 (0.001")	n/a	n/a	35	01-02-01
Live Load Deflection	L/999 (0")	n/a	n/a	51	01-02-01
Max Defl.	0.001"	n/a	n/a	35	01-02-01
Span / Depth	2.2				

Bearing Supports

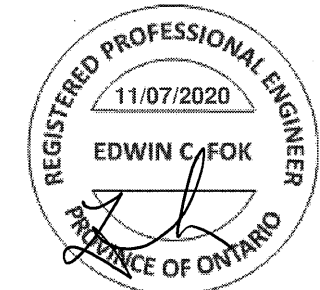
	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Hanger	2" x 1-3/4"	700 lbs	n/a	16.4%	HUS1.81/10
B2 Beam	5-1/2" x 1-3/4"	824 lbs	13.9%	7.0%	Unspecified

Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user.

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.
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



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®,

BC CALC® Member Report

Dry | 1 span | No cant.

June 25, 2020 10:52:17

Build 7493

Job name:

File name: 5008 EL. B.mmdl

Address:

Description: 2nd Floor - Supply/BOM\Flush Beams\B19(i50691)

City, Province, Postal Code:

Specifier:

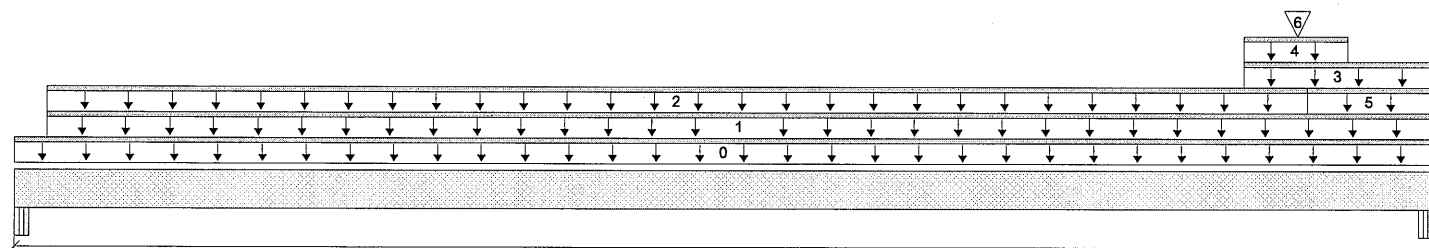
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1

10-02-10

B2

Total Horizontal Product Length = 10-02-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	261 / 0	208 / 0	47 / 0	
B2, 4-3/8"	350 / 0	911 / 0	691 / 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	10-02-10	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	10-02-10	Top	27	14			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	09-03-12	Top	24	12			n/a
3	40(i48594)	Unf. Lin. (lb/ft)	L	08-10-04	10-02-10	Top		101			n/a
4	40(i48594)	Unf. Lin. (lb/ft)	L	08-10-04	09-07-04	Top		440	644		n/a
5	40(i48594)	Unf. Lin. (lb/ft)	L	09-03-12	10-02-10	Top		81	126		n/a
6	B18(i50722)	Conc. Pt. (lbs)	L	09-02-14	09-02-14	Top	117	268	141		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1968 ft-lbs	17696 ft-lbs	11.1%	1	06-02-05
End Shear	1925 lbs	7232 lbs	26.6%	13	08-10-06
Total Load Deflection	L/999 (0.052")	n/a	n/a	35	05-04-09
Live Load Deflection	L/999 (0.03")	n/a	n/a	51	05-04-09
Max Defl.	0.052"	n/a	n/a	35	05-04-09
Span / Depth	9.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/2" x 1-3/4"	699 lbs	11.8%	6.0%	Unspecified
B2	Beam 4-3/8" x 1-3/4"	2526 lbs	53.6%	27.0%	Unspecified

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



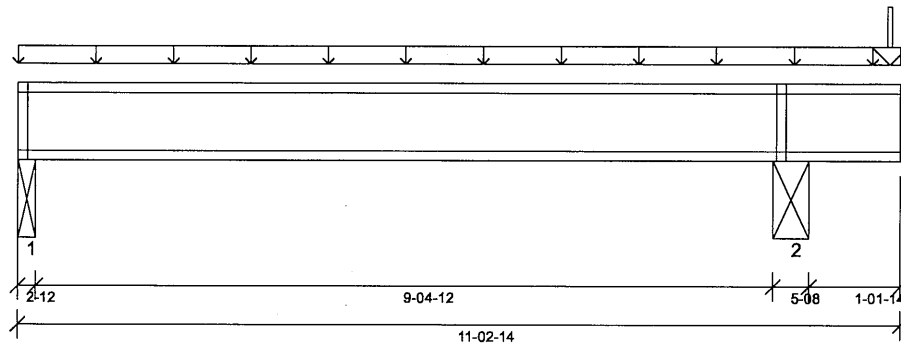
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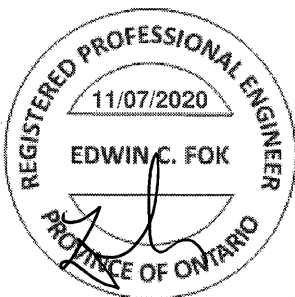
BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

JOB#/PLAN LOG: 45147/106927	Job Name: 5008 EL. B	1 Ply Member	Status:
LAYOUT ID: 321529	Level: 2nd Floor - Supply/BOM	11 7/8" NI-20	Design Passed
BUILDER: Gold Park	Label: J5 - i50677		
LOCATION: Vaughan	Type: FloorJoist		

Graphical Illustration Not to Scale. Pitch: 0/12 Designed by: MiTek SAPPHIRE™ Structure Version 8.3.3.247.Update9 Report Version: 2019.11.15 06/25/2020 10:52



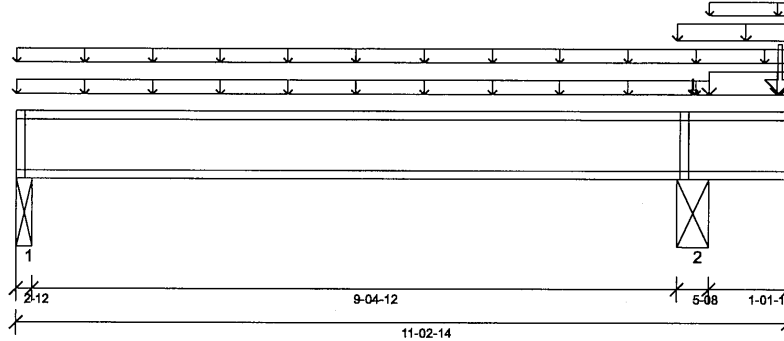
DESIGN INFORMATION		ANALYSIS RESULTS						
Building Code: NBCC 2015, Part9 BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment) Design Methodology: LSD Service Condition: Dry System Live Load: 40.0 psf System Dead Load: 20.0 psf System Spacing: 16" c.c LL Deflection Limit: L/360, TL Deflection Limit: L/240,		Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Floor Assembly Requirements: Subfloor: 3/4" OSB Plywood Connection: Glued And Nailed Ceiling: 1/2" Gypsum Blocking: None Bridging: None Strapping: None		Factored Pos. Moment:	4'- 5 15/16"	1.25D + 1.5L	0.96	928 lb ft	5348 lb ft	Passed - 17%
Lateral Restraint Requirements: Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length: Top: 0' Bottom: 0'		Factored Neg. Moment:	9'- 10 1/4"	1.25D + 1.5S + L	0.87	1032 lb ft	4838 lb ft	Passed - 21%
Required Factored Resistance of Support: • 769 psi Beam @ 0'- 1 3/4" • 769 psi Beam @ 9'- 10 1/4"		Factored Shear:	10'- 1 1/16"	1.25D + 1.5S + L	0.87	854 lb	1942 lb	Passed - 44%
		Live Load (LL) Pos. Defl.:	5'	L		0.037"	L/360	Passed - L/999
		Total Load (TL) Pos. Defl.:	4'- 9"	D + L		0.040"	L/240	Passed - L/999
		Bare Joist Deflection:	5'	L		0.052"	L/360	Passed - L/999
		Vibration Controlled Span:	-	-		9'- 4 3/4"	17'- 6 15/16"	53%
		SUPPORT AND REACTION INFORMATION						
ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-12	1.25D + 1.5L	0.96	442 lb		2003 lb	5067 lb	Passed - 22%
2	5-08	1.25D + 1.5S + L	0.99	1342 lb		5019 lb	10467 lb	Passed - 27%
		SPECIFIED LOADS						
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Uniform	0'	11'- 2 7/8"	FC1 Floor Material	Top	23.00 lb/ft	46.00 lb/ft	-	-
Point	11'- 1 1/4"	11'- 1 1/4"	43(I48599)	Top	290.00 lb	-	265.00 lb	-
		UNFACTORED REACTIONS						
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)	
1	0'	0'- 2 3/4"	STL BEAM (DRPD.) (I37188)	71.00 lb	231.00/-5.00 lb	-38.00 lb	-	
2	9'- 7 1/2"	10'- 1"	STL BEAM (DRPD.) (I37189)	481.00 lb	299.00 lb	303.00 lb	-	
		DESIGN NOTES						
		- The dead loads used in the design of this member were applied to the structure as projected dead loads. - Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting. - Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table. - Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices. - This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct. - Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction. - Design for vibration control is based on the concluding report: "Development of Design Procedures for Vibration Controlled Spans Using Engineered Wood Members," dated Sep-04-97. - The deflection at the cantilever for either live and/or total loads is less than 3/8" and therefore has been excluded from the deflection ratio considerations.						



56020633

JOB#/PLAN LOG: 45147/106927	Job Name: 5008 EL. B	2 Ply Member	Status:
LAYOUT ID: 321529	Level: 2nd Floor - Supply/BOM	11 7/8" NI-20	Design Passed
BUILDER: Gold Park	Label: J6 - i50672		
LOCATION: Vaughan	Type: FloorJoist		

Graphical Illustration Not to Scale. Pitch: 0/12 Designed by: MiTek SAPPHIRE™ Structure Version 8.3.3.247.Update9 Report Version: 2019.11.15 06/25/2020 10:52



DESIGN INFORMATION		ANALYSIS RESULTS						
Building Code: NBCC 2015, Part9 BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)		Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Design Methodology: LSD		Factored Pos. Moment:	4'- 3 5/8"	1.25D + 1.5L	0.87	828 lb ft	9674 lb ft	Passed - 9%
Service Condition: Dry		Factored Neg. Moment:	9'- 10 1/4"	1.25D + 1.5S + L	0.87	1373 lb ft	9693 lb ft	Passed - 14%
System Live Load: 40.0 psf		Factored Shear:	10'- 1 1/16"	1.25D + 1.5S + L	0.87	1302 lb	3891 lb	Passed - 33%
System Dead Load: 20.0 psf		Live Load (LL) Pos. Defl.:	5'	L		0.024"	L/360	Passed - L/999
System Spacing: 16" c.c		Total Load (TL) Pos. Defl.:	4'- 7 3/8"	D + L		0.023"	L/240	Passed - L/999
LL Deflection Limit: L/360,		Bare Joist Deflection:	5'	L		0.031"	L/360	Passed - L/999
TL Deflection Limit: L/240,		Vibration Controlled Span:	-	-		9'- 4 3/4"	19'- 10 3/16"	47%
SUPPORT AND REACTION INFORMATION								
ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-12	1.25D + 1.5L	0.87	413 lb		3623 lb	9166 lb	Passed - 11%
1	2-12	0.9D + 1.5S + L	0.87		-21 lb	3631 lb	-	Passed - 1%
2	5-08	1.25D + 1.5S + L	0.96	1933 lb		9694 lb	20218 lb	Passed - 20%
SPECIFIED LOADS								
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Uniform	0'	11'- 2 7/8"	FC1 Floor Material	Top	10.00 lb/ft	20.00 lb/ft	-	-
Uniform	0'	10'- 1"	FC1 Floor Material	Top	13.00 lb/ft	26.00 lb/ft	-	-
Uniform	9'- 7 1/2"	11'- 2 7/8"	42(48596)	Top	101.00 lb/ft	-	-	-
Uniform	10'- 1"	11'- 2 7/8"	42(48596)	Top	98.00 lb/ft	-	152.00 lb/ft	-
Uniform	10'- 1"	11'- 2 7/8"	FC1 Floor Material	Top	-	12.00 lb/ft	-	-
Point	9'- 10 1/4"	9'- 10 1/4"	41(48597)	Top	45.00 lb	-	-	-
Point	11'- 1 3/8"	11'- 1 3/8"	-	Top	253.00 lb	-	248.00 lb	-
UNFACTORED REACTIONS								
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)	
1	0'	0'- 2 3/4"	STL BEAM (DRPD.) (37188)	57.00 lb	226.00/-3.00 lb	-48.00 lb	-	
2	9'- 7 1/2"	10'- 1"	STL BEAM (DRPD.) (37189)	766.00 lb	270.00 lb	472.00 lb	-	
DESIGN NOTES								
- The dead loads used in the design of this member were applied to the structure as projected dead loads. - Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting. - A load bearing wall is supported by the I-joist at a location where the I-joist is supported by a member below. Please see manufacturer installation guidelines for requirements of blocking/squash blocks. - A load bearing wall is supported by the I-joist at a location where the I-joist is supported by a member below. Please see manufacturer installation guidelines for requirements of blocking/squash blocks. - Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table. - Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices. - This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct. - Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction. - Design for vibration control is based on the concluding report: "Development of Design Procedures for Vibration Controlled Spans Using Engineered Wood Members," dated Sep-04-97. - The deflection at the cantilever for either live and/or total loads is less than 3/8" and therefore has been excluded from the deflection ratio considerations.								

REGISTERED PROFESSIONAL ENGINEER

11/07/2020

EDWIN C. FOK

PROVINCE OF ONTARIO

SG020634



SG020634

Maximum Floor Spans – M4.1, L/360

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/360 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued oriented strand board (OSB) sheathing



Maximum Floor Spans

Joist depth	Joist series	Bare				1/2 in. gypsum ceiling			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-11"	15'-0"	14'-6"	13'-5"	16'-5"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-10"	17'-5"	16'-5"	15'-10"	14'-11"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-7"	16'-7"	16'-0"	15'-4"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-11"	16'-11"	16'-3"	15'-8"	18'-7"	17'-5"	16'-10"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-7"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-6"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-80	21'-1"	19'-6"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
14"	NI-90	21'-6"	19'-10"	18'-11"	17'-11"	22'-0"	20'-4"	19'-5"	18'-4"
	NI-40x	21'-5"	19'-11"	18'-11"	18'-0"	22'-1"	20'-7"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-3"	22'-6"	20'-10"	19'-11"	18'-10"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
16"	NI-90	23'-10"	22'-1"	21'-0"	19'-10"	24'-5"	22'-7"	21'-6"	20'-4"
	NI-60	23'-9"	22'-0"	21'-0"	19'-10"	24'-6"	22'-9"	21'-8"	20'-7"
	NI-80	25'-6"	23'-7"	22'-5"	21'-2"	26'-2"	24'-3"	23'-1"	21'-10"
	NI-90	26'-0"	24'-0"	22'-10"	21'-6"	26'-7"	24'-8"	23'-5"	22'-2"

Joist depth	Joist series	Mid-span blocking with 1x4 inch strap				Mid-span blocking and 1/2 in. gypsum ceiling			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	17'-1"	15'-5"	14'-6"	13'-5"	17'-1"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-6"	16'-7"	14'-11"	19'-2"	17'-8"	16'-7"	14'-11"
	NI-60	18'-11"	17'-8"	16'-10"	15'-7"	19'-5"	18'-0"	16'-10"	15'-7"
	NI-80	20'-3"	18'-10"	17'-11"	17'-2"	20'-8"	19'-3"	18'-4"	17'-5"
11-7/8"	NI-20	20'-3"	18'-8"	17'-6"	16'-1"	20'-7"	18'-8"	17'-6"	16'-1"
	NI-40x	21'-10"	20'-4"	19'-0"	17'-0"	22'-5"	20'-10"	19'-0"	17'-0"
	NI-60	22'-1"	20'-7"	19'-8"	18'-7"	22'-8"	21'-2"	20'-3"	18'-8"
	NI-80	23'-8"	22'-0"	20'-11"	19'-10"	24'-1"	22'-6"	21'-6"	20'-4"
14"	NI-90	24'-1"	22'-5"	21'-4"	20'-2"	24'-7"	22'-11"	21'-10"	20'-8"
	NI-40x	24'-5"	22'-9"	20'-11"	18'-8"	25'-1"	22'-11"	20'-11"	18'-8"
	NI-60	24'-10"	23'-2"	22'-1"	20'-10"	25'-6"	23'-10"	22'-9"	21'-4"
	NI-80	26'-6"	24'-8"	23'-6"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
16"	NI-90	27'-0"	25'-1"	23'-11"	22'-7"	27'-6"	25'-8"	24'-6"	23'-2"
	NI-60	27'-3"	25'-5"	24'-3"	22'-11"	28'-0"	26'-2"	25'-0"	23'-1"
	NI-80	29'-1"	27'-1"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"
	NI-90	29'-7"	27'-6"	26'-2"	24'-9"	30'-2"	28'-2"	26'-10"	25'-5"

Notes:

- The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

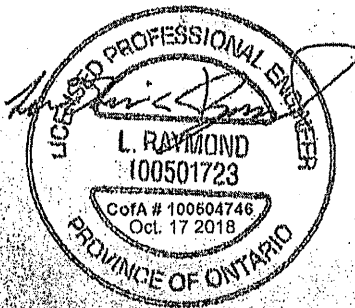
The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

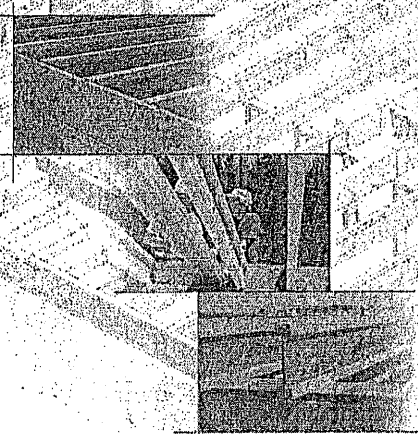
This document does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of its component based on the design criteria and loadings shown on the calculation sheets.

Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)



N-C301/April 2014

NORDIC ENGINEERED WOOD INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:



SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully tensioned and braced, or serious injury can result.



Never stack building materials over untensioned I-joists. Once tensioned, do not over-stress I-joist with concentrated loads from building materials.

WARNING

I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

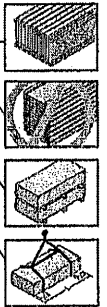
Avoid Accidents by Following these Important Guidelines:

1. Store and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When I-joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called truss, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 6 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Top ends of bracing bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. Never install a damaged I-joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable loads, spans and locations, or failure to use well-ventilated when required can result in serious accidents. Follow these installation guidelines carefully.

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or moisture.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
 - Pick I-joists in bundles as shipped by the supplier.
 - Orient the bundles so that the webs of the I-joists are vertical.
 - Pick the bundles at the 5th points, using a spreader bar if necessary.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.
 - Pick I-joists in bundles as shipped by the supplier.
 - Orient the bundles so that the webs of the I-joists are vertical.
 - Pick the bundles at the 5th points, using a spreader bar if necessary.
8. Do not handle I-joists in a horizontal orientation.
9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.

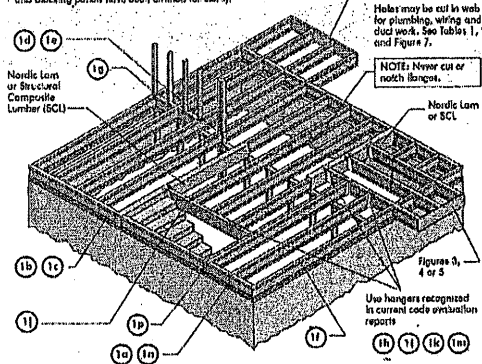


INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span joists must be level.
5. Minimum bearing length 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist and end a header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (ripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and on I-joist-comparable depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. (Use panels in blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

FIGURE 1
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

Some framing requirements such as section bracing and blocking panels have been omitted for clarity.



All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125") dia. common joist nails may be substituted for 2-1/2" (0.125") dia. common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

1a

1-1/2" nails at 6" o.c. to top plate when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking.

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load (q _u)
1-1/2" Rim Board Ply	3,300

*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a blocking member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

1b

One 2-1/2" face nail at each side of bearing.

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load (q _u)
1-1/2" Rim Board Ply	0,070

*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a blocking member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

1c

Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

1d

1-1/2" nails at 6" o.c. to top plate when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking.

Pair of Squash Blocks	Maximum Factored Uniform Vertical Load (q _u)
2x Lumber	5,500
1-1/2" Rim Board Ply	4,500

Provide lateral bracing per detail 1a, 1b, or 1c.

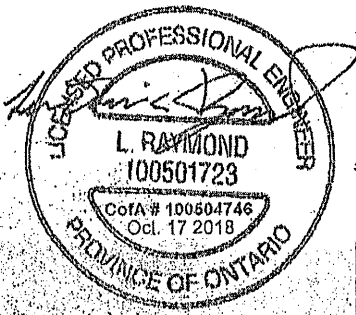
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N-C301/April 2014

MAXIMUM FLOOR SPANS

- Maximum clear spans are based on single-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate live load is based on the factored loads of 1.50 x 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent spans.
- Spans are based on a composite floor with glued-nail or oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CCB-71.24 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-spans.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 2-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA C308-09 Standard, and NBC 7010.
- SI units conversions: 1 inch = 25.4 mm, 1 foot = 0.305 m

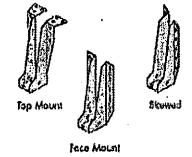
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Joist Depth	24" Spacing	19.2" Spacing	16" Spacing	14.4" Spacing	12" Spacing	10" Spacing	8" Spacing	6" Spacing	4" Spacing	3" Spacing	2" Spacing	1" Spacing
10	12.1'	14.2'	16.3'	18.4'	20.5'	22.6'	24.7'	26.8'	28.9'	31.0'	33.1'	35.2'
12	15.1'	18.2'	21.3'	24.4'	27.5'	30.6'	33.7'	36.8'	39.9'	43.0'	46.1'	49.2'
14	18.1'	22.2'	26.3'	30.4'	34.5'	38.6'	42.7'	46.8'	50.9'	55.0'	59.1'	63.2'
16	21.1'	26.2'	31.3'	36.4'	41.5'	46.6'	51.7'	56.8'	61.9'	67.0'	72.1'	77.2'
18	24.1'	30.2'	36.3'	42.4'	48.5'	54.6'	60.7'	66.8'	72.9'	79.0'	85.1'	91.2'
20	27.1'	34.2'	41.3'	48.4'	55.5'	62.6'	69.7'	76.8'	83.9'	91.0'	98.1'	105.2'
22	30.1'	38.2'	46.3'	54.4'	62.5'	70.6'	78.7'	86.8'	94.9'	103.0'	111.1'	119.2'
24	33.1'	42.2'	50.3'	59.4'	67.5'	75.6'	83.7'	91.8'	99.9'	108.0'	116.1'	124.2'
26	36.1'	46.2'	55.3'	64.4'	72.5'	80.6'	88.7'	96.8'	104.9'	113.0'	121.1'	129.2'
28	39.1'	50.2'	60.3'	69.4'	77.5'	85.6'	93.7'	101.8'	109.9'	118.0'	126.1'	134.2'
30	42.1'	54.2'	65.3'	74.4'	82.5'	90.6'	98.7'	106.8'	114.9'	123.0'	131.1'	139.2'
32	45.1'	58.2'	69.3'	78.4'	86.5'	94.6'	102.7'	110.8'	118.9'	127.0'	135.1'	143.2'
34	48.1'	62.2'	73.3'	82.4'	90.5'	98.6'	106.7'	114.8'	122.9'	131.0'	139.1'	147.2'
36	51.1'	66.2'	77.3'	86.4'	94.5'	102.6'	110.7'	118.8'	126.9'	135.0'	143.1'	151.2'
38	54.1'	70.2'	81.3'	90.4'	98.5'	106.6'	114.7'	122.8'	130.9'	139.0'	147.1'	155.2'
40	57.1'	74.2'	85.3'	94.4'	102.5'	110.6'	118.7'	126.8'	134.9'	143.0'	151.1'	159.2'
42	60.1'	78.2'	89.3'	98.4'	106.5'	114.6'	122.7'	130.8'	138.9'	147.0'	155.1'	163.2'
44	63.1'	82.2'	93.3'	102.4'	110.5'	118.6'	126.7'	134.8'	142.9'	151.0'	159.1'	167.2'
46	66.1'	86.2'	97.3'	106.4'	114.5'	122.6'	130.7'	138.8'	146.9'	155.0'	163.1'	171.2'
48	69.1'	90.2'	101.3'	110.4'	118.5'	126.6'	134.7'	142.8'	150.9'	159.0'	167.1'	175.2'
50	72.1'	94.2'	105.3'	114.4'	122.5'	130.6'	138.7'	146.8'	154.9'	163.0'	171.1'	179.2'
52	75.1'	98.2'	109.3'	118.4'	126.5'	134.6'	142.7'	150.8'	158.9'	167.0'	175.1'	183.2'
54	78.1'	102.2'	113.3'	122.4'	130.5'	138.6'	146.7'	154.8'	162.9'	171.0'	179.1'	187.2'
56	81.1'	106.2'	117.3'	126.4'	134.5'	142.6'	150.7'	158.8'	166.9'	175.0'	183.1'	191.2'
58	84.1'	110.2'	121.3'	130.4'	138.5'	146.6'	154.7'	162.8'	170.9'	179.0'	187.1'	195.2'
60	87.1'	114.2'	125.3'	134.4'	142.5'	150.6'	158.7'	166.8'	174.9'	183.0'	191.1'	199.2'
62	90.1'	118.2'	129.3'	138.4'	146.5'	154.6'	162.7'	170.8'	178.9'	187.0'	195.1'	203.2'
64	93.1'	122.2'	133.3'	142.4'	150.5'	158.6'	166.7'	174.8'	182.9'	191.0'	199.1'	207.2'
66	96.1'	126.2'	137.3'	146.4'	154.5'	162.6'	170.7'	178.8'	186.9'	195.0'	203.1'	211.2'
68	99.1'	130.2'	141.3'	150.4'	158.5'	166.6'	174.7'	182.8'	190.9'	199.0'	207.1'	215.2'
70	102.1'	134.2'	145.3'	154.4'	162.5'	170.6'	178.7'	186.8'	194.9'	203.0'	211.1'	219.2'
72	105.1'	138.2'	149.3'	158.4'	166.5'	174.6'	182.7'	190.8'	198.9'	207.0'	215.1'	223.2'
74	108.1'	142.2'	153.3'	162.4'	170.5'	178.6'	186.7'	194.8'	202.9'	211.0'	219.1'	227.2'
76	111.1'	146.2'	157.3'	166.4'	174.5'	182.6'	190.7'	198.8'	206.9'	215.0'	223.1'	231.2'
78	114.1'	150.2'	161.3'	170.4'	178.5'	186.6'	194.7'	202.8'	210.9'	219.0'	227.1'	235.2'
80	117.1'	154.2'	165.3'	174.4'	182.5'	190.6'	198.7'	206.8'	214.9'	223.0'	231.1'	239.2'
82	120.1'	158.2'	169.3'	178.4'	186.5'	194.6'	202.7'	210.8'	218.9'	227.0'	235.1'	243.2'
84	123.1'	162.2'	173.3'	182.4'	190.5'	198.6'	206.7'	214.8'	222.9'	231.0'	239.1'	247.2'
86	126.1'	166.2'	177.3'	186.4'	194.5'	202.6'	210.7'	218.8'	226.9'	235.0'	243.1'	251.2'
88	129.1'	170.2'	181.3'	190.4'	198.5'	206.6'	214.7'	222.8'	230.9'	239.0'	247.1'	255.2'
90	132.1'	174.2'	185.3'	194.4'	202.5'	210.6'	218.7'	226.8'	234.9'	243.0'	251.1'	259.2'
92	135.1'	178.2'	189.3'	198.4'	206.5'	214.6'	222.7'	230.8'	238.9'	247.0'	255.1'	263.2'
94	138.1'	182.2'	193.3'	202.4'	210.5'	218.6'	226.7'	234.8'	242.9'	251.0'	259.1'	267.2'
96	141.1'	186.2'	197.3'	206.4'	214.5'	222.6'	230.7'	238.8'	246.9'	255.0'	263.1'	271.2'
98	144.1'	190.2'	201.3'	210.4'	218.5'	226.6'	234.7'	242.8'	250.9'	259.0'	267.1'	275.2'
100	147.1'	194.2'	205.3'	214.4'	222.5'	230.6'	238.7'	246.8'	254.9'	263.0'	271.1'	279.2'

CCMC EVALUATION REPORT 10055-B

I-JOIST HANGERS

- Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
- All nailing must meet the hanger manufacturer's recommendations.
- Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum spans.
- Web stiffeners are required when the ends of the hangers do not laterally brace the top flange of the I-joist.



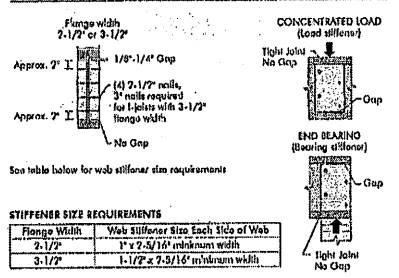
WEB STIFFENERS

RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with lateral reactions greater than those in the I-joist Construction Guide (C101) the gap between the stiffener and the joist is at the top.
- A bearing stiffener is required when the I-joist is supported in a hanger and the ends of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A load stiffener is required at locations where a lateral concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mm

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS



Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

1a

Transfer load from above to bearing below. Install gusset blocks per detail 1d. Match bearing area of blocks below to post above.

1b

Wall sheathing, as required. Ribs may be used in lieu of I-joist. Backer is not required when rim board is used. Blocking per detail 1b shall be carried to the foundation.

1c

Multiple I-joist header with full depth filler block shown. Nordic Lams or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

1d

Do not bowl-cut post beyond inside face of wall. Attach I-joist per detail 1b.

1e

Backer block (use 3 hanger-kind exceeds 340 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch, level header tight to top flange. Use twelve 3" nails, attached when possible. Minimum factored resistance for hanger for this detail = 1,620 lbs.

1f

Top- or face-mount hanger. Top-mount hanger installed per manufacturer's recommendations. Note: Unless hanger slides laterally support the top flange, bearing stiffeners shall be used.

1g

Filler block per detail 1p. Backer block attached per detail 1b. Note: Backer block required per detail 1b. Maximum support capacity = 1,620 lbs.

1h

Lumber 2x4 min., actual block to face of adjacent web. Two 2-1/2" spaced nails from each web to lumber plate, alternate on opposite side. Note: Blocking required at bearing for lateral support, not shown for clarity.

1i

One 2-1/2" nails at top and bottom flange. Two 2-1/2" nails from each web to lumber plate. Two 2-1/2" nails from each web to lumber plate. One 2-1/2" nails are 3" only. 2-1/2" nails at 6" o.c.

1j

Note: In some local codes, blocking is prescriptively required in the first joist space for first and second joist space) next to the center joist. Where required, use local code requirements for spacing of the blocking. All nails use common spiral in this detail.

Document prepared for the use of
Stephanie Gon from Alpa, Ontario.
(Nordic Request 1810-095)

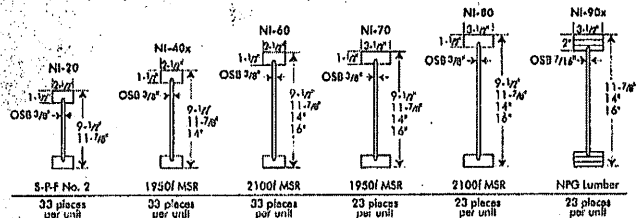


CONSTRUCTION DETAILS FOR RESIDENTIAL FLOORS

N-C303 / September 2013



Refer to the Installation Guide for Residential Floors for additional information.
CCMC EVALUATION REPORT 13032-R



WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes must be centred on the middle of the web.
4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch shall always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.

5. The sides of square holes or longest sides of rectangular holes shall not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole for twice the length of the longest side of the largest rectangular hole or duct chase opening and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a wobble-free manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft. - in.)											
		Round Hole Diameter (in.)											
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4
9-1/2"	NI-20	0'-7"	1'-0"	2'-10"	4'-3"	5'-0"	6'-0"	...	...	...	...	...	...
	NI-40x	0'-7"	1'-0"	3'-0"	4'-4"	6'-0"	6'-4"	...	...	...	...	...	...
	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"	...	...	...	...	...	...
	NI-70	2'-0"	3'-4"	4'-8"	6'-2"	8'-0"	8'-4"	...	...	...	...	...	...
	NI-80	2'-3"	3'-6"	5'-0"	6'-4"	8'-2"	8'-6"	...	...	...	...	...	...
11-7/8"	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-4"	7'-9"	...	...	...
	NI-40x	0'-7"	0'-8"	1'-0"	2'-4"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	...	...	...
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	6'-0"	6'-0"	7'-3"	8'-10"	10'-0"	...	...	...
	NI-70	1'-3"	2'-9"	4'-2"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2"	...	...	...
	NI-80	1'-6"	2'-10"	4'-2"	5'-4"	7'-0"	7'-5"	8'-4"	10'-3"	11'-4"	...	...	...
14"	NI-20	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	5'-3"	...	...	...	...	...
	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-2"	6'-0"	6'-6"	8'-3"	10'-2"
	NI-60	0'-7"	0'-8"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"
	NI-70	0'-8"	1'-10"	3'-0"	4'-5"	6'-10"	6'-2"	7'-3"	8'-9"	9'-7"	10'-4"	12'-0"	13'-5"
	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-4"	9'-0"	10'-0"	10'-8"	12'-4"	13'-9"
16"	NI-20	0'-7"	0'-8"	0'-8"	2'-0"	3'-0"	4'-2"	5'-5"	7'-3"	8'-5"	9'-2"	...	...
	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	3'-2"	4'-2"	5'-6"	6'-4"	7'-0"	8'-5"	9'-8"
	NI-60	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-3"
	NI-70	0'-7"	1'-2"	2'-5"	3'-10"	5'-3"	5'-6"	6'-4"	8'-0"	9'-0"	9'-8"	11'-0"	12'-3"
	NI-80	0'-7"	0'-9"	0'-9"	2'-0"	3'-0"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"

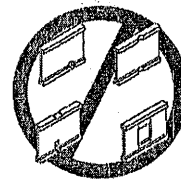
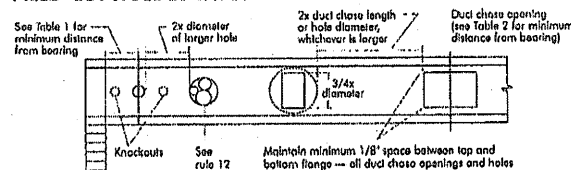
1. Above table may be used for I-joist spacing of 24 inches on centre, or less.
2. Hole location distance is measured from inside face of supports to centre of hole.
3. Distances in this chart are based on uniformly loaded joists.
4. The above table is based on the I-joist being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS
Simple Span Only

Joist Depth	Joist Series	Minimum Distance from Inside Face of Supports to Centre of Opening (ft. - in.)											
		Duct Chase Length (in.)											
		8	10	12	14	16	18	20	22	24			
9-1/2"	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"			
	NI-40x	5'-4"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"			
	NI-60	5'-9"	6'-3"	6'-7"	7'-0"	7'-5"	8'-0"	8'-5"	8'-9"	9'-3"			
	NI-70	5'-11"	6'-5"	6'-9"	7'-2"	7'-7"	8'-1"	8'-6"	9'-0"	9'-4"			
	NI-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"			
11-7/8"	NI-20	5'-9"	6'-4"	6'-8"	7'-1"	7'-5"	7'-9"	8'-3"	8'-7"	9'-1"			
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-5"	9'-1"	9'-5"	9'-9"	10'-3"			
	NI-60	7'-3"	7'-7"	8'-0"	8'-4"	8'-8"	9'-2"	9'-6"	10'-0"	10'-4"			
	NI-70	7'-1"	7'-4"	7'-9"	8'-3"	8'-7"	9'-1"	9'-5"	9'-9"	10'-3"			
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-6"			
14"	NI-20	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-6"	11'-0"			
	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	11'-7"	12'-0"			
	NI-60	9'-0"	9'-5"	9'-9"	10'-1"	10'-6"	11'-1"	11'-6"	12'-1"	12'-5"			
	NI-70	9'-0"	9'-5"	9'-9"	10'-1"	10'-6"	11'-1"	11'-6"	12'-1"	12'-5"			
	NI-80	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-7"	12'-1"	12'-5"	12'-9"			
16"	NI-20	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2"	13'-7"	14'-1"			
	NI-40x	10'-11"	10'-5"	11'-0"	11'-4"	11'-9"	12'-3"	12'-8"	13'-2"	13'-6"			
	NI-60	10'-4"	10'-9"	11'-3"	11'-7"	12'-1"	12'-6"	13'-0"	13'-4"	13'-8"			
	NI-70	11'-1"	11'-5"	11'-9"	12'-4"	12'-8"	13'-2"	13'-6"	14'-0"	14'-4"			
	NI-80	11'-1"	11'-5"	11'-9"	12'-4"	12'-8"	13'-2"	13'-6"	14'-0"	14'-4"			

1. Above table may be used for I-joist spacing of 24 inches on centre, or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. The above table is based on simple span joists only. For other applications, contact your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480.
5. The above table is based on the I-joist being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7
FIELD-CUT HOLE LOCATOR



Knockouts are predrilled holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

Never drill, cut or notch the flange, or over-cut the web.

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cut between the holes is another good method to minimize damage to the joist.

SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fastened and braced, or various injuries can result.



Never stack building materials over unfastened I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.

WARNING: I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

1. Brace and nail each I-joist as it is installed, using kangaroos, blocking panels, rim board, and/or cross-bracing at joist ends. When I-joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. Never install a damaged I-joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in various accidents. Follow these installation guidelines carefully.



PRODUCT WARRANTY

Chambers Construction guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

Furthermore, Chambers Construction warrants that our products, when utilized in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.

The construction details for residential designs are prone to changes.

Details released after September 2013 supersedes N-303

Installation must comply with latest documentation on I-joist and other Nordic products from the <http://nordic.ca/>

This document 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 its component based on the design criteria and loadings shown on the calculation sheets.

Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)

1a NI blocking panel

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load (plf)
NI Joists	3,300

*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a banding member, such as joist, header, or roller. For concentrated vertical load transfer, see detail 1d.

Attach I-joist to top plate per detail 1b.

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)

1b Rim board

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load (plf)
1-1/2" Rim Board Plus	8,050

*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a banding member, such as joist, header, or roller. For concentrated vertical load transfer, see detail 1d.

One 2-1/2" wire or spiral nail at top and bottom flange

Attach rim board to top plate using 2-1/2" wire or spiral tie-nails at 6" o.c.

To avoid splitting flange, start nails at least 1-1/2" from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate.

Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

1c NI or rim board blocking panel per detail 1a

Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)
3-1/2" wide	6,172
6-1/2" wide	12,344
2x Lumber	5,000
1-1/8" Rim Board Plus	4,200

Provide lateral bracing per detail 1a or 1b

1d Transfer load from above to bearing below. Install squash blocks per detail 1c.

Match bearing area of blocks below to post above.

1e Joist attachment per detail 1b

Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.

Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support.

2-1/2" nails at 6" o.c. to top plate

NI blocking panel per detail 1a

1f Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum grade for backer block material shall be 5-BF No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C325 or CAN/CSA-C437 Standard.

** For face-mount hangers use net joist depth minus 2-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

1g Top- or face-mount hanger

Double I-joist header

NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

Backer block required (both sides for face-mount hangers)

For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

1h Nordic Laminar or Structural Composite Lumber (SCL)

For nailing schedules for multiple beams, see the manufacturer's recommendations.

Top- or face-mount hanger installed per manufacturer's recommendations

NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

1i 3x plate flush with inside face of wall or beam. 1/8" overlap allowed past inside face of wall or beam.

NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

Top-mount hanger installed per manufacturer's recommendations

1j Multiple I-joist header with full depth filler block shown. Nordic Laminar or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

Install hanger per manufacturer's recommendations

Maximum support capacity = 1,620 lbs.

1k Do not bevel-cut joist beyond inside face of wall

Attach I-joist per detail 1b

NOTE: Blocking required at bearing for lateral support, not shown for clarity.

1l Lumber 2x4 min., extend block to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side.

NI blocking panel

OPTIONAL: Minimum 1x4 inch strip applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joist.

1m FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

1. Support back of I-joist web during nailing to prevent damage to web/flange connection.

2. Leave a 1/8" to 1/4" gap between top of filler block and bottom of top I-joist flange.

3. Filler block is required between joists for full length of span.

4. Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.

5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lb/ft. Verify double I-joist capacity.

Filler block

Offset nails from opposite side by 6"

1-1/8" to 1-1/4" gap between top flange and filler block

1n One 2-1/2" nail at top and bottom flange

2x4 min. (1/8" gap minimum)

Two 2-1/2" spiral nails from each web to lumber piece in similar place

One 2-1/2" nail one side only

NOTE: In some local codes, blocking is prescriptively required in the first joist space for first and second joist spaces next to the starter joist. Where required, see local code requirements for spacing of the blocking.

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125" dia.) common spiral nails may be substituted for 2-1/2" (0.125" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

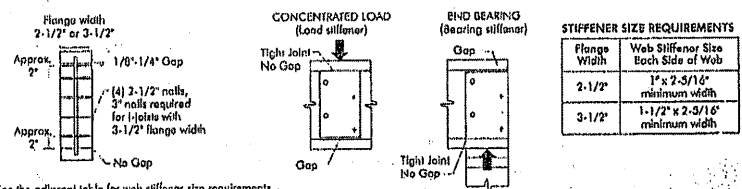
WEB STIFFENERS

RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A load stiffener is required at locations where a factored concentrated load greater than 2,770 lbs is applied to the top flange between supports, with the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

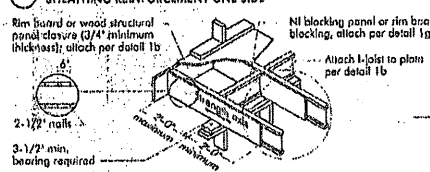
FIGURE 2

WEB STIFFENER INSTALLATION DETAILS

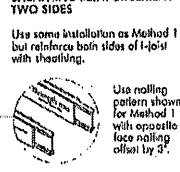


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



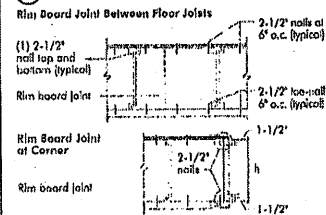
Method 2 — SHEATHING REINFORCEMENT TWO SIDES



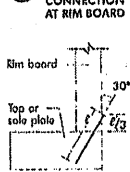
NOTE: Cantilevered plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match (to full height of the joist). Nail with 2-1/2" nails at 6" o.c. top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b. Verify reinforced I-joist capacity.

RIM BOARD INSTALLATION DETAILS

9a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



9b TOE-NAIL CONNECTION AT RIM BOARD



The construction details for residential designs are prone to changes.

Details released after September 2013 supersede N-303

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document 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 its component based on the design criteria and loadings shown on the calculation sheets.

Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)

