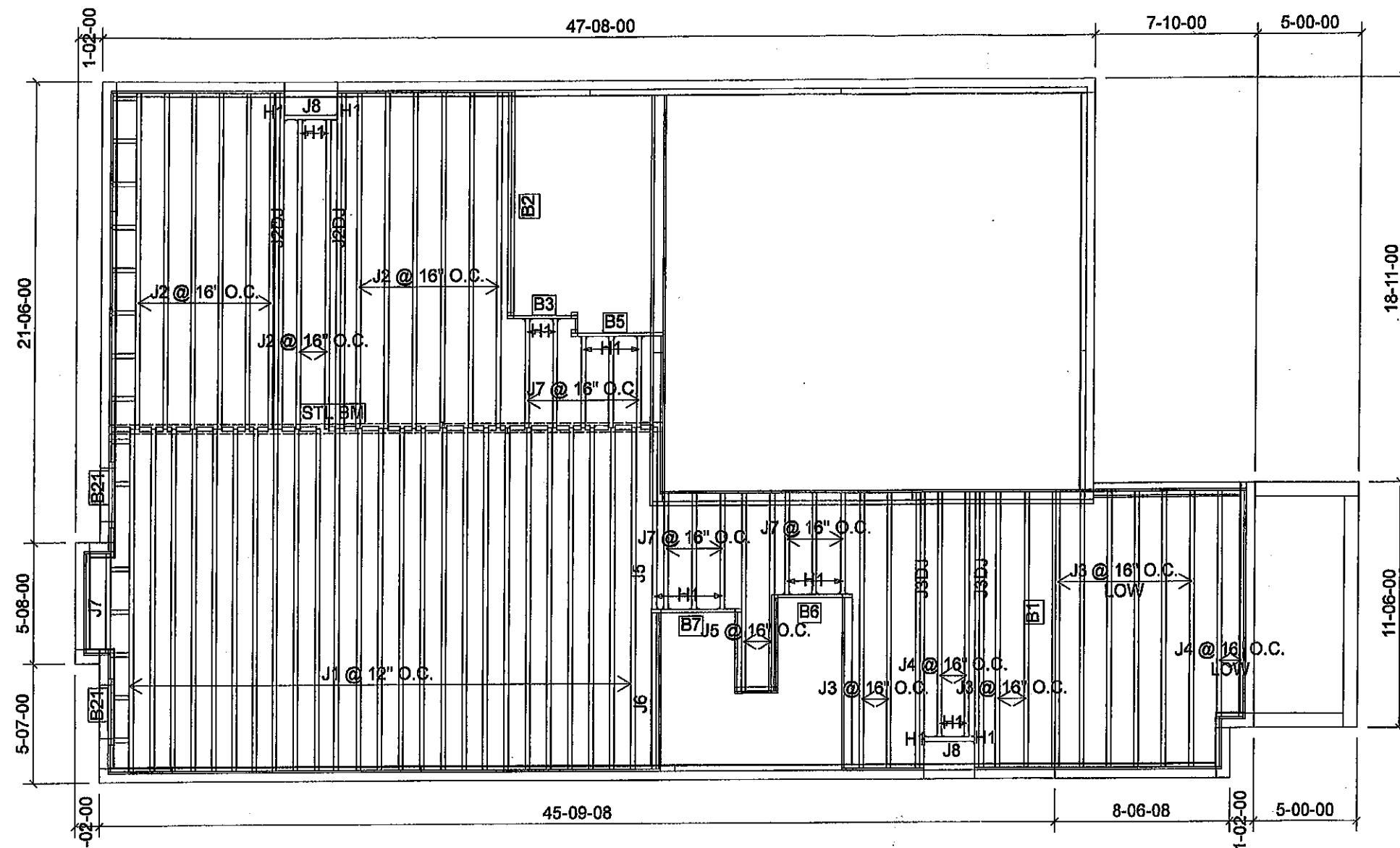
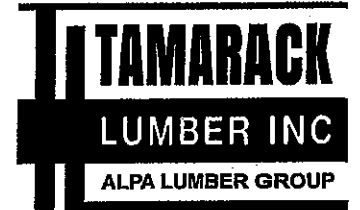




Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	9 1/2" NI-40x	1	25	MFD
J2	16-00-00	9 1/2" NI-40x	1	14	MFD
J2DJ	16-00-00	9 1/2" NI-40x	2	4	MFD
J3	14-00-00	9 1/2" NI-40x	1	10	MFD
J3DJ	14-00-00	9 1/2" NI-40x	2	4	MFD
J4	12-00-00	9 1/2" NI-40x	1	4	MFD
J5	10-00-00	9 1/2" NI-40x	1	3	MFD
J6	8-00-00	9 1/2" NI-40x	1	1	MFD
J7	6-00-00	9 1/2" NI-40x	1	12	MFD
J8	4-00-00	9 1/2" NI-40x	1	2	MFD
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B2	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B5	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B7	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B3	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B6	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B21	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	4	MFD

Connector Summary		
Qty	Manuf	Product
12	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5

CITY OF HAMILTON
Building Division
Permit No. **21-107128**
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW
These drawings and/or specifications have been reviewed by
MAR 30 2021
FOR CHIEF BUILDING OFFICIAL DATE



FROM PLAN DATED: JAN 2020

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: VALLEYCREEK 5

ELEVATION: 2,

LOT: 269

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

REVISION:

NOTES:

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

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

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2020-03-24

1st FLOOR

DECK CONDITION

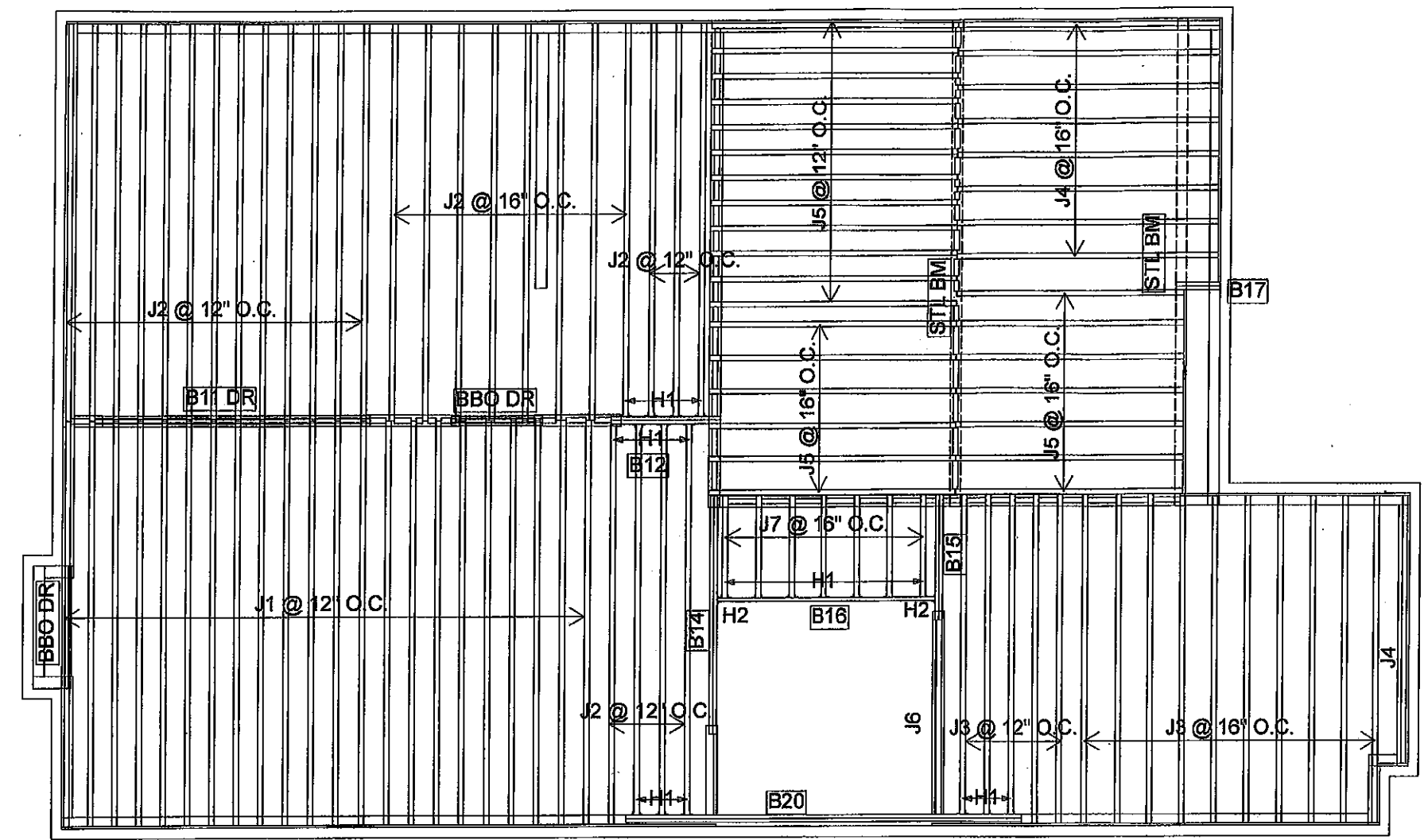
FROM PLAN DATED: JAN 2020
BUILDER: GREENPARK HOMES
SITE: RUSSELL GARDENS PH 3
MODEL: VALLEYCREEK 5
ELEVATION: 2
LOT: 269
CITY: WATERDOWN
SALESMAN: MARIO DICIANO
DESIGNER: AJ
REVISION:

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

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
SUBFLOOR: 5/8" GLUED AND NAILED

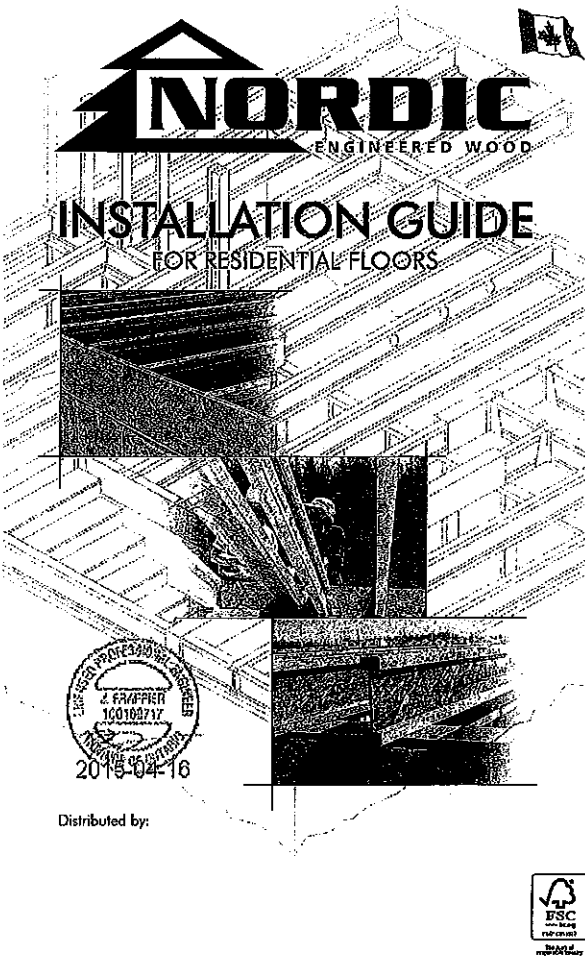
DATE: 2020-03-24

2nd FLOOR



Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	9 1/2" NI-40x	1	22	MFD
J2	16-00-00	9 1/2" NI-40x	1	28	MFD
J3	14-00-00	9 1/2" NI-40x	1	15	MFD
J4	12-00-00	9 1/2" NI-40x	1	9	MFD
J5	10-00-00	9 1/2" NI-40x	1	25	MFD
J6	8-00-00	9 1/2" NI-40x	1	1	MFD
J7	6-00-00	9 1/2" NI-40x	1	7	MFD
B20	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B11 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3	MFD
B16	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B14	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B12	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B15	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B17	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	MFD

Connector Summary		
Qty	Manuf	Product
7	H1	IUS2.56/9.5
14	H1	IUS2.56/9.5
2	H2	HUS1.81/10



SAFETY AND CONSTRUCTION PRECAUTIONS



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

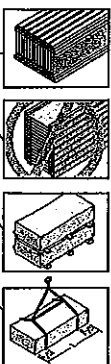


Never stack building materials over unshelved I-joists. Once shelved, do not over-stress I-joist with concentrated loads from building materials.

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

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or floor.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.
 - Pick I-joists in bundles or 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.



MAXIMUM FLOOR SPANS

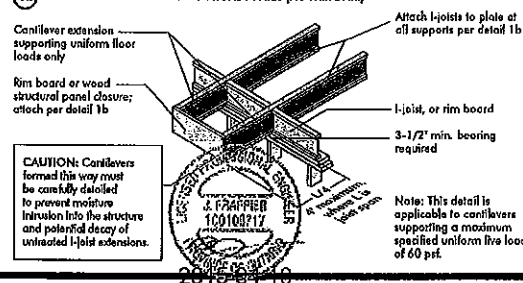
1. Maximum clear span applicable to single-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of 1/400. For multiple-span applications, the end spans shall be 40% or more of the adjacent spans.
2. Spans are based on a composite floor with glued-sheathed 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 COSS-7.1.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than 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 C086-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
1 foot = 3.05 m

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

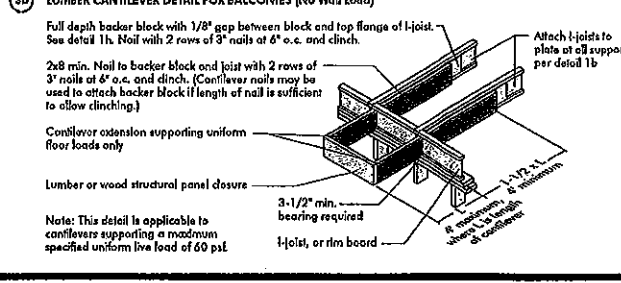
Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
12"	NI-12	15'-1"	14'-2"	13'-9"	13'-5"	10'-3"	9'-4"	14'-10"	14'-7"
12"	NI-12S	16'-1"	15'-2"	14'-8"	14'-5"	11'-3"	10'-4"	15'-10"	15'-7"
12"	NI-12L	16'-1"	15'-2"	14'-8"	14'-5"	11'-3"	10'-4"	15'-10"	15'-7"
12"	NI-12H	17'-1"	16'-1"	15'-6"	15'-3"	12'-3"	11'-4"	16'-10"	16'-7"
12"	NI-12M	17'-1"	16'-1"	15'-6"	15'-3"	12'-3"	11'-4"	16'-10"	16'-7"
12"	NI-12B	18'-1"	17'-3"	16'-9"	16'-6"	13'-3"	12'-4"	17'-10"	17'-7"
12"	NI-12C	18'-1"	17'-3"	16'-9"	16'-6"	13'-3"	12'-4"	17'-10"	17'-7"
12"	NI-12D	19'-6"	18'-0"	17'-4"	17'-1"	14'-6"	13'-11"	19'-0"	18'-7"
12"	NI-12E	19'-6"	18'-0"	17'-4"	17'-1"	14'-6"	13'-11"	19'-0"	18'-7"
12"	NI-12F	19'-6"	18'-0"	17'-4"	17'-1"	14'-6"	13'-11"	19'-0"	18'-7"
12"	NI-12G	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12H	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12I	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12J	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12K	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12L	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12M	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12N	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12O	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12P	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12Q	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12R	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12S	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12T	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12U	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12V	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12W	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12X	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12Y	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12Z	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AA	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AB	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AC	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AD	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AE	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AF	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AG	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AH	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AI	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AJ	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AK	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AL	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AM	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AN	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AO	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AP	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AQ	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AR	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AS	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AT	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AU	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AV	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AW	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AX	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AY	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12AZ	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BA	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BB	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BC	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BD	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BE	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BF	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BG	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BH	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BI	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BJ	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BK	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BL	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BM	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BN	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BO	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BP	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BQ	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BR	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BS	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BT	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BU	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BV	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BW	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BX	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BY	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12BZ	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CA	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CB	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CC	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CD	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CE	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CF	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CG	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CH	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CI	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CJ	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CK	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CL	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CM	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CN	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CO	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CP	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CQ	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CR	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CS	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CT	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CU	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CV	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CW	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CX	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CY	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12CZ	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12DA	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"
12"	NI-12DB	20'-2"	18'-7"	17-11"	17-8"	15'-2"	14'-7"	19'-6"	19'-3"

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

2a) 1-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

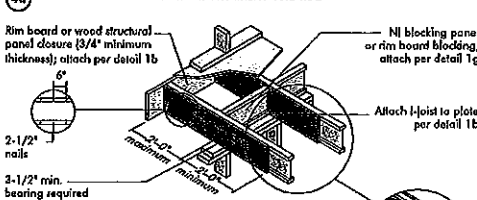


2b) LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

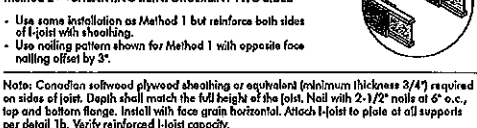


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES



Alternative Method 2 — DOUBLE I-JOIST

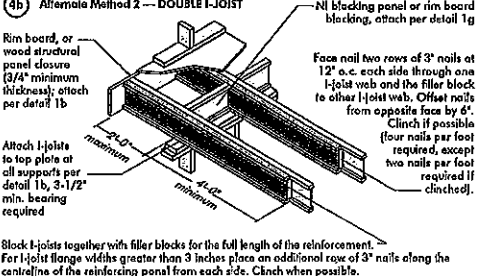
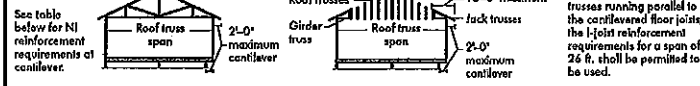


FIGURE 4 (continued)



CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	JOIST SPACING (in.)	ROOF LOADING (UNFACTORED)			
		LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	LL = 60 psf, DL = 15 psf
12	12	N	N	N	N
12	16	N	N	N	N
12	19.2	N	N	N	N
12	24	N	N	N	N
16	12	N	N	N	N
16	16	N	N	N	N
16	19.2	N	N	N	N
16	24	N	N	N	N
20	12	N	N	N	N
20	16	N	N	N	N
20	19.2	N	N	N	N
20	24	N	N	N	N
24	12	N	N	N	N
24	16	N	N	N	N
24	19.2	N	N	N	N
24	24	N	N	N	N

1. N = No reinforcement required.
2. N = Reinforced with 3/4 inch wood structural panel on one side only.
3. N = Reinforced with 3/4 inch wood structural panel on both sides, or double I-joist.
4. For larger openings, or multiple 3-0 inch openings spaced less than 6-0 inch on center, additional joists beneath the opening's cripple studs may be required.
5. Table applies to joists 12 inch to 24 inch on center that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12 inch on center requirements for lesser spacing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the cantilever of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. Whenever possible, field-cut holes should be centered on the middle of the web.
3. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
4. 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.
5. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest 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.
6. A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
7. Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
8. 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.
9. 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.
10. Limit three maximum size holes per span, of which one may be a duct chase opening.
11. A group of round holes of approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS
Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

Joist Depth	Joist Series	Minimum distance from inside face of any support to center of hole (ft-in.)												Span adjustment factor
		2	3	4	5	6	7	8	9	10	11	12	13-24	
12"	12	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	16	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	19.2	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	24	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	28	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
16"	12	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	16	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	19.2	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	24	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	28	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
20"	12	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	16	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	19.2	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	24	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	28	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
24"	12	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	16	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	19.2	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	24	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	28	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
28"	12	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	16	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	19.2	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	24	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	28	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
32"	12	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	16	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	19.2	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	24	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
	28	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	

1. Above table may be used for I-joist spacing of 24 inches on center or less.
2. Hole location distance is measured from inside face of supports to center of hole.
3. Distances in this chart are based on uniformly loaded joists.

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 span (see Maximum Span Table), the minimum distance from the cantilever of the hole to the face of any support (S) as given above may be reduced as follows:

$$D_{reduced} = \frac{L_{actual}}{L} \times S$$

Where:
 $D_{reduced}$ = Distance from the inside face of any support to center of hole, reduced for less-than-maximum span application.
 L_{actual} = The actual measured span distance between the inside faces of supports (S).
 L = Span Adjustment Factor given in this table.
 S = The minimum distance from the inside face of any support to center of hole from this table.
 If L is greater than 1, use 1 in the above calculation for L .

FIGURE 7
FIELD-CUT HOLE LOCATOR

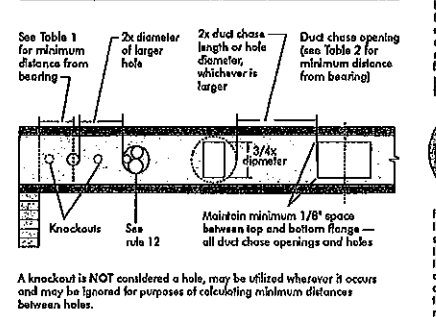


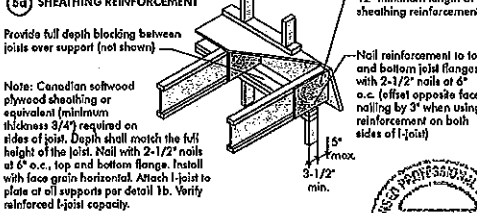
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

Joist Depth (in.)	Joist Series	Minimum distance from inside face of any support to center of opening (in.)											
		8	10	12	14	16	18	20	22	24	26	28	30
12	12	12	12	12	12	12	12	12	12	12	12	12	12
12	16	12	12	12	12	12	12	12	12	12	12	12	12
12	19.2	12	12	12	12	12	12	12	12	12	12	12	12
12	24	12	12	12	12	12	12	12	12	12	12	12	12
16	12	12	12	12	12	12	12	12	12	12	12	12	12
16	16	12	12	12	12	12	12	12	12	12	12	12	12
16	19.2	12	12	12	12	12	12	12	12	12	12	12	12
16	24	12	12	12	12	12	12	12	12	12	12	12	12
20	12	12	12	12	12	12	12	12	12	12	12	12	12
20	16	12	12	12	12	12	12	12	12	12	12	12	12
20	19.2	12	12	12	12	12	12	12	12	12	12	12	12
20	24	12	12	12	12	12	12	12	12	12	12	12	12
24	12	12	12	12	12	12	12	12	12	12	12	12	12
24	16	12	12	12	12	12	12	12	12	12	12	12	12
24	19.2	12	12	12	12	12	12	12	12	12	12	12	12
24	24	12	12	12	12	12	12	12	12	12	12	12	12

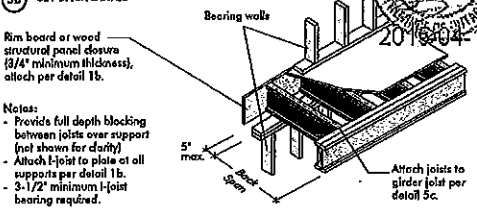
1. Above table may be used for I-joist spacing of 24 inches on center or less.
2. Duct chase opening location distance is measured from inside face of supports to center of opening.
3. The above table is based on simple-span joists only. For other applications, contact your local distributor.
4. Distances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

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

5a) SHEATHING REINFORCEMENT



5b) SET-BACK DETAIL



5c) SET-BACK CONNECTION

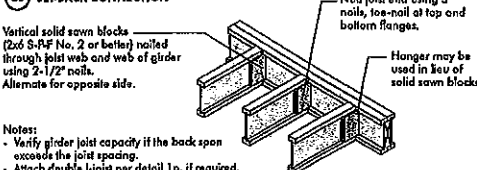
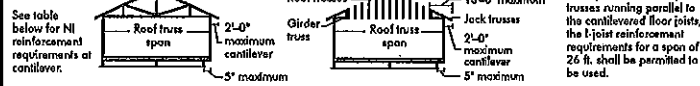


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	JOIST SPACING (in.)	ROOF LOADING (UNFACTORED)			
		LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	LL = 60 psf, DL = 15 psf
12	12	N	N	N	N
12	16	N	N	N	N
12	19.2	N	N	N	N
12	24	N	N	N	N
16	12	N	N	N	N
16	16	N	N	N	N
16	19.2	N	N	N	N
16	24	N	N	N	N
20	12	N	N	N	N
20	16	N	N	N	N
20	19.2	N	N	N	N
20	24	N	N	N	N
24	12	N	N	N	N
24	16	N	N	N	N
24	19.2	N	N	N	N
24	24	N	N	N	N

1. N = No reinforcement required.
2. N = Reinforced with 3/4 inch wood structural panel on one side only.
3. N = Reinforced with 3/4 inch wood structural panel on both sides, or double I-joist.
4. For larger openings, or multiple 3-0 inch openings spaced less than 6-0 inch on center, additional joists beneath the opening's cripple studs may be required.
5. Table applies to joists 12 inch to 24 inch on center that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12 inch on center requirements for lesser spacing.

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
2. Snap a chalk line across the joists four feet from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when topped into place with a block 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 glue on I-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 a thinner line (1/8 inch) then used on I-joist flanges.
8. Top the second row of panels in place, using a block to protect groove edges.
9. Stagger 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&G edges, is recommended. (Use a spacer tool or an 2-1/2 inch common nail to assure accurate and consistent spacing.)
10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (When using glue with 1/2 inch ring- or screw-shank nails for floor panels, 3/4 inch thick or less, and 2-1/2 inch ring- or screw-shank nails for thicker 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 glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Common Nails or Spiral Nails	Nail Size and Type	Maximum Spacing of Fasteners
16	5/8	2"	1-3/4"	2"
20	5/8	2"	1-3/4"	2"
24	3/4	2"	1-3/4"	2"

1. Fasteners of sheathing and subflooring shall conform to the above table.
2. 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.
4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimum shown.
5. 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 OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with panel manufacturer.

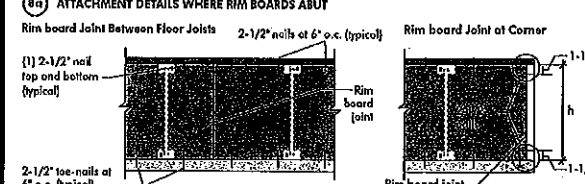
Ref.: NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

IMPORTANT NOTE:

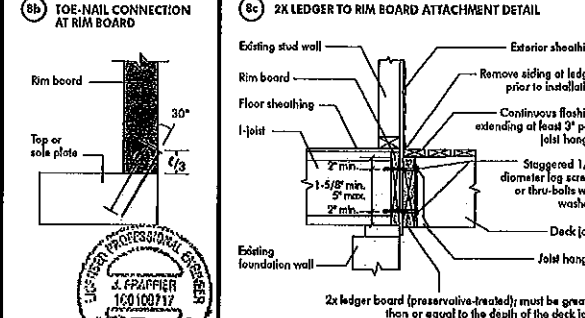
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

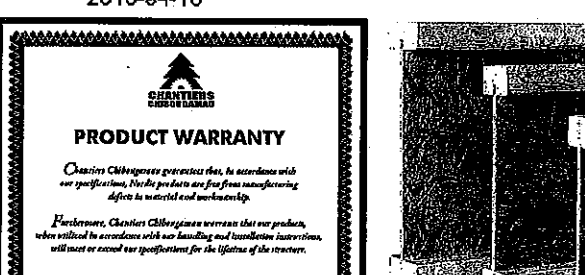
8a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



8b) TOE-NAIL CONNECTION AT RIM BOARD



8c) 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



PRODUCT WARRANTY

Charrier's Chimerex guarantees that, in accordance with our specifications, the products are free from manufacturing defects in material and workmanship.

Furthermore, Charrier's Chimerex warrants that our products, when installed in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.

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

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

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

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

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.)												
		Round Hole Diameter (in.)												
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11
9-1/2"	NI-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-0"	6-4"	---	---	---	---	---	---
	NI-40x	0-7"	1-6"	3-0"	4-4"	6-0"	6-4"	---	---	---	---	---	---	---
	NI-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---	---
	NI-70	2-0"	3-4"	4-9"	6-3"	8-0"	8-4"	---	---	---	---	---	---	---
	NI-80	2-3"	3-6"	5-0"	6-3"	8-0"	8-4"	---	---	---	---	---	---	---
11-7/8"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-5"	7-9"	---	---	---	---
	NI-40x	0-7"	0-8"	1-3"	2-8"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---	---
	NI-60	0-7"	1-5"	3-0"	4-3"	5-5"	6-0"	7-3"	8-10"	10-0"	---	---	---	---
	NI-70	1-3"	2-6"	4-0"	5-4"	6-9"	7-2"	8-4"	10-0"	11-2"	---	---	---	---
	NI-80	1-6"	2-10"	4-2"	5-6"	7-0"	7-5"	8-6"	10-3"	11-4"	---	---	---	---
14"	NI-20	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---	---
	NI-40x	0-7"	0-8"	0-9"	2-3"	4-4"	4-9"	6-3"	---	---	---	---	---	---
	NI-60	0-7"	0-8"	0-8"	1-0"	2-4"	2-9"	3-9"	5-2"	6-0"	8-3"	10-2"	---	---
	NI-70	0-7"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	8-8"	10-4"	11-9"	---
	NI-80	0-10"	1-10"	3-0"	4-5"	5-10"	6-2"	7-3"	8-9"	9-9"	10-4"	12-0"	13-3"	---
16"	NI-20	0-7"	0-8"	0-10"	2-5"	4-0"	4-5"	5-9"	7-5"	8-8"	9-4"	11-4"	12-11"	---
	NI-40x	0-7"	0-8"	0-8"	2-0"	3-9"	4-2"	5-5"	7-3"	8-6"	9-2"	---	---	---
	NI-60	0-7"	0-8"	0-8"	1-6"	2-10"	3-2"	4-2"	5-5"	6-4"	7-0"	8-5"	9-8"	10-2"
	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"	13-6"
	NI-80	0-7"	1-3"	2-6"	3-10"	5-3"	6-6"	8-0"	9-0"	9-5"	11-0"	12-3"	13-9"	15-0"

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

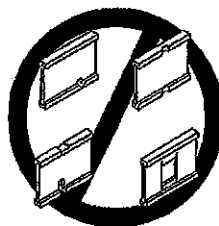
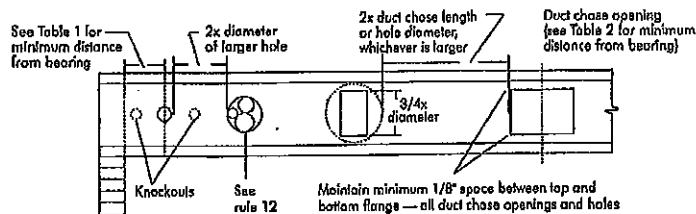
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of supports to centre of opening (ft - in.)												
		Duct Chase Length (in.)												
		8	10	12	14	16	18	20	22	24				
9-1/2"	NI-20	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-6"	7-1"	7-5"				
	NI-40x	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"				
	NI-60	5-4"	5-9"	6-2"	6-7"	7-1"	7-5"	8-0"	8-3"	8-9"				
	NI-70	5-1"	5-5"	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"				
11-7/8"	NI-20	5-9"	6-2"	6-6"	7-1"	7-5"	7-9"	8-3"	8-9"	9-4"				
	NI-40x	7-2"	7-6"	8-1"	8-6"	9-1"	9-6"	10-1"	10-9"	11-0"				
	NI-60	7-3"	7-8"	8-0"	8-6"	9-0"	9-3"	9-9"	10-3"	11-0"				
	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"				
14"	NI-20	7-6"	7-11"	8-4"	8-9"	9-2"	9-7"	10-1"	10-7"	10-11"				
	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"	12-3"	13-0"				
	NI-70	8-7"	9-1"	9-5"	9-10"	10-4"	10-8"	11-2"	11-7"	12-3"				
	NI-80	9-0"	9-3"	9-9"	10-3"	10-7"	11-1"	11-6"	12-1"	12-6"				
16"	NI-20	9-2"	9-8"	10-0"	10-6"	10-11"	11-5"	11-9"	12-4"	12-11"				
	NI-40x	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"	14-10"				
	NI-70	10-1"	10-5"	11-0"	11-4"	11-10"	12-3"	12-8"	13-3"	14-0"				
	NI-80	10-4"	10-9"	11-3"	11-9"	12-1"	12-7"	13-1"	13-8"	14-4"				

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

FIGURE 7
FIELD-CUT HOLE LOCATOR



Knockouts are pre-scored 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. When possible, it is preferable to use knockout instead of field-cut holes.

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- 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 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
- Never install a damaged I-joist.

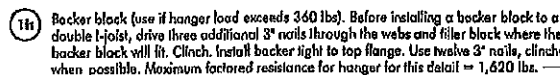
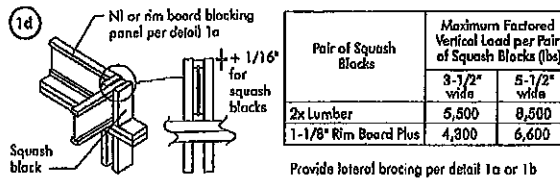
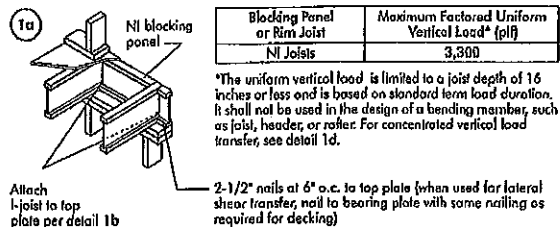
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines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



PRODUCT WARRANTY

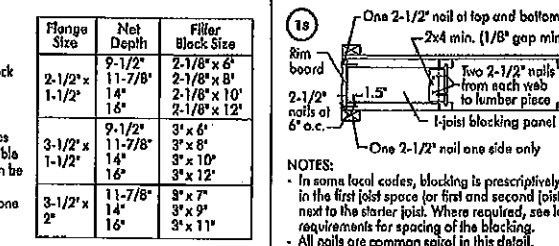
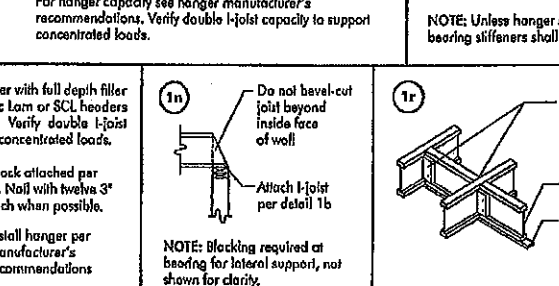
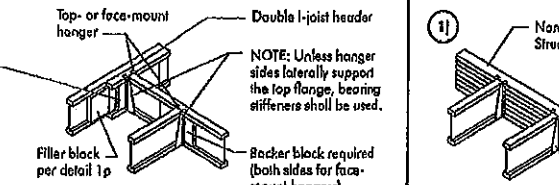
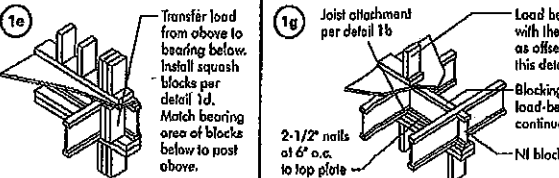
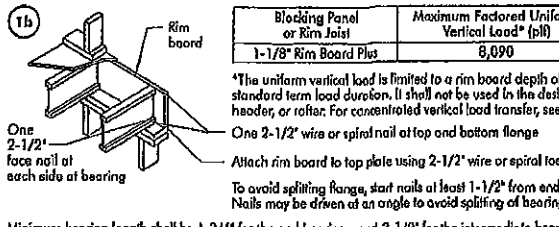
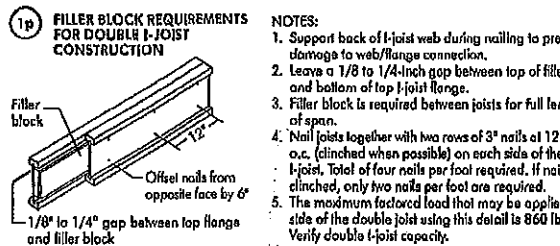
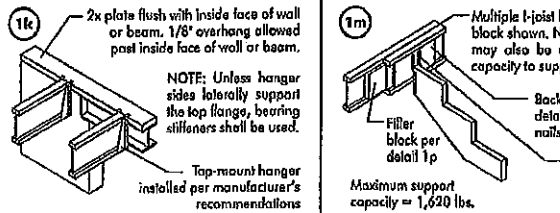
Chambers Chibongwan guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

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



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-PF 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 hangers use nail depth minus 3/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use nail depth minus 4-1/4".

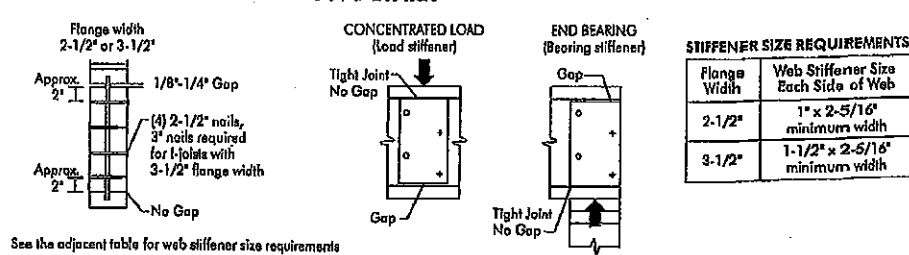


WEB STIFFENERS

RECOMMENDATIONS:

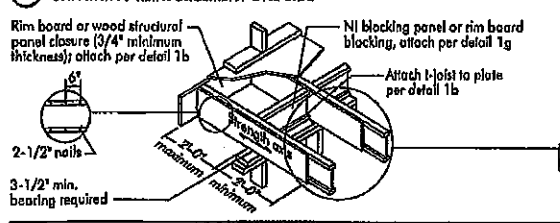
- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C10). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



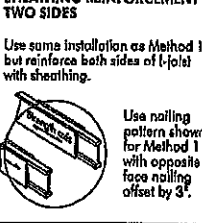
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



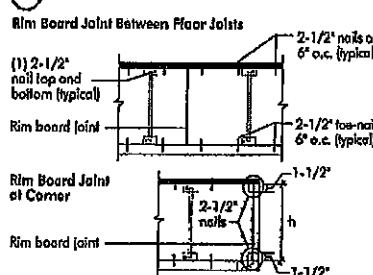
NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flanges. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

Method 2 — SHEATHING REINFORCEMENT TWO SIDES

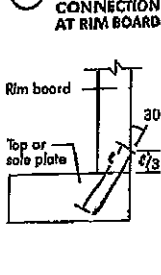


RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



8b TOE-NAIL CONNECTION AT RIM BOARD



NORDIC STRUCTURES

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Feb. 13, 2020 15:27

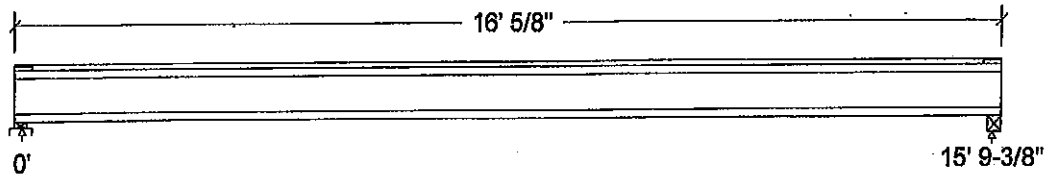
PROJECT
J1 1ST FLOOR.wwb

Design Check Calculation Sheet Nordic Sizer – Canada 7.2

Loads:

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

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



Unfactored:			
Dead	158		158
Live	316		316
Factored:			
Total	671		671
Bearing:			
Capacity			
Joist	1865		1869
Support	3981		-
Des ratio			
Joist	0.36		0.36
Support	0.17		-
Load case	#2		#2
Length	2-3/8		2-5/8
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-40x Floor joist @ 12" o.c.

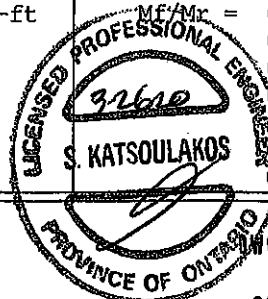
Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W;

Total length: 16' 5/8"; Clear span: 15' 7-5/8"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

Limit States Design using CSA-O86-09 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 671	Vr = 1895	lbs	Vf/Vr = 0.35
Moment(+)	Mf = 2646	Mr = 4824	lbs-ft	Mf/Mr = 0.55
Perm. Defl'n	0.12 = < L/999	0.53 = L/360	in	0.22
Live Defl'n	0.23 = L/807	0.39 = L/480	in	0.59
Total Defl'n	0.35 = L/538	0.79 = L/240	in	0.45
Bare Defl'n	0.28 = L/676	0.53 = L/360	in	0.53
Vibration	Lmax = 15'-9.4	Lv = 17'-1.8	ft	0.92
Defl'n	= 0.031	= 0.041	in	0.77



NO. YAM 5459 -20
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
EI	218.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
L=live(use, occupancy) Ls=live(storage, equipment) f=fire

Load Patterns: s=S/2 L=L+Ls =no pattern load in this span

All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:E_Ieff = 265.29 lb-in² K= 4.94e06 lbs

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

CONFORMS TO OBC 2012

AMENDED 2020

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-09 Engineering Design in Wood standard, which includes Update No.1
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.



OWB NO. YAM5454 -20
STRUCTURAL
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NORDIC STRUCTURES

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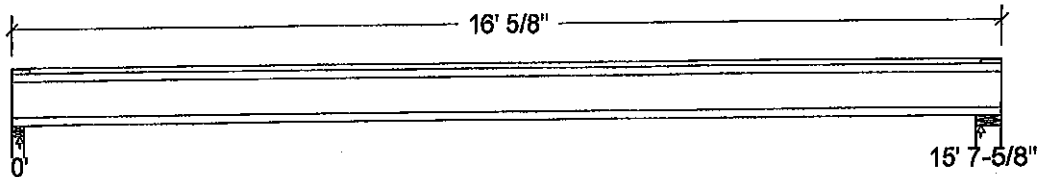
PROJECT
J1 2ND FLOOR.wwb

Design Check Calculation Sheet Nordic Sizer – Canada 7.2

Loads:

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

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



Unfactored:			
Dead	156		156
Live	313		313
Factored:			
Total	664		664
Bearing:			
Capacity			
Joist	1865		1893
Support	3981		7744
Des ratio			
Joist	0.36		0.35
Support	0.17		0.09
Load case	#2		#2
Length	2-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

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

Nordic Joist 9-1/2" NI-40x Floor joist @ 12" o.c.

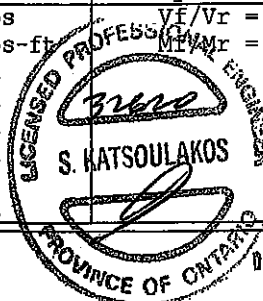
Supports: All - Lumber Wall, No.1/No.2

Total length: 16' 5/8"; Clear span: 15' 5-7/8"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

Limit States Design using CSA-O86-09 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 664	Vr = 1895	lbs	Vf/Vr = 0.35
Moment(+)	Mf = 2597	Mr = 4824	lbs-ft	Mf/Mr = 0.54
Perm. Defl'n	0.12 = < L/999	0.52 = L/360	in	0.22
Live Defl'n	0.23 = L/808	0.39 = L/480	in	0.59
Total Defl'n	0.35 = L/539	0.78 = L/240	in	0.45
Bare Defl'n	0.27 = L/694	0.52 = L/360	in	0.52
Vibration	Lmax = 15'-7.6	Lv = 16'-8.5	ft	0.94
Defl'n	= 0.034	= 0.041	in	0.81



P6 1/2
DWG NO. YAM 5460-20
**STRUCTURAL
COMPONENT ONLY**

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
EI	218.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake
L=live(use,occupancy) Ls=live(storage,equipment) f=fireLoad Patterns: s=S/2 L=L+Ls =no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output**CALCULATIONS:**E_{ieff} = 258.29 lb-in² K= 4.94e06 lbs

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

CONFORMS TO OBC 2012

AMENDED 2020

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-09 Engineering Design in Wood standard, which includes Update No.1
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.



046 NO. YAM 5460-20
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B1(11675) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B1(11675)

City, Province, Postal Code: WATERDOWN

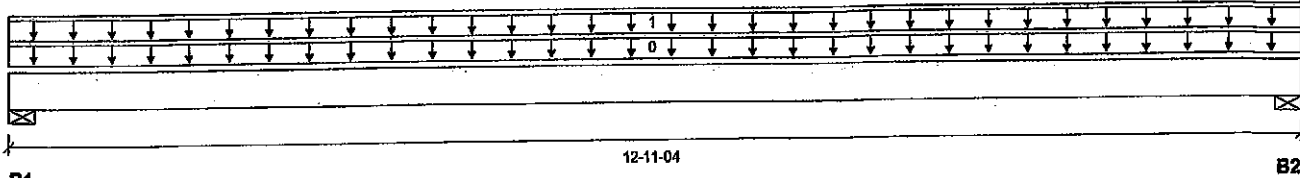
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 12-11-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-7/8"	175 / 0	118 / 0		
B2, 4-3/8"	181 / 0	122 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-11-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-11-04	Top	28	14			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1267 ft-lbs	11610 ft-lbs	10.9%	1	06-04-06
End Shear	349 lbs	5785 lbs	6.0%	1	00-11-06
Total Load Deflection	L/999 (0.103")	n/a	n/a	4	06-04-06
Live Load Deflection	L/999 (0.061")	n/a	n/a	5	06-04-06
Max Defl.	0.103"	n/a	n/a	4	06-04-06
Span / Depth	15.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 1-7/8" x 1-3/4"	410 lbs	20.3%	10.2%	Spruce-Pine-Fir
B2	Wall/Plate 4-3/8" x 1-3/4"	424 lbs	9.0%	4.5%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO CBC 2012

AMENDED 2020



006 NO. TAM 5461-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B1A(1683) (Flush Beam)

PASSED

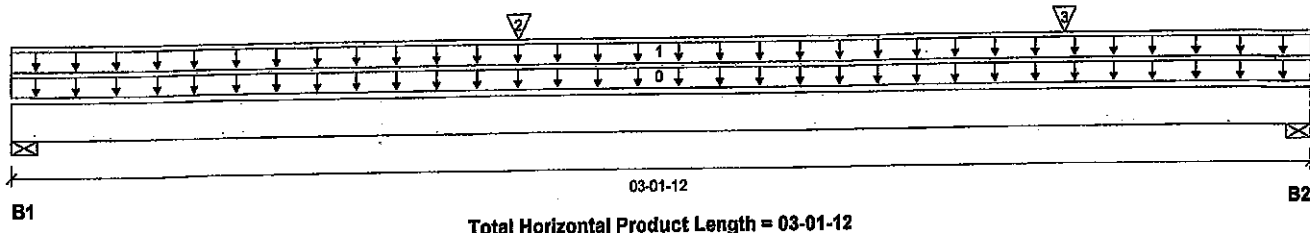
BC CALC® Member Report
Build 7239

Dry | 1 span | No cant.

February 13, 2020 14:51:27

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

File name: VALLEYCREEK 5 EL 2.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B1A(1683)
Specifier:
Designer: AJ
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-3/16"	824 / 0	552 / 0		
B2, 3-7/16"	1037 / 0	660 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-01-12	Top		10			00-00-00
1	E6(1389)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-12	Top	321	241			n/a
2	J2(1660)	Conc. Pt. (lbs)	L	01-02-12	01-02-12	Top	425	212			n/a
3	J2(1710)	Conc. Pt. (lbs)	L	02-06-12	02-06-12	Top	425	212			n/a

Controls Summary

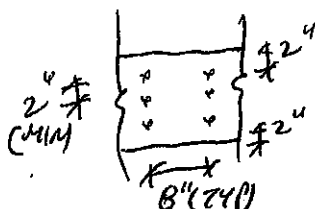
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1389 ft-lbs	23220 ft-lbs	6.0%	1	01-03-06
End Shear	1485 lbs	11571 lbs	12.7%	1	01-00-11
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	01-06-08
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	01-06-08
Max Defl.	0.003"	n/a	n/a	4	01-06-08
Span / Depth	3.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-3/16" x 3-1/2"	1926 lbs	27.8%	14.0%	Spruce-Pine-Fir
B2	Wall/Plate 3-7/16" x 3-1/2"	2380 lbs	32.2%	16.3%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86. **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

CONFORMS TO OBC 2012



PROVIDE 3 ROWS OF 3/4" ARDOX SPIRAL NAILS @ 8" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



DWG NO. TAM 5462-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



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

1ST FLR FRAMING\Flush Beams\B1B(1738) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B1B(1738)

City, Province, Postal Code: WATERDOWN

Specifier:

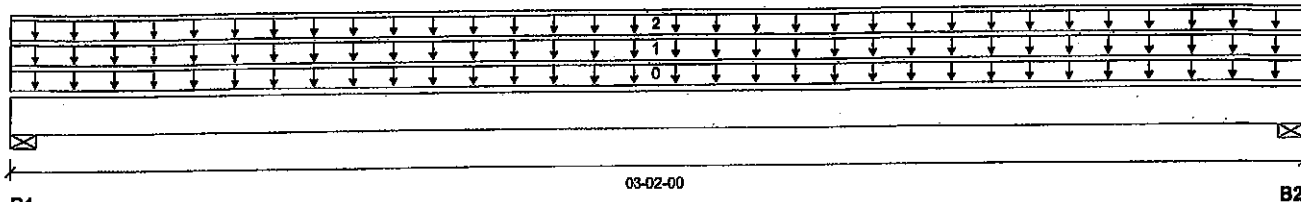
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-7/16"	79 / 0	191 / 0		
B2, 3-7/16"	79 / 0	191 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	E1(I390)	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	Top	28	100			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	Top	22	11			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	156 ft-lbs	15093 ft-lbs	1.0%	0	01-07-00
End Shear	85 lbs	7521 lbs	1.1%	0	01-00-15
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-07-00
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-07-00
Max Defl.	0"	n/a	n/a	4	01-07-00
Span / Depth	3.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-7/16" x 3-1/2"	267 lbs	5.6%	2.8%	Spruce-Pine-Fir
B2	Wall/Plate 3-7/16" x 3-1/2"	267 lbs	5.6%	2.8%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

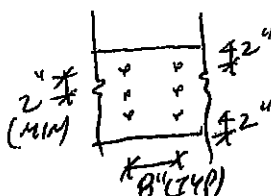
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3/4" ARDOX
SPIRAL NAILS @ 8" O/C FOR
MULTI-PLY NAILING, MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS



DWG NO. TAM 5463 -20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B2(I1694) (Flush Beam)**

Dry | 1 span | No cant.

February 13, 2020 14:51:27

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

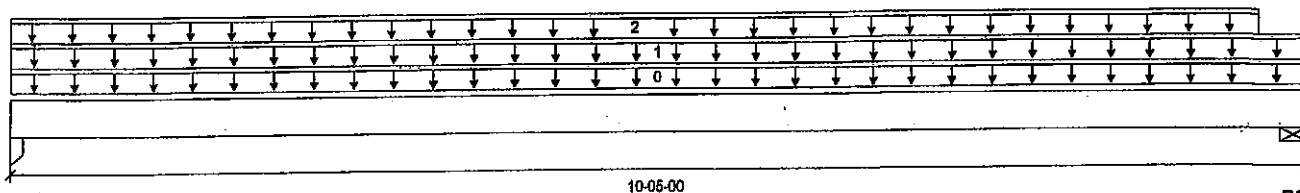
File name: VALLEYCREEK 5 EL 2.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2(I1694)

Specifier:

Designer: AJ

Company:



B1

10-05-00

B2

Total Horizontal Product Length = 10-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	73 / 0	507 / 0		
B2, 1-7/8"	73 / 0	479 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-05-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-05-00	Top	14	7			n/a
2	11(I450)	Unf. Lin. (lb/ft)	L	00-00-00	10-00-10	Top		81			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1787 ft-lbs	15093 ft-lbs	11.8%	0	05-02-07
End Shear	649 lbs	7521 lbs	8.6%	0	09-05-10
Total Load Deflection	L/999 (0.055")	n/a	n/a	4	05-02-07
Live Load Deflection	L/999 (0.007")	n/a	n/a	5	05-02-07
Max Defl.	0.055"	n/a	n/a	4	05-02-07
Span / Depth	12.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 3-1/2"	710 lbs	22.0%	14.6%	Unspecified
B2	Wall/Plate 1-7/8" x 3-1/2"	671 lbs	25.6%	12.9%	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.

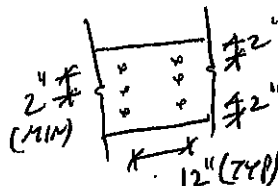
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 2 ROWS OF 3/4" ARDOX
SPIRAL NAILS @ 12" O/C FOR
MULTI-PLY NAILING, MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS



DWG NO. YAM 5464 -20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



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

PASSED

1ST FLR FRAMING\Flush Beams\B3(11954) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Buld 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B3(11954)

City, Province, Postal Code: WATERDOWN

Specifier:

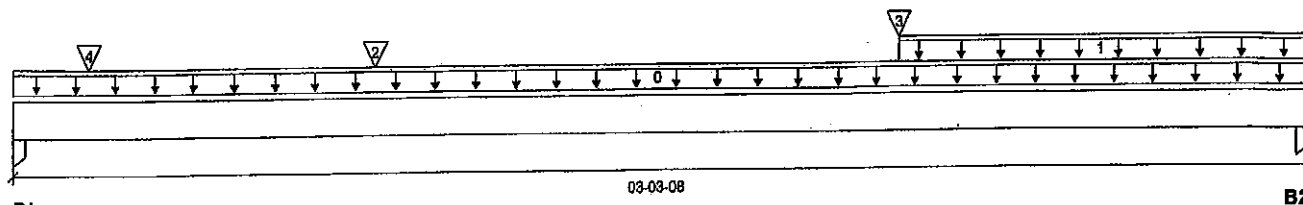
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 03-03-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	141 / 0	81 / 0		
B2, 3-1/2"	147 / 0	81 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-03-08	Top	5				00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	02-03-02	03-03-08	Top	33	17			n/a
2	J7(11800)	Conc. Pt. (lbs)	L	00-11-02	00-11-02	Top	135	67			n/a
3	J7(11752)	Conc. Pt. (lbs)	L	02-03-02	02-03-02	Top	116	58			n/a
4	11(1450)	Conc. Pt. (lbs)	L	00-02-06	00-02-06	Top	3				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	220 ft-lbs	11610 ft-lbs	1.9%	1	02-03-02
End Shear	279 lbs	5785 lbs	4.8%	1	02-02-08
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-07-12
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-07-12
Max Defl.	0.001"	n/a	n/a	4	01-07-12
Span / Depth	3.6				

Bearing Supports

Bearing Supports			Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	312 lbs	6.3%	4.2%	Unspecified	
B2	Column	3-1/2" x 1-3/4"	323 lbs	6.5%	4.3%	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.

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

CONFORMS TO OBC 2012



DWG NO. TAM 5465-20
STRUCTURAL
COMPONENT ONLY

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

**Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B5(i1693) (Flush Beam)**

Dry | 1 span | No cant.

February 13, 2020 14:51:27

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

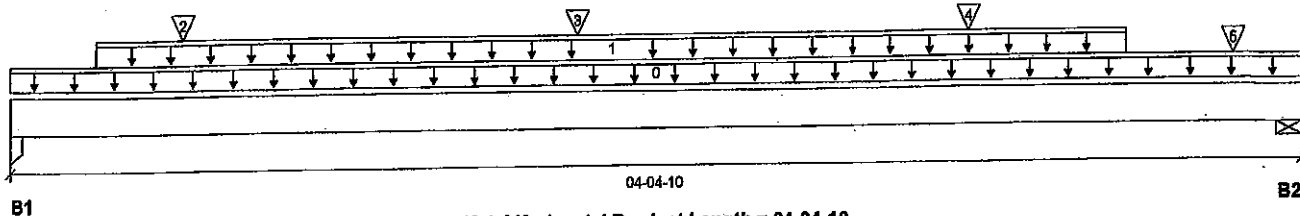
File name: VALLEYCREEK 5 EL 2.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(i1693)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 04-04-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	410 / 0	215 / 0		
B2, 5-1/2"	502 / 0	1155 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-04-10	Top	120	60			n/a
1	STAIR	Unf. Lin. (lb/ft)	L	00-03-08	03-09-10	Top	118	59			n/a
2	J7(i1525)	Conc. Pt. (lbs)	L	00-07-02	00-07-02	Top	118	59			n/a
3	J7(i1525)	Conc. Pt. (lbs)	L	01-11-02	01-11-02	Top	108	54			n/a
4	J7(i1534)	Conc. Pt. (lbs)	L	03-03-02	03-03-02	Top	147	966			n/a
5	7(i399)	Conc. Pt. (lbs)	L	04-01-14	04-01-14	Top					n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	814 ft-lbs	11610 ft-lbs	7.0%	1	01-11-02
End Shear	725 lbs	5785 lbs	12.5%	1	03-01-10
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	02-01-06
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	02-01-06
Max Defl.	0.006"	n/a	n/a	4	02-01-06
Span / Depth	4.7				

Bearing Supports	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	884 lbs	17.8%	11.8%	Unspecified
B2	Wall/Plate 5-1/2" x 1-3/4"	1617 lbs	42.0%	21.2%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. TAM 5VLC -20

STRUCTURAL

COMPONENT ONLY

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



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

PASSED

1ST FLR FRAMING\Flush Beams\B6(I1676) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B6(I1676)

City, Province, Postal Code: WATERDOWN

Specifier:

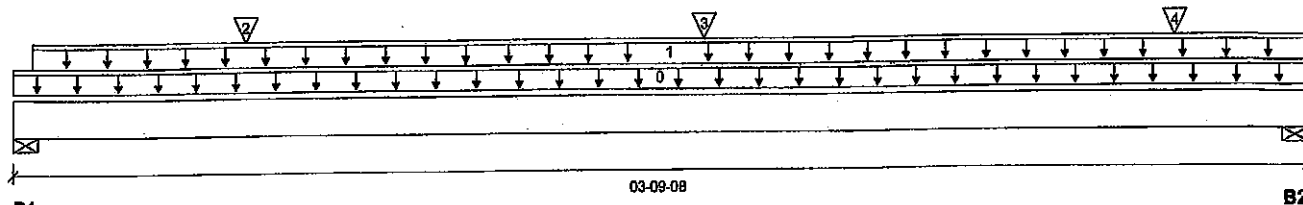
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 03-09-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	340 / 0	179 / 0		
B2, 5-1/2"	808 / 0	470 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-09-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-11	03-09-08	Top	120	60			n/a
2	J7(I1698)	Conc. Pt. (lbs)	L	00-08-04	00-08-04	Top	100	50			n/a
3	J7(I1664)	Conc. Pt. (lbs)	L	02-00-04	02-00-04	Top	125	63			n/a
4	-	Conc. Pt. (lbs)	L	03-05-00	03-05-00	Top	467	289			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	613 ft-lbs	11610 ft-lbs	5.3%	1	02-00-04
End Shear	425 lbs	5785 lbs	7.3%	1	00-11-08
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	01-09-01
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	01-09-01
Max Defl.	0.003"	n/a	n/a	4	01-09-01
Span / Depth	4.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2" x 1-3/4"	734 lbs	34.1%	17.2%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 1-3/4"	1800 lbs	30.4%	15.3%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. YAM 5467-20

STRUCTURAL COMPONENT ONLY Disclosure

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

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

**Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B7(i1667) (Flush Beam)**

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B7(i1667)

City, Province, Postal Code: WATERDOWN

Specifier:

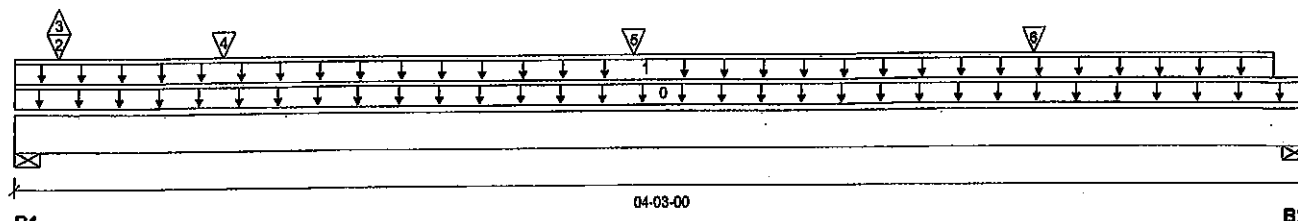
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 04-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	533 / 3	277 / 0		
B2, 3-1/2"	409 / 0	215 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-03-00	Top	5				00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	04-01-10	Top	120	60			n/a
2	J5(i1703)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	70	34			n/a
3	J5(i1703)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	-3				n/a
4	J7(i1707)	Conc. Pt. (lbs)	L	00-08-04	00-08-04	Top	101	51			n/a
5	J7(i1661)	Conc. Pt. (lbs)	L	02-00-04	02-00-04	Top	145	73			n/a
6	J7(i1670)	Conc. Pt. (lbs)	L	03-04-04	03-04-04	Top	126	63			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	816 ft-lbs	11610 ft-lbs	7.0%	1	02-00-04
End Shear	565 lbs	5785 lbs	9.8%	1	03-02-00
Total Load Deflection	L/999 (0.005")	n/a	n/a	6	02-02-06
Live Load Deflection	L/999 (0.003")	n/a	n/a	8	02-02-06
Max Defl.	0.005"	n/a	n/a	6	02-02-06
Span / Depth	4.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	1145 lbs	19.3%	9.8%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 1-3/4"	883 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.

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012**AMENDED 2020**

DWB NO. TAM 5468-20

STRUCTURAL**COMPONENT ONLY****Disclosure**

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

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



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Dropped Beams\B11 DR(1959) (Dropped Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B11 DR(1959)

City, Province, Postal Code: WATERDOWN

Specifier:

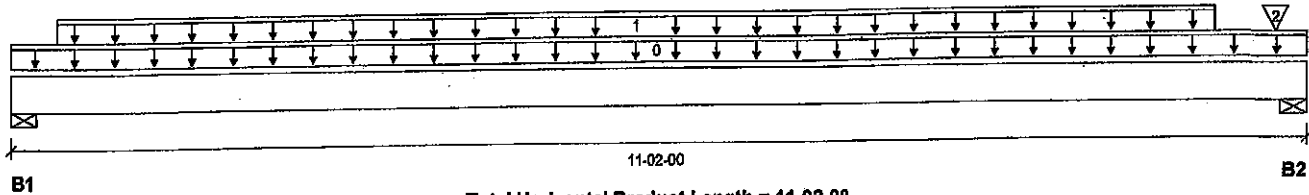
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	3250 / 0	1703 / 0		
B2, 4"	3690 / 0	1923 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-02-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-14	10-04-14	Top	629	314			n/a
2	-	Conc. Pt. (lbs)	L	10-10-14	10-10-14	Top	650	325			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	19114 ft-lbs	36222 ft-lbs	52.8%	1	05-10-14
End Shear	6614 lbs	17356 lbs	38.1%	1	01-01-08
Total Load Deflection	L/349 (0.365")	n/a	68.7%	4	05-06-06
Live Load Deflection	L/531 (0.24")	n/a	67.7%	5	05-06-06
Max Defl.	0.365"	n/a	n/a	4	05-06-06
Span / Depth	13.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 5-1/4"	7004 lbs	25.0%	27.3%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 5-1/4"	7939 lbs	28.3%	31.0%	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: 00-03-02, Bottom: 00-03-02.

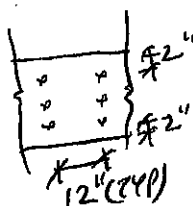
Resistance Factor phi has been applied to all presented results per CSA O86. **AMENDED 2020**

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

CONFORMS TO OBC 2012



PROVIDE 3 ROWS OF 3/2" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS. STAGGER NAILS 6" BETWEEN PLYS.



**OWG NO. 7AM 5469 -20
STRUCTURAL
COMPONENT ONLY**

Disclosure

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



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

2ND FLR FRAMING\Flush Beams\B12(i1747) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B12(i1747)

City, Province, Postal Code: WATERDOWN

Specifier:

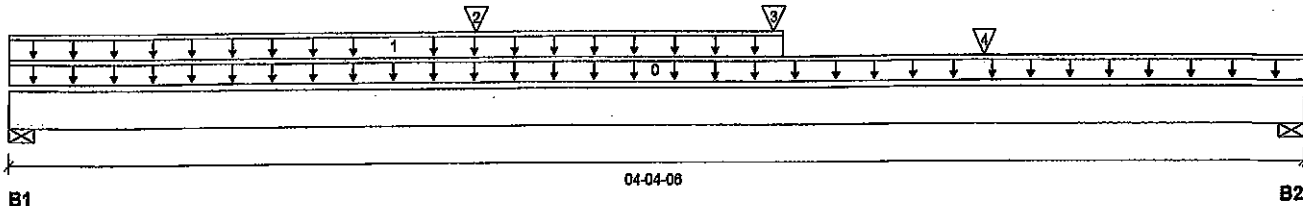
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 04-04-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-7/8"	1520 / 0	779 / 0		
B2, 5-1/2"	1089 / 0	555 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-04-06	Top	100	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	02-07-04	Top	506	253			n/a
2	J2(i1886)	Conc. Pt. (lbs)	L	01-06-14	01-06-14	Top	311	155			n/a
3	J2(i1946)	Conc. Pt. (lbs)	L	02-06-14	02-06-14	Top	311	155			n/a
4	-	Conc. Pt. (lbs)	L	03-03-08	03-03-08	Top	649	325			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2308 ft-lbs	23220 ft-lbs	9.9%	1	02-01-04
End Shear	1983 lbs	11571 lbs	17.0%	1	03-01-06
Total Load Deflection	L/999 (0.008")	n/a	n/a	4	02-01-15
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	02-01-15
Max Defl.	0.008"	n/a	n/a	4	02-01-15
Span / Depth	4.6				

Bearing Supports

	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-7/8" x 3-1/2"	3254 lbs	31.0%	15.6%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	2297 lbs	19.4%	9.8%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

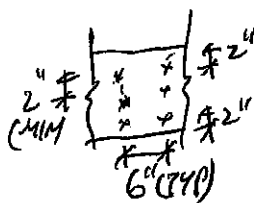
Resistance Factor phi has been applied to all presented results per CSA O86. **AMENDED 2020**

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

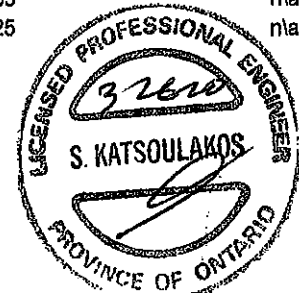
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



PROVIDE 3 ROWS OF 3/4" ARDOX SPIRAL NAILS @ 6" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



DWG NO. TAM 5470 -20

STRUCTURAL

COMPONENT ONLY

Disclosure

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



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B14(1681) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B14(1681)

City, Province, Postal Code: WATERDOWN

Specifier:

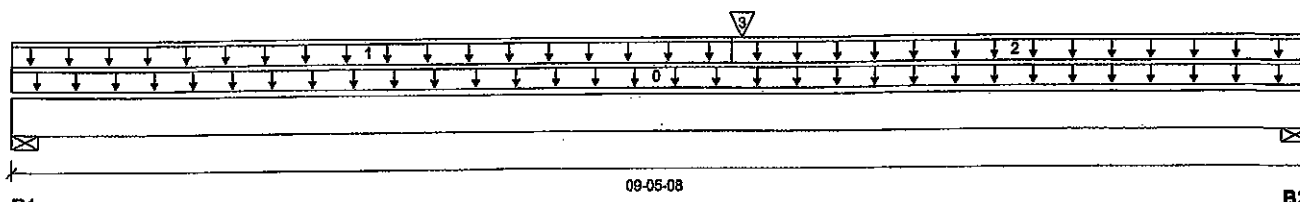
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 09-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	304 / 0	206 / 0		
B2, 5-1/2"	383 / 0	250 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-05-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-03-02	Top	24	12			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	05-03-02	09-05-08	Top	27	13			n/a
3	B16(1696)	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	451	247			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2729 ft-lbs	23220 ft-lbs	11.8%	1	05-04-00
End Shear	801 lbs	11571 lbs	6.9%	1	08-02-08
Total Load Deflection	L/999 (0.046")	n/a	n/a	4	04-10-07
Live Load Deflection	L/999 (0.028")	n/a	n/a	5	04-10-07
Max Defl.	0.046"	n/a	n/a	4	04-10-07
Span / Depth	11.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	713 lbs	8.3%	4.2%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	887 lbs	7.5%	3.8%	Spruce-Pine-Fir

Notes

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

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

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

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

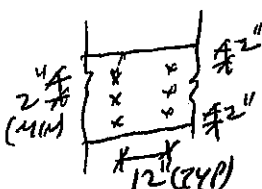
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3/4" ARDOX
SPIRAL NAILS @ 12" O/C FOR
MULTI-PLY NAILING. MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS



OWG NO. TAM5421 -20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B15(i1680) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7239

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B15(i1680)

City, Province, Postal Code: WATERDOWN

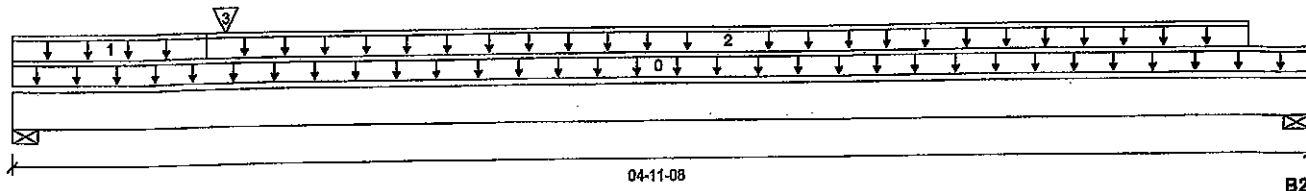
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 04-11-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	670 / 0	377 / 0		
B2, 5-1/2"	166 / 0	110 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-11-08	Top		10			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-09-02	Top	30	15			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-09-02	04-08-12	Top	33	17			n/a
3	B16(i1686)	Conc. Pt. (lbs)	L	00-10-00	00-10-00	Top	681	362			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	805 ft-lbs	23220 ft-lbs	3.5%	1	00-10-00
End Shear	898 lbs	11571 lbs	7.8%	1	01-01-08
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	02-02-09
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	02-02-02
Max Defl.	0.003"	n/a	n/a	4	02-02-09
Span / Depth	5.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	1476 lbs	17.1%	8.6%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	387 lbs	3.3%	1.6%	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 member is fully braced.

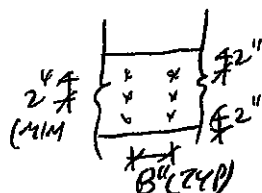
Resistance Factor phi has been applied to all presented results per CSA O86. **AMENDED 2020**

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

CONFORMS TO OBC 2012



PROVIDE 3 ROWS OF 3x2" ARDOX SPIRAL NAILS @ 3" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



OWG NO. TAM 5472-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B16(i1696) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B16(i1696)

City, Province, Postal Code: WATERDOWN

Specifier:

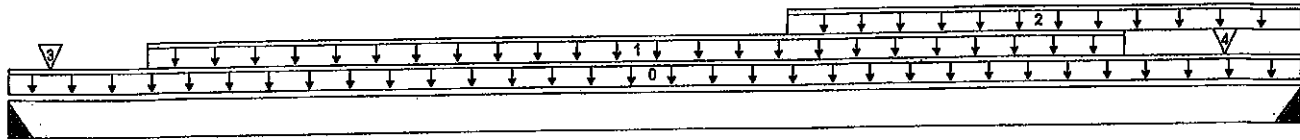
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



B1

Total Horizontal Product Length = 08-09-08

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	445 / 0	244 / 0		
B2, 2"	687 / 0	365 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-09-08	Top	5				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-08	07-07-08	Top	83	41			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	05-03-08	08-09-08	Top	120	60			n/a
3	J6(i1673)	Conc. Pt. (lbs)	L	00-03-08	00-03-08	Top	81	41			n/a
4	J6(i1715)	Conc. Pt. (lbs)	L	08-03-08	08-03-08	Top	81	41			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2473 ft-lbs	11610 ft-lbs	21.3%	1	05-07-08
End Shear	1136 lbs	5785 lbs	19.6%	1	07-10-00
Total Load Deflection	L/999 (0.092")	n/a	n/a	4	04-06-08
Live Load Deflection	L/999 (0.06")	n/a	n/a	5	04-06-08
Max Defl.	0.092"	n/a	n/a	4	04-06-08
Span / Depth	10.8				

Bearing Supports

	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 1-3/4"	973 lbs	n/a	22.8%	HUS1.81/10
B2 Hanger	2" x 1-3/4"	1487 lbs	n/a	34.8%	HUS1.81/10

Cautions

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

Notes

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

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. YAM 5473 -20
STRUCTURAL

DISCLOSURE

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



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

2ND FLR FRAMING\Flush Beams\B17(i1910) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B17(i1910)

City, Province, Postal Code: WATERDOWN

Specifier:

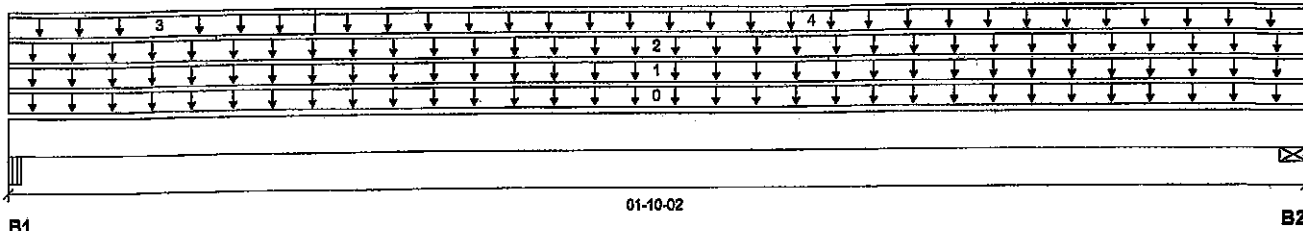
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	56 / 0	122 / 0	57 / 0	
B2, 5-1/2"	56 / 0	124 / 0	59 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-10-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-10-02	Top	33	30	63		n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	01-10-02	Top		80			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-05-04	Top	30	15			n/a
4	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-05-04	01-10-02	Top	27	14			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	46 ft-lbs	23220 ft-lbs	0.2%	13	00-10-15
End Shear	102 lbs	11571 lbs	0.9%	1	01-02-12
Span / Depth	1.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/4" x 3-1/2"	295 lbs	3.0%	1.3%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	300 lbs	2.5%	1.3%	Spruce-Pine-Fir

Notes

Calculations assume member is fully braced.

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

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

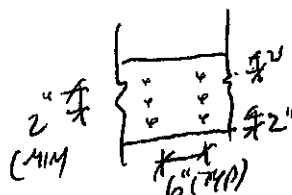
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO CBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3/8" ARDOX SPIRAL NAILS @ 6" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



OWG NO. YAM 5474 -20
STRUCTURAL

COMPONENT ONLY

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



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

1ST FLR FRAMING\Flush Beams\B21(i2663) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

March 24, 2020 16:40:28

Build 7239

Job name:

File name: VALLEYCREEK 6 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B21(i2663)

City, Province, Postal Code: WATERDOWN

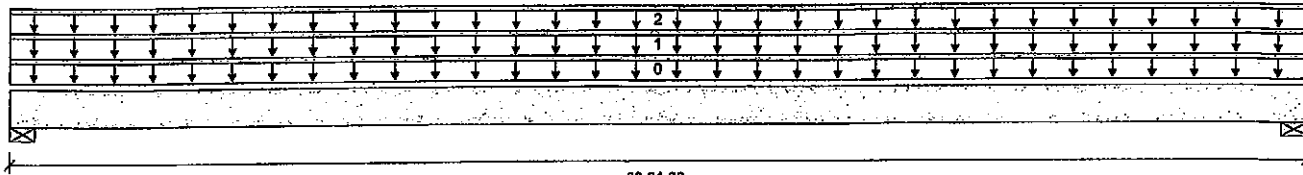
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



B1

03-01-00

B2

Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	77 / 0	186 / 0		
B2, 3"	77 / 0	186 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	E5(i395)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	28	100			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	22	11			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	155 ft-lbs	15093 ft-lbs	1.0%	0	01-06-08
End Shear	84 lbs	7521 lbs	1.1%	0	01-00-08
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-06-08
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-06-08
Max Defl.	0"	n/a	n/a	4	01-06-08
Span / Depth	3.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3" x 3-1/2"	260 lbs	6.2%	3.1%	Spruce-Pine-Fir
B2	Wall/Plate 3" x 3-1/2"	260 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 member is fully braced.

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

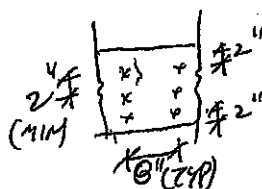
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3/4" ARDOX SPIRAL NAILS @ 8" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

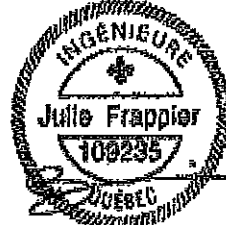


DWG NO. YAM 5425-20
STRUCTURAL
COMPONENT ONLY

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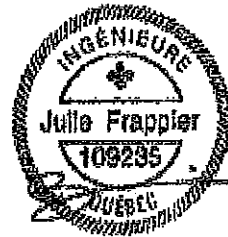
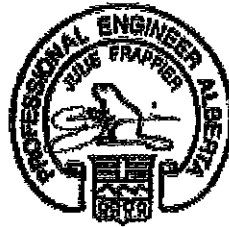
Maximum Floor Spans

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

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

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

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



Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf

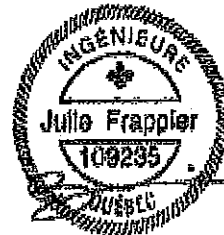
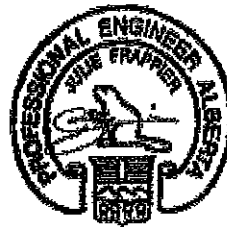
Simple Spans, L/480 Deflection Limit

5/8" OSB G&N Sheathing

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

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

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



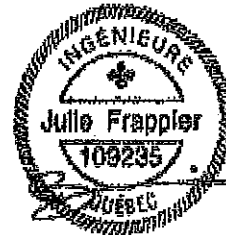
Maximum Floor Spans

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

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

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

1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-1274C.



Maximum Floor Spans

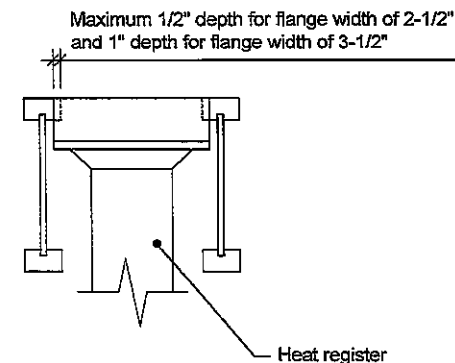
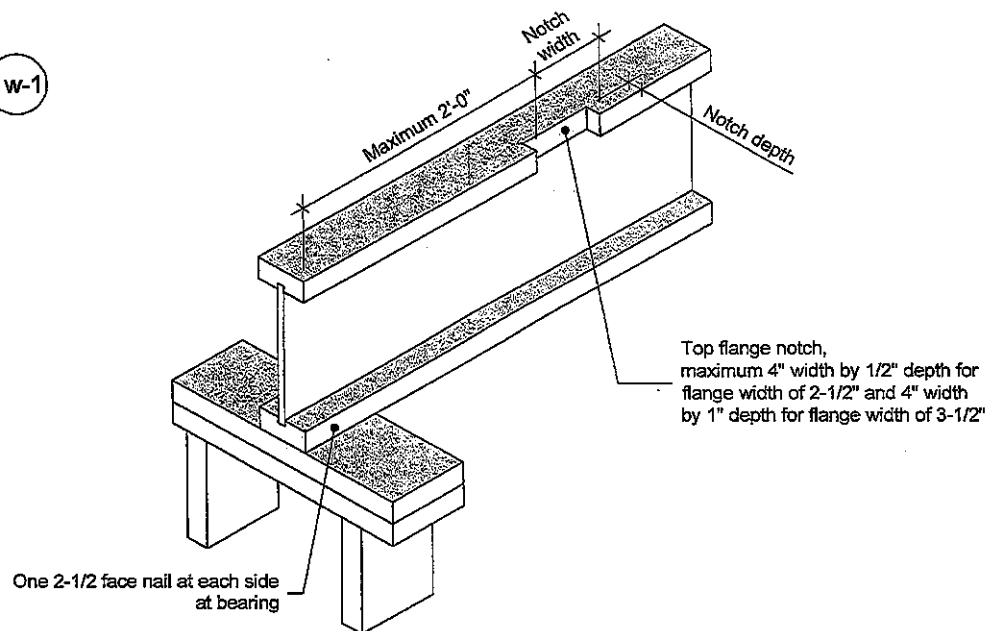
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

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

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

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

1w-1



Notes:

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

This document supersedes all previous versions. If the document has been in effect for more than one year, consult nordic.ca or contact Nordic Structures.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

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STRUCTURES

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TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

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DATE

2018-04-10

NUMBER

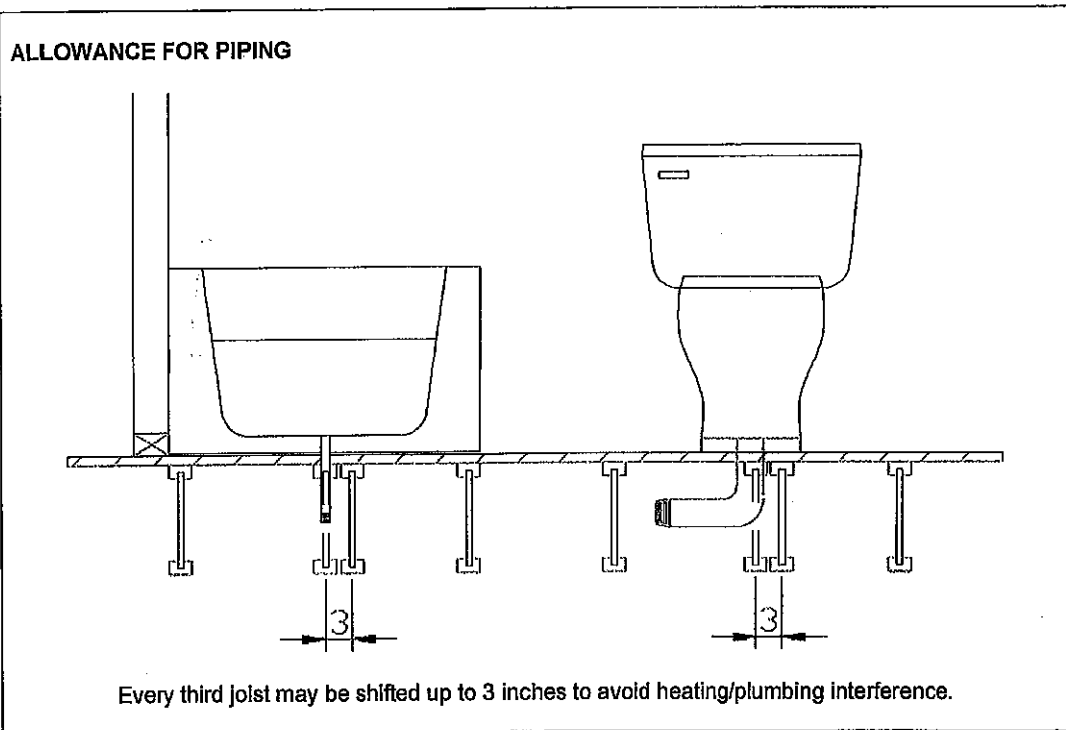
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Allowance for Piping (Installation Notes)

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