

	Products				
PlotID	Length	Product	Plies	Net Qty	
J10DJ	18-00-00	9 1/2" NI-40x	2	4	
J1	14-00-00	9 1/2" NI-40x	1	33	
J1DJ	14-00-00	9 1/2" NI-40x	2	4	
J2	12-00-00	9 1/2" NI-40x	1	3	
J3	10-00-00	9 1/2" NI-40x	1	3	
J4	6-00-00	9 1/2" NI-40x	. 1	2	
J5	4-00-00	9 1/2" NI-40x	1	2	
J6	2-00-00	9 1/2" NI-40x	1	4	
J7	18-00-00	9 1/2" NI-80	1	13	
J8	16-00-00	9 1/2" NI-80	1	2	
B4	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3	
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	
B2	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	
B3	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	
B5	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	
B6	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	
B7	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	

C	Connector Summary				
Qty	Qty Manuf Product				
8	H1	IUS2.56/9.5			
4	H1	IUS2.56/9.5			
4	H1	IUS2.56/9.5			
2	H1	IUS2.56/9.5			
2	H2	IUS3.56/9.5			
3	H3	HUS1.81/10			
1	H3	HUS1.81/10			



FROM PLAN DATED: AUG 2020
BUILDER: ROYALPINE HOMES

SITE: CENTREFIELD

**MODEL:** 38-8

**ELEVATION:** A, B, C

LOT:

**CITY:** RICHMOND HILL

SALESMAN: WILL GARCIA

DESIGNER: LBV REVISION: AJ

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.

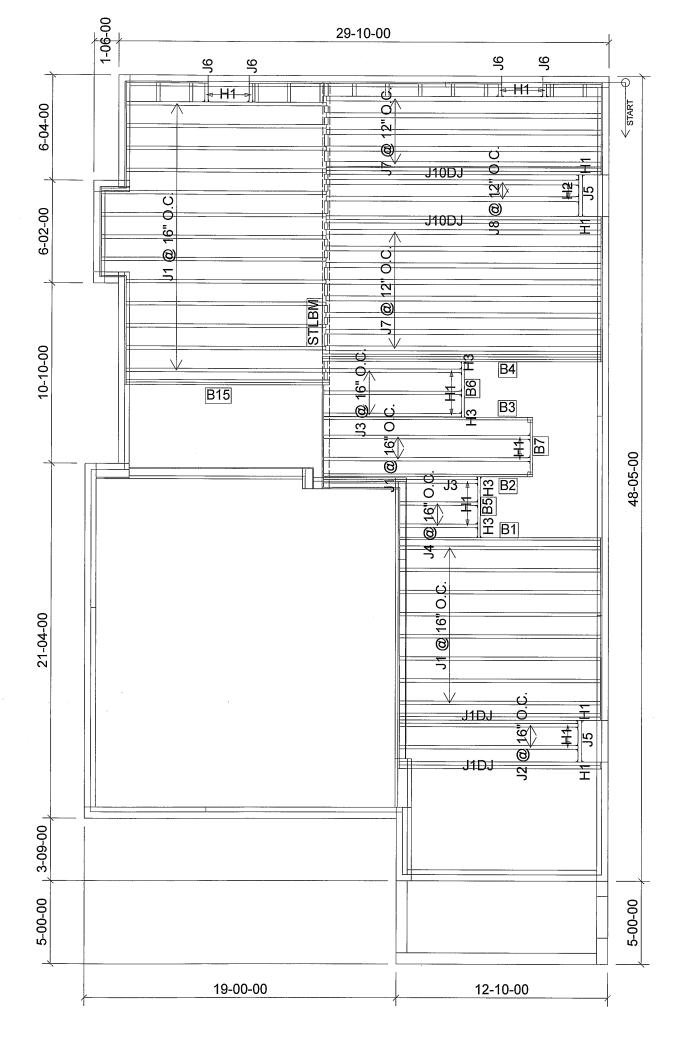
LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

SUBFLOOR: 3/4" GLUED AND NAILED

1st FLOOR

**DATE:** 2021-06-04



		Products		
PlotID	Length	Product	Plies	Net Qty
J10DJ	18-00-00	9 1/2" NI-40x	2	4
J1	14-00-00	9 1/2" NI-40x	1	23
J1DJ	14-00-00	9 1/2" NI-40x	2	4
J2	12-00-00	9 1/2" NI-40x	1	2
J3	10-00-00	9 1/2" NI-40x	1	4
J4	6-00-00	9 1/2" NI-40x	1	2
<b>J</b> 5	4-00-00	9 1/2" NI-40x	1	2
J6	2-00-00	9 1/2" NI-40x	1	4
J7	18-00-00	9 1/2" NI-80	1	13
J8	16-00-00	9 1/2" NI-80	1	2
B4	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary				
Qty	Manuf	Product		
8	H1	IUS2.56/9.5		
4	H1	IUS2.56/9.5		
4	H1	IUS2.56/9.5		
2	H1	IUS2.56/9.5		
2	H2	IUS3.56/9.5		
3	H3	HUS1.81/10		
1	H3	HUS1.81/10		



FROM PLAN DATED: AUG 2020
BUILDER: ROYALPINE HOMES

SITE: CENTREFIELD

**MODEL:** 38-8

**ELEVATION:** A, B, C

LOT:

**CITY: RICHMOND HILL** 

SALESMAN: WILL GARCIA

**DESIGNER:** LBV **REVISION:** AJ

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.

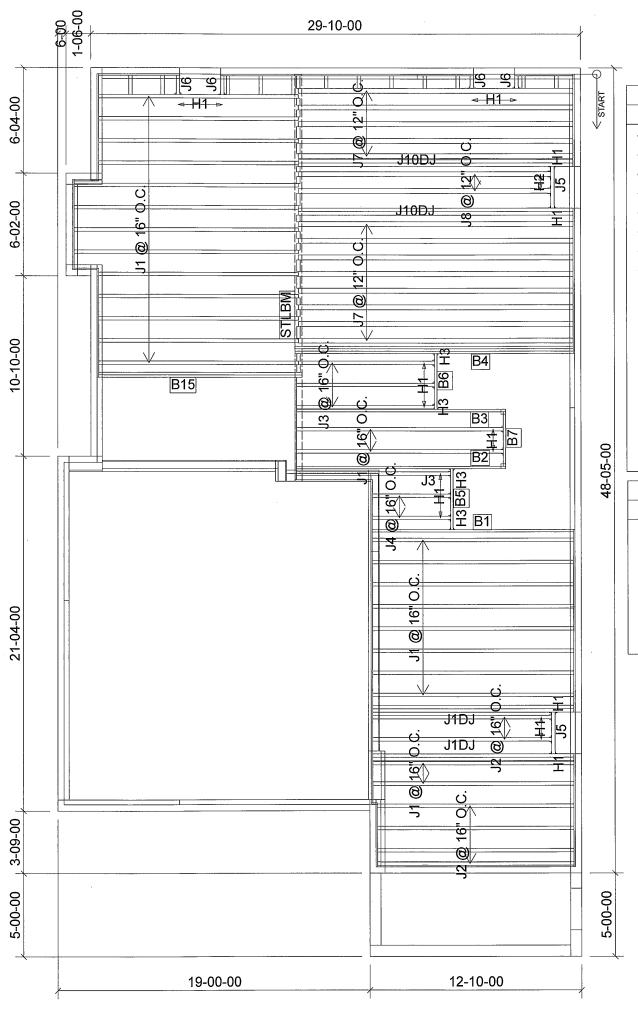
**DATE:** 2021-06-04 DES

1st FLOOR

SUNKEN OPTIONS LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

SUBFLOOR: 3/4" GLUED AND NAILED



		Products		
PlotID	Length	Product	Plies	Net Qty
J10DJ	18-00-00	9 1/2" NI-40x	2	4
J1	14-00-00	9 1/2" NI-40x	1	25
J1DJ	14-00-00	9 1/2" NI-40x	2	4
J2	12-00-00	9 1/2" NI-40x	1	6
J3	10-00-00	9 1/2" NI-40x	1	4
J4	6-00-00	9 1/2" NI-40x	1	2
J5	4-00-00	9 1/2" NI-40x	1	2
J6	2-00-00	9 1/2" NI-40x	1	4
J7	18-00-00	9 1/2" NI-80	1	13
J8	16-00-00	9 1/2" NI-80	1	2
B4	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary				
Qty	Manuf	Product		
8	H1	IUS2.56/9.5		
4	H1	IUS2.56/9.5		
4	H1	IUS2.56/9.5		
2	H1	IUS2.56/9.5		
2	H2	IUS3.56/9.5		
3	H3	HUS1.81/10		
1	H3	HUS1.81/10		



FROM PLAN DATED: AUG 2020 BUILDER: ROYALPINE HOMES

SITE: CENTREFIELD

**MODEL:** 38-8

**ELEVATION:** A, B, C

LOT:

**CITY: RICHMOND HILL** 

SALESMAN: WILL GARCIA

DESIGNER: LBV REVISION: AJ

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.

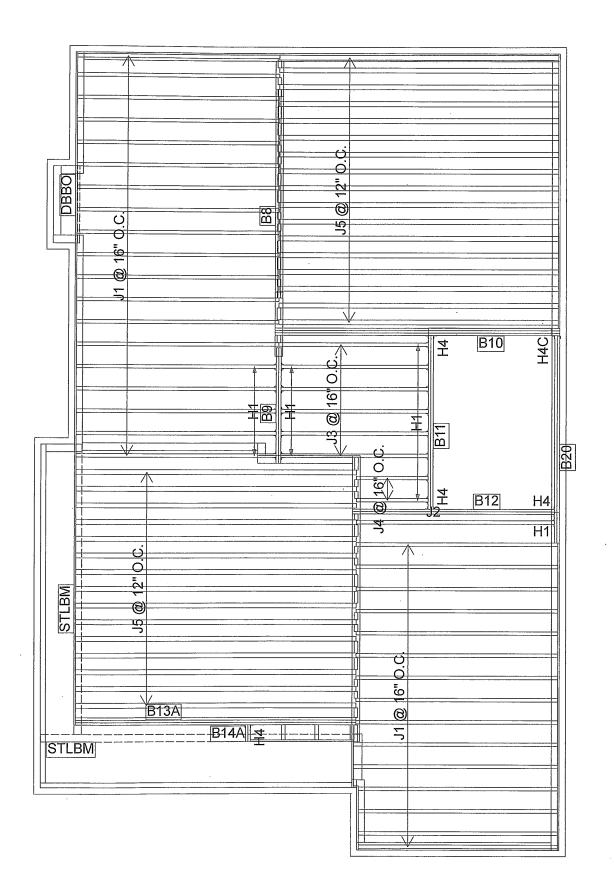
LOADING:
DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

SUNKEN MUDROOM SUBFLOOR: 3/4" GLUED AND NAILED

**DATE:** 2021-06-04

1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	34
J2	12-00-00	9 1/2" NI-40x	1	1
J3	10-00-00	9 1/2" NI-40x	1	6
J4	6-00-00	9 1/2" NI-40x	1	2
J5	18-00-00	9 1/2" NI-80	1	32
B10	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B13A	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B12	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B20	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	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	2	2
B9	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14A	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

C	Connector Summary				
Qty	Qty Manuf Product				
19	H1	IUS2.56/9.5			
1	H4C HUC410				
2	H4	HGUS410			
2	H4	HGUS410			



FROM PLAN DATED: AUG 2020

**BUILDER:** ROYALPINE HOMES

SITE: CENTREFIELD

MODEL: 38-8 ELEVATION: A

LOT:

**CITY: RICHMOND HILL** 

**SALESMAN:** WILL GARCIA

DESIGNER: LBV REVISION:

NOTES:

REFER TO THE **NORDIC INSTALLATION**GUIDE FOR PROPER STORAGE AND

INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.I 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 RE 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 TI APPLICATION AS PER O.B.C 9.30.6.

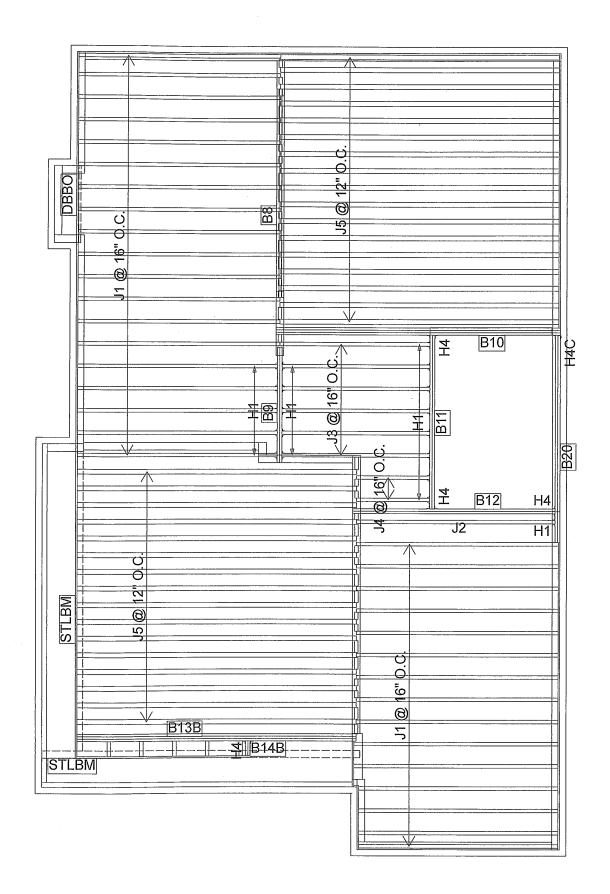
LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

SUBFLOOR: 5/8" GLUED AND NAILED

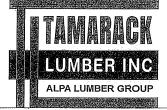
2ND FLOOR

**DATE:** 2020-10-20



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	34
J2	12-00-00	9 1/2" NI-40x	1	1
J3	10-00-00	9 1/2" NI-40x	1	6
J4	6-00-00	9 1/2" NI-40x	1	2
J5	18-00-00	9 1/2" NI-80	1	33
B10	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B13B	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B12	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B20	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	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	2	2
B9	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14B	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

C	Connector Summary				
Qty Manuf Product					
19	H1	IUS2.56/9.5			
1	H4C	HUC410			
2	H4	HGUS410			
2	H4	HGUS410			



FROM PLAN DATED: AUG 2020

**BUILDER: ROYALPINE HOMES** 

SITE: CENTREFIELD

MODEL: 38-8 ELEVATION: B

LOT:

**CITY: RICHMOND HILL** 

**SALESMAN:** WILL GARCIA

DESIGNER: LBV REVISION:

#### NOTES:

REFER TO THE **NORDIC INSTALLATION**GUIDE FOR PROPER STORAGE AND
INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P. 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 RE 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 TI APPLICATION AS PER O.B.C 9.30.6.

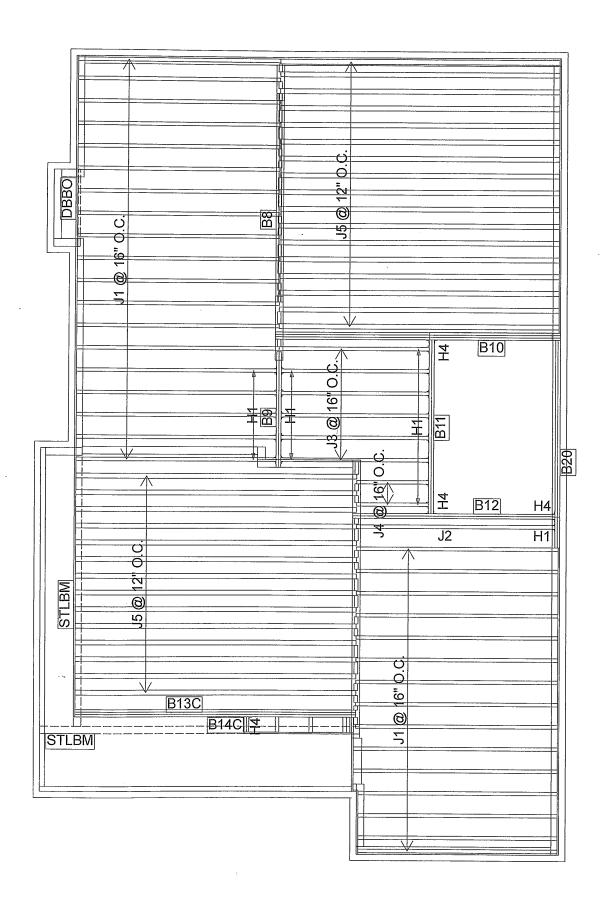
# LOADING:

2ND FLOOR

**DATE:** 2020-10-20

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

**SUBFLOOR:** 5/8" GLUED AND NAILED



	Products				
PlotID	Length	Product	Plies	Net Qty	
J1	14-00-00	9 1/2" NI-40x	1	34	
J2	12-00-00	9 1/2" NI-40x	1	1	
J3	10-00-00	9 1/2" NI-40x	1	6	
J4	6-00-00	9 1/2" NI-40x	1	2	
J5	18-00-00	9 1/2" NI-80	1	31	
B10	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3	
B13C	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3	
B12	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	
B20	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	
B8	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	2 .	2	
B9	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	
B14C	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	

C	Connector Summary				
Qty Manuf Product					
19	H1	IUS2.56/9.5			
2	H4	HGUS410			
2	H4	HGUS410			



FROM PLAN DATED: AUG 2020

**BUILDER: ROYALPINE HOMES** 

SITE: CENTREFIELD

MODEL: 38-8 **ELEVATION:** C

LOT:

**CITY:** RICHMOND HILL

**SALESMAN:** WILL GARCIA

DESIGNER: LBV **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 RE 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 TI APPLICATION AS PER O.B.C 9.30.6.

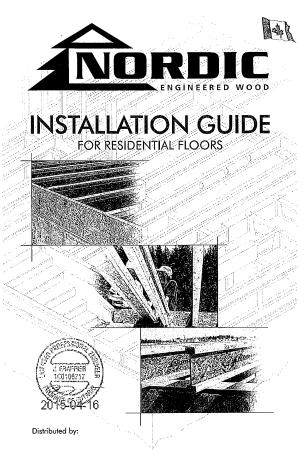
**DATE:** 2020-10-20

2ND FLOOR

LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

SUBFLOOR: 5/8" GLUED AND NAILED



#### SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fostened and braced, or serious inju-ries can result.



Never stack building materials over unsheathed 1-joists Once sheathed, do no over-stress I-joist with concentrated loads from building materials.

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 Guideliness

- 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 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2.127 noils fastened to the tops surface of each 1-joist. Noil the bracing to a lateral restraint at the end of each boy. Lap ends of adjoining bracing over at least two 1-joists.
- Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with dosure 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. 5. Never install a damaged 1-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 on result in serious accidents. Follow these installations guidelines carefully.

#### MAXIMUM FLOOR SPANS

- . Moximum clear spons applicable to simple-spon or multiple-spon residential floor construction with a design live load of 19 psf. The ultimate limit states are based on the factored loads of 15.0L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-spon applications, the end spans shall be 40% or more of the adjacent span.
- 2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19/2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in COSB-5/12/6 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the used of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- 6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- 7. SI units conversion: 1 inch = 25.4 mm 1 foot = 0.305 m

# MAXIMUM FLOOR SPANS FOR NORDIC 1-JOISTS SIMPLE AND MULTIPLE SPANS

Depth	Series		On centre	e spacing			On centre	e spacing	40.50
	200	12"	16"	19.2	24°	12°	16"	19.2"	24"
. 11 77 791	NI-20	15'-1'	14'-2"	13'-9'	13'-5"	16'-3"	15'-4"	14'-10"	14'-7'
	NI-40x	16'-1"	15'-2"	14'-8"	14'-9"	17'-5"	16'-5"	15'-10"	15'-5"
9-1/2"	NI-60	16'-3"	15'-4"	14'-10"	14'-11"	17-7*	16'-7"	16'-0'	16'-1"
	NI-70	17'-1"	16'-1"	15'-6"	15'-7"	18'-7"	17'-4"	16'-9'	16'-10"
	NI-80	17'-3"	16'-3"	15'-8'	15'-9"	18'-10"	17'-6"	16'-11'	17'-0"
	NI-20	16'-11'	16'-0"	15'-5'	15'-6"	18'-4"	17'-3"	16'-8'	16'-7"
있는데 생각	NI-40x	18'-1"	17'-0"	16'-5"	16'-6"	20-0	18'-6"	17'-9'	17'-7"
	NI-60	18'-4"	17'-3"	16'-7'	16'-9"	20-3*	18'-9"	18'-0"	18'-1"
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	17'-5"	21'-6"	19'-11'	19'-0"	19'-1"
	NI-80	19'-9"	18'-3"	17'-6"	17'-7*	21'-9'	20'-2"	19'-3"	19'-4"
	NI-90	20'-2"	18'-7"	17'-10"	17'-11"	22'-3'	20'-7"	19'-8"	19'-9"
	NI-90x	20'-4"	18'-9"	17'-11"	18'-0"	22'-5'	20'-9"	19'-10"	19'-11"
1000	NI-40x	20'-1"	18'-7"	17'-10"	17'-11'	22'-2'	20'-6"	19'-8"	19'-4*
	NI-60	20'-5"	18'-11'	18'-1"	18'-2"	22'-7"	20'-11'	20'-0"	20'-1"
	NI-70	21'-7°	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-1"	21'-2'
14	NI-80	21'-11'	20'-3"	19'-4"	19'-5'	24'-3"	22'-5"	21'-5"	21'-6"
	NI-90	22'-5"	20'-8"	19'-9"	19'-10"	24'-9'	22'-10"	21'-10'	21'-10'
	NI-90x	22'-7"	20'-11"	19'-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-2'
	NI-60	22'-3"	20'-8"	19'-9'	19'-10"	24'-7"	22'-9'	21'-9'	21'-10'
	NI-70	23'-6"	21'-9"	20'-9"	20'-10"	26'-0"	24'-0"	22'-11"	23'-0"
16*	NI-80	23'-11"	22'-1"	21'-1"	21'-2'	26'-5"	24'-5"	23'-3"	23'-4"
	NI-90	24'-5"	22'-6"	21'-5"	21'-6"	26'-11'	24'-10"	23'-9"	23'-9"
	NI-90x	24'-8"	22'-9"	21'-9"	21'-10'	27-3	25'-2"	24'-0"	24'-1"

END BEARING (Bearing stiffener

Load bearing wall above shall align vertically

with the bearing below. Other conditions such as offset bearing walls, are no covered by this detail

4. Web stiffeners are required when the sides of the hangers do not laterally brace the top flange of the I-joist.

I-JOIST HANGERS

Hangers shown illustrate the three most commonly used metal hange to support 1-joists.

2. All nailing must meet the hanger

3. Hangers should be selected based

on the joist depth, flange width and load capacity based on the

moximum spans.



CCMC EVALUATION REPORT 13032-R

#### STORAGE AND HANDLING GUIDELINES

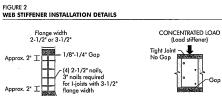
- . Bundle wrap can be slippery when wet. Avoid walking on wrapped
- 3. Always stack and handle t-joists in the upright position only. —
- 4. Do not store I-joists in direct contact with the ground and/or flatwise
- 5. Proted I-joists from weather, and use spacers to separate bundles.
- 6. Bundled units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

# **WEB STIFFENERS**

# ■ A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of 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 bis is applied to the top flange between supports, or in the case of a cantillever, anywhere between the cantillever in and the support. These values are for standard term load duration, and may be adjusted for other load durations as permit by the code. The gap between the stiffener and the flange is at the bottom.



See table below for web stiffener size requirements

Provide backer for

Use single I-joist for loads up to 3,300 plf, double I-joists for loads up to 6,600 plf (filler block not required). Attach I-joist to

Rim board may be used in lieu of I-joists. Backer is not required when rim board is used. Bracing per code shall b

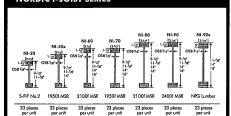
FFENER SIZE R	EQUIREMENTS	3
lange Width	Web Stiffener Size Each Side of Web	/ <b> </b>
2-1/2*	1" x 2-5/16" minimum width	/ [_
3-1/2"	1-1/2" x 2-5/16" minimum width	<sup>∠</sup> Tight Joint No Gap

(1g)

attachment per detail 1b

6" o.c. to top plate

#### **NORDIC I-JOIST SERIES**



Chantiers Chibouaamau Ltd. harvests its own trees, which enables Nordic Engineered Wood I-joists use only finger-jointed back spice IIII lumber in their flanges, ensuring consistent quality, superior states and applications and their flanges.

#### INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flonge widths match hanger widths. If not, contributed

2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched. 3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.

4. L-joists must be anchored securely to supports before floor sheathing is attached, and supports for be level.

5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate be

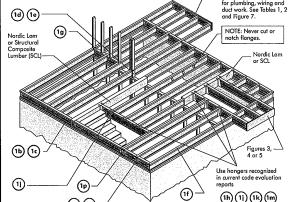
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement. 7. Leave a 1/16-inch gap between the I-joist end and a header.

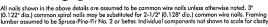
- 8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
- 9. Never install 1-joists where they will be permanently exposed to weather, or where they will remain in direct contact with
- 10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.

2-1/2" nails a

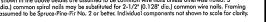
- For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
- 12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood produds such as rim board must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
- 13. Provide permanent lateral support of the bottom flange of all L-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all contilevered L-joists at the end support next to the contilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
- 14. If square-edge panels are used, edges must be supported between 1-joists with 2x4 blocking. Glue panels to blocking to minimize squecks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment loyer is installed.
- 15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

# (1e) TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS Some framing requirements such as erection bracing Figures 3, 4 or 5 Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below







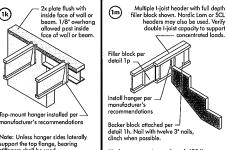


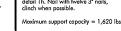
# (lk) Top-mount hanger installed per ...

Wall sheathing, as required

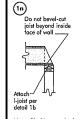


Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used. Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.





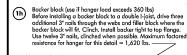


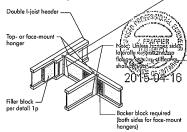




walls or who

– NI blocking pane per detail 1 c





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

BACKER BLOCKS (Blocks must be long enough to permit required

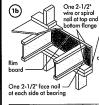
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1*	5-1/2"
3-1/2"	1-1/2"	7-1/4"

- Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conformit to CAN/CSA-O325 or CAN/CSA-O437 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".



6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for Maximum Factored Uniform Vertical Load\* (plf) 3,300 \*The uniform vertical load is limited to a joist depth of 16

inches or less and is based on standard term load duratio inches or less and is based on standard term load duratio 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.

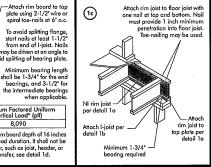


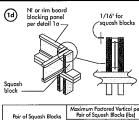
Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable. 1-1/8" Rim Board Plus \*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

FSC FSC FSC FSC CONTENT

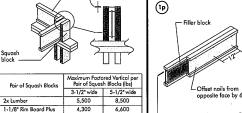
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ovide lateral bracing per detail 1a, 1b, or 1a

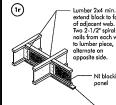


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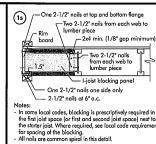


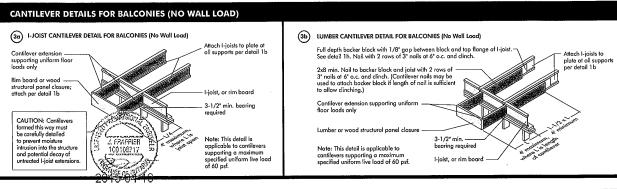
#### FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION 1. Support back of I-joist web during nailing to prevent damage to web/flange connection. 2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top 1-joist Filler Block Size 9-1/2" 11-7/8" 14" 16" 2-1/8" x 6" 2-1/2" x 1-1/2" Filler block is required between joists for full length of span. 2-1/8" x 10" 2-1/8" x 12" Nall joists together with two rows of 3\* nails at 12 inches o.c. (clinched when possible) on each side of the double 1-joist. Total of four nails per foot required. I frails can be clinched, only two nails per foot 9-1/2" 11-7/8" 14" 16" 3" × 6" 3" × 8" 3" × 10" 3" × 12" 3-1/2" x 1-1/2"

are required. 3-1/2" x 5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbf/ft. Verify double I-joist capacity.

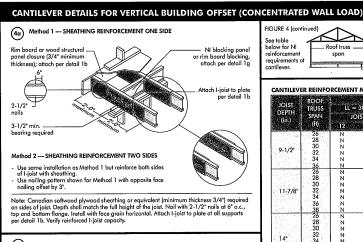


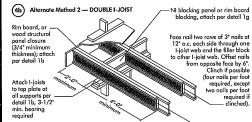
Optional: Minimum 1x4 inch strap applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joists.





... Roof truss ... span





Block I-joists together with filler blocks for the full length of the reinforcement.
For I-joist flange widths greater than 3 inches place an additional row of 3" noils along the centreline of the reinforcing panel from each side. Clinch when possible.

# LL = 30 psf, DL = 15 psf TRUSS JOIST SPACING (in.) 12 16 19.2 24 12 JOIST SPACING (in.) 12 16 19.2 24 JOIST SPACING (in.)

Roof trusses

Girder Roof truss

Spon 2-0"

Provinging

\_ 13'-0" maximum

- N = No reinforcement required.
   N = No reinforced with 3/4\* wood structural panel on one side only.
   N reinforced with 3/4\* wood structural
- 2 = NI reinforced with 3/4\* wood structural panel on both sides, or double 1-joist.
  X = Try a deeper joist or closer spacing.
  C. Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 pff wall load. Wall load is bosed on 3-0° maximum width window or door openings.

\_\_\_ Roof truss \_\_ span

For larger openings, or multiple 3-0' width openings spaced less than 6-0' o.c., additional joist beneath the opening's cripple studs may be required; scripple studs may be required; and opening to joists 12' to 24' o.c. that meet the floor span requirements for a design live load of 4 op fand dead load of 15 pst, and a live load deficient limit of 1/480. Use 12' o.c. requirements for lesser spacing.

Roof trusses
Girder
Roof truss
span
Roof truss
span
Roof truss
span
Roof truss
Jack trusses
rouss
movinum
confliever

 For conventional roof construction using a ridge beam, the Koof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is formed using a ridge board, of distance between the supporting walls as if a trus is used. distance between the supporting walls as if a truss is used.

5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

For hip roofs with the jack

trusses running parallel to the cantilevered floor joists, the I-joist reinforcement requirements for a span of 26 ft. shall be permitted to be used.

For hip roofs with the jack trusses running parallel to the cantilevered floor joists the I-joist reinforcement

requirements for a span of 26 ft. shall be permitted to be used.

# BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD) Provide full depth blocking between joists over support (not shown) and bottom joist flanges with 2-1/2" nails at 6" Note: Canadian saftwood plywood sheathing or equivalent (minimum thickness 3/4) required on sides of joist. Depth shall match the full height of the joist. Nail wish 2-1/2\* nails of 6 o.c., top and bottom flange. Install with face grain horizontal. Attach 1-joist to plate at all supports per detail 1b. Verify reinforced 1-joist capacity. Note: Canadian softwood o.c. (offset opposite face nailing by 3" when using reinforcement on both sides of 1-joist) 5b) SET-BACK DETAIL structural panel closure (3/4" minimum thickness), attach per detail 1b. Provide full depth blocking Frome full eight alocation between joists over support (not shown for darity) Attach I-joist to plate at all supports per detail 1 b. 3-1/2" minimum I-joist bearing required. (5c) SET-BACK CONNECTION Nail joist end using 3" nails, toe-nail at top and bottom flanges. Vertical solid sawn blocks (2x6 S.P.F No. 2 or better) nailed through joist web and web of girder using 2-1/2" nails. Alternate for opposite side. Hanger may be used in lieu of solid sawn blocks Verify girder joist capacity if the back span exceeds the joist spacing. Attach double I-joist per detail 1p, if required.

JOIST	ROOF							(UNFAC					
DEPTH	TRUSS			DL = 15				DL = 15			= 50 psf,		
(in.)	SPAN (ft)			CING (in			and the state of the state of the	CING (in	And the Second		OIST SPA	CING (in 19.2	
200022		12	16	19.2	24	12	16	19.2	24	12	16		2
	26 28	1	X	X	X ·	2 2	X	X	X	2 X	X	Ŷ.	
	30	1	Ŷ	Ŷ	â	2	Ŷ	Ŷ	î l	â	Ŷ	Ŷ	Ś
9-1/2"	32	2	Ŷ	Ŷ	â	2	ŷ	â	â	î	ŵ	x	- 5
	34	5	x	x	â	ĺχ̃	x	x	- x	x	x	x	- 5
	36 26	2	x	X	X	X.	X	X	X	X	X	X	,
1.0	26	N	2	Х	Х	1	X	X	Х	1	Х	Х	,
	28	N	2	Х	Х	1	Х	Х	Х	2	Х	X	2
1000	30	1	2	X	X	1 !	X	X	X	2 2	X	X	
11-7/8"	32 34		2	X	X	2	Ş	X	X	2	X	X	
	36		Ŷ	x	â	2	Ŷ	â	x	ĺχ	â	â	
	38	'n	Ŷ	Ŷ	â	5	â	x	â	Ιŝ	x	x	
+	26	Ń	1	2	X	Ñ	2	X	X	T i	X	X	
	28	N	i	X	Х	1	2	Х	Х	1	Х	Х	
	30	N	2	Х	Х	1	2	Х	Х	1	Х	X	
14"	32	N	2	Х	Х	1 1	X	X	X	2	X	X	
	34	N	2	X	X	1 !	X	X	X	2	X	X	
	36	1 !	2	X	X		Š	X	X	2	Š	x	
	38 40		2	Ŷ	x		0	â	â	2	Ŷ	Ŷ	
	26	-h	- î	- 2	- x	Ń	-î	Ŷ	â	Ń	<del>- 2</del>	x	
	28	Ϊ́	i	2	x	Ιü	ż	x	x	lï	. 2	X	
	30	N	i	2	X	N	2	X	Х	i	X	X	
	32	N	1	2	Х	N	2	Х	Х	1	Х	Х	
16"	34	N	2	Х	Х	1	2	Х	Х	1	Х	Х	
	36	N	2	X	X	1 !	X	X	X	]	X	X	
	38	N	2	X	X	!	X	X	X	2	Š	X	
	40 42	Ņ	2	X	X	1 1	ŵ	â	Ŷ	2 2	â	â	
	1 72	<u>'</u>	- 4			4			^	<del></del>	_^		_

- panel on one side only.

  2 = NI reinforced with 3/4' wood structural panel on both sides, or double l-joist.

  X = Try a deeper joist or closer spacing.

  Maximum design load shall be: 15 psf roof Maximum design load shall be: 15 psr roor dead load, 55 psf floor total load, and 80 plf wall load. Wall load is based on 3-0\* maximum width window or door openings.
- additional joists beneath the opening's cripple studs may be required.

  3. Table applies to joists 12° to 24° a.c. that meet the Boar span requirements for a design live load of 40 pst and dead load of 15 pst, and a live load defetation limit of 1480. Use 12° a.c. requirements for lesser spacing.
  - the supporting wall and the ridge boam.

    When the roof is fromed using a ridge board,
    the Roof Truss Span is equivalent to the
    distance between the supporting walls as if a

#### WEB HOLES

FIELD-CUT HOLE LOCATOR

(8)

#### 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.
- 2. I-joist 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-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/2 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
- 5. The sides of square holes or longest sides of rectangular holes should not exceed
- 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 ize of the largest square hole of twice the largest square hole for twice the largest square hole for twice the largest square hole for wice 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 behand/or duct chase openings.
- 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
- 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
- 12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

length or hole diameter, whichever is

3/4x diameter

Maintain minimum 1/8" space between top and bottom flange

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	09/03			1		∴ Ro	and ho	le dian	neter (	n.	200	Sec. 20				ocjusim
		<b>数 数</b>	線(開	製 (株)	<b>#15</b>	6	6-1/4	763	<b>34 M</b>	8-5/8	49	10	10-3/4		122	12-3/4	Facto
8 1 5 5 7 1	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8'	6-0								***	***	13'-6"
10-17-01	NI-40x	0'-7"	1'-6"	3:-0"	4'-4"	6.0.	6.4		***		***	•••	***		***		14'-9"
9-1/2"	NI-60	1'-3"	2'-6"	4'-0"	5-4"	7'-0°	7-5		•••				***	***	***		14'-11
104 70	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8.0,	8-4	***	***	•••	***		***	•••	***	***	15'-7"
3 43	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8-8			***	***						15'-9"
1000	NI-20	0'-7"	0'-8"	1'-0"	2-4"	3'-8"	4'-0"	5.0	6'-6"	7'-9"	•••						15'-6"
1.0	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4.0	4.4	5'-5"	7'-0"	8'-4"	***	***		***	***	***	16'-6"
100	NI-60	0'-7"	1'-8"	30,	4'-3"	5'-9"	6'-0"	7-3"	8'-10"	10:0			•••	***	***	***	16'-9"
11-7/8	NI-70	1'-3'	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2'	•••			•••	•••		17'-5"
1. 17.7	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7:-5	8'-6"	10:3*	11'-4"		***	***		***	***	17'-7"
10 10 11	NI-90	0.7	0'-8"	1:-5"	3'-2"	4-10	5-4	6'-9"	8'-9"	10-2							17-11
1 2 1 1	NI-90x	0-7*	0'-8"	0-9*	2'-5"	4'-4'	4'-9"	6'-3"		***			***				18'-0"
. 74-6	NI-40x	0.74	0'.8'	0.8,	1'-0"	2'-4"	2.9	3'-9"	5'-2'	6'-0"	6'-6"	8-3	10:2		•••		: 17'-11
344	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"		***		18'-2"
14"	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"		•••		19-2
"	NI-80	0'-10"	2'-0'	3'-4"	4'-9"	6'-2"	6'-5"	7:-6*	9-01	10.0	10-8	12:4*	13'-9"		***		19'-5"
	NI-90	0'-7"	0.8	0'-10'	2'-5"	4'-0"	4'-5"	5-9	7:-5"	8'-8"	9'-4"	11'-4"	12-11	***	***	***	19'-9"
£ 6,44	NI-90x	0'-7"	0'-8'	0-8"	2'-0"	3'-9"	4'-2"	5'-5"	7-3'	8-5"	9'-2'						20'-0"
1.1.1.1.1.1.1	NI-60	0'-7"	0'-8'	0'-8"	1'-6"	2'-10'	3-2	4'-2"	5.6	6'-4"	7'-0'	8-5	9-8"	10-2	12'-2"	13-9*	19'-10
200 (4)	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-3"	6-3	7'-8'	8.6	9'-2"	10'-8"	12'-0"	12'-4"	14.0	15'-6"	20'-10
16°	NI-80	0'-7"	1'-3'	2-6*	3'-10"	5-3	5'-6"	6'-6"	8:-0"	9-0	9'-5"	11'-0'	12'-3"	12-9	14'-5"	16'-0"	21'-2"
12.0	NI-90	07.	0'-8"	0.8	1'-9"	3'-3"	3'-8"	4'-9"	6'-5"	7'-5"	8-0	9'-10"	1153	111-91	13'-9"	15'-4"	211-6*
A 1/2 1/8/4	NI-90x	0.7	0.8	0.9	2.0	3'-6"	4'-0"	5'-0°	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"	12:0"			211-10

#### OPTIONAL:

The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum spar the minimum distance from the centreline of the hale to the face of any support (D) as given above may be reduced as follows: D<sub>reduced</sub> = Loctual x D

2015-04-1





For rectangular holes, avoid over-cutting 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

#### DUCT CHASE OPENING SIZES AND LOCATIONS -- Simple Span Only

Joist	Joist		m custom	e mom n		e of any s			nobelilii	JURIU
Depla	Series			10 m	Duct ch	iase leng	in (in)			
		8	10	12	14	16	18	20	22	24
1 - 65 3/150	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'-10'	7'-3"	7'-8"	8'-2"	8.6
9-1/2"	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'-5"	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'-10'	7'-3"	7:-8*	8'-2"	8:-6"
	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"	8-6" 9-0"	9'-1"	9-6	10'-1"	10'-9'
	NI-60	7'-3"	7'-8"	8'-0"	8'-6"	9'-0"	9-3"	9'-9"	10'-3"	111-0
11-7/8"	NI-70	7-1	7'-4"	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'
	NI-90	7'-6"	7'-11'	8'-4"	8-9	9'-2"	9-7*	10'-1"	10'-7"	10'-1
Cara see a	NI-90x	7'-7'	8-1*	8'-5*	8-10"	9'-4"	9-8*	10'-2"	10'-8"	11'-2'
	NI-40x	8'-1"	8'-7"	9'-0"	9-6*	10'-1"	10'-7"	11'-2"	12'-0"	12'-8'
	NI-60	8'-9"	9'-3'	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0'
14"	NI-70	8-7	9-1"	9'-5"	9-10	10'-4"	10'-8"	11'-2"	11'-7"	12'-3'
100000	NI-80	9-0	9'-3"	9'-9"	10-1	10'-7"	111-11	11'-6"	12'-1"	12'-6'
1000	NI-90	9-2	9'-8'	10'-0"	10'-6"	10'-11"	11'-5"	11'-9'	12'-4"	12'-1
	NI-90x	9'-4"	9-9	10'-3'	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-2'
	NI-60	10'-3"	10'-8°	11'-2'	11'-6"	12'-1"	12'-6"	13'-2"	14'-1"	145-10
44.0	NI-70 NI-80	10'-1"	10'-5"	11'-0'	11'-4"	11'-10"	12:-3*	12'-8"	13'-3"	14'-0"
16"		10'-4"	10'-9"	11'-3'	11'-9'	12'-1"	12'-7*	13'-1"	13'-8"	14'-4'
. A. A	NI-90 NI-90x	10'-9'	11.5	11'-8'	12'-0"	12'-6"	13-0	13'-6"	14'-2"	14'-10
	141-302	111717	11:5	117-10*	12-4:	12::10*	J.3-Z		14.4	15'-2'

Above table may be used for I-joist spacing of 24 inches on centre or less.
 Duch chao pening location distance is insecured from inside face of supports to centre of opening.
 The above table is bused on simple-apon loist or only. For other applications, contact year bed distillation.
 The above table is bused on simple-apon loist or only. For other applications, contact year bed distillation.
 The above table is bused on the properties of the proper

#### INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from 1-joist flanges before gluing.

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.

- 2. Snap a chalk line across the 1-joists four feet in from the wall for panel edge alignment and as a
- 3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from Lay the first panel with tangue side to the wall, and nail in place. This protects the tangue of the next panel from damage when tapped into place with a black and sledgehammer.
- 5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
- 6. Apply two lines of alue on 1-joists where panel ends butt to assure proper gluing of each end.
- 7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying before laying the next row. Glue line may be continu a thinner line (1/8 inch) than used on I-joist flanges. 8. Tap the second row of panels into place, using a block to protect groove edges.
- Slagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&C edges, is recommended. (Use a spacer tool or an 2-1/2" comm noil to assure accurate and consistent spacing.)
- 10. Complete all nailing of each panel before alue sets. Check the manufacturer's re for cure time. (Worm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the

#### FASTENERS FOR SHEATHING AND SUBFLOORING(1)

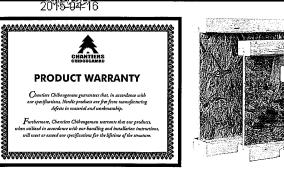
Joist	Panel	Common	Ring Thread		of Fasteners		
Spacing (in.)	Thickness (in.)	Wire or Spiral Nails	Nails or Screws	Staples	Edges	Interm. Supports	
16	5/8	2'	1-3/4"	2'	6"	12*	
20	5/8	2"	1-3/4*	2*	6*	12'	
24	3/4	2*	1-3/4"	2*	6'	12'	

- 1. Fasteners of sheathing and subflooring shall conform to the above table.
- Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
- 3. Flooring screws shall not be less than 1/8-inch in diameter.
- Special conditions may impose heavy traffic and concentrated loads that require construction in excess
  of the minimums shown.
- Use only adhesives conforming to CAN/CGSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If CSB panels with se

Ref.: NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5

IMPORTANT NOTE:
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

# RIM BOARD INSTALLATION DETAILS (8a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT Rim board Joint Between Floor Joists 2-1/2" nails at 6" o.c. (typical) Rim board Joint at Corne top and bottom 2-1/2" toe-nails at 6" o.c. (typical) Rim board joint — 8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL 1-ioist 2° min. 1.5/8° min. Staggered 1/2° diameter lag screws or thru-bolts with 1-5/8° min. 5° max. 2\* min. — Z. GRAFFIER 100100717 2x ledger board (preservative-treated); must be greater than or equal to the depth of the deck joist



NI-90x

l-joist to top plate per detail 1b

N1-90



FSC

NI-20 1-1/2 O OSB \$/g* → Q 11-7/g*	N1-40x  2-1/2	9-1/2	5B 3/8" + 4 9-3/2"	9-1/2	9-1/2	33-1/7 21 358 ₹/6"→ ← 11-7 14' 16'
S-P-F No.2	1950f MSR	2100f MSR	1950f MSR	2100f MSR	2400f MSR	NPG Lumber
33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit

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

#### **WEB HOLE SPECIFICATIONS**

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- 1. The distance between the inside edge of the support and the centreline of any hale or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.

  2. I-joist top and bottom flonges 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 chose 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.

**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

- 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 langest side of the langest rectangular hole or duct chose opening) and each hole and duct chose opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- 7. A knackout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between hales and/or duct
- 8. Hales measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Hales 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

NI-80

- 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 at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

Joist	Joist	<u> </u>	<i>N</i>	inimun	n Dista	nce fro						ntre of	Hole (ft	- in.)			Joist	Joist
Depth	Series	1					Rou	nd Hol	Diam e	eter (in.	i						Depth	Series
John	derica	2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4	1	100,100
	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"											NI-20
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4	6'-0"	6'-4"											NI-40x
9-1/2"	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"										9-1/2	NI-60
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"										1	NI-70
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	81-21	8'-8"		***						.===	***		NI-80
	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"								NI-20
	NJ-40x	0'-7"	0'-8"	11-3"	2'-8"	4'-0"	4-4	5'-5"	7'-0"	8'-4"								NI-40x
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"					***			NI-60
11-7/8	NI-70	1'-3"	2'-6"	4'-0"	5-4"	6'-9"	7'-2"	8'-4'	10'-0"	11'-2"		~=~					11-7/8"	NI-70
	NI-80	1'-6"	2'-10'	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"	11'-4"			***					NI-80
	NI-90	0'-7"	0'-8"	1-5"	31.2"	4-10"		6'-9"	8'-9"	10'-2"								NI-90
	NI-90x	0'-7"	0'-8"	0-9	2'-5"	4'-4"	4'-9"	6'-3"	F1 AT	·	41.40	DI OII	10101			***		NI-90x
	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	21-91	3'-9"	5'-2"	6,-0,	6'-6"	8-3"	10'-2"				i	NI-40x
	NI-60	0'-7"	0'-8"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8" 10'-4"	10'-4"						NI-60
14"	NI-70	0'-8"	1'-10"	3'-0"	4'-5"	5'-10'		7'-3'	8'-9" 9'-0"	10'-0"	10'-8"	12'-4"			^**	1	14*	NI-70 NI-80
	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5' 4'-5'	7'-6' 5'-9'	7-5"	8'-8"	91-41	11'-4"					į	NI-90
	NI-90	0'-7"	0'-8"	0'-10" 0'-8"	2'-5" 2'-0"	4'-0" 3'-9"	4'-2'	5'-5"	7-3"	8'-5"	9'-4"	11'-4'	12-13				1	NI-90x
	NI-90x				1'-6"			4-2	5'-6"	6'-4"	7'-0"	8'-5"	9'-8"		12'-2"	13'-9"	1	NI-60
	NI-60	0'-7"	0'-8"	0'-8" 2'-3"	3'-6"	2-10		6'-3"	7'-8"	8'-6"	9-2	10'-8"			14-0	15'-6'	1	NI-70
	NI-70	0'-7" 0'-7"	1'-0" 1'-3"	2-6"	3-10	4'-10' 5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9-5	111-0			14.5	16'-0"	16"	NI-80
16"	NI-80	0'-7"	0'-8"	0'-8"	3-10	3'-3"	3'-8"	4-9	6'-5"	7'-5	8'-0"	9'-10"			13.9	15'-4"	1 10	NI-90
	NI-90	0-7	0,-8,	0-9	2'-0"	3-6	4'-0"	5'-0"	6-9	7-9	8-4	10'-2"		12.0		13-4	1	NI-90x
	NI-90x	0-7	0-0	0-9	2-0	3-0	4-0	3-0	0-7	7-7	0-4	10-2	11-0	12-0			L	141-70X
Above to 2. Hale lo     Distance     The above to short	cation dist	ance is r hart are based o	neosure based on the l	d from on unifo joists b	inside f armly to eing us	ace of	support oists.	s to cer	itre of h		mum d	istance	as given	above	may be	e reduced	1. Above to 2. Duct cho 3. The abo 4. Distance load of 5. The abo	ase openin ve table is es are base 40 psf and

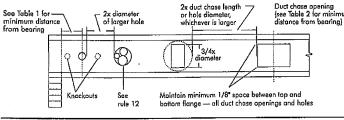
# **DUCT CHASE OPENING SIZES AND LOCATIONS**

1.7.4		Minim	ım distar	ce from in	side face	of suppo	orts to co	entre of	pening (	ft - in.)
Joist Depth	Joist Series				Duct Ch	ase Leng	th (in.)			
200	00,100	. 8	10	12	14	16	18	20	22	24
	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'-10"	7'-3°	7'-8"	8'-2"	8'-6"
9-1/2	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'-5"	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'-10"	7'-3°	7'-8"	8'-2"	8'-6*
	NI-20	5-9	6'-2"	6'-6"	7-1"	7'-5"	7'-9"	8'-3"	8'-9"	91-41
	NI-40x	6'8"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10.1	10'-9"
	NI-60	7-3	7'-8*	8'-0"	B'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"
11-7/8"	N1-70	7'-1*	71.4	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"
	NI-90	7'-6"	7'-11'	8'-4"	8'-9"	9-2	91.70	10'-1"	10'-7"	10'-11"
	NJ-90x_	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"
	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10:-10	10'-7"	111-2	12'-0"	12'-8"
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"
14*	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11'-2"	11'-7"	1243*
14	NI-80	9'-0"	91-3*	9-9	10,-1,	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"
	NI-90	9'-2"	9'-8"	10'-0"	10'-6"	10-11	11'-5"	11'-9"	12-4"	12-11*
	NI-90x	9-4	9-9"	10'-3"	10'-7"	11'-1"	11-7	12'-1"	12'-7'	13'-2"
	NI-60	10'-3"	10'-8"	115-27	11'-6"	12'-1"	12'-6"	13'-2"	14'-1"	14410"
	NI-70	10-1	10'-5"	11'-0"	11'-4"	11'-10'		12'-8"	13'-3"	14'-0"
16"	NI-80	10'-4'	10'-9"	11'-3"	11'-9"	12'-1"	12-7"	13'-1"	13'-8"	14'-4"
	NI-90	10-9	11'-2"	11'-8"	12'-0°	12'-6"	13'-0"	13'-6°	14'-2°	14'-10"
, ,	NI-90x	1351	11'-5"	13510	12'-4"	12'-10'	13'-2"	13'-9"	14-4°	15'-2"

Above table may be used for 1-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 pst and dead load of 15 pst, and a live load deflection limit of L/480.
 The above table is based on the 1-joists being used of their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

TARIF 1

#### FIELD-CUT HOLE LOCATOR





Knockouts are prescared 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 diam in each of the four corners and then making the cuts between the holes is

# **SAFETY AND CONSTRUCTION PRECAUTIONS**



Do not walk on I-joists until fully fastened and braced, or



Never stock building materials over unsheathed Lipists. Once sheathed, do not over-stress 1-joists with concentrated load

MARNING: 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 Lipist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends.
 When Lipists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking w 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.

or buckling.

\*\* Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" noils fastened to the lop surface of each l-joist. Nail the bracing to a lateral restraint at the end of each boy. Lop ends of adjoining bracing over at feest two 1-joists. Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of 1-joists at the end of the boy.

3. For confilevered I-joist, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.

4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams at walls only.

5. Never install a domoged l-joist.

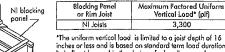
Improper storage or installation, failure to follow applicable building codes, failure to follow spon ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious occidents. Follow these installation guidelines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



# PRODUCT WARRANTY

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

 $\emph{F}$ urshermore, Chantiers Chibougamau warrants that our products, hen utilized in accordance with our handling and installation instruction. will meet or exceed our specifications for the lifetime of the structure



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

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)



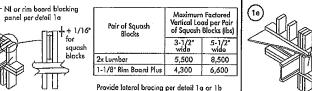
Blocking Panel or Rim Joist Vertical Load\* (plf) 1-1/8" Rim Board Plus 8.090

The uniform vertical load is limited to a rim board depth of 16 inches or less and is based or 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.

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

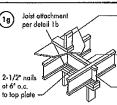
To avoid splitting flange, start nails at least 1-1/2" from end of I-joist Nails may be driven at an angle to avoid splitting of bearing plate.

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





from above to bearing below blocks per detail 1d. Match bearing area of blacks below to post



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

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

Bocker block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double 1-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 hunger 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*	14	5-1/2"
3-1/2"	1-1/2"	7-1/4"

- 2x plate flush with inside face of wall

or beam, 1/8" overhang allowed

installed per manufact

NOTE: Unless hanger sides laterally support

the top flange, bearing

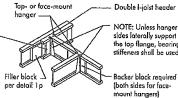
stiffeners shall be used.

recommendations

\* Minimum grade for backer black material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard. \*For face-mount hancers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flange For 2" thick flanges use net depth minus 4-1/4".

(Im)

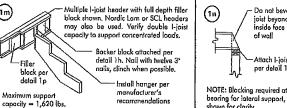
Verify double I-joist capacity.



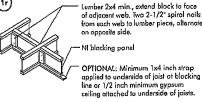
For hanger capacity see hanger manufacturer's recommendations. Verify double 1-joist capacity to support concentrated loads.

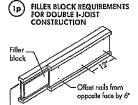


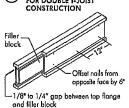
NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.



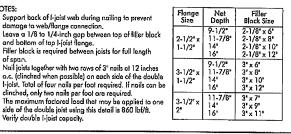










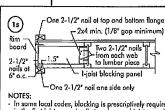


WEB STIFFENER INSTALLATION DETAILS

Use nailing

pattern show for Method 1

with opposit



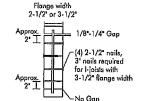
In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.

All nails are common spiral in this detail. All nails shown in the above details are assumed to be common wire nails oted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) Framing lumber assumed to be Fir No. 2 or hetter. Individual

#### **WEB STIFFENERS**

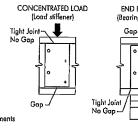
- A bearing stiffener is required in all engineered applications with toclored reactions greater than shown in the I-joist properties table found of the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at
- A bearing stiffener is required when the 1-joist is supported in a hung 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

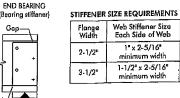
A load stittener is required at locations where a radiorea concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantillever, onywhere between the confiderer tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flonge is at the bottom.



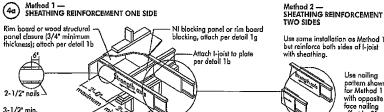
EIGURE 2

See the adjacent table for web stiffener size requirements



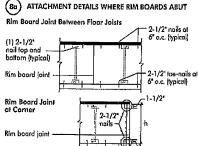


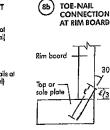
## CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

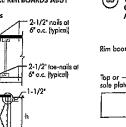


NOTE: Canadian softward plyward sheathing or equivalent (minimum thickness 3/4") required on sides of jaist. Depth shall match the full height of the jaist. Nall with 2.12" halfs of 6" o.c., top and bottom flange. Install with face grain horizontal. Atlact-lajoist to plate of all supports per detail 1b. Verify reinforced i-joist copacity.

#### **RIM BOARD INSTALLATION DETAILS**









**COMPANY** Oct. 7, 2020 11:47

PROJECT
J1 GRD FLR.wwb

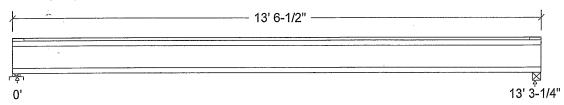
# **Design Check Calculation Sheet**

Nordic Sizer - Canada 7.2

#### Loads:

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

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



Unfactored: Dead Live	177 354	177 354
Factored: Total Bearing:	752	752
Capacity Joist Support	1865 3971	1869 -
Des ratio Joist Support	0.40 0.19	0.40
Load case Length	#2 2-3/8	#2 2-5/8 1-3/4
Min req'd Stiffener KD	1-3/4 No 1.00	No 1.00
KB support fcp sup Kzcp sup	1.00 769 1.09	- - -

## Nordic 9-1/2" NI-40x Floor joist @ 16" o.c.

Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W; Total length: 13' 6-1/2"; Clear span: 13' 1-1/2"; 3/4" nailed and glued OSB sheathing This section PASSES the design code check.

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

	3			
Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 752	Vr = 1895	lbs	VI/Vr = 0.40
Moment(+)	Mf = 2495	Mr = 4824	lbs-ft 🥖	M£/Mr = 0.52
Perm. Defl'n	$0.08 = \langle L/999$	0.44 = L/360	in /c	0.18
Live Defl'n	0.16 = < L/999	0.33 = L/480	in /6	10448
Total Defl'n	0.24 = L/672	0.66 = L/240	in 🔏	E KATSOULAKOS 0.36
Bare Defl'n	0.19 = L/823	0.44 = L/360	in (in in	S. KATSOULAKOS 044
Vibration	Lmax = 13'-3.3	Lv = 16'-2.1	ft 🔝	0.82
Defl'n	= 0.027	= 0.051	in 🛚	0.82 0.53
		1	10 KY	1 000

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## WoodWorks® Sizer

#### for NORDIC STRUCTURES

#### J1 GRD FLR.wwb

#### Nordic Sizer - Canada 7.2

Page 2

	Additional	Data:											
I			KD	KH	KZ	KL	KT	KS	KN	LC#			
	Vr	1895	1.00	1.00	-	_	-	-	-	#2			
1		4824			-	1.000	-	-					
l		218.1 m			-	-	-	-	_	#2			
l	CRITICAL LO	AD COMB	INATIONS	8:									
	Shear	: LC #2	= 1.25	5D + 1.5I	J								
1	Moment(+)	: LC #2	= 1.25	5D + 1.5I	J								
ı	Deflectio												
				+ 1.0L									
				) + 1.0L									
				) + 1.0L									
	Bearing	: Suppo	rt 1 - I	LC #2 = 3	L.25D +	1.5L							
			rt 2 - I	LC #2 = 3	L.25D +	T.5L	, ,	-	. 1 1				
-	Load Type					arth,grou							
	_					ve(stora			r=r1re				
	Load Patt	erns: s=	S/2 L=I	_=r	no patte	ern Load	in this	s span					
	All Load		ions (L	(s) are	listed 1	in the An	arysis	output					
ĺ	CALCULATION				06 11.								
	Eleff = 2	75.77 lb	-in^2 k	<= 4.946	euo Ibs	1 1 /	13		\	CUNFORMS	TA	nrc 21	112
	"Live" de	flection	is due	to all r	ion-dead	ı ıoads (	TIVE, W	ina, sn	OW)	e aut aun 2	10	U D U L S	y a Es
ı										n unm M	P0 7" F0	0000	

#### **Design Notes:**

AMENDED 2020

- 1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA 086-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
- 2. Please verify that the default deflection limits are appropriate for your application.
- 3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
- 4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
- 5. Joists shall be laterally supported at supports and continuously along the compression edge.
- 6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



TWO NO. TAW/4450-20
STRUCTURAL
COMPONENT ONLY



**COMPANY** Oct. 7, 2020 12:59

**PROJECT**J4 GARAGE.wwb

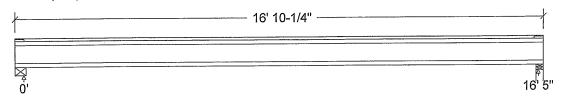
# **Design Check Calculation Sheet**

Nordic Sizer - Canada 7.2

#### Loads:

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

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



Unfactored: Dead Live	164 328	164 328
Factored: Total	698	698
Bearing: Capacity Joist Support	1893	1893 6659
Des ratio Joist Support	0.37	0.37 0.10
Load case Length	4-1/4	#2 2-3/4 1-3/4
Min req'd Stiffener KD	1-3/4 No 1.00	No 1.00
KB support fcp sup	-	769 -
Kzcp sup		

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

# Nordic 9-1/2" NI-80 Floor joist @ 12" o.c.

Supports: 1 - Steel Beam, W; 2 - Lumber Wall, No.1/No.2; Total length: 16' 10-1/4"; Clear span: 16' 3-1/4"; 5/8" nailed and glued OSB sheathing This section PASSES the design code check.

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

Criterion	Analysis Value	Design	Value	Unit	Analysis/Design
Shear	Vf = 698	Vr =	1895	lbs	√√V£ŸV±√₹, 0.37
Moment(+)	Mf = 2864	Mr =	8958	lbs-ft 🍂	MT/Mi = 00.32
Perm. Defl'n	0.10 = < L/999	0.55 =	L/360	in //	(0.19) (0.19)
Live Defl'n	0.20 = L/964	0.41 =	L/480	in //	0,50
Total Defl'n	0.31 = L/643	0.82 =	L/240	in in	S. KATSOULAKOS 0137
Bare Defl'n	0.23 = L/864	0.55 =	L/360	in 🤚	S. KATSOULANUS 0.242
Vibration	Lmax = 16'-5	Lv =	17 <b>'-</b> 5	ft 🖁	0.94
Defl'n	= 0.032	=	0.039	in 🐧	<b>1</b> .0.83
				M.	
				A	Marine Of Marine
					NOTE OF STATE HU.T

TAG NO.TAW/445/-26 STRUCTURAL COMPONENT ONLY

#### WoodWorks® Sizer

#### for NORDIC STRUCTURES

#### J4 GARAGE.wwb

#### Nordic Sizer - Canada 7.2

Page 2

- 1													
	Additional	Data:					,						
١	FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#			
	Vr	1895	1.00	1.00	-		-	_	_	#2			
	Mr+	8958	1.00	1.00	-	1.000	-	-	-	#2			
	ΕI	324.1 m	illion	_	-	-	-	-		#2			
	CRITICAL LO	AD COMBI	INATIONS	<b>S</b> :									
	Shear				J								
1	Moment(+)	: LC #2	= 1.25	5D + 1.5I	J								
İ	Deflectio												
ļ		LC #2	= 1.01	+1.0L	(live	)							
		LC #2	= 1.01	+ 1.0L	(tota	1)							
		LC #2	= 1.01	) + 1.0L	(bare	joist)							
	Bearing	: Suppo:	rt 1 - I	LC #2 = 1	L.25D +	1.5L							
	,			LC #2 = 1							•		
ł	Load Type	s: D=dead	d W=wir	nd S=sno	ow H=e	arth, grou	ndwate	r E=ear	thquake				
		L=live	e(use,oo	ccupancy)	Ls=l	ive(stora	ge,equi	ipment)	f=fire				
1	Load Patt	erns: s=	S/2 L=I	L+Ls =r	no patt	ern load	in this	s span					
١	All Load	Combinat:	ions (LO	Cs) are l	Listed	in the An	alysis	output					
	CALCULATIO	NS:											
1	Eleff = 3	67.27 lb	-in^2 F	<= 4.94€	e06 lbs								ĺ
	"Live" de	flection	is due	to all r	non-dea	d loads (	live, v	wind, sn	ow)	CONFORM:	3 TO	OBC	201

#### Design Notes:

AMENDED 2020

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





COMPANY Oct. 7, 2020 13:00

**PROJECT** J4 2ND FLR.wwb

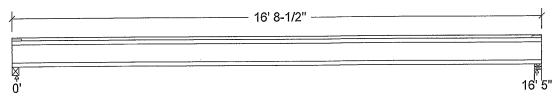
# **Design Check Calculation Sheet**

Nordic Sizer - Canada 7.2

#### Loads:

Load	Type	Distribution	Pat-	Location	[ft]	Magnitude	Unit
	21		tern	Start	End	Start E	nd
Loadl	Dead	Full Area				20.00	psf
Load2	Live	Full Area		_		40.00	psf

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



Unfactored:     Dead     Live	164 328		
Factored: Total	698		
Bearing:			Г
Capacity	1893		
Joist Support	9212		
Des ratio	7212		ŀ
Joist	0.37		
Support	0.08		İ
Load case	#2		
Length	2-5/8		
Min req'd	1-3/4		
Stiffener	No		
KD	1.00		
KB support	1.00		
fcp sup	1088		
Kzcp sup	1.15	$\cdot$	

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

Nordic 9-1/2" NI-80 Floor joist @ 12" o.c. Supports: 1 - Nordic Lam Beam, 24F-1.9E; 2 - Lumber Wall, No.1/No.2; Total length: 16' 8-1/2"; Clear span: 16' 3-1/4"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling This section PASSES the design code check.

# Limit States Design using CSA 086-14 and Vibration Criterion:

	-			
Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 698	Vr = 1895	lbs	VE/VE/5 0.37
Moment(+)	Mf = 2863	Mr = 8958	lbs-ft ,	ME/Mr 0.32
Perm. Defl'n	0.10 = < L/999	0.55 = L/360	in 🎉	9/1/1/10/00/19
Live Defl'n	0.20 = L/964	0.41 = L/480	in //2	0.50
Total Defl'n	0.31 = L/643	0.82 = L/240	in in	ALTONIA AKOSO - BIT
Bare Defl'n	0.23 = L/864	0.55 = L/360	in 3	S. KATSOULAKOSO: 32
Vibration	Lmax = 16'-5	Lv = 17'-9.5	ft 🔭	0.92
Defl'n	= 0.030	= 0.039	in 🐧	/0.07/8
L			£F	

PANCE OF OWN NO. TAN 1445220 STRUCTURAL COMPONENT ONLY

#### J4 2ND FLR.wwb

#### Nordic Sizer - Canada 7.2

Page 2

Additiona	l Data:						-				
FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#		
Vr	1895	1.00	1.00	-	-	-	. <del>-</del>	-	#2		
Mr+	8958	1.00	1.00	-	1.000	-	-		#2		
EI	324.1 m	illion	_	-	-		-	-	#2		
CRITICAL LO	OAD COME	SINATIONS	S:								
Shear	: LC #2	= 1.2	5D + 1.5	L							
Moment(+											
Deflecti											
			D + 1.0L								
	•		D + 1.0L	•	•						
			D + 1.0L								
Bearing			LC #2 =								
			LC #2 =								
Load Typ					arth,grou						
					ive(stora			f=fire			
Load Pat											
All Load		ions (L	Cs) are	listed :	in the An	alysis	output				
CALCULATI											
Eleff = :									CONFORMS	TO	OBC 2012
"Live" d	eflection	is due	to all :	non-dead	d loads (	live, v	wind, sn	OW)	" -d 15 "		
									AMENI	jed	2020
P	. 4										

#### **Design Notes:**

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

S. KATSOULAKOS S

BYR HO. TAM 1445220 STRUCTURAL CONFONENT ONLY



COMPANY Oct. 7, 2020 11:45

**PROJECT** J7 GRD FLR.wwb

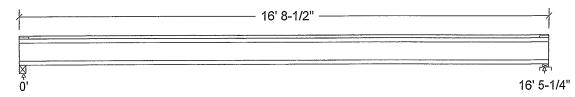
# **Design Check Calculation Sheet**

Nordic Sizer - Canada 7.2

#### Loads:

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

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



Unfactored:			
Dead	164		164
Live	329		329
Factored:			
Total	699		699
Bearing:			
Capacity			
Joist	1893	i	1893
Support			5573
Des ratio			
Joist	0.37		0.37
Support	-		0.13
Load case	#2		#2
Length	2-5/8		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support			1.00
fcp sup	-		769
Kzcp sup	_		1.09

Nordic Joist 9-1/2" NI-80 Floor joist @ 12" o.c. Supports: 1 - Steel Beam, W; 2 - Lumber Sill plate, No.1/No.2; Total length: 16' 8-1/2"; Clear span: 16' 3-1/2"; 3/4" nailed and glued OSB sheathing This section PASSES the design code check.

#### Limit States Design using CSA 086-14 and Vibration Criterion:

				T
Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 699	Vr = 1895	lbs	0.37 VI/VI() 0.37
Moment(+)	Mf = 2871	Mr = 8958	lbs-ft 🎤	MEYME = 00.32
Perm. Defl'n	0.10 = < L/999	0.55 = L/360	in 🎉	12/20 0.18
Live Defl'n	0.20 = L/979	0.41 = L/480	in /3	0249
Total Defl'n	0.30 = L/653	0.82 = L/240	in //	LATCOULAKOS O 1867
Bare Defl'n	0.23 = L/861	0.55 = L/360	in 🥞	S. KATSOULAKOS OF THE
Vibration	Lmax = 16'-5.3	$L_{V} = 18'-4.9$	ft	0.89
Defl'n	= 0.028	= 0.039	in 🐧	
			11.	
				WINCE OF OR
				AMO NA

OWG NO. TAN 14453-20 STRUCTURAL COMPONENT ONLY

#### WoodWorks® Sizer

#### for NORDIC STRUCTURES

#### J7 GRD FLR.wwb

#### Nordic Sizer - Canada 7.2

Page 2

	Additional	Data:										
1	FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#		
	Vr	1895	1.00	1.00	-	_	-	-	-	#2		
	Mr+	8958	1.00	1.00	-	1.000	-	_	-	#2		
	EI	324.1 m	nillion	_	-	_	-	-	_	#2		
	CRITICAL LO	DAD COME	SINATIONS	S:								
ĺ	Shear			5D + 1.51								
	Moment(+)	) : LC #2	= 1.25	5D + 1.5D	J							
	Deflection											
		LC #2	= 1.01	0 + 1.0L	(live	)						
		LC #2	= 1.01	0 + 1.0L	(tota	1)						
		LC #2	= 1.01	0 + 1.0L	(bare	joist)						
	Bearing	: Suppo	ort 1 - 1	LC #2 = 3	L.25D +	1.5L						
	_	Suppo	ort 2 - 1	LC #2 = 1	L.25D +	1.5L						
	Load Type	es: D=dea	ad W=win	nd S=sno	оw Н=е	arth,grou	ndwate	r E=ear	thquake			
į		L=liv	re(use,oo	ccupancy	Ls=l	ive(stora	ge, equi	Lpment)	f=fire			
	Load Patt	terns: s=	=S/2 L=1	L+Ls =r	no patt	ern load	in this	s span				
	All Load	Combinat	cions (Lo	Cs) are I	listed	in the An	alysis	output				
	CALCULATION	ONS:										
	Eleff = 3		o-in^2 H	K = 4.946	e06 lbs					CANFARMS T	n are 90	19
						d loads (	live, w	vind, sn	ow)	entrana i	a ana ra	6 4a
										AWENDE	2020	
	ı									871 198 24 14 25 tot		

#### **Design Notes:**

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



UWG NO. TAW 14453-20 STRUCTURAL COMPONENT ONLY



**BC CALC® Member Report** 



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

PASSED

1ST FLR FRAMING\Flush Beams\B1(i3459) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 14:58:57

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Description:

Specifier:

File name:

Designer: LBV

38-8.mmdl

Wind

1ST FLR FRAMING\Flush Beams\B1(i3459)

Customer: Code reports:

CCMC 12472-R

Company:

12-02-04 B2 **B1** 

Total Horizontal Product Length = 12-02-04

Snow

Reaction Summary (Down / Uplift) (lbs)

Live Dead Bearing 492/0 281 / 0 B1, 4-3/8" 317 / 0 191/0 B2, 2-3/8"

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	•	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-02-04	Тор		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-02-04	Тор	11	6			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-10-10	Top	16	8			n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-10-10	12-02-04	Тор	3	1		esessa.	ົ່_ n\a
4	B5(i3437)	Conc. Pt. (lbs)	L	04-09-12	04-09-12	Top	577	297	A Care	in and the second	\vn\a
	,								19 F	1011	

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4195 ft-lbs	11610 ft-lbs	36.1%	1	04-09-12
End Shear	1018 lbs	5785 lbs	17.6%	1	01-01-14
Total Load Deflection	L/576 (0.245")	n\a	41.7%	4	05-10-08
Live Load Deflection	L/901 (0.156")	n\a	39.9%	5	05-10-08
Max Defl.	0.245"	n\a	n\a	4	05-10-08
Span / Depth	14.8				

	Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
٠	B1	Wall/Plate	4-3/8" x 1-3/4"	1090 lbs	23.1%	11.7%	Spruce-Pine-Fir
	B2	Wall/Plate	2-3/8" x 1-3/4"	713 lbs	27.9%	14.1%	Spruce-Pine-Fir

#### Notes

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

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

Calculations assume member is fully braced.

AMENDED 2020 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 086. Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



#### OWG NO. TAM 14454-20 STRUCTURAL COMPONENT ONLY Disclosure

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

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**BC CALC® Member Report** 



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

#### PASSED

Tributary

1ST FLR FRAMING\Flush Beams\B2(i3458) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 14:58:57

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

File name: 38-8.mmdl

1ST FLR FRAMING\Flush Beams\B2(i3458) Description:

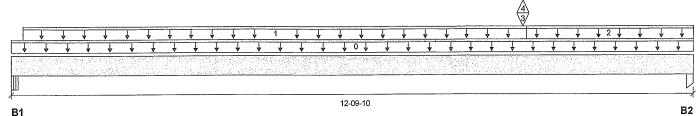
Specifier:

LBV

Customer: Code reports:

CCMC 12472-R

Designer: Company:



Total Horizontal Product Length = 12-09-10

Reaction Summary (Down / Unlift) (lbs)

Meachon and	IIII AI Y LO VAIII O	pini) (iba)		
Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	314 / 0	190 / 0		
B2, 3-1/2"	602 / 1	338 / 0		

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-09-10	Тор		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	09-07-06	Top	27	13			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	09-07-06	12-09-10	Тор	21	10			n\a
3	B5(i3437)	Conc. Pt. (lbs)	L	09-06-08	09-06-08	Top	599	308	ين من من من النوان	.F. 9.810.	n\a
4	B5(i3437)	Conc. Pt. (lbs)	L	09-06-08	09-06-08	Тор	-1	,	Lego.	Committee of the	√ n\a
	4 1 6		Factored	Dem	and/					IN	28

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3754 ft-lbs	11610 ft-lbs	32.3%	1	09-06-08
End Shear	1272 lbs	5785 lbs	22.0%	1	11-08-10
Total Load Deflection	L/584 (0.251")	n\a	41.1%	6	06-11-05
Live Load Deflection	L/916 (0.16")	n\a	39.3%	8	06-11-05
Max Defl.	0.251"	n\a	n\a	6	06-11-05
Snan / Denth	15.4				

Bear	ring Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	
B1	Beam	5-1/4" x 1-3/4"	708 lbs	18.0%	6.3%	Unspecified	
B2	Column	3-1/2" x 1-3/4"	1326 lbs	33.3%	17.7%	Unspecified	

#### **Notes**

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

BYG NO. TAM 14455-20 STRUCTURAL COMPONENT ONLY Disclosure

OVINCE OF ONLY

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PASSED

#### 1ST FLR FRAMING\Flush Beams\B3(i3436) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** 

Dry | 1 span | No cant.

October 7, 2020 14:58:57

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

File name:

38-8.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3(i3436)

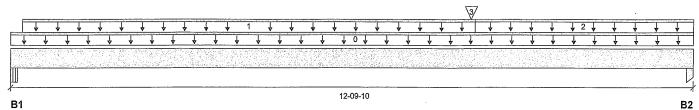
Specifier:

Designer: LBV

Customer: Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 12-09-10

Reaction Summary (Down / Unlift) (lhs)

iteaction oun	may (Boomis of	pinty (ibo)			
Bearing	Live	Dead	Snow	Wind	
B1, 5-1/4"	391 / 0	229 / 0			,
B2, 3-1/2"	621 / 0	346 / 0			

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-09-10	Тор		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	08-07-10	Тор	27	13			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	08-07-10	12-09-10	Top	24	12			n\a
3	B6(i3444)	Conc. Pt. (lbs)	L	08-06-12	08-06-12	Тор	688	352	military.	es sein	n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	4961 ft-lbs	11610 ft-lbs	42.7%	1	08-06-12
End Shear	1303 lbs	5785 lbs	22.5%	1	11-08-10
Total Load Deflection	L/460 (0.318")	n\a	52.2%	4	06-10-02
Live Load Deflection	L/715 (0.205")	n\a	50.3%	5	06-10-02
Max Defl.	0.318"	n\a	n\a	4	06-10-02
Span / Depth	15.4				

Bearing	յ Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 1-3/4"	874 lbs	22.3%	7.8%	Unspecified
B2	Column	3-1/2" x 1-3/4"	1365 lbs	34.3%	18.3%	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.

CUNFORMS TO OBE 2012

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



#### BWG NO. TAM 14456-20 STRUCTURAL COMPONENT ONLY Disclosure

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# 1ST FLR FRAMING\Flush Beams\B4(i3456) (Flush Beam)

PASSED

October 7, 2020 14:58:57

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Address:

Dry | 1 span | No cant.

38-8.mmdl

1ST FLR FRAMING\Flush Beams\B4(i3456) Description:

City, Province, Postal Code: RICHMOND HILL

Specifier:

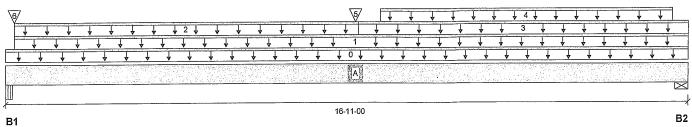
Customer: Code reports:

CCMC 12472-R

Designer: LBV

Company:

File name:



Total Horizontal Product Length = 16-11-00

Reaction Sui	mmary (Down of	and (ma)			
Bearing	Live	Dead	Snow	Wind	
B1, 5-1/4"	1282 / 0	1013 / 0			
B2. 2-3/8"	505 / 0	828 / 0			

l o	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	16-11-00	Тор		14			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	16-11-00	Тор	11	6			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	08-07-10	Top	15	8			n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	08-07-10	16-11-00	Top	9	4			n\a
4	3(i3486)	Unf. Lin. (lb/ft)	L	09-02-02	16-06-02	Тор		81			n\a
5	B6(i3444)	Conc. Pt. (lbs)	L	08-06-12	08-06-12	Top	649	333			n\a
6	2(i967)	Conc. Pt. (lbs)	L	00-02-10	00-02-10	Тор	747	475			n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	9437 ft-lbs	36222 ft-lbs	26.1%	1	08-06-12
End Shear	1125 lbs	11282 lbs	10.0%	0	15-11-02
Total Load Deflection	L/501 (0.393")	n\a	47.9%	4	08-07-10
Live Load Deflection	L/1045 (0.188")	n\a	34.4%	5	08-06-12
Max Defl.	0.393"	n\a	n\a	4	08-07-10
Span / Depth	20.7				

Beari	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Resistance Member	Material
B1	Beam	5-1/4" x 5-1/4"	3188 lbs	27.1%	9.5%	Unspecified
B2	Wall/Plate	2-3/8" x 5-1/4"	1792 lbs	23.4%	11.8%	Spruce-Pine-Fir

#### Notes

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

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

CANFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

POWNICE OF ONLY

UWS NO , TAN 14457-20 STRUCTURAL COMPONENT ONLY





City, Province, Postal Code: RICHMOND HILL

# Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B4(i3456) (Flush Beam)

PASSED

October 7, 2020 14:58:57

**BC CALC® Member Report** 

**Build 7493** 

Job name: Address:

Dry | 1 span | No cant.

38-8.mmdl 1ST FLR FRAMING\Flush Beams\B4(i3456) Description:

Specifier:

File name:

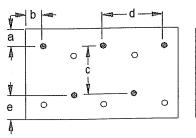
Designer: LBV

Customer: Code reports:

CCMC 12472-R

Company:

## Connection Diagram: Full Length of Member



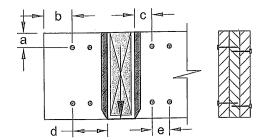
a minimum = **1** b minimum = 3" d= 20 12 e minimum = 2"

Nailing applies to both sides of the member Connectors are: 3.1/2" ARDOX SPIRAL Nails

# Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 4



a minimum = 2"

b minimum = 4"

c minimum = 4" d maximum = 12"

e minimum = 4"

Nailing applies to both sides of the member Connectors are:

Nails

of pows

3-1/2" ARDOX SPIRAL



DWB NO. TAM 14457 -20 STRUCTURAL COMPONENT ONLY

#### Disclosure

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PASSED

October 7, 2020 14:58:57

## 1ST FLR FRAMING\Flush Beams\B5(i3437) (Flush Beam) Dry | 1 span | No cant.

BC CALC® Member Report

**Build 7493** 

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

File name:

38-8.mmdl

Wind

Description: 1ST.FLR FRAMING\Flush Beams\B5(i3437)

Specifier:

Designer: LBV

Company:

#### Total Horizontal Product Length = 03-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing Live Dead Snow 298 / 0 B1, 3" 579 / 0 B2, 3" 596 / 1 306 / 0

l o	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	-	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-08-00	Тор		5			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-08-00	Top	240	120			n\a
2	J4(i3460)	Conc. Pt. (lbs)	L	80-80-00	00-08-08	Top	100	50			n\a
3	J4(i3434)	Conc. Pt. (lbs)	L	02-00-08	02-00-08	Top	126	63			n\a
4	J2(i95)	Conc. Pt. (lbs)	L	03-04-08	03-04-08	Top	69	34			n\a
5	J2(i95)	Conc. Pt. (lbs)	L	03-04-08	03-04-08	Top	-1				n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	953 ft-lbs	11610 ft-lbs	8.2%	1	02-00-02
End Shear	615 lbs	5785 lbs	10.6%	1	01-00-08
Total Load Deflection	L/999 (0.005")	n\a	n\a	6	01-09-14
Live Load Deflection	L/999 (0.003")	n\a	n\a	8	01-09-14
Max Defl.	0.005"	n\a	n\a	6	01-09-14
Span / Depth	4.2				

Bearing	ı Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	3" x 1-3/4"	1242 lbs	n\a	19.4%	HUS1.81/10
B2	Hanger	3" x 1-3/4"	1276 lbs	n\a	19.9%	HUS1.81/10

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 9-1/2" LVL Beam.

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







City, Province, Postal Code: RICHMOND HILL

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

PASSED

1ST FLR FRAMING\Flush Beams\B5(i3437) (Flush Beam)

**BC CALC® Member Report Build 7493** 

Job name: Address:

Dry | 1 span | No cant.

October 7, 2020 14:58:57

File name: 38-8.mmdl

1ST FLR FRAMING\Flush Beams\B5(i3437) Description:

Specifier: Designer:

Company:

LBV

CCMC 12472-R

#### Notes

Customer:

Code reports:

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

Calculations assume member is fully braced.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

AMENDED 2020

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

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9

> POVINUCE OF CHILES 040 NO. TAN 14458-20 STRUCTURÁL

> > COMPONENT ONLY

# Disclosure

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# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B6(i3444) (Flush Beam)

PASSED

**BC CALC® Member Report** 

Dry | 1 span | No cant.

October 7, 2020 14:58:57

**Build 7493** 

Job name:

Address:

Customer: Code reports:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name:

38-8.mmdl

Wind

Description: 1ST FLR FRAMING\Flush Beams\B6(i3444)

Specifier:

Designer: LBV

Company:

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#### Total Horizontal Product Length = 03-04-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1, 3"	699 / 0	358 / 0	
B2, 2"	638 / 0	327 / 0	

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-04-04	Тор		5			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-04-04	Top	240	120			n\a
2	J3(i3379)	Conc. Pt. (lbs)	L	00-01-10	00-01-10	Top	130	65			n\a
3	J3(i3384)	Conc. Pt. (lbs)	L	01-05-10	01-05-10	Top	225	112	200	ZCESS	n\a
4	J3(i3474)	Conc. Pt. (lbs)	L	02-09-10	02-09-10	Top	177	89	A STATE OF THE STA	The second	'n\a
Co	ntrole Summary	Factored Demand	Factored	Dem Rosi	and/	Casa	Location		186	104	20

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	1015 ft-lbs	11610 ft-lbs	8.7%	1	01-05-10
End Shear	682 lbs	5785 lbs	11.8%	1	01-00-08
Total Load Deflection	L/999 (0.005")	n\a	n\a	4	01-08-07
Live Load Deflection	L/999 (0.003")	n\a	n\a	5	01-08-07
Max Defl.	0,005"	n\a	n\a	4	01-08-07
Span / Depth	3.9				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	3" x 1-3/4"	1496 lbs	n\a	23.4%	HUS1.81/10
B2	Hanger	2" x 1-3/4"	1366 lbs	n\a	32.0%	HUS1.81/10

## Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 9-1/2" LVL Beam.

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

Header for the hanger HUS1.81/10 is a Triple 1-3/4" x 9-1/2" LVL Beam.



#### Notes

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

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

Calculations assume member is fully braced.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



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DWG NO. TAM 1445 8-20 STRUCTURAL COMPONENT ONLY



BC CALC® Member Report



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

Passed

1ST FLR FRAMING\Flush Beams\B7(i3385) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 14:58:57

**Build 7493** 

Job name:

Address:

File name:

38-8.mmdl

Wind

1ST FLR FRAMING\Flush Beams\B7(i3385) Description:

Specifier: City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

Designer:

Company:

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Car ye	244 (25)																												

#### Total Horizontal Product Length = 03-03-06

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	
B1, 1-3/4"	315 / 0	165 / 0	
B2. 1-3/4"	294 / 0	154 / 0	

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-03-06	Тор		5			00-00-00
1	J1(i3382)	Conc. Pt. (lbs)	L	00-10-12	00-10-12	Top	294	147			n\a
2	J1(i3381)	Conc. Pt. (lbs)	L	02-02-12	02-02-12	Top	315	157	s et a	and the state of t	n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	611 ft-lbs	11610 ft-lbs	5.3%	1	02-02-12
End Shear	641 lbs	5785 lbs	11.1%	1	00-11-04
Total Load Deflection	L/999 (0.003")	n\a	n\a	4	01-07-15
Live Load Deflection	L/999 (0.002")	n\a	n\a	5	01-07-15
Max Defl.	0.003"	n\a	n\a	4	01-07-15
Span / Denth	3.9				

Bear	ing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	
B1	Column	1-3/4" x 1-3/4"	679 lbs	34.2%	18.2%	Unspecified	
B2	Column	1-3/4" x 1-3/4"	634 lbs	31.9%	17.0%	Unspecified	



DWG NO. TAN 1446@20 STRUCTURAL COMPONENT ONLY

#### Notes

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

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

CONFORMS TO OBG 2012

Calculations assume member is fully braced.

AMENDED 2020 Resistance Factor phi has been applied to all presented results per CSA O86. BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

#### Disclosure

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





## PASSED

October 7, 2020 14:58:57

#### 2ND FLR FRAMING\Dropped Beams\B8(i3124) (Dropped Beam)

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Address:

Customer: Code reports:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

Dry | 1 span | No cant.

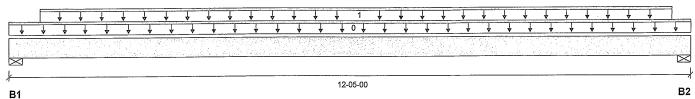
File name: 38-8.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B8(i3124)

Specifier:

Designer: LBV

Company:



#### Total Horizontal Product Length = 12-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-1/4"	3386 / 0	1781 / 0		
B3 13/1/1	3493 / 0	1836 / 0		

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-05-00	Тор		14			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-12	12-00-12	Top	598	299			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	21515 ft-lbs	36222 ft-lbs	59.4%	1	06-06-12
End Shear	6767 lbs	17356 lbs	39.0%	1	01-01-12
Total Load Deflection	L/280 (0.506")	n\a	85.8%	4	06-00-12
Live Load Deflection	L/426 (0.332")	n\a	84.4%	5	06-00-12
Max Defl.	0.506"	n\a	n\a	4	06-00-12
Span / Depth	14.9				

Beari	ng Supports	Dim. (LxW)	<b>Demand</b>	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-1/4" x 5-1/4"	7306 lbs	24.5%	26.8%	Spruce-Pine-Fir
B2	Wall/Plate	4-3/4" x 5-1/4"	7535 lbs	22.6%	24.8%	Spruce-Pine-Fir

#### Notes

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

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

CONFORMS TO OBG 2012

Calculations assume unbraced length of Top: 00-10-04, Bottom: 00-10-04. Resistance Factor phi has been applied to all presented results per CSA O86.

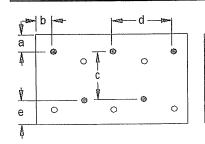
AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

# Connection Diagram: Full Length of Member







STRUCTURAL COMPONENT ONLY





PASSED

2ND FLR FRAMING\Dropped Beams\B8(i3124) (Dropped Beam)

Dry | 1 span | No cant.

October 7, 2020 14:58:57

**Build 7493** 

Job name:

Address:

**BC CALC® Member Report** 

Customer: Code reports:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name: 38-8.mmdl

2ND FLR FRAMING\Dropped Beams\B8(i3124) Description:

Specifier:

Designer: Company:

Connection Diagram: Full Length of Member

a minimum = 🖫 b minimum = 3"

e minimum = 32

Nailing applies to both sides of the member

Connectors are: Mails

3-1/2" ARDOX SPIRAL



COMPONENT ONLY

#### Disclosure

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PASSED

#### 2ND FLR FRAMING\Flush Beams\B10(i3754) (Flush Beam)

Dry | 1 span | No cant.

October 20, 2020 10:41:25

**Build 7493** 

Job name: Address:

File name:

Description: 2ND FLR FRAMING\Flush Beams\B10(i3754)

City, Province, Postal Code: RICHMOND HILL

**BC CALC® Member Report** 

Specifier:

LBV

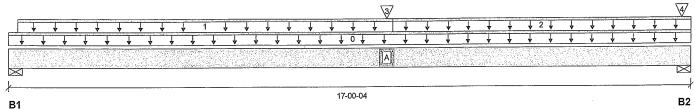
38-8.mmdl

Customer: Code reports:

CCMC 12472-R

Designer:

Company:



#### Total Horizontal Product Length = 17-00-04

Reaction Summary (Down / Uplift) (lbs)												
Bearing	Live	Dead	Snow	Wind								
B1, 5-1/2"	913 / 0	602 / 0										
B2, 5-1/2"	1031 / 0	700 / 0										

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	17-00-04	Тор		14			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	09-05-12	Тор	27	13			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	09-05-12	17-00-04	Top	16	8			n\a
3	B11(i3883)	Conc. Pt. (lbs)	L	09-04-00	09-04-00	Top	1580	839			n\a
4	E20(i980)	Conc. Pt. (lbs)	L	16-09-08	16-09-08	Top		35			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	15834 ft-lbs	36222 ft-lbs	43.7%	1	09-04-00
End Shear	2314 lbs	17356 lbs	13.3%	1	15-09-04
Total Load Deflection	L/331 (0.588")	n\a	72.5%	4	08-09-15
Live Load Deflection	L/533 (0.366")	n\a	67.6%	5	08-09-15
Max Defl.	0.588"	n\a	n\a	4	08-09-15
Span / Depth	20.5				

Beari	ing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 5-1/4"	2122 lbs	11.9%	6.0%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 5-1/4"	2422 lbs	13.6%	6.9%	Spruce-Pine-Fir

#### **Notes**

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

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

Calculations assume member is fully braced.

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

COMPORMS TO OBC 2012

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

POLINICE OF OHIE TW NO . YAW 1446220

STRUCTURAL COMPONENT ONLY



**BC CALC® Member Report** 



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

PASSED

2ND FLR FRAMING\Flush Beams\B10(i3754) (Flush Beam)

Dry | 1 span | No cant.

October 20, 2020 10:41:25

**Build 7493** 

Job name:

Address:

Customer:

Code reports:

City, Province, Postal Code: RICHMOND HILL

File name:

Description: 2ND FLR FRAMING\Flush Beams\B10(i3754)

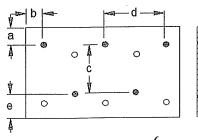
38-8.mmdl

Specifier:

Designer:

Company: CCMC 12472-R

## Connection Diagram: Full Length of Member



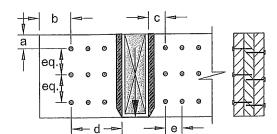
a minimum = 2" b minimum = 3" e minimum = 3"

Nailing applies to both sides of the member Connectors are: Same and Connectors are: Same 3-1/2" ARDOX SPIRAL

# **Connection Diagrams: Concentrated Side Loads**

Connection Tag: A

Applies to load tag(s): 2



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

e minimum = 4"

Nailing applies to both sides of the member Connectors are:

Nails

3-1/2" ARDOX SPIRAL



DWG NO. TAM 14462-20 STRUCTURAL COM. ONENT ONLY

## Disclosure

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BC CALC®, BC FRAMER®, AJS™,  $\mathsf{ALLJOIST} @, \mathsf{BC} \ \mathsf{RIM} \ \mathsf{BOARD}^{\intercal \mathsf{M}}, \ \mathsf{BCI} @, \\$ BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



BC CALC® Member Report



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

PASSED

## 2ND FLR FRAMING\Flush Beams\B11(i3451) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 14:58:57

**Build 7493** 

Job name:

Address: City, Province, Postal Code: RICHMOND HILL File name:

38-8.mmdl 2ND FLR FRAMING\Flush Beams\B11(i3451) Description:

Wind

Specifier:

LBV Designer:

Customer: Code reports:

CCMC 12472-R

Company:

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31									10	-05-02	!		 				_	<del></del>								В2

Total Horizontal Product Length = 10-05-02

Snow

# Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 4"	864 / 0	481 / 0
B2, 4"	1604 / 0	851 / 0

Los	ad Summary							Live	Dead	Snow	Wind	Tributary
Tag	•		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight		Unf. Lin. (lb/ft)	L	00-00-00	10-05-02	Тор		10			00-00-00
1	Smoothed Load		Unf. Lin. (lb/ft)	L	02-06-08	09-02-08	Top	187	93			n\a
2	STAIR		Unf. Lin. (lb/ft)	L	07-00-00	10-04-00	Top	240	120			n\a
3	J3(i3433)	L.,	Conc. Pt. (lbs)	L	00-06-08	00-06-08	Тор	96	48			n\a
4	J3(i3424)		Conc. Pt. (lbs)	L	01-10-08	01-10-08	Тор	127	63			n\a
5	J2(i3415)		Conc. Pt. (lbs)	L	09-10-08	09-10-08	Тор	198	99			n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	6175 ft-lbs	23220 ft-lbs	26.6%	1	05-10-08
End Shear	2625 lbs	11571 lbs	22.7%	1	09-03-10
Total Load Deflection	L/779 (0.152")	n\a	30.8%	4	05-04-08
Live Load Deflection	L/999 (0.099")	n\a	n\a	5	05-04-08
Max Defl.	0.152"	n\a	n\a	4	05-04-08
Span / Depth	12.5				

Beari	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	
B1	Hanger	4" x 3-1/2"	1897 lbs	n\a	11.1%	HGUS410	
B2	Hanger	4" x 3-1/2"	3469 lbs	n\a	20.3%	HGUS410	

#### Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 9-1/2" LVL Beam.

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

Header for the hanger HGUS410 is a Triple 1-3/4" x 9-1/2" LVL Beam.



0 v 0 n 0 . T 1 m 1 4 4 63 - 20 STRUCTURAL COMPONENT ONLY





City, Province, Postal Code: RICHMOND HILL

# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B11(i3451) (Flush Beam)

PASSED

October 7, 2020 14:58:57

BC CALC® Member Report

Build 7493

Job name: Address:

Customer:

Code reports:

Dry | 1 span | No cant.

File name: 38-8.mmdl Description: 2ND FLR FRAMING\Flush Beams\B11(i3451)

Specifier:

Designer:

CCMC 12472-R

LBV

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

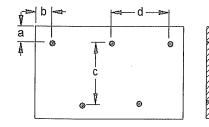
CONFORMS TO OBC 2012

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 086. 2020

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9

## Connection Diagram: Full Length of Member



a minimum = 2"b minimum = 3"

c = 5-1/2" d = **@** B "

. 1

Calculated Side Load = 532.8 lb/ft

Connectors are:

Nails

3-1/2" ARDOX SPIRAL



DWG NO. TAM 14463-20 STRUCTURÁL COMPONENT ONLY

#### Disclosure

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

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PASSED

October 20, 2020 10:41:25

2ND FLR FRAMING\Flush Beams\B12(i3781) (Flush Beam) Dry | 1 span | No cant.

BC CALC® Member Report **Build 7493** 

Job name: Address:

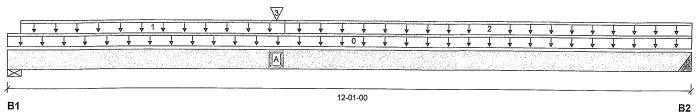
File name: 38-8.mmdl

LBV

Description: 2ND FLR FRAMING\Flush Beams\B12(i3781)

City, Province, Postal Code: RICHMOND HILL Specifier:

Customer: Designer: CCMC 12472-R Code reports: Company:



#### Total Horizontal Product Length = 12-01-00

#### Reaction Summary (Down / Unlift) (lhs)

i (Cacion Gan	milary (Domin's	pine, (ibb)			
Bearing	Live	Dead	Snow	Wind	
B1, 5-1/2"	688 / 0	433 / 0			
B2, 4"	438 / 0	295 / 0			

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1,15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-01-00	Тор		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	04-10-00	Тор	27	13			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	04-10-00	12-01-00	Тор	16	8			n\a
3	B11(i3883)	Conc. Pt. (lbs)	L	04-08-04	04-08-04	Тор	888	492			n\a

Controls Summary	Factored Demand	Factored	Demand/	0	1
Controls Summary		Resistance	Resistance	Case	Location
Pos. Moment	6055 ft-lbs	23220 ft-lbs	26.1%	1	04-08-04
End Shear	1500 lbs	11571 lbs	13.0%	1	01-03-00
Total Load Deflection	L/827 (0.166")	n\a	29.0%	4	05-09-08
Live Load Deflection	L/999 (0.102")	n\a	n\a	5	05-09-08
Max Defl.	0.166"	n\a	n\a	4	05-09-08
Span / Depth	14.4				

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	1572 lbs	13.3%	6.7%	Spruce-Pine-Fir
B2	Hanger	4" x 3-1/2"	1025 lbs	n\a	6.0%	HGUS410

#### Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity. 0140

#### 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

CONFORMS TO OBC 2012

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9

STRUCTURAL COMPONENT ONLY

NOVINCE OF ONTO DWG NO. TAM 14464





City, Province, Postal Code: RICHMOND HILL

# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B12(i3781) (Flush Beam)

PASSED

**BC CALC® Member Report** 

**Build 7493** 

Job name: Address:

Dry | 1 span | No cant.

October 20, 2020 10:41:25

File name:

Description: 2ND FLR FRAMING\Flush Beams\B12(i3781)

38-8.mmdl

Specifier:

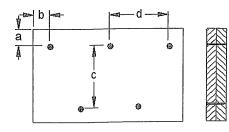
Designer:

Customer: Code reports:

CCMC 12472-R

LBV Company:

# Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 5-1/2"d = 200 8 4

Connectors are:

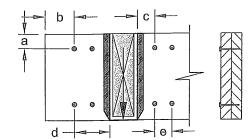
. Nails

3-1/2" ARDOX SPIRAL

## Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 2



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12" e minimum = 4"

Connectors are:

Nails

3-1/2" ARDOX SPIRAL



1146 NO. 7AM 14464-20 STRUCTURAL COMPONENT ONLY

#### Disclosure

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PASSED

October 7, 2020 14:58:57

## 2ND FLR FRAMING\Flush Beams\B9(i3418) (Flush Beam)

BC CALC® Member Report

**Build 7493** 

Job name:

Address:

Code reports:

City, Province, Postal Code: RICHMOND HILL

Customer:

CCMC 12472-R

Dry | 1 span | No cant.

38-8.mmdl

Wind

CONFORMS TO OBC 2012

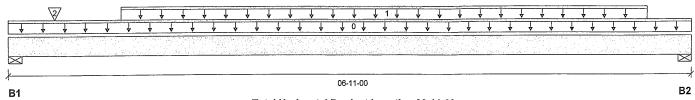
File name:

Description: 2ND FLR FRAMING\Flush Beams\B9(i3418)

Specifier:

Designer: LBV

Company:



#### Total Horizontal Product Length = 06-11-00

Snow

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead		
B1, 5-1/2"	1498 / 0	782 / 0		
B2, 6"	1259 / 0	663 / 0		

Load Summary									Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-11-00	Тор		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-01-08	06-05-08	Top	423	211			n\a
2	-	Conc. Pt. (lbs)	L	00-05-08	00-05-08	Top	501	251			n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	4236 ft-lbs	23220 ft-lbs	18.2%	1	03-01-08
End Shear	2450 lbs	11571 lbs	21.2%	1	05-07-08
Total Load Deflection	L/999 (0.039")	n\a	n\a	4	03-05-08
Live Load Deflection	L/999 (0.026")	n\a	n\a	5	03-05-08
Max Defl.	0.039"	n\a	n\a	4	03-05-08
Span / Depth	7.7				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	3225 lbs	27.2%	13.7%	Spruce-Pine-Fir
B2	Wall/Plate	6" x 3-1/2"	2718 lbs	21.0%	10.6%	Spruce-Pine-Fir

#### Notes

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

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

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

POVINCE OF CHAN BWG NO. TAM 14465 = 20

STRUCTURAL COM. ONENT ONLY





PASSED

2ND FLR FRAMING\Flush Beams\B9(i3418) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 14:58:57

**Build 7493** 

Job name:

Customer:

Code reports:

Address:

**BC CALC® Member Report** 

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name: 38-8.mmdl

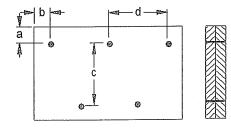
Description: 2ND FLR FRAMING\Flush Beams\B9(i3418)

Specifier:

Designer: LBV

Company:

# Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" d = 18 8 ci

Calculated Side Load = 682.8 lb/ft Connectors are: 16d / Nails

3-1/2" ARDOX SPIRAL



BWW NO. TAM 14465-20 STRUCTURAL COMPONENT ONLY

#### Disclosure

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PASSED

October 20, 2020 10:41:25

2ND FLR FRAMING\Flush Beams\B20(i3782) (Flush Beam)

**BC CALC® Member Report** 

Build 0

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name: 38-8.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B20(i3782)

Specifier:

Designer: **LBV** 

Company:

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27/22/57		124-15	in".	1	V. (V. E.)	10000				344G	SEC.	0.81940	Anti-Alice		C74-08-84	884°,7143	12272	(4.48) S	\$1740E	800081	1470.47	24.60	3. 15.			V. N. N. N	i jerija	300

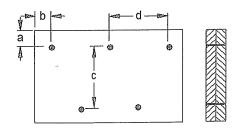
Total Horizontal Product Length = 12-05-06

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-05-06	Тор		10			00-00-00
1	-	Unf. Lin. (lb/ft)	L	00-00-00	12-04-08	Top		82			n\a.
2	J2(i3814)	Conc. Pt. (lbs)	L	01-02-12	01-02-12	Top	259	129			n\a
3	B12(i3781)	Conc. Pt. (lbs)	L	01-10-08	01-10-08	Top	445	297			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Dist. Load	114.24 lb/ft	37469.25 lb/ft	0.3%		
Conc. Load	1039 lbs	16813 lbs	6.2%		

CONFORMS TO OBG 2012 AMENDED 2020

### Connection Diagram: Full Length of Member



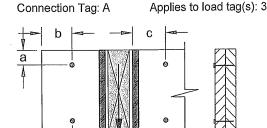
a minimum = 2"

b minimum = 3"

c = 5-1/2" d = 200 12

Calculated Side Load = 274.9 lb/ft 

### **Connection Diagrams: Concentrated Side Loads**



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

Connectors are: 1

Nails

3-1/2" ARDOX SPIRAL



DW8 NO. TAM 1446620 STRUCTURAL COMPONENT ONLY

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Passed

1ST FLR FRAMING\Flush Beams\B15(i3197) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 14:08:14

**Build 7493** 

Job name: Address:

File name:

38-8 SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B15(i3197)

City, Province, Postal Code: RICHMOND HILL

**BC CALC® Member Report** 

Specifier:

Company:

Customer: Code reports:

CCMC 12472-R

Designer:

LBV

* * * * * * * * * * * * * * * * * * *	<u> </u>
<del>\</del>	

В1

Total Horizontal Product Length = 12-05-00

m / Unlift\ (lhe)

Reaction Sun	nmary (Down / U	piiri, (ibs)			
Bearing	Live	Dead	Snow	Wind	
B1, 2-3/8"	124 / 0	492 / 0			
B2. 5-1/4"	783 / 0	871 / 0			

l o	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-05-00	Тор		10			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-02-06	Top	15	7			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-11-12	Тор	6	3			n\a
3	3(i3218)	Unf. Lin. (lb/ft)	L	00-04-06	11-11-10	Top		65			n\a
4	2(i967)	Conc. Pt. (lbs)	L	12-02-06	12-02-06	Top	660	367			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2098 ft-lbs	15093 ft-lbs	13.9%	0	06-01-01
End Shear	675 lbs	7521 lbs	9.0%	0	11-02-04
Total Load Deflection	L/999 (0.095")	n∖a	n\a	4	06-01-01
Live Load Deflection	L/999 (0.018")	n\a	n\a	5	06-01-01
Max Defl.	0.095"	n\a	n\a	4	06-01-01
Snan / Denth	15.0				

Beari	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-3/8" x 3-1/2"	689 lbs	20.7%	10.4%	Spruce-Pine-Fir
B2	Beam	5-1/4" x 3-1/2"	2263 lbs	28.8%	10.1%	Unspecified

#### **Notes**

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

POVINCE OF ONE

ong no. Thii 14467=20 STRUCTURAL COMPONENT ONLY





# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B15(i3197) (Flush Beam)

PASSED

**BC CALC® Member Report** 

Build 7493

Job name:

Address:
City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports:

Dry | 1 span | No cant.

October 7, 2020 14:08:14

File name:

me: 38-8 SUNKEN.mmdl

Description:

1ST FLR FRAMING\Flush Beams\B15(i3197)

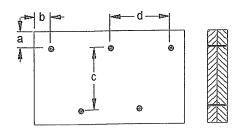
Specifier:

Designer: LBV

Company:

### Connection Diagram: Full Length of Member

CCMC 12472-R



a minimum = 2" b minimum = 3" c = 5-1/2" (/ d = 28 8

Connectors are:

Nails 3-1/2" ARDOX SPIRAL

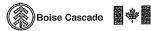


OWO NO.TAM/4467-20
STRUCTURAL
POWLONENT AND V

COMPONENT ONLY

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PASSED

2ND FLR FRAMING\Flush Beams\B12(i1755) (Flush Beam)

**BC CALC® Member Report** 

Dry | 1 span | No cant.

September 22, 2020 10:41:19

**Build 7493** Job name:

Address:

File name:

38-08 EL A.mmdl

City, Province, Postal Code: RICHMOND HILL

Description: 2ND FLR FRAMING\Flush Beams\B12(i1755)

Customer:

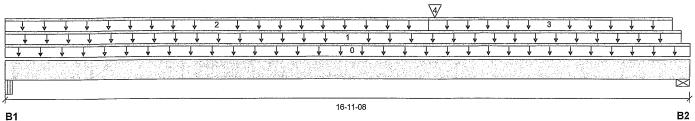
Specifier:

Designer: L.D.

Code reports:

CCMC 12472-R

Company:



#### Total Horizontal Product Length = 16-11-08

Reaction Summary (Down / Uplift) (lbs)

i leaction out	IIIIIIIII James Ja	pine, (ibc)	
Bearing	Live	Dead	Sno
B1, 3-1/2"	186 / 0	805 / 0	
B2, 5-1/2"	244 / 0	512 / 0	

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	16-11-08	Тор		14			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	16-08-12	Top	20	10			n\a
2	E32(i95)	Unf. Lin. (lb/ft)	L	00-00-00	10-04-00	Тор		81			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	10-04-00	16-06-00	Тор	16	8			n\a
4	B13(i1752)	Conc. Pt. (lbs)	L	10-05-12	10-05-12	Top		21			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4054 ft-lbs	23545 ft-lbs	17.2%	0	07-07-01
End Shear	968 lbs	11282 lbs	8.6%	0	01-01-00
Total Load Deflection	L/843 (0.233")	n\a	28.5%	4	08-03-11
Live Load Deflection	L/999 (0.053")	n\a	n\a	5	08-07-03
Max Defl.	0.233"	n\a	n\a	4	08-03-11
Span / Depth	20.6				

Bearin	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	3-1/2" x 5-1/4"	1127 lbs	22.1%	7.7%	Unspecified
B2	Wall/Plate	5-1/2" x 5-1/4"	717 lbs	6.2%	3.1%	Spruce-Pine-Fir

#### **Notes**

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

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

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

CAMPORMS TO OBC 2012

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



STRUCTURAL COMPONENT ONLY





PASSED

September 22, 2020 10:41:19

2ND FLR FRAMING\Flush Beams\B12(i1755) (Flush Beam)

**BC CALC® Member Report Build 7493** 

Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

Dry | 1 span | No cant.

38-08 EL A.mmdl

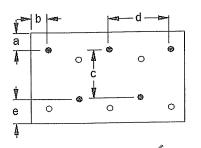
File name: 2ND FLR FRAMING\Flush Beams\B12(i1755) Description:

Specifier:

Designer: L.D.

Company:

### Connection Diagram: Full Length of Member



4 pows

a minimum = 2" b minimum = 3"

e Garage

c = **6**-1/2" d = 99 12

e minimum = 3"

Calculated Side Load = 14.7 lb/ft Nailing applies to both sides of the member Connectors are: 

3-1/2" ARDOX SPIRAL



ung no. TAN 1446820 STRUCTURAL COMPONENT ONLY

#### Disclosure

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

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PASSED

### 2ND FLR FRAMING\Flush Beams\B13(i1752) (Flush Beam)

Dry | 1 span | No cant.

September 22, 2020 10:41:19

**Build 7493** 

Job name: Address:

File name:

2ND FLR FRAMING\Flush Beams\B13(i1752) Description:

38-08 EL A.mmdl

City, Province, Postal Code: RICHMOND HILL

**BC CALC® Member Report** 

Specifier: Designer:

L.D.

Wind

Customer: Code reports:

CCMC 12472-R

Company:

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4																		0.0																			

#### Total Horizontal Product Length = 01-00-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3-1/2"		41 / 0
B2. 2"		36 / 0

100	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-00-00	Тор		10			00-00-00
1	E31(i88)	Unf. Lin. (lb/ft)	L	00-05-08	01-00-00	Top		81			n\a
2	E30(i98)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		24			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6 ft-lbs	15093 ft-lbs	n\a	0	00-07-03
End Shear	30 lbs	7521 lbs	0.4%	0	00-10-00
Span / Depth	0.8				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	3-1/2" x 3-1/2"	57 lbs	1.7%	0.6%	Unspecified
B2	Hanger	2" x 3-1/2"	51 lbs	n\a	0.9%	HGUS410

#### Cautions

Header for the hanger HGUS410 is a Triple 1-3/4" x 9-1/2" LVL Beam.

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

#### Notes

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

Hanger Manufacturer: Unassigned

CONFORMS TO OBG 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 086. 2020

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

OUT OF OF

UNU NO. TAN 1446920 STRUCTURAL COMPONENT ONLY





PASSED

2ND FLR FRAMING\Flush Beams\B13(i1752) (Flush Beam) Dry | 1 span | No cant.

BC CALC® Member Report **Build 7493** 

Job name:

Customer:

File name:

September 22, 2020 10:41:19

Address:

Description: 2ND FLR FRAMING\Flush Beams\B13(i1752)

City, Province, Postal Code: RICHMOND HILL

Specifier:

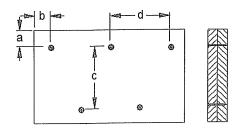
38-08 EL A.mmdl

Designer: L.D.

Code reports:

CCMC 12472-R Company:

### Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" d = (2) 4 11

Connectors are:

Marie an Nails 3-1/2" ARDOX SPIRAL

DANCE OF CO.

uwa no. TAN 14469=20 STRUCTURAL COMPONENT ONLY

### Disclosure

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**BC CALC® Member Report** 



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

PASSED

### 2ND FLR FRAMING\Flush Beams\B13B(i3383) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 15:11:38

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

File name:

38-8 EL B.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B13B(i3383)

Specifier:

Designer:

LBV

Customer: Code reports:

CCMC 12472-R

Company:

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В1

#### Total Horizontal Product Length = 16-10-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-1/8"	343 / 0	486 / 0	200 / 0	
B2, 2-3/4"	255 / 0	1399 / 0	1600 / 0	

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	16-10-02	Top		14			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-05-14	Top	19	9			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-10-14	Тор	24	12			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	10-05-14	16-07-06	Top	23	12			n\a
4	E36(i3669)	Unf. Lin. (lb/ft)	L	10-05-14	12-05-06	Top		81			n\a
5	E36(i3669)	Unf. Lin. (lb/ft)	L	10-10-06	12-01-14	Top		56	129		n\a
6	E37(i3670)	Unf. Lin. (lb/ft)	L	12-05-06	14-05-06	Top		41			n\a
7	E23(i979)	Unf. Lin. (lb/ft)	L	14-05-06	16-10-02	Top		81			n\a
8	E23(i979)	Unf. Lin. (lb/ft)	L	14-08-14	16-06-06	Top		56	129		n\a
9	-	Conc. Pt. (lbs)	L	10-03-08	10-03-08	Top		84	92		n\a
10	E36(i3669)	Conc. Pt. (lbs)	L	12-04-06	12-04-06	Тор		93	170		n\a
11	E23(i979)	Conc. Pt. (lbs)	L	14-06-06	14-06-06	Top		208	393		n\a
12	E23(i979)	Conc. Pt. (lbs)	L	16-09-06	16-09-06	Тор		353	748		n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	7876 ft-lbs	36222 ft-lbs	21.7%	13	10-10-06
End Shear	2684 lbs	17356 lbs	15.5%	13	15-09-14
Total Load Deflection	L/523 (0.376")	n\a	45.9%	35	08-10-14
Live Load Deflection	L/1009 (0.195")	n\a	35.7%	51	08-10-14
Max Defl.	0.376"	n\a	n\a	35	08-10-14
Span / Depth	20.7				

Bearing	a Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	4-1/8" x 5-1/4"	1322 lbs	14.3%	5.0%	Unspecified
B2	Wall/Plate	2-3/4" x 5-1/4"	4405 lbs	49.6%	25.0%	Spruce-Pine-Fir



DWG NO. TAM 14470.20 STRUCTURAL COMPONENT ONLY





City, Province, Postal Code: RICHMOND HILL

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

PASSED

### 2ND FLR FRAMING\Flush Beams\B13B(i3383) (Flush Beam)

**BC CALC® Member Report** 

Build 7493

Job name:

Customer:

Address:

Dry | 1 span | No cant.

October 7, 2020 15:11:38

File name:

38-8 EL B.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B13B(i3383)

Specifier:

Designer: **LBV** 

Code reports:

CCMC 12472-R

Company:

#### **Notes**

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

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

GUNFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

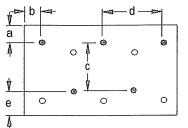
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Unbalanced snow loads determined from building geometry were used in selected product's

verification.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9

### Connection Diagram: Full Length of Member



4 pours

a minimum = 2" b minimum = 3" c = 591/2" d = 00 12

e minimum = 3"

Nailing applies to both sides of the member Connectors are: Mails

3-1/2" ARDOX SPIRAL



ows no. TAM 14470-20 STRUCTURAL COMPONENT ONLY

### Disclosure

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PASSED

2ND FLR FRAMING\Flush Beams\B14B(i3374) (Flush Beam)

BC CALC® Member Report **Build 7493** 

Dry | 1 span | No cant.

October 7, 2020 15:11:38

Job name:

File name:

Address: City, Province, Postal Code: RICHMOND HILL

Description: 2ND FLR FRAMING\Flush Beams\B14B(i3374) Specifier:

Designer:

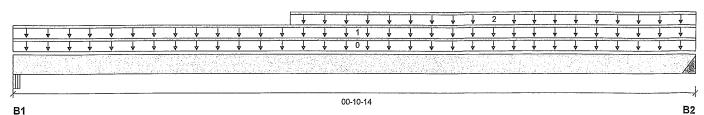
Customer: Code reports:

CCMC 12472-R

LBV

38-8 EL B.mmdl

Company:



Total Horizontal Product Length = 00-10-14

Reaction Summary (Down / Uplift) (lbs)

		· (- ··· -) (··· - )		
Bearing	Live	Dead	Snow	Wind
B1, 4-1/8"	5/0	19 / 0	14 / 0	
B2 4"	5/0	56 / 0	57 / 0	

Lo	ad Summary	Live	Dead	Snow	Wind	Tributary					
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	00-10-14	Тор		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-10-14	Top	12	6			n\a
2	E24(i974)	Unf, Lin. (lb/ft)	L	00-04-06	00-10-14	Top		112	130		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5 ft-lbs	23220 ft-lbs	n\a	13	00-05-10
End Shear	39 lbs	11571 lbs	0.3%	13	00-04-02
Span / Depth	0.4				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	4-1/8" x 3-1/2"	49 lbs	0.8%	0.3%	Unspecified
B2	Hanger	4" x 3-1/2"	161 lbs	n\a	0.9%	HGUS410

Header for the hanger HGUS410 is a Triple 1-3/4" x 9-1/2" LVL Beam.

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

#### Notes

Calculations assume member is fully braced.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Unbalanced snow loads determined from building geometry were used in selected product's

verification. Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



DWB NO. TAM 14471-20 STRUCTURÁL COMPONENT ONLY





PASSED

October 7, 2020 15:11:38

2ND FLR FRAMING\Flush Beams\B14B(i3374) (Flush Beam)

BC CALC® Member Report

Build 7493 Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name: 38-8 EL B.mmdl

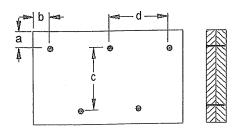
Description: 2ND FLR FRAMING\Flush Beams\B14B(i3374)

Specifier:

Designer: LBV

Company:

### Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" d = 2 ' . 4

Connectors are:

A Nails

3-1/2" ARDOX SPIRAL



DWG NO.TAM14471-20 STRUGTURAL COMFONENT ONLY

### Disclosure

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### Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B13C(i3684) (Flush Beam)

PASSED

**BC CALC® Member Report** 

Dry | 1 span | No cant.

October 7, 2020 15:58:54

**Build 7493** 

Job name:

Customer: Code reports:

Address:

City, Province, Postal Code: RICHMOND HILL

File name:

38-8 EL C.mmdl

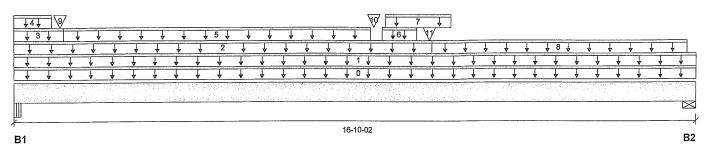
Description: 2ND FLR FRAMING\Flush Beams\B13C(i3684)

Specifier:

CCMC 12472-R

Designer: LBV

Company:



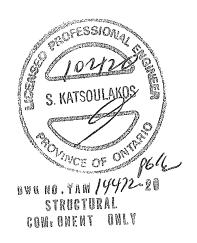
#### Total Horizontal Product Length = 16-10-02

Reaction Sun	nmary (Down / O	pint) (ibs)			
Bearing	Live	Dead	Snow	Wind	
B1, 4-1/8"	304 / 0	1205 / 0	1068 / 0		
B2. 2-3/4"	359 / 0	778 / 0	597 / 0		

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	•	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	16-10-02	Тор		14			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	16-10-02	Top	25	12			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-02-06	Top	9	4			n\a
3	E43(i3729)	Unf. Lin. (lb/ft)	L	00-00-00	01-02-06	Тор		81			n\a
4	E43(i3729)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-14	Top		56	129		n\a
5	E42(i3727)	Unf. Lin. (lb/ft)	L	01-02-06	08-08-06	Top		41			n\a
6	E41(i3726)	Unf. Lin. (lb/ft)	L	08-11-14	09-09-14	Тор		56	129		n\a
7	E41(i3726)	Unf. Lin. (lb/ft)	L	09-00-14	10-07-14	Тор		81			n\a
8	FC2 Floor Material	Unf. Lin. (lb/ft)	L	10-02-06	16-07-06	Top	24	12			n\a
9	E43(i3729)	Conc. Pt. (lbs)	L	01-01-06	01-01-06	Тор		287	522		n\a
10	E41(i3726)	Conc. Pt. (lbs)	L	08-09-06	08-09-06	Top		287	520		n\a
11		Conc. Pt. (lbs)	L	10-01-09	10-01-09	Top		198	399		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand <i>l</i> Resistance	Case	Location
Pos. Moment	13028 ft-lbs	36222 ft-lbs	36.0%	13	08-09-06
End Shear	3094 lbs	17356 lbs	17.8%	13	01-01-10
Total Load Deflection	L/339 (0.58")	n\a	70.8%	35	08-08-06
Live Load Deflection	L/628 (0.314")	n\a	57.4%	51	08-08-06
Max Defl.	0.58"	n\a	n\a	35	08-08-06
Span / Depth	20.7				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	4-1/8" x 5-1/4"	3413 lbs	36.9%	12.9%	Unspecified
B2	Wall/Plate	2-3/4" x 5-1/4"	2227 lbs	25.1%	12.6%	Spruce-Pine-Fir







PASSED

### 2ND FLR FRAMING\Flush Beams\B13C(i3684) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 15:58:54

**Build 7493** 

Job name:

Address:

**BC CALC® Member Report** 

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

File name:

38-8 EL C.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B13C(i3684)

Specifier:

Designer: LBV

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.

CONFORMS TO OBC 2012

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

AMENDED 2020

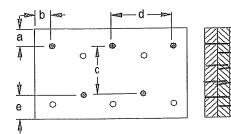
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Unbalanced snow loads determined from building geometry were used in selected product's

verification.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9

### Connection Diagram: Full Length of Member



4 pous

a minimum = 1/2" b minimum = 3"

c = 5/1/2" d=200 12 e minimum = 3"

Nailing applies to both sides of the member

Connectors are:

1-1 3-1/2" ARDOX SPIRAL



DWG NO.TAM 14422-20 STRUCTURAL COMPONENT ONLY

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### PASSED

### 2ND FLR FRAMING\Flush Beams\B14C(i3704) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** 

Dry | 1 span | No cant.

October 7, 2020 15:58:54

Job name: Address:

File name: Description:

2ND FLR FRAMING\Flush Beams\B14C(i3704)

38-8 EL C.mmdl

**LBV** 

City, Province, Postal Code: RICHMOND HILL

Specifier:

Customer: Code reports:

CCMC 12472-R

Designer: Company:

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<u> </u>	₩	<u>V V</u>		v	 <u>v</u>	<u>v</u>		<u>v</u>	 <u>v</u>			<u> </u>	<u>,                                     </u>														
						10 m																					
						SANT Again																					

Total Horizontal Product Length = 00-10-14

Donotion Summary (Down / Unlift) (lbs)

Reaction Jun	illiary (Down / c	phind (ins)	4	
Bearing	Live	Dead	Snow	Wind
B1, 4-1/8"		51 / 0	42 / 0	
B2 4"		54 / 0	58 / 0	

Los	ad Summary				•		Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	00-10-14	Тор		10			00-00-00
1	E44(i3728)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-14	Top		81			n\a
2	E44(i3728)	Unf. Lin. (lb/ft)	L	00-01-10	00-10-14	Тор		31	130		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5 ft-lbs	23220 ft-lbs	n\a	1	00-05-08
End Shear	40 lbs	11571 lbs	0.3%	1	00-04-02
Span / Depth	0.4				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	4-1/8" x 3-1/2"	127 lbs	2.1%	0.7%	Unspecified
B2	Hanger	4" x 3-1/2"	155 lbs	n\a	0.9%	HGUS410

#### Cautions

Header for the hanger HGUS410 is a Triple 1-3/4" x 9-1/2" LVL Beam.

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

#### Notes

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Unbalanced snow loads determined from building geometry were used in selected product's

verification. Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

OVINCE OF ONLY

048 NO. TAN 14473-20 STRUCTURAL CONFONERT ONLY





### Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B14C(i3704) (Flush Beam)

PASSED

October 7, 2020 15:58:54

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

38-8 EL C.mmdl

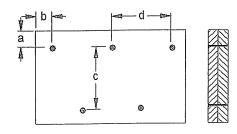
File name: 2ND FLR FRAMING\Flush Beams\B14C(i3704) Description:

Specifier:

Designer: LBV

Company:

### Connection Diagram: Full Length of Member

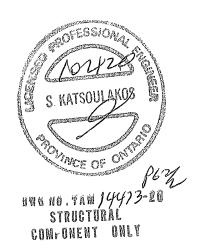


a minimum = 2" b minimum = 3" c = 5-1/2" d = 4"

Connectors are: .

~ Nails

3-1/2" ARDOX SFIRAL



### 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®,



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







			В	are			1/2" Gyps	sum Ceiling	
Depth	Series		On Centi	e Spacing			On Cent	re Spacing	
•		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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
9-1/2"	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
	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
44 7/08	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
	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
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
161	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
16"	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

		Mid-Span Blocking					Mid-Span Blocking and 1/2" Gypsum Ceiling			
Depth	Series		On Centr	e Spacing		On Centre Spacing				
		12"	16"	19.2"	24"	12"	16"	19.2"	24"	
	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	
9-1/2"	N1-60	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	
	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	
11-7/8"	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	On Centre 16" 15'-3" 17'-1" 17'-4" 18'-3" 18'-5" 18'-3" 20'-2"	20'-5"	N/A	
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"		20'-8"	N/A	
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"		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	
14"	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A	
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A	
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A	
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A	
4.61	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A	
16"	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	

<sup>1.</sup> 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.

<sup>2.</sup> Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

3. Minimum bearing length shall be 1-3/4 inches for the end bearings.

<sup>4.</sup> Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

<sup>5.</sup> 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.

<sup>6.</sup> 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.



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







			В	are		.1	1/2" Gyps	sum Ceiling	
Depth	Series	On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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"
9-1/2"	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	On Centr 16" 15'-5"	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"
	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"
(01)	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
11-7/8"	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	On Centr 16" 15'-5" 16'-5" 16'-7" 17'-3" 17'-4" 18'-6" 18'-9" 19'-9" 20'-0" 20'-6" 20'-6" 20'-10" 21'-11" 22'-10" 22'-10" 22'-9" 23'-10" 24'-2"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	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"
14"	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90x	24'-1"	22'-3"	21'-2"	20 <b>'-</b> 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"
4.611	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
16"	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"

			Mid-Spar	n Blocking		Mid-S	pan Blocking an	id 1/2" Gypsum	Ceiling
Depth	Series	Series On Centre Spacing				1	On Centi	re Spacing	
•		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	N1-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	N1-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"
9-1/2"	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	16" " 15'-5" " 17'-2" 17'-6" 18'-11" 19'-3" 18'-5" 20'-6" 20'-10"	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"
	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 <sup>-</sup> -4"	22'-8"	20'-10"	19'-8"	18'-4"
11-7/8"	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	20'-6" 20'-10" 22'-3" 22'-6"	21'-2"	19'-9"
	NI-80	23'-7"	21'-11"	20'-11"	19'-9"	24'-1"	22'-6"	21'-5"	20'-0"
	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"
	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"
14"	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"	23'-9"	22'-4"
	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
	NI-90x	. 27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"
	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"
16"	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"

<sup>1.</sup> 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.

<sup>2.</sup> Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

3. Minimum bearing length shall be 1-3/4 inches for the end bearings.

<sup>4.</sup> Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

<sup>5.</sup> 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.

<sup>6.</sup> 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.



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







			Ba	are			1/2" Gyps	sum Ceiling	
Depth	Series		On Centi	re Spacing			On Cent	re Spacing	
·		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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
9-1/2"	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
	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
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
	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
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
4.611	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
16"	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"	On Cent 16" 14'-1" 15'-7" 15'-9" 16'-5" 16'-6" 17'-6" 17'-8" 18'-10" 19'-3" 19'-4" 19'-7" 20'-7" 20'-11" 21'-6" 21'-5"	22'-4"	N/A

			Mid-Spar	n Blocking		Mid-S	pan Blocking an	d 1/2" Gypsum	Ceiling	
Depth	Series		On Centi	e Spacing		On Centre Spacing				
•		12"	16"	19.2"	24"	12"	16"	19.2"	24"	
*****	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	
9-1/2"	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	
	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	
11-7/8"	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-4"	20'-0"	N/A	
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-5"	N/A	
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A	
	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	
14"	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	
	N1-90x	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	
4.611	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A	
16"	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	

<sup>1.</sup> 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.

<sup>2.</sup> 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.

<sup>3.</sup> Minimum bearing length shall be 1-3/4 inches for the end bearings.

<sup>4.</sup> Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

<sup>5.</sup> 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.

<sup>6.</sup> 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.





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







			B	are			1/2" Gyp	sum Ceiling	
Depth	Series		On Centr	e Spacing			On Cent	re Spacing	
·		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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
9-1/2"	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	On Centi 16" 14'-2"	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
	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
= /0!!	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	On Cent 16" 14'-2" 16'-1" 16'-5" 17'-3" 17'-5" 17'-1" 18'-6" 18'-9" 20'-6" 20'-6" 20'-6" 20'-10" 21'-11" 22'-3" 22'-10" 22'-10" 24'-2"	17'-11"	17'-1"
11-7/8"	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	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
14"	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
	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"
16"	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"

			Mid-Spar	n Blocking		Mid-S	pan Blocking ar	nd 1/2" Gypsum	Ceiling
Depth	Series		On Centr	e Spacing			On Cent	re Spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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"
9-1/2"	NI-60	18'-1" 16'-5" 15'-5" 14'-3" 19'-10" 17'-11" 16'-9" 15'-6" 15'-6" 15'-0" 15'-10" 17'-11" 16'-0" 14'-10" 17'-1" 16'-0" 14'-10" 10' 17'-1" 16'-0" 14'-10" 17'-1" 15'-10" 17'-9" 15'-10" 17'-9" 15'-10" 17'-9" 15'-10" 17'-1" 18'-6" 18'-5" 17'-1" 18'-6" 18'-5" 17'-1" 18'-6" 1	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"
	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"
11-7/8"	NI-70	23'-4"	21'-5"	20'-1"	18'-6"	23'-8"		20'-1"	18'-6"
	NI-80	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"	20'-5"	18'-11"
	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"
	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"
14"	NI-70	26'-1"	24'-3"	22'-9"	21'-0"	26'-8"	24'-3"	22'-9"	21'-0"
	NI-80	26'-6"	24'-7"	23'-3"	21'-6"	27'-1"	24'-10"	23'-3"	21'-6"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"
	NI-60	27'-3"	24'-11"	23'-5"	21'-7"	27'-6"	24'-11"	23'-5"	21'-7"
4.511	NI-70	28'-8"	26'-8"	25'-3"	23'-4"	29'-3"	26'-11"	25'-3"	23'-4"
16"	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"

<sup>1.</sup> 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.

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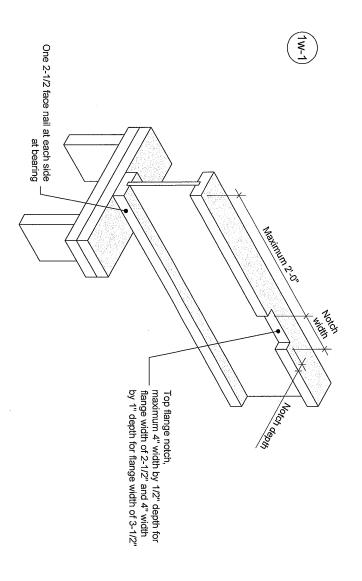
<sup>2.</sup> Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

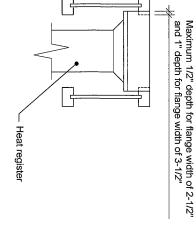
<sup>3.</sup> Minimum bearing length shall be 1-3/4 inches for the end bearings.

<sup>4.</sup> Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required. based on the use of the design properties. Tables are based on Limit States Design per CSA 086-09, NBC 2010, and OBC 2012.

<sup>6.</sup> 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.





- Notes:

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

  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 3-1/2 inches.

  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 darity.

NORDI T 514-871-8526 1 866 817-3418 Notch in I-joist for Heat Register

nordic.ca

I-joist - Typical Floor Framing and Construction Details CATEGORY DATE 2018-04-10 DOCUMENT 1w-1 NUMBER



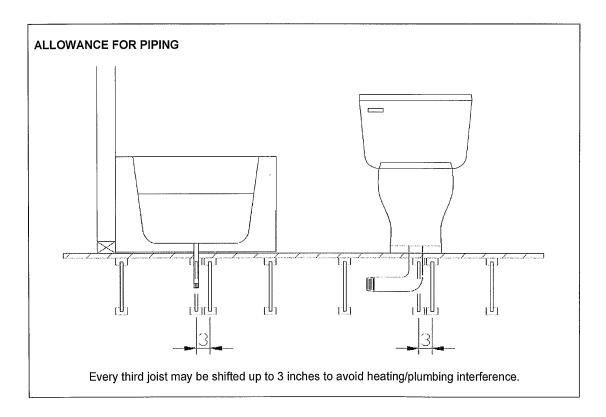
Limit States Design

# Allowance for Piping (Installation Notes)

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

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

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



Revised April 12, 2012