

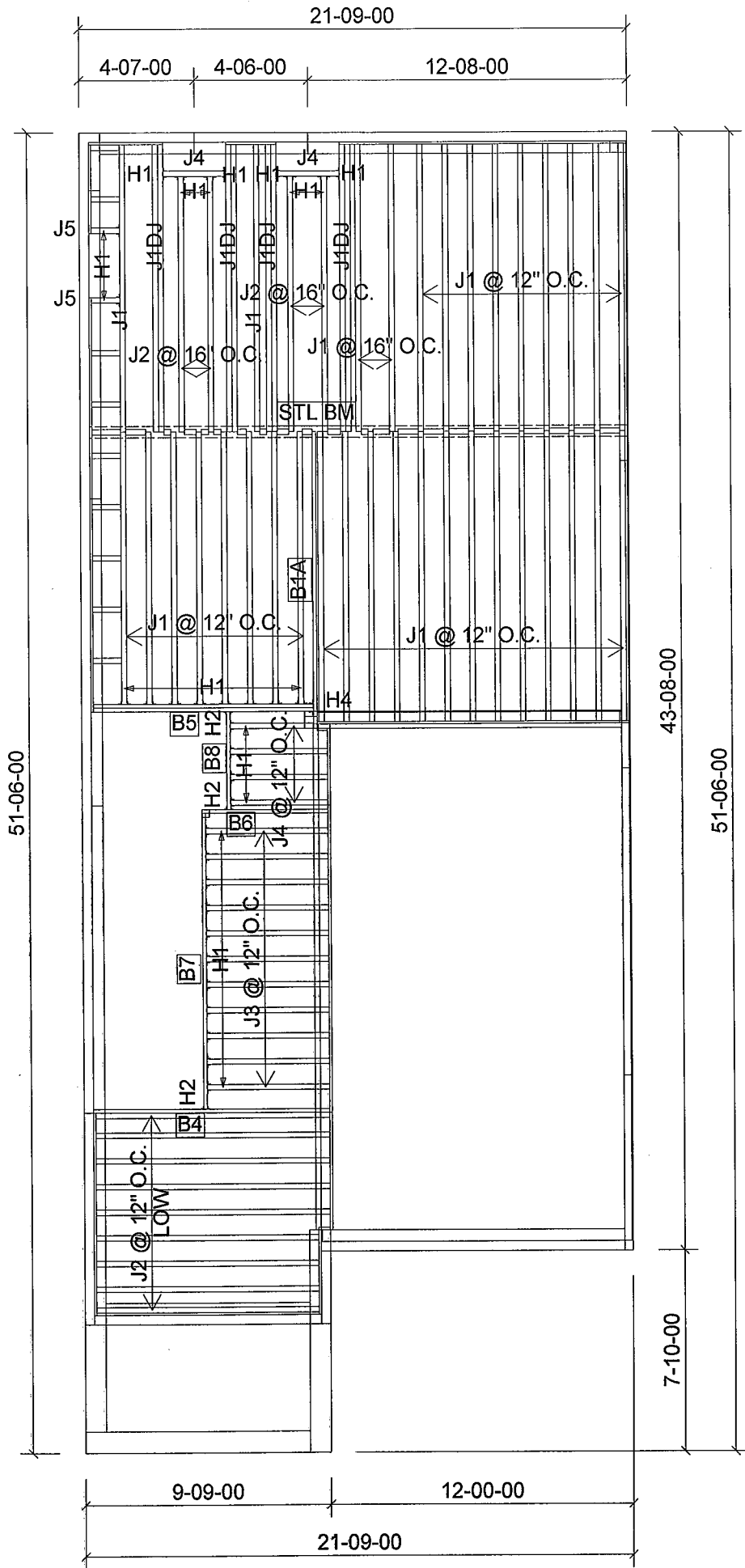
FROM PLAN DATED:
BUILDER: BAYVIEW WELLINGTON
SITE: PASSAGE ON THE CANAL
MODEL: TH12E
ELEVATION: A, B
LOT:
CITY: ST CATHERINES
SALESMAN: M D
DESIGNER: AJ
REVISION:

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

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILED AREAS: 20 lb/ft²
SUBFLOOR: 5/8" GLUED AND NAILED

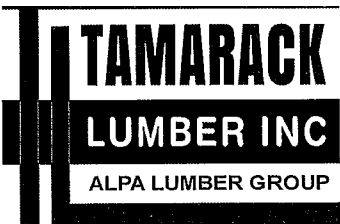
DATE: 2019-01-29

1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	12-00-00	9 1/2" NI-40x	1	34
J1DJ	12-00-00	9 1/2" NI-40x	2	8
J2	10-00-00	9 1/2" NI-40x	1	13
J3	6-00-00	9 1/2" NI-40x	1	11
J4	4-00-00	9 1/2" NI-40x	1	6
J5	2-00-00	9 1/2" NI-40x	1	2
B1A	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B8	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
15	H1	IUS2.56/9.5
8	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
2	H2	HUS1.81/10
1	H2	HUS1.81/10
1	H4	HGUS410



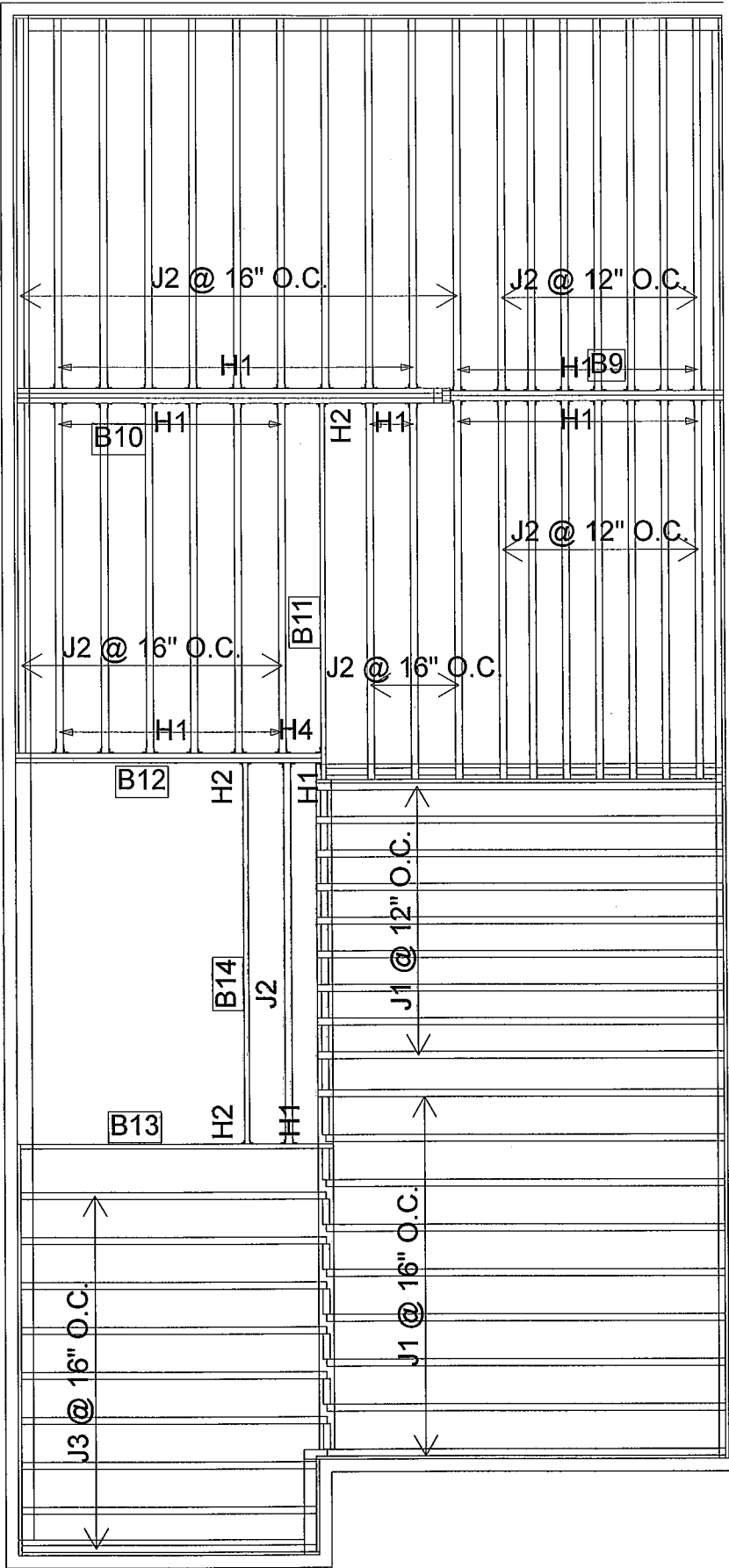
FROM PLAN DATED:
BUILDER: BAYVIEW WELLINGTON
SITE: PASSAGE ON THE CANAL
MODEL: TH12E
ELEVATION: A, B
LOT:
CITY: ST CATHERINES
SALESMAN: M D
DESIGNER: AJ
REVISION:

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

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILED AREAS: 20 lb/ft²
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2019-01-29

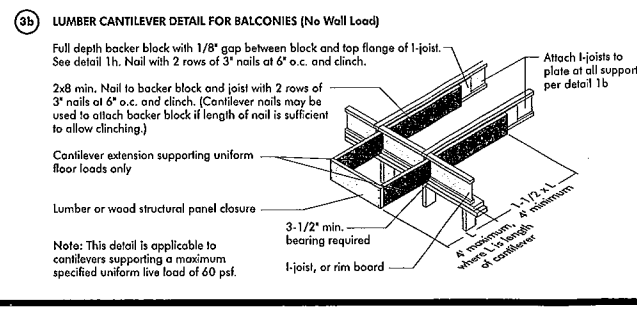
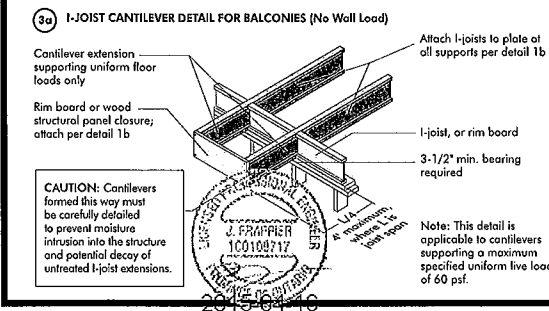
2nd FLOOR



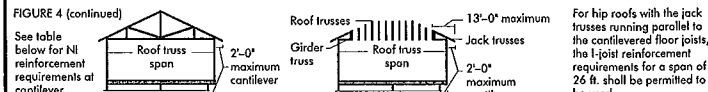
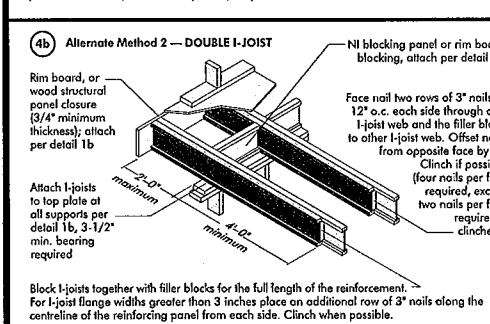
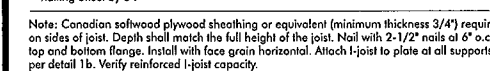
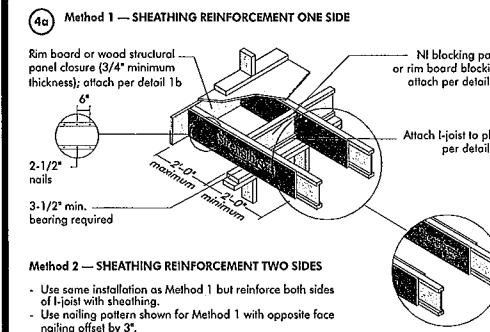
Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	18
J2	12-00-00	9 1/2" NI-40x	1	36
J3	10-00-00	9 1/2" NI-40x	1	9
B10	14-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	3	3
B11	12-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B14	12-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B13	10-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B12	10-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2
B9	10-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
1	H1	IUS2.56/9.5
23	H1	IUS2.56/9.5
17	H1	IUS2.56/9.5
1	H2	HUS1.81/10
1	H2	HUS1.81/10
1	H2	HUS1.81/10
1	H4	HGUS410

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

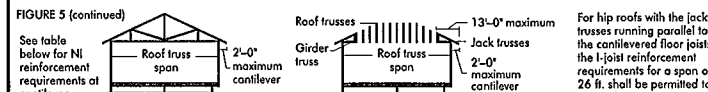
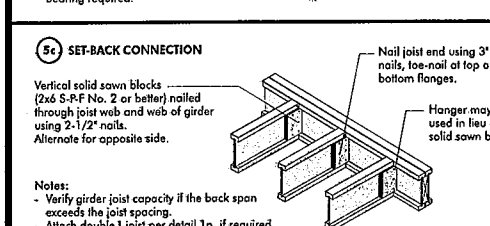
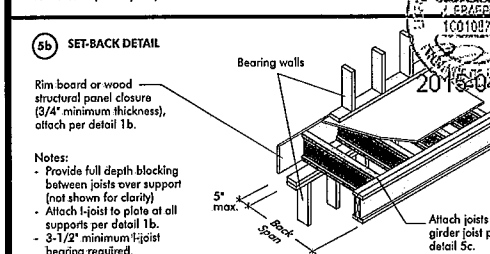
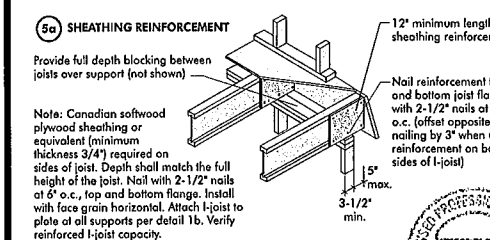


CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)	LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	N	1	X	N	1	2	X	N	2	X	X
	30	N	1	1	X	N	1	2	X	N	1	X	X
	32	N	1	2	X	N	2	X	X	N	1	X	X
11-7/8"	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	N	1	N	N	1	2	N	N	1	2	X
	30	N	N	1	1	N	1	2	N	1	2	X	X
	32	N	N	1	1	N	1	2	N	1	2	X	X
14"	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	N	1	N	N	1	2	N	N	1	2	X
	30	N	N	1	1	N	1	2	N	1	2	X	X
	32	N	N	1	1	N	1	2	N	1	2	X	X
16"	26	N	N	1	2	N	1	2	N	N	1	2	X
	28	N	N	1	N	N	1	2	N	N	1	2	X
	30	N	N	1	1	N	1	2	N	1	2	X	X
	32	N	N	1	1	N	1	2	N	1	2	X	X

1. N = No reinforcement required.
2. = NI reinforced with 3/4" wood structural panel on one side only.
3. = NI reinforced with 3/4" wood structural panel on both sides, or double I-joint.
4. = Try a deeper joist or closer spacing.
5. = Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
6. For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
7. Table applies to joists 12" to 24" o.c. that meet the floor 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. Use 12" o.c. requirements for lesser spacing.
8. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam.
9. When the roof is framed using a ridge beam, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
10. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)	LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	2	X	X	X
	30	1	X	X	X	2	X	X	X	2	X	X	X
	32	2	X	X	X	2	X	X	X	2	X	X	X
11-7/8"	26	2	X	X	X	2	X	X	X	2	X	X	X
	28	2	X	X	X	2	X	X	X	2	X	X	X
	30	1	2	X	X	1	X	X	X	2	X	X	X
	32	1	2	X	X	1	X	X	X	2	X	X	X
14"	26	N	1	2	X	N	2	X	X	N	2	X	X
	28	N	1	2	X	N	2	X	X	N	2	X	X
	30	N	2	X	X	N	2	X	X	N	2	X	X
	32	N	2	X	X	N	2	X	X	N	2	X	X
16"	26	N	2	X	X	N	2	X	X	N	2	X	X
	28	N	2	X	X	N	2	X	X	N	2	X	X
	30	N	2	X	X	N	2	X	X	N	2	X	X
	32	N	2	X	X	N	2	X	X	N	2	X	X

1. N = No reinforcement required.
2. = NI reinforced with 3/4" wood structural panel on one side only.
3. = NI reinforced with 3/4" wood structural panel on both sides, or double I-joint.
4. = Try a deeper joist or closer spacing.
5. = Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
6. For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
7. Table applies to joists 12" to 24" o.c. that meet the floor 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. Use 12" o.c. requirements for lesser spacing.
8. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam.
9. When the roof is framed using a ridge beam, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
10. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

WEB HOLES

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. The I-joint top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should 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-joint web shall equal the clear distance between the flanges of the I-joint minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joint flange.
5. The sides of square holes or longest sides of rectangular holes should 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 (or 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 shall be 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 workman-like 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 of 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.)												Span adjustment Factor
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	
9-1/2"	N120	0-7"	1-6"	2-10"	4-3"	5-8"	6-0"	...	...	...	...	...	...	13-6"
	N140	0-7"	1-6"	3-0"	4-4"	6-0"	6-0"	...	...	...	...	...	...	14-9"
	N160	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	...	...	...	...	...	...	14-11"
	N180	2-0"	3-4"	4-9"	6-3"	8-0"	8-4"	...	...	...	...	...	...	15-7"
11-7/8"	N120	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-0"	7-9"	...	...	...	15-6"
	N140	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-0"	7-9"	...	...	...	16-8"
	N160	0-7"	1-0"	3-0"	4-3"	5-9"	6-0"	7-3"	8-10"	10-0"	...	...	...	16-9"
	N180	1-3"	2-6"	4-0"	5-4"	6-9"	7-2"	8-4"	10-0"	11-2"	...	...	...	17-5"
14"	N120	1-0"	2-10"	4-0"	5-4"	7-0"	7-5"	8-6"	10-3"	11-4"	...	...	...	17-7"
	N140	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	...	...	...	17-11"
	N160	0-7"	0-8"	2-2"	3-9"	4-4"	6-3"	7-5"	8-5"	10-2"	...	...	...	18-2"
	N180	0-7"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	8-8"	10-4"	11-9"	...
16"	N120	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-0"	7-9"	...	...	...	18-2"
	N140	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-0"	7-9"	...	...	...	19-2"
	N160	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-0"	7-9"	...	...	...	20-9"
	N180	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-0"	7-9"	...	...	...	21-7"

1. Above table may be used for I-joint 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.

OPTIONAL:

The above table is based on the I-joints used at their maximum span. If the I-joints are placed at less than their full maximum span (see Maximum Span Table), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

Reduced = $\frac{\text{Actual Span}}{\text{Max Span}} \times D$

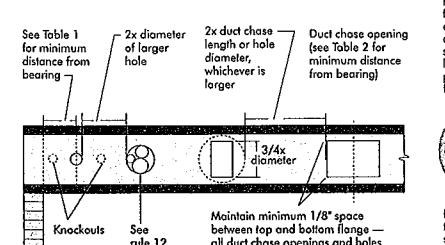
Where:

- Reduced = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications (the distance shall not be less than 6 inches from the face of the support to edge of the hole).
- Actual = The actual measured span distance between the inside faces of supports (ft.).
- Max Span = Span Adjustment Factor given in this table.
- D = The minimum distance from the inside face of any support to centre of hole from this table.

If Actual is greater than 1, use 1 in the above calculation for Actual.

FIGURE 7

FIELD-CUT HOLE LOCATOR



A knockout is NOT considered a hole, may be utilized wherever it occurs and may be ignored for purposes of calculating minimum distances between holes.

TABLE 2

DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

Minimum distance from inside face of any support to centre of opening (ft.-in.)										
Joist Depth	Joist Series	Duct chase length (ft.)								
		6	10	12	14	16	18	20	22	24
9-1/2"	N120	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-6"	7-1"	7-6"
	N140	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-7"
	N160	6-1"	6-6"	6-10"	6-5"	6-7"	7-1"	7-6"	8-1"	8-6"
	N180	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-7"
11-7/8"	N120	5-9"	6-2"	6-6"	7-1"	7-5"	7-9"	8-3"	8-9"	9-3"
	N140	6-9"	7-2"	7-6"	8-1"	8-5"	9-1"	9-6"	10-1"	10-6"
	N160	7-3"	7-8"	8-0"	8-6"	9-0"	9-3"	9-9"	10-3"	10-8"
	N180	7-4"	7-9"	8-1"	8-7"	9-1"	9-7"	10-1"	10-6"	11-1"
14"	N120	7-2"	7-7"	8-0"	8-5"	8-10"	9-3"	9-8"	10-2"	10-7"
	N140	8-1"	8-6"	8-9"	9-4"	9-9"	10-4"	10-9"	11-3"	11-8"
	N160	7-2"	7-7"	8-0"	8-5"	8-10"	9-3"	9-8"	10-2"	10-7"
	N180	7-2"	7-7"	8-0"	8-5"	8-10"	9-3"	9-8"	10-2"	10-7"
16"	N120	7-7"	8-1"	8-5"	8-10"	9-4"	9-8"	10-2"	10-6"	11-1"
	N140	8-1"	8-6"	9-0"	9-4"	10-1"	10-7"	11-2"	12-0"	12-6"
	N160	8-9"	9-1"	9-5"	10-1"	10-6"	11-1"	11-6"	12-1"	12-6"
	N180	8-9"	9-1"	9-5"	10-1"	10-6"	11-1"	11-6"	12-1"	12-6"
18"	N120	8-1"	8-6"	9-0"	9-4"	10-1"	10-7"	11-2"	12-0"	12-6"
	N140	9-1"	9-6"	10-0"	10-5"	11-0"	11-5"	12-0"	12-5"	13-0"
	N160	10-1"	10-5"	11-0"	11-4"	11-10"	12-4"	12-8"	13-3"	13-7"
	N180	10-1"	10-5"	11-0"	11-4"	11-10"	12-4"	12-8"	13-3"	13-7"
20"	N120	9-1"	9-6"	10-0"	10-5"	11-0"	11-5"	12-0"	12-5"	13-0"
	N140	10-1"	10-5"	11-0"	11-4"	11-10"	12-4"	12-8"	13-3"	13-7"
	N160	10-1"	10-5"	11-0"	11-4"	11-10"	12-4"	12-8"	13-3"	13-7"
	N180	10-1"	10-5"	11-0"	11-4"	11-10"	12-4"	12-8"	13-3"	13-7"



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:

- 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.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- 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 should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.

- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- 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 (or 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.
- 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.
- 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.

- 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.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- A group of round holes of 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	11
9-1/2"	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"	---	---	---	---	---	---	---
	NI-40x	0'-7"	1'-6"	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'-9"	6'-3"	8'-0"	8'-4"	---	---	---	---	---	---	---
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"	---	---	---	---	---	---	---
11-7/8"	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-5"	---	---	---	---
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	---	---	---	---
	NI-60	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"	7'-3"	8'-10"	10'-0"	---	---	---	---
	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-3"	8'-4"	10'-0"	11'-2"	---	---	---	---
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"	11'-4"	---	---	---	---
14"	NI-20	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	---	---	---	---
	NI-40x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"	8'-3"	9'-4"	---	---	---	---
	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"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	10'-4"	12'-0"	13'-5"	---
	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"	12'-4"	13'-9"	---
16"	NI-20	0'-7"	0'-8"	0'-10"	2'-5"	4'-0"	4'-5"	5'-9"	7'-5"	8'-8"	9'-4"	11'-4"	12'-11"	---
	NI-40x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9"	4'-2"	5'-5"	7'-3"	8'-5"	9'-2"	---	---	---
	NI-60	0'-7"	0'-8"	1'-6"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"	13'-9"
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-3"	6'-5"	7'-8"	8'-0"	9'-2"	10'-8"	12'-4"	15'-6"
	NI-80	0'-7"	1'-3"	2'-9"	4'-2"	5'-6"	6'-5"	8'-0"	9'-5"	11'-0"	12'-3"	13'-9"	15'-5"	16'-0"

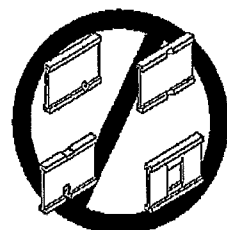
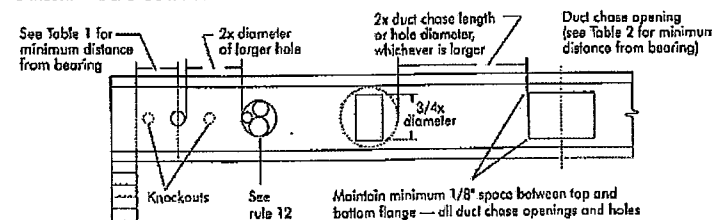
- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joists being used at their maximum spans. 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'-3"	5'-8"	6'-0"	6'-5"	6'-9"	7'-3"	7'-8"	8'-2"	8'-6"				
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9"				
	NI-70	5'-1"	5'-6"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"				
	NI-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-9"	7'-3"	7'-8"	8'-2"	8'-6"				
11-7/8"	NI-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"				
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-5"	8'-9"	9'-3"	9'-9"	10'-9"				
	NI-60	7'-3"	7'-8"	8'-0"	8'-5"	8'-9"	9'-3"	9'-9"	10'-3"	11'-0"				
	NI-70	7'-1"	7'-6"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-4"				
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"				
14"	NI-20	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-7"	10'-11"				
	NI-40x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"				
	NI-60	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	11'-8"	12'-3"				
	NI-70	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	12'-1"	12'-6"				
	NI-80	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11'-2"	11'-7"	12'-3"				
16"	NI-20	9'-0"	9'-3"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"				
	NI-40x	9'-2"	9'-6"	10'-0"	10'-5"	10'-11"	11'-5"	11'-9"	12'-4"	12'-11"				
	NI-60	9'-4"	9'-8"	10'-2"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"	13'-2"				
	NI-70	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2"	14'-1"	14'-10"				
	NI-80	10'-1"	10'-5"	11'-0"	11'-4"	11'-10"	12'-5"	12'-8"	13'-3"	14'-0"				

- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Duct chase opening location distance is measured from inside face of supports to centre of opening.
- The above table is based on simple span joists only. For other applications, contact your local distributor.
- 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.
- The above table is based on the I-joists 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 pre-cored 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 cuts between the holes is another good method to minimize damage to the I-joist.

SAFETY AND CONSTRUCTION PRECAUTIONS

- 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:**
- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
 - 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 1x1 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 off I-joists at the end of the bay.
 - For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
 - 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.
 - 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 serious accidents. Follow these installation guidelines carefully.

CHANTIER CHIBONGAMAU

PRODUCT WARRANTY

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

Furthermore, Chantier Chibongamau 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.

1a

NI blocking panel

Blocking Panel or Rim Joist

Maximum Factored 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 bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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)

Attach I-joist to top plate per detail 1b

1d

NI or rim board blocking panel per detail 1a

Squash block

Pair of Squash Blocks

2x Lumber

1-1/8" Rim Board Plus

Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)

3-1/2" wide

5-1/2" wide

5,500

8,500

4,300

6,600

Provide lateral bracing per detail 1a or 1b

1h

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 S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C325 or CAN/CSA-C137 Standard.
** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

1k

2x plate flush with inside face of wall or beam. 1/8" overhang 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

1m

Multiple I-joist header with full depth filler block shown. Nordic Lam 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.

Filler block per detail 1p

Install hanger per manufacturer's recommendations

Maximum support capacity = 1,620 lbs.

1p

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

Filler block

Offset nails from opposite face by 6"

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

NOTES:

- Support back of I-joist web during nailing to prevent damage to web/flange connection.
- Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
- Filler block is required between joists for full length of span.
- 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.
- The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbs/ft. Verify double I-joist capacity.

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 2,370 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.

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

Flange width 2-1/2" or 3-1/2"

Approx. 2" I

1/8"-1/4" Gap

(4) 2-1/2" nails, 3" nails required for I-joists with 3-1/2" flange width

No Gap

CONCENTRATED LOAD (Load stiffener)

Tight Joint No Gap

END BEARING (Bearing stiffener)

Gap

Tight Joint No Gap

STIFFENER SIZE REQUIREMENTS

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

See the adjacent table for web stiffener size requirements

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

4a

Method 1 — SHEATHING REINFORCEMENT ONE SIDE

Rim board or wood structural panel closure (3/4" minimum thickness); attach per detail 1b

NI blocking panel or rim board blocking, attach per detail 1g

Attach I-joist to plate per detail 1b

2-1/2" nails

3-1/2" min. bearing required

Method 2 — SHEATHING REINFORCEMENT TWO SIDES

Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.

Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the 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

8a

ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists

(1) 2-1/2" nail top and bottom (typical)

Rim board joint

Rim Board Joint at Corner

2-1/2" toe-nails at 6" o.c. (typical)

1-1/2" nails

8b

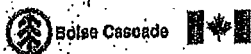
TOE-NAIL CONNECTION AT RIM BOARD

Rim board

Top or sole plate

30°

2-1/2" toe-nails at 6" o.c.



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B1(I1446)

PASSED

BC CALC® Member Report

Build 8475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

October 29, 2018 09:00:36

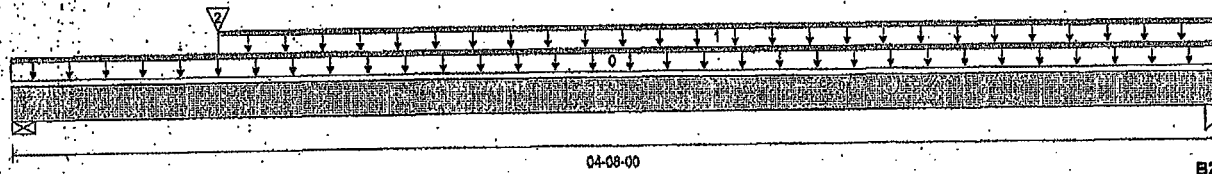
File name: TH12E SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1(I1446)

Specifier:

Designer:

Company:



Reaction Summary (Down / Uplift) (lbs)

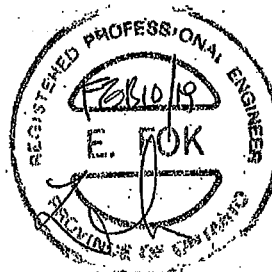
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,014 / 0	580 / 0		
B2, 1-3/4"	151 / 0	90 / 0		

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	04-08-00	Top	1.00	0.65	1.00	1.16	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-09-12	04-08-00	Top	19	10			n/a
2	B5(I1446)	Conc. Pt. (lbs)	L	00-09-12	00-09-12	Top	1,090	591			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	924 ft-lbs	11,610 ft-lbs	8.0%	1	00-09-12
End Shear	902 lbs	5,785 lbs	15.6%	1	01-03-00
Total Load Deflection	L/999 (0.008")	n/a	n/a	4	02-02-10
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	02-02-10
Max Defl.	0.006"	n/a	n/a	4	02-02-10
Span / Depth	5.3				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	2,222 lbs	54.0%	18.9%	Unspecified
B2	Column 1-3/4" x 1-3/4"	339 lbs	17.0%	9.1%	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

CONFORMS TO CBC 2012

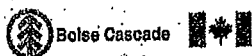
Disclosure

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®,

DWG NO. YAM230818H
STRUCTURAL
COMPONENT ONLY

T-190270



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B2(11318)

Dry | 1 span | No cant.

October 29, 2018 09:00:36

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports:

CCMC 12472-R

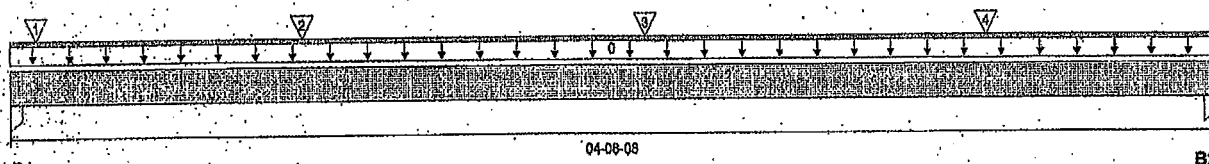
File name: TH12E SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B2(11318)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 04-08-08

Reaction Summary (Down / Uplift) (lbs)

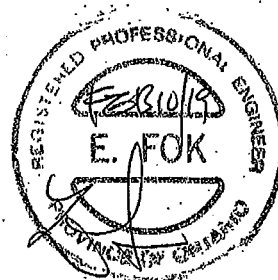
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	367 / 0	194 / 0		
B2, 3-1/2"	270 / 0	146 / 0		

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	04-08-08	Top	1.00	0.66	1.00	1.15	00-00-00
1	J3(11312)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	124	62			n/a
2	J3(11348)	Conc. Pt. (lbs)	L	01-01-12	01-01-12	Top	163	81			n/a
3	J3(11329)	Conc. Pt. (lbs)	L	02-05-12	02-05-12	Top	185	92			n/a
4	J3(11283)	Conc. Pt. (lbs)	L	03-09-12	03-09-12	Top	162	81			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	701 ft-lbs	11,610 ft-lbs	6.0%	1	02-05-12
End Shear	617 lbs	6,785 lbs	8.9%	1	01-01-00
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	02-04-04
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	02-04-04
Max Defl.	0.006"	n/a	n/a	4	02-04-04
Span / Depth	5.4				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	794 lbs	20.0%	10.6%	Unspecified
B2	Column 3-1/2" x 1-3/4"	587 lbs	14.8%	7.9%	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

CONFORMS TO CBC 2012

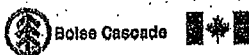
Disclosure

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®,

UNKNOW, TMM 2309-18H
STRUCTURAL
COMPONENT ONLY

T-1902271



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B3L(I1037)

Dry | 1 span | No cant.

October 29, 2018 09:00:36

BC CALC® Member Report

Buld:6476

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

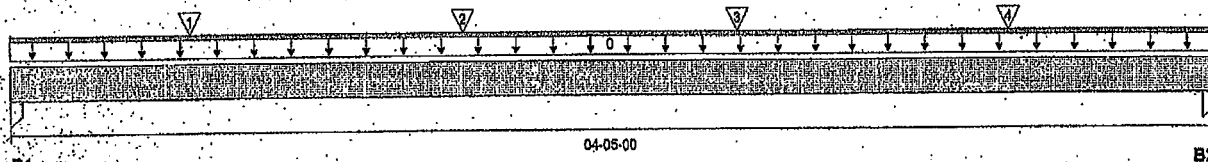
File name: TH12E SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B3L(I1037)

Specifier:

Designer:

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	180 / 0	90 / 0		
B2, 3-1/2"	165 / 0	88 / 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	04-05-00	Top	1.00	0.85	1.00	1.15	00-00-00
1	J4(I1020)	Conc. Pt. (lbs)	L	00-08-00	00-08-00	Top	71	35			n/a
2	J4(I984)	Conc. Pt. (lbs)	L	01-08-00	01-08-00	Top	85	42			n/a
3	J4(I1038)	Conc. Pt. (lbs)	L	02-08-00	02-08-00	Top	85	42			n/a
4	J4(I981)	Conc. Pt. (lbs)	L	03-08-00	03-08-00	Top	74	37			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	355 ft-lbs	11,610 ft-lbs	3.1%	1	02-08-00
End Shear	270 lbs	5,785 lbs	4.7%	1	03-04-00
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	02-02-12
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	02-02-12
Max Defl.	0.003"	n/a	n/a	4	02-02-12
Span / Depth	5.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	351 lbs	8.8%	4.7%	Unspecified
B2	Column 3-1/2" x 1-3/4"	343 lbs	8.6%	4.6%	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

CONFORMS TO OBC 2012

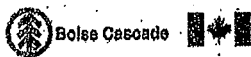
Disclosure

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®, AJST™, ALLJOIST®, BC RIM BOARD™, BCIO®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

DWENB.TAM 2310-184
STRUCTURAL
COMPONENT ONLY

T. 19027~



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B4(11380)

October 29, 2018 09:00:36

BC CALC® Member Report

Dry | 1 span | No cant.

Build 6476

Job name:

File name: TH12E SUNKEN.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B4(11380)

City, Province, Postal Code: ST...NES

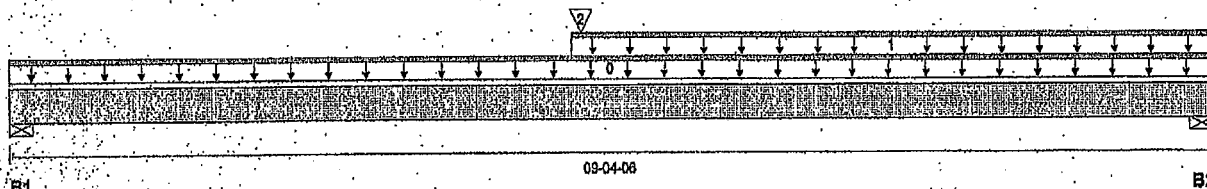
Specifier:

Customer:

Designer:

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 09-04-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6-1/2"	302 / 0	370 / 0		
B2, 4-3/8"	318 / 0	353 / 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	09-04-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	04-04-08	09-04-06	Top	20	10			n/a
2	B7(1426)	Conc. Pt. (lbs)	L	04-05-06	04-05-06	Top	520	628			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,651 ft-lbs	8,917 ft-lbs	40.9%	1	04-05-06
End Shear	908 lbs	5,785 lbs	15.7%	1	01-03-00
Total Load Deflection	L/999 (0.118")	n/a	n/a	4	04-08-03
Live Load Deflection	L/999 (0.054")	n/a	n/a	5	04-08-03
Max Defl.	0.118"	n/a	n/a	4	04-08-03
Span / Depth	10.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	916 lbs	22.3%	7.8%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	918 lbs	28.1%	9.8%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 04-04-08, Bottom: 04-04-08. **CONFORMS TO OBC 2012**
 Resistance Factor phi has been applied to all presented results per CSA Q86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA Q86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

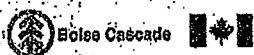
Disclosure

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)232-0768 before installation.

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

DWNG. YAW 2311-184
 STRUCTURAL
 COMPONENT ONLY

T-1902273

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLOOR FRAMING\Flush Beams\B5(1445)**

October 29, 2018 09:00:36

BC CALC® Member Report

Dry | 1 span | No cant.

Build 6476

Job name:

File name: TH12E SUNKEN.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B5(1445)

City, Province, Postal Code: ST ...NES

Specifier:

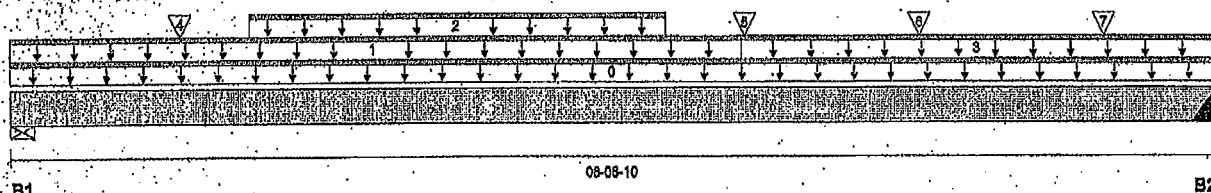
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-08-10

Reaction Summary (Down / Uplift) (lbs)

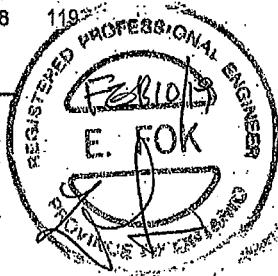
Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	992 / 0	542 / 0		
B2, 3"	1,112 / 0	603 / 0		

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	08-08-10	Top	10				00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-03-06	Top	6	3			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-08-14	04-08-14	Top	216	108			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	05-03-06	08-08-10	Top	14	7			n/a
4	J1(11451)	Conc. Pt. (lbs)	L	01-02-14	01-02-14	Top	251	126			n/a
5		Conc. Pt. (lbs)	L	05-03-11	05-03-11	Top	600	309			n/a
6	J1(11278)	Conc. Pt. (lbs)	L	06-06-14	06-06-14	Top	287	144			n/a
7	J1(11335)	Conc. Pt. (lbs)	L	07-10-14	07-10-14	Top	238	119			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5,469 ft-lbs	23,220 ft-lbs	23.6%	1	05-02-14
End Shear	2,231 lbs	11,571 lbs	19.3%	1	07-08-02
Total Load Deflection	L/999 (0.092")	n/a	n/a	4	04-05-14
Live Load Deflection	L/999 (0.059")	n/a	n/a	5	04-05-14
Max Defl.	0.092"	n/a	n/a	4	04-05-14
Span / Depth	10.4				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	2,166 lbs	33.1%	11.6%	Unspecified
B2	Hanger 3" x 3-1/2"	2,422 lbs	n/a	18.9%	HGUS410

Cautions

Header for the hanger HGUS410 at B2 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

DWB HU, YAM 2372-184
STRUCTURAL
COMPONENT ONLY

T.1902274



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLOOR FRAMING\Flush Beams\B5(1445)**

Dry | 1 span | No cant.

October 29, 2018 09:00:36

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST ...NES

Customer:

Code reports: CCMC 12472-R

File name: TH12E SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B5(1445)

Specifier:

Designer:

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

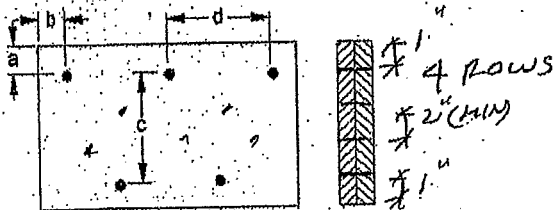
CONFORMS TO DBC 2012

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

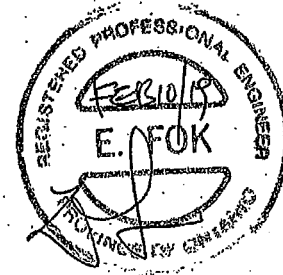
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connection Diagram: Full Length of Member

a minimum = 4"
 b minimum = 3"
 c = 7-1/2"
 d = 6"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: 1 Nails
 3/2" ARDOX SPIRAL

**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®, AJST®, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

DATE: NOV. 23/12-18H

STRUCTURAL
 COMPONENT ONLY

1902246



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B6(11382)

Dry | 1 span | No cant.

October 29, 2018 08:00:36

BC CALCO® Member Report

Buld 6476

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

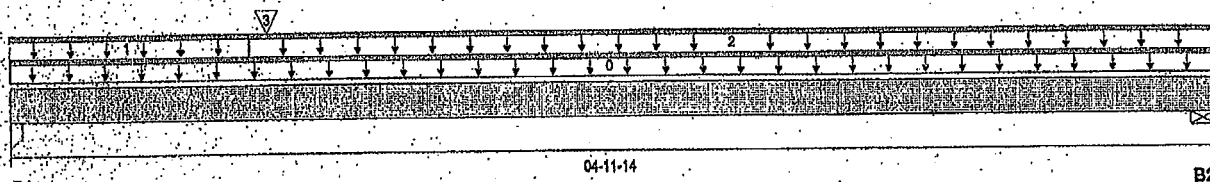
File name: TH12E SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B6(11382)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 04-11-14

Reaction Summary (Down / Uplift) (lbs)

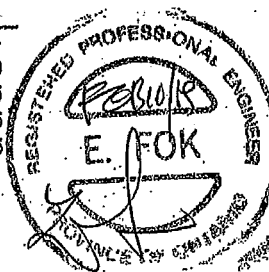
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	351 / 0	195 / 0		
B2, 4-3/8"	126 / 0	77 / 0		

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	04-11-14	Top	1.00	0.65	1.00	1.15	
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-00-00	Top	17	8			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	01-00-00	04-11-14	Top	22	11			n/a
3	B6(11382)	Conc. Pt. (lbs)	L	01-00-14	01-00-14	Top	372	195			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	626 ft-lbs	11,610 ft-lbs	5.4%	1	01-00-14
End Shear	742 lbs	5,785 lbs	12.8%	1	01-01-00
Total Load Deflection	L/999 (0.005")	n/a	n/a	4	02-02-15
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	02-02-15
Max Defl.	0.005"	n/a	n/a	4	02-02-15
Span / Depth	5.6				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	770 lbs	18.3%	10.3%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	285 lbs	8.7%	3.0%	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 CALCO analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

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

DWNU.FAM 2313-18H
STRUCTURAL
COMPONENT ONLY

T. 190275



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B7(I1425)

Dry | 1 span | No cant.

October 29, 2018 09:00:36

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

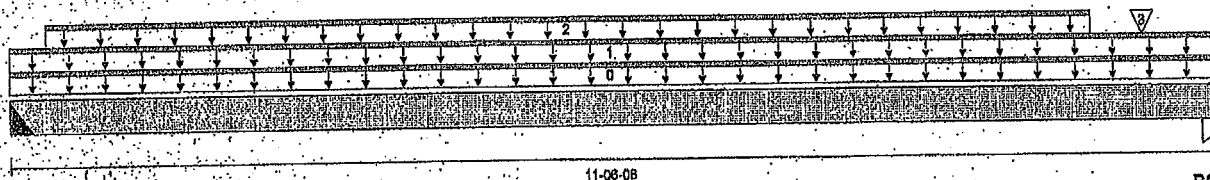
File name: TH12E-SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B7(I1425)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 11-08-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	626 / 0	636 / 0		
B2, 1-3/4"	530 / 0	636 / 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	11-08-08	Top		5			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	11-08-08	Top		60			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-04	10-04-04	Top	97	48			n/a
3	J4(I1387)	Conc. Pt. (lbs)	L	10-10-04	10-10-04	Top	86	43			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,631 ft-lbs	11,610 ft-lbs	39.9%	1	05-10-04
End Shear	1,476 lbs	5,785 lbs	25.6%	1	00-11-08
Total Load Deflection	L/435 (0.314")	n/a	55.2%	4	05-10-04
Live Load Deflection	L/940 (0.145")	n/a	38.3%	5	05-10-04
Max Defl.	0.314"	n/a	n/a	4	05-10-04
Span / Depth	14.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1,583 lbs	n/a	37.1%	HUS1.81/10
B2	Column 1-3/4" x 1-3/4"	1,580 lbs	79.9%	42.6%	Unspecified

Cautions

Header for the hanger HUS1.81/10 at B1 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA Q86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA Q86.
Design based on Dry Service Condition.
Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

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®

DWUWD.YAW 2814-18H
STRUCTURAL
COMPONENT ONLY

T-1902276

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

1ST FLOOR FRAMING\Flush Beams\B8(11458)

PASSED

October 29, 2018 09:00:36

BC CALC® Member Report

Bulld 6475

Job name:

Address:

City, Province, Postal Code: ST ...NES

Customer:

Code reports: CCMC 12472-R

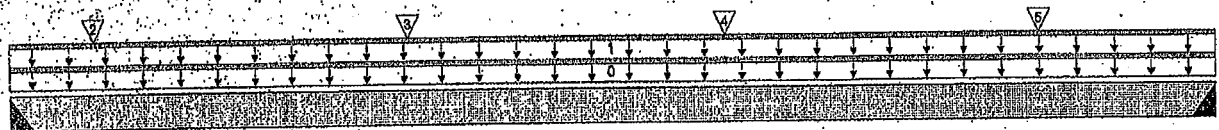
File name: TH12E SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B8(11458)

Specifier:

Designer:

Company:



03-10-00

32

B1 Total Horizontal Product Length = 03-10-00

Reaction Summary (Down / Uplift) (lbs)

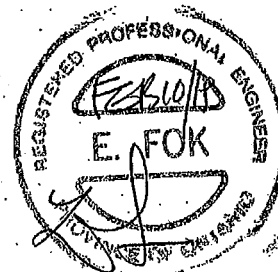
Bearing	Live	Dead	Snow	Wind
B1, 2"	369 / 0	194 / 0		
B2, 2"	351 / 0	185 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.85	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-10-00	Top		5			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-10-00	Top	120	60			na
2	J5(1459)	Conc. Pt. (lbs)	L	00-03-04	00-03-04	Top	51	26			na
3	J5(1398)	Conc. Pt. (lbs)	L	01-03-04	01-03-04	Top	77	38			na
4	J5(1393)	Conc. Pt. (lbs)	L	02-03-04	02-03-04	Top	76	38			na
6	J5(1257)	Conc. Pt. (lbs)	L	03-03-04	03-03-04	Top	56	26			na

Controls Summary

Controls Summary	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	679 ft-lbs	11,810 ft-lbs	5.8%	1	02-00-04
End Shear	450 lbs	5,785 lbs	7.8%	1	00-11-08
Total Load Deflection	L/999 (0.005")	n/a	n/a	4	01-10-12
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	01-10-12
Max Defl.	0.005"	n/a	n/a	4	01-10-12
Span / Depth	4.6				



Bearing Supports

Bearing	Supports	Dim. (LxW)	Demand	Resistance Support	Resistance Member	Material
B1	Hanger	2" x 1-3/4"	795 lbs	n/a	18.6%	HUS1.81/10
B2	Hanger	2" x 1-3/4"	758 lbs	n/a	17.8%	HUS1.81/10

Cautions

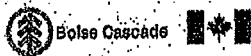
Header for the hanger HUS1.81/10 at B1 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HUS1.8/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

OWNED, TAM-315-18H
STRUCTURAL
COMPONENT ONLY

T. 1902277



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B8(11458)

Dry | 1 span | No cant.

October 29, 2018 09:00:36

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

File name: TH12E SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B8(11458)

Specifier:

Designer:

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

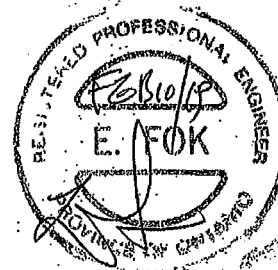
Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

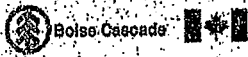


Disclosure

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®, AJST®, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,
STRUCTURAL
COMPONENT ONLY

T-19027761



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

PASSED

2ND FLOOR FRAMING Flush Beams B10(1442)

Dry | 1 span | No cant.

October 29, 2018 09:00:36

BC CALCO Member Report

Build: 6475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

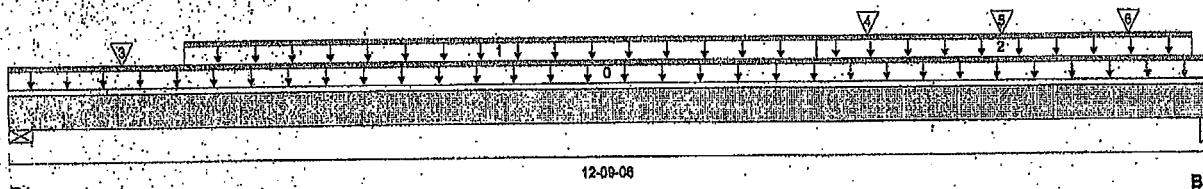
File name: TH12E SUNKEN.rimdl

Description: 2ND FLOOR FRAMING Flush Beams B10(1442)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 12-09-06

Reaction Summary (Down / Uplift) (lbs)

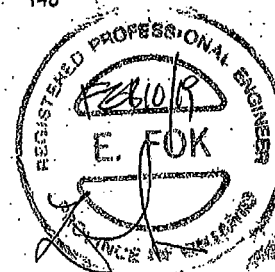
Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	2,560 / 0	1,375 / 0		
B2, 3"	2,722 / 0	1,470 / 0		

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	12-09-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-14	06-06-14	Top	438	219			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	08-08-14	12-06-14	Top	224	112			n/a
3		Conc. Pt. (lbs)	L	01-02-14	01-02-14	Top	543	271			n/a
4	B11(11392)	Conc. Pt. (lbs)	L	08-01-10	08-01-10	Top	299	176			n/a
5	J2(11187)	Conc. Pt. (lbs)	L	10-06-14	10-06-14	Top	316	158			n/a
6	J2(11192)	Conc. Pt. (lbs)	L	11-10-14	11-10-14	Top	297	148			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	18,260 ft-lbs	36,222 ft-lbs	50.4%	1	06-08-14
End Shear	5,633 lbs	17,358 lbs	32.5%	1	11-08-14
Total Load Deflection	L/317 (0.466")	n/a	75.7%	4	06-04-14
Live Load Deflection	L/487 (0.303")	n/a	73.9%	5	08-04-14
Max Defl.	0.466"	n/a	n/a	4	06-04-14
Span / Depth	15.5				



Bearing Supports

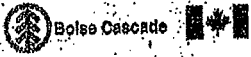
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 5-1/4"	5,643 lbs	56.5%	19.8%	Unspecified
B2	Column 3" x 5-1/4"	5,921 lbs	57.9%	30.8%	Unspecified

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. CONFORMS TO OBC 2012
- BC CALCO 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.
- Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
- Nailing schedule applies to both sides of the member.

96-12
 DWG NO. TAW23716-18H
 STRUCTURAL
 COMPONENT ONLY

T-190278



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B10(1442)
Dry | 1 span | No cant.

PASSED

October 29, 2018 09:00:36

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: ST. JES

Customer:

Code reports: CCMC 12472-R

File name: TH12E SUNKEN.mmdl

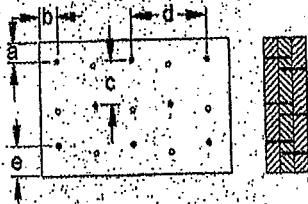
Description: 2ND FLOOR FRAMING\Flush Beams\B10(1442)

Specifier:

Designer:

Company:

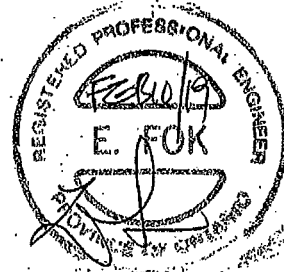
Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 2-1/4"
d = 4"
e minimum = 3"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Nailing schedule applies to both sides of the member.
Connectors are: 3" ARDOX SPIRAL



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®

STRUCTURAL
COMPONENT ONLY

T-182228621



Boise Cascade



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

2ND FLOOR FRAMING\Flush Beams\B11(I1392)

Dry | 1 span | No cant.

PASSED

October 29, 2018 09:00:36

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

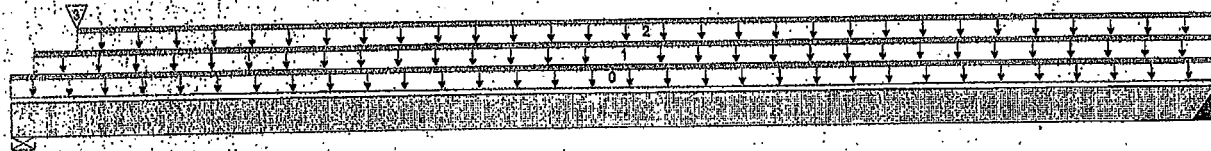
File name: TH12E SUNKEN.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B11(I1392)

Specifier:

Designer:

Company:



B1

Total Horizontal Product Length = 11-02-06

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,809 / 0	992 / 0		
B2, 2"	327 / 0	191 / 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	11-02-06	Top	1.00	0.85	1.00	1.15	00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	11-02-06	Top	29	14			n/a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-07-12	11-02-06	Top	25	12			n/a
3	B12(I1410)	Conc. Pt. (lbs)	L	00-07-12	00-07-12	Top	1,561	842			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,166 ft-lbs	11,610 ft-lbs	18.6%	1	05-00-08
End Shear	1,293 lbs	6,785 lbs	22.3%	1	01-03-00
Total Load Deflection	L/990 (0.13")	n/a	24.2%	4	05-07-04
Live Load Deflection	L/999 (0.082")	n/a	n/a	5	05-07-04
Max Defl.	0.13"	n/a	n/a	4	05-07-04
Span / Depth	13.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	3,963 lbs	96.1%	33.7%	Unspecified
B2	Hanger 2" x 1-3/4"	730 lbs	n/a	17.1%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B2 is a Triple 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

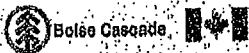
Notes

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

CONFORMS TO OBC 2012

DOWNU.YAM2317-18H
 STRUCTURAL
 COMPONENT ONLY



**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLOOR FRAMING/Flush Beams/B12(I1410)**

Dry | 1 span | No cant.

October 29, 2018 09:00:36

BC CALCO Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CGMC 12472-R

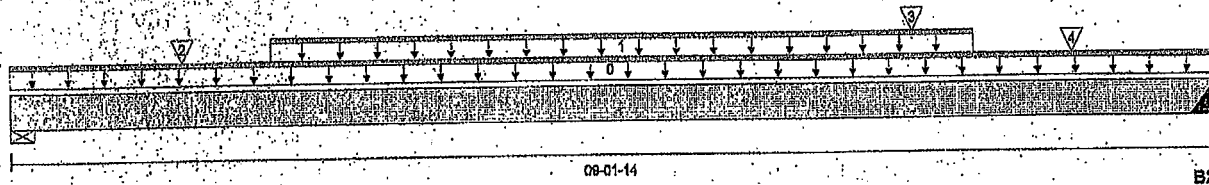
File name: TH12E SUNKEN.mmdl

Description: 2ND FLOOR FRAMING/Flush Beams/B12(I1410)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 08-01-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6-1/2"	1,023 / 0	564 / 0		
B2, 3"	1,588 / 0	858 / 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	08-01-14	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-00-00	07-04-00	Top	220	110			n/a
2	J2(I1180)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	271	136			n/a
3	B14(I1047)	Conc. Pt. (lbs)	L	08-10-08	08-10-08	Top	508	280			n/a
4		Conc. Pt. (lbs)	L	08-00-14	08-00-14	Top	667	328			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,091 ft-lbs	23,220 ft-lbs	26.2%	1	05-04-00
End Shear	3,431 lbs	11,571 lbs	29.7%	1	08-01-06
Total Load Deflection	L/999 (0.114")	n/a	n/a	4	04-10-00
Live Load Deflection	L/999 (0.074")	n/a	n/a	5	04-10-00
Max Defl.	0.114"	n/a	n/a	4	04-10-00
Span / Depth	10.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Support	Demand/Resistance Member	Material
B1	Wall/Plate 6-1/2" x 3-1/2"	2,240 lbs	27.2%	9.5%	Unspecified
B2	Hanger 3" x 3-1/2"	3,455 lbs	n/a	27.0%	HGUS410

Cautions

Header for the hanger HGUS410 at B2 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

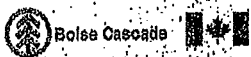
Notes

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. **CONFORMS TO OBC 2012**
BC CALCO 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
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.



DWG NO. YAM 23715-18H
STRUCTURAL
COMPONENT ONLY

T. 1902280



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B12(I1410)

PASSED

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

October 29, 2018 09:00:36

File name: TH12E SUNKEN.mmdl

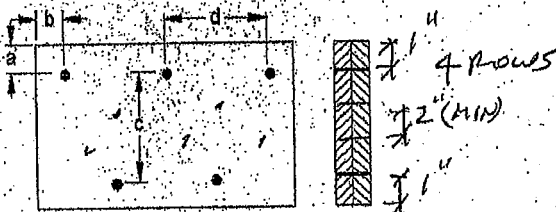
Description: 2ND FLOOR FRAMING\Flush Beams\B12(I1410)

Specifier:

Designer:

Company:

Connection Diagram: Full Length of Member

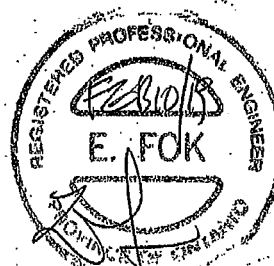


a minimum = 1"
b minimum = 3"
c = 7-1/2"
d = 4"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: 1 Nails

3/8" ARDOX SPIRAL



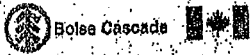
Disclosure

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®

DWG NO. TAM2310-18H
STRUCTURAL
COMPONENT ONLY

T.V. 02280(1)



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

2ND FLOOR FRAMING\Flush Beams\B13(11403)

PASSED

October 29, 2018 09:00:36

BC CALCO® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: ST. JES.

Customer:

Code reports: CCMC 12472-R

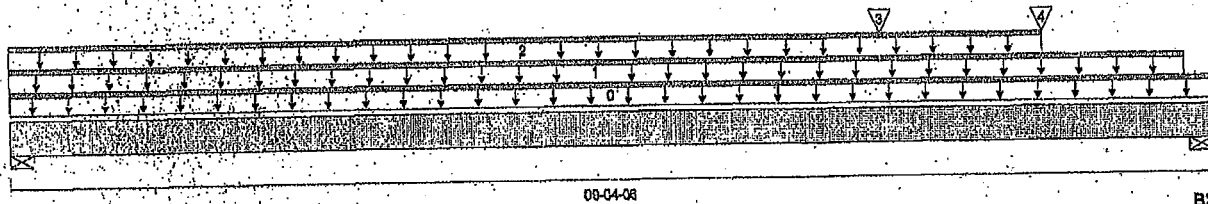
File name: TH12E SUNKEN.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B13(11403)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 09-04-06

Reaction Summary (Down / Uplift) (lbs)

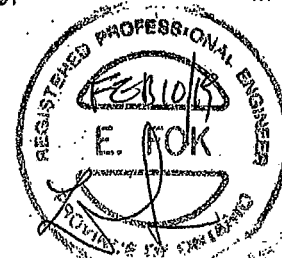
Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	246 / 0	152 / 0		
B2, 6-1/2"	643 / 0	385 / 0		

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	09-04-06	Top	5				00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-01-10	Top	29	15			n/a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-00-08	Top	3	1			n/a
3	B14(11047)	Conc. Pt. (lbs)	L	06-09-04	06-09-04	Top	216	135			n/a
4	J2(11418)	Conc. Pt. (lbs)	L	08-00-06	08-00-06	Top	381	191			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,903 ft-lbs	11,610 ft-lbs	16.4%	1	06-09-04
End Shear	1,350 lbs	5,785 lbs	23.3%	1	08-01-06
Total Load Deflection	L/999 (0.087")	n/a	n/a	4	04-11-09
Live Load Deflection	L/999 (0.042")	n/a	n/a	5	04-11-09
Max Defl.	0.087"	n/a	n/a	4	04-11-09
Span / Depth	10.9				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 1-3/4"	558 lbs	17.1%	6.0%	Unspecified
B2	Wall/Plate 6-1/2" x 1-3/4"	1,421 lbs	34.6%	12.1%	Unspecified

Notes

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

CONFORMS TO NBC 2012

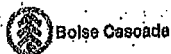
Disclosure

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

09-04-06 2319-18H
STRUCTURAL
COMPONENT ONLY

T-190281



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B14(1047)

PASSED

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: ST. JES

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

October 29, 2018 09:00:36

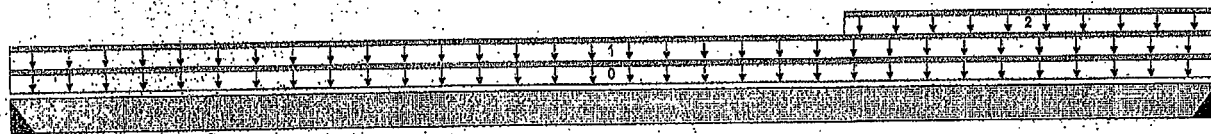
File name: TH12E SUNKEN.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B14(1047)

Specifier:

Designer:

Company:



B1

11-04-00

B2

Total Horizontal Product Length = 11-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	213 / 0	134 / 0		
B2, 2"	609 / 0	282 / 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	11-04-00	Top	5	8			00-00-00
1	F04 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-04-00	Top	27	13			n/a
2	WALL	Unf. Lin. (lb/ft)	L	07-10-00	11-04-00	Top	120	60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,844 ft-lbs	11,810 ft-lbs	15.9%	1	07-08-11
End Shear	811 lbs	5,786 lbs	14.0%	1	10-04-08
Total Load Deflection	L/999 (0.114")	n/a	n/a	4	06-00-01
Live Load Deflection	L/999 (0.072")	n/a	n/a	5	06-00-01
Max. Defl.	0.114"	n/a	n/a	4	06-00-01
Span / Depth	14.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 1-3/4"	487 lbs	n/a	11.4%	HUS1.81/10
B2 Hanger	2" x 1-3/4"	1,116 lbs	n/a	28.1%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B1 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.
Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

Notes

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

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®,

OWNED BY: 2320-184
STRUCTURAL COMPONENT ONLY

T-190282



Boise Cascade



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B9\I1245

Dry | 1 span | No cant.

October 29, 2018 09:00:36

BC CALC® Member Report

Buld 8475

Job name:

Address:

City, Province, Postal Code: ST. JES

Customer:

Code reports: CCMC-12472-R

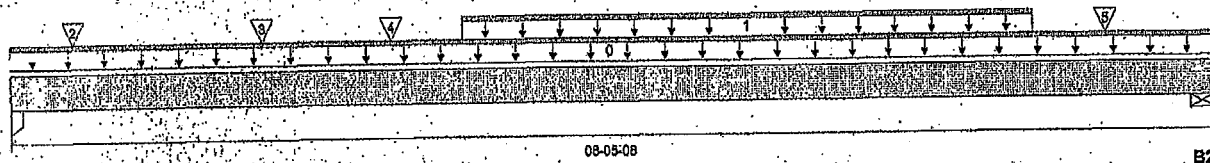
File name: TH12E SUNKEN.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B9\I1245

Specifier:

Designer:

Company:



Total Horizontal Product Length = 08-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	1,974 / 0	1,026 / 0		
B2, 3-1/2"	1,736 / 0	908 / 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	08-05-08	Top	1.00	0.85	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	03-02-04	07-02-04	Top	448	224			n/a
2		Conc. Pt. (lbs)	L	00-05-08	00-05-08	Top	597	298			n/a
3		Conc. Pt. (lbs)	L	01-09-08	01-09-08	Top	499	249			n/a
4		Conc. Pt. (lbs)	L	02-08-04	02-08-04	Top	425	212			n/a
5		Conc. Pt. (lbs)	L	07-08-04	07-08-04	Top	397	198			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7,776 ft-lbs	23,220 ft-lbs	33.5%	1	04-08-04
End Shear	3,384 lbs	11,571 lbs	29.3%	1	07-04-08
Total Load Deflection	L/751 (0.129")	n/a	32.0%	4	04-02-04
Live Load Deflection	L/999 (0.085")	n/a	n/a	5	04-02-04
Max Defl.	0.129"	n/a	n/a	4	04-02-04
Span / Depth	10.2				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3" x 3-1/2"	4,243 lbs	82.2%	33.1%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	3,740 lbs	71.5%	25.0%	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 O88.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

CONFORMS TO OBC 2012

OWNED BY 2321-18H
STRUCTURAL
COMPONENT ONLY

T-190283



Boise Cascade



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLOOR FRAMING\Flush Beams\B9(11245)

PASSED

October 28, 2018 09:00:36

BC CALC® Member Report

Bulld 6475

Job name:

Address:

City, Province, Postal Code: ST. NES

Customer:

Code reports: CCMC 12472-R

File name: TH12E SUNKEN.mmdl

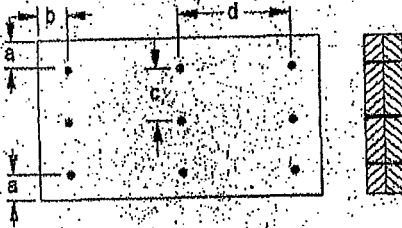
Description: 2ND FLOOR FRAMING\Flush Beams\B9(11245)

Specifier:

Designer:

Company:

Connection Diagram: Full Length of Member



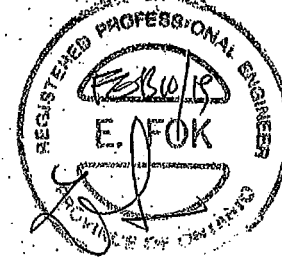
a minimum = 2"
b minimum = 3"

c = 2-3/4"
d = 6"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: Nails:

3 1/2" ARDOX SPIRAL



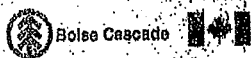
Disclosure

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®, AJST®, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

DWG NO. YAM2321-18H
STRUCTURAL
COMPONENT ONLY

T-1902283611



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

1ST FLOOR FRAMING\Flush Beams\B1A(11397)

PASSED

October 26, 2018 15:03:21

BC CALC® Member Report

Buld 6475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

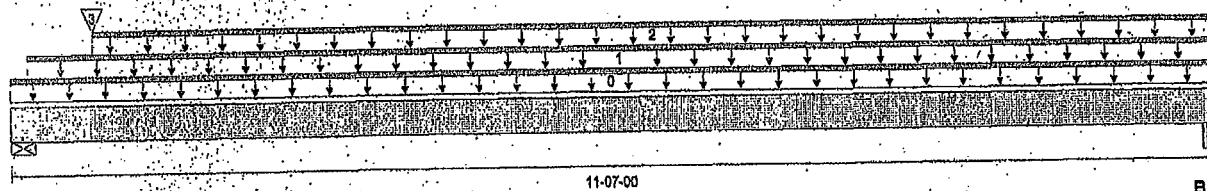
File name: TH12E.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1A(11397)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 11-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,168 / 0	658 / 0		
B2, 2-5/8"	170 / 0	114 / 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	11-07-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-02-00	11-07-00	Top	5	3			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-09-12	11-07-00	Top	18	9			n/a
3	B5(11455)	Conc. Pt. (lbs)	L	00-09-12	00-09-12	Top	1,090	592			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,692 ft-lbs	11,610 ft-lbs	12.0%	1	04-03-11
End Shear	1,243 lbs	5,785 lbs	21.5%	1	01-03-00
Total Load Deflection	L/999 (0.089")	n/a	n/a	4	05-07-07
Live Load Deflection	L/999 (0.054")	n/a	n/a	5	05-07-07
Max Defl.	0.089"	n/a	n/a	4	05-07-07
Span / Depth	13.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	2,574 lbs	50.1%	21.9%	Unspecified
B2	Beam 2-5/8" x 1-3/4"	397 lbs	16.2%	7.1%	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. **CONFORMS TO OBC 2012**

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

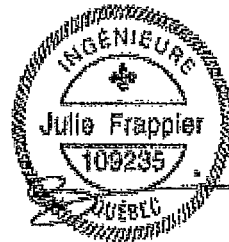
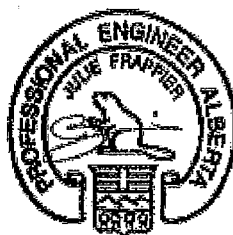
Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA).

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®,

BOISE CASCADE 2322 TH
STRUCTURAL
COMPONENT ONLY

T-190284



Maximum Floor Spans

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

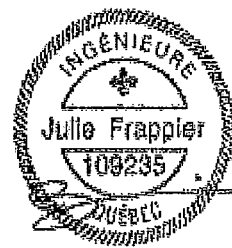
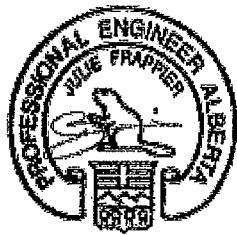
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end 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 uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

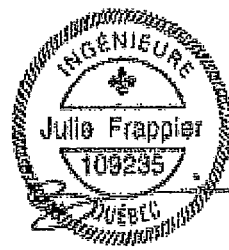
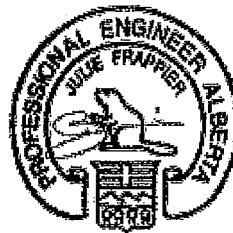
Maximum Floor Spans

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



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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end 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 uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCM evaluation report 13032-R and APA Product Report PR-L274C.

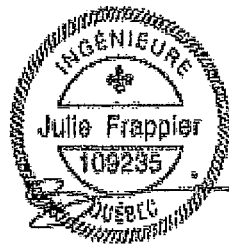
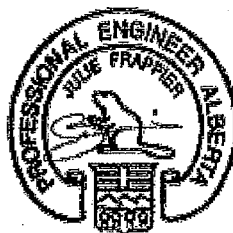


Maximum Floor Spans

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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end 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 uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

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

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

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

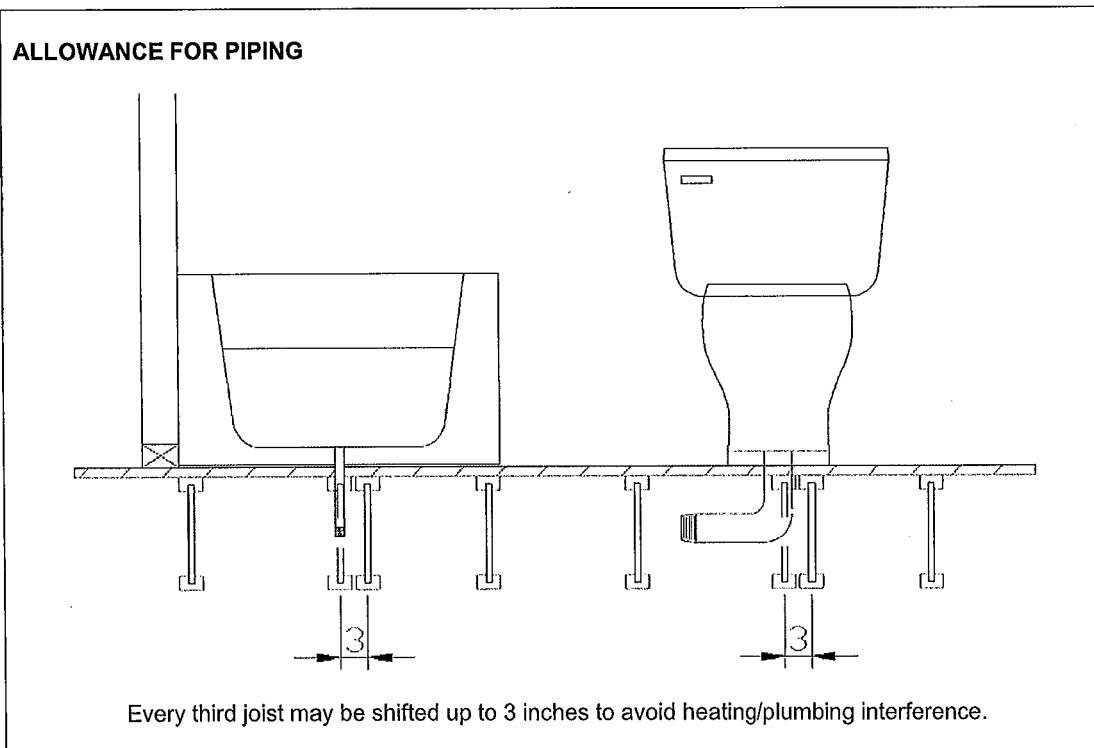
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end 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 uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

Allowance for Piping (Installation Notes)

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

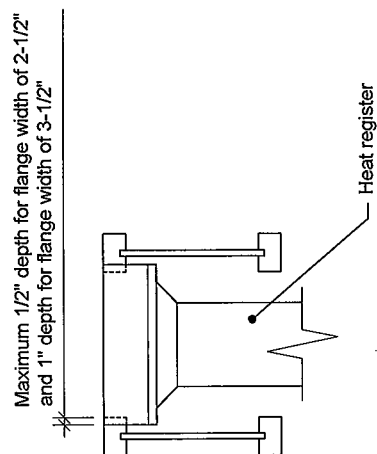
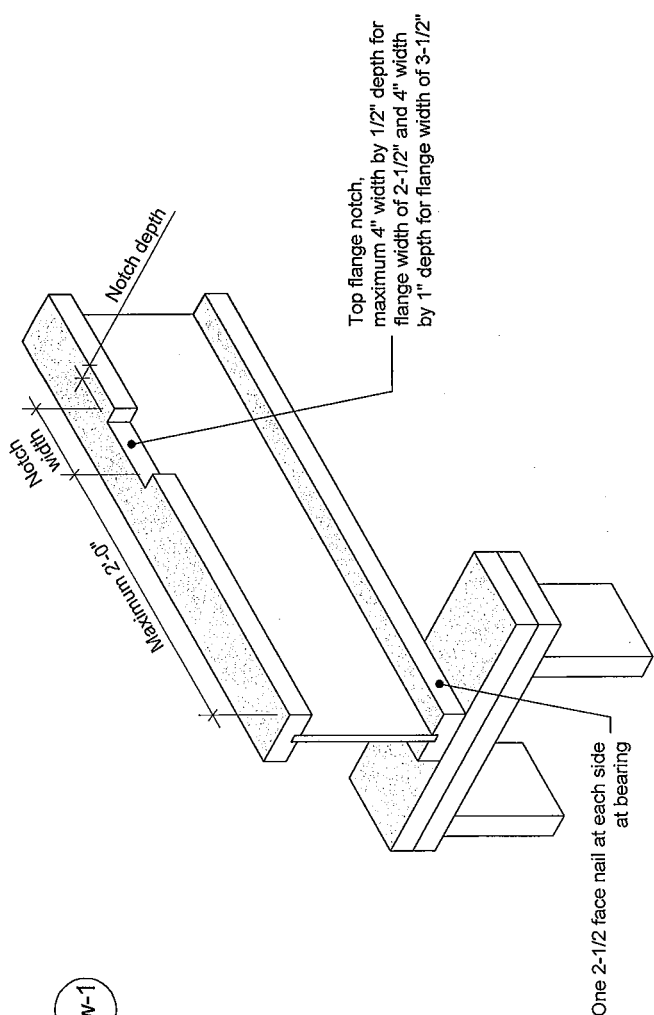
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced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

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



Revised April 12, 2012

1W-1



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

This document supersedes all previous versions. If the document has been in effect for more than one year, consult nordic.ca or contact Nordic Structures. All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

NORDIC STRUCTURES	T 514-871-8526 1 866 817-3418		nordic.ca		I-joist - Typical Floor Framing and Construction Details		DOCUMENT	
	Notch in I-joist for Heat Register		CATEGORY		DATE		NUMBER	
					2018-04-10		1W-1	