

Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	21
J1DJ	16-00-00	9 1/2" NI-40x	2	4
J2	12-00-00	9 1/2" NI-40x	1	9
J2DJ	12-00-00	9 1/2" NI-40x	2	4
J3	10-00-00	9 1/2" NI-40x	1	8
J4	8-00-00	9 1/2" NI-40x	1	15
J5	4-00-00	9 1/2" NI-40x	1	5
B2	14-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	3	3
B1	12-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2
B6L-5R	10-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	1	1
B7L	10-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	1	1
B11L	8-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	1	1
B3	8-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	1	1
B9L-5R	8-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2
B8L-5R	6-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2
B4	4-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	1	1
B10L-5R	4-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2

Connector Summary		
Qty	Manuf	Product
15	H1	IUS2.56/9.5
1	H1	IUS2.56/9.5
2	h1	IUS2.56/9.5
5	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
16	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
1	H2	HUS1.81/10
2	H2	HUS1.81/10
2	H3	HU310-2
1	H4C	HUC410
1	H4	HGUS410
1	H4	HGUS410

DATE: 2023-05-10

1st FLOOR FRAMING



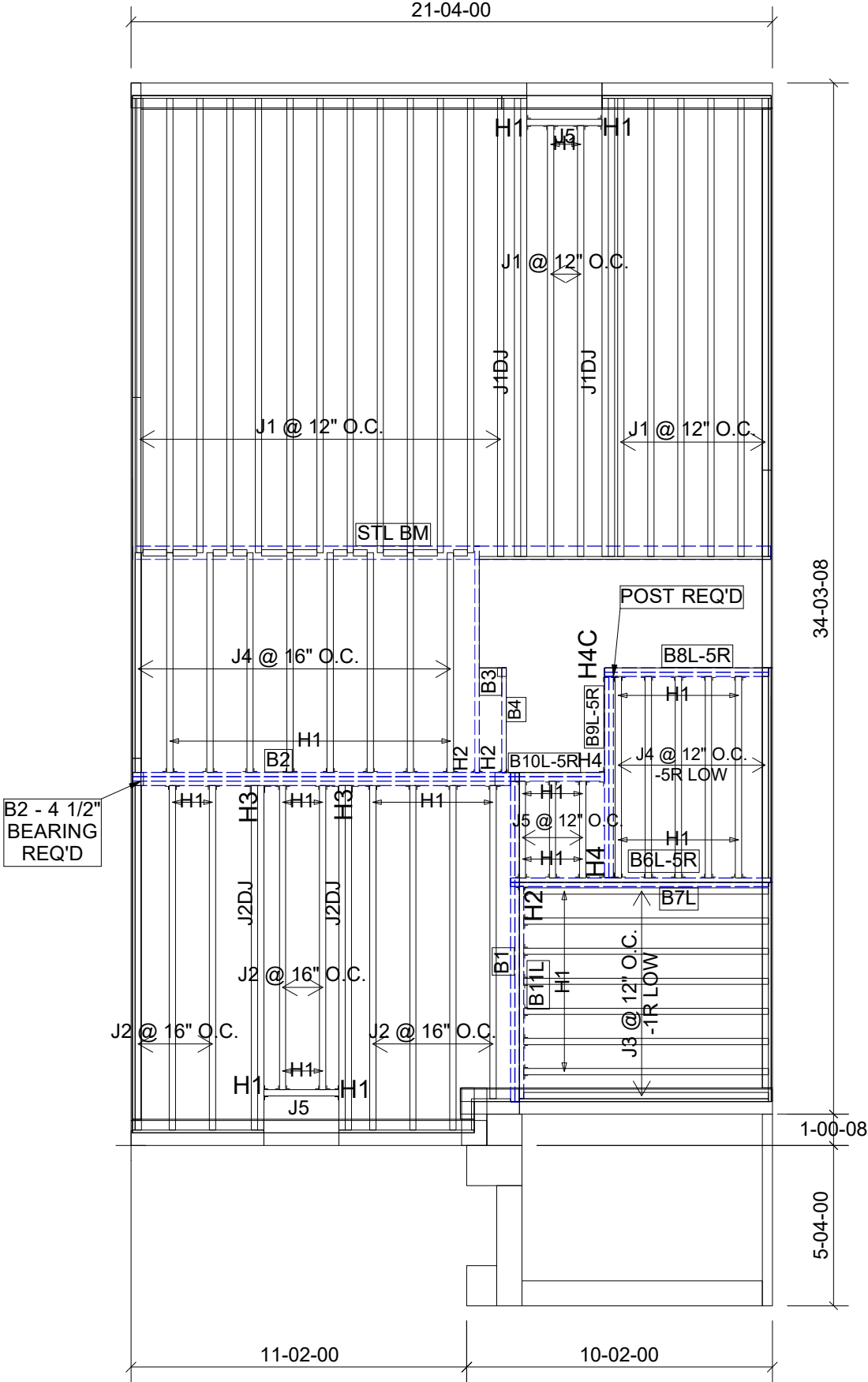
FROM PLAN DATED: JULY 2019
BUILDER: BAYVIEW WELLINGTON
SITE: ALCONA SHORES
MODEL: RL-3
ELEVATION: B & B2
LOT:
CITY: INNISFIL
SALESMAN: WILL GARCIA
DESIGNER: AJ
REVISION: lbv

REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 SPF #2 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 6 AND TABLES 6.1/6.2.
CERAMIC TILE APPLICATION AS PER OBC 9.30.6.

ALL CONNECTORS MUST BE INSTALLED AS PER THE MANUFACTURER'S SPECIFICATIONS USING THE MANUFACTURER SPECIFIED FASTENERS.
ALL BEAM HANGER FASTENERS INSTALLED INTO THE SUPPORTING MEMBER MUST BE A MINIMUM OF 3.5" IN LENGTH UNLESS OTHERWISE SPECIFIED BY THE SUPPORTING MEMBER ENGINEER OF RECORD.

LOADING:
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: +5.0 lb/ft²

JOIST LL DEFLECTION LIMIT: L/480
SUBFLOOR: 3/4" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	21
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J2DJ	12-00-00	9 1/2" NI-40x	2	4
J3	10-00-00	9 1/2" NI-40x	1	8
J4	8-00-00	9 1/2" NI-40x	1	15
J5	4-00-00	9 1/2" NI-40x	1	5
B2	14-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	3	3
B1	12-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2
B6L-5R	10-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	1	1
B7L	10-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	1	1
B11L	8-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	1	1
B3	8-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	1	1
B9L-5R	8-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2
B8L-5R	6-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2
B4	4-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	1	1
B10L-5R	4-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2

Connector Summary		
Qty	Manuf	Product
15	H1	IUS2.56/9.5
1	H1	IUS2.56/9.5
2	h1	IUS2.56/9.5
5	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
16	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
1	H2	HUS1.81/10
2	H2	HUS1.81/10
2	H3	HU310-2
1	H4C	HUC410
1	H4	HGUS410
1	H4	HGUS410

DATE: 2023-05-10

1st FLOOR FRAMING



FROM PLAN DATED: JULY 2019
BUILDER: BAYVIEW WELLINGTON
SITE: ALCONA SHORES
MODEL: RL-3
ELEVATION: B & B2
LOT:
CITY: INNISFIL
SALESMAN: WILL GARCIA
DESIGNER: AJ
REVISION: lbv

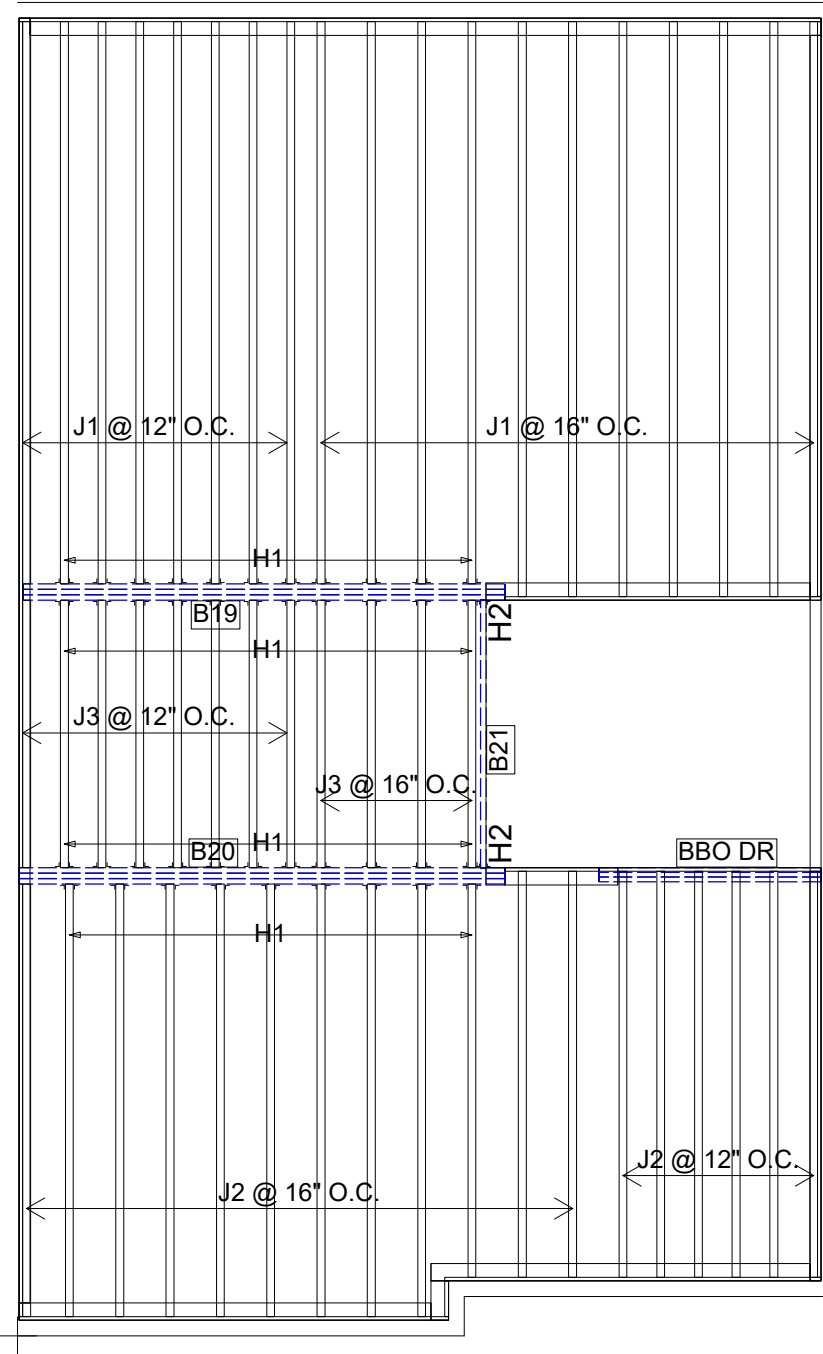
REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 SPF #2 REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1.
CANTILEVERED JOISTS INCLUDING **CANT' OVER BRICK** REQ. I-JOIST 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 6 AND TABLES 6.1/6.2.
CERAMIC TILE APPLICATION AS PER OBC 9.30.6.

ALL **CONNECTORS** MUST BE INSTALLED AS PER THE **MANUFACTURER'S SPECIFICATIONS** USING THE MANUFACTURER **SPECIFIED FASTENERS**.
ALL **BEAM HANGER FASTENERS** INSTALLED INTO THE **SUPPORTING MEMBER MUST** BE A MINIMUM OF **3.5"** IN LENGTH UNLESS OTHERWISE SPECIFIED BY THE SUPPORTING MEMBER ENGINEER OF RECORD.

LOADING:
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: +5.0 lb/ft²

JOIST LL DEFLECTION LIMIT: L/480

SUBFLOOR: 3/4" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	19
J2	12-00-00	9 1/2" NI-40x	1	18
J3	8-00-00	9 1/2" NI-40x	1	12
B19	14-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	3	3
B20	14-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	3	3
B21	8-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	1	1

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



FROM PLAN DATED: JULY 2019
BUILDER: BAYVIEW WELLINGTON
SITE: ALCONA SHORES
MODEL: RL-3
ELEVATION: B
LOT:
CITY: INNISFIL
SALESMAN: WILL GARCIA
DESIGNER: AJ
REVISION: lbv

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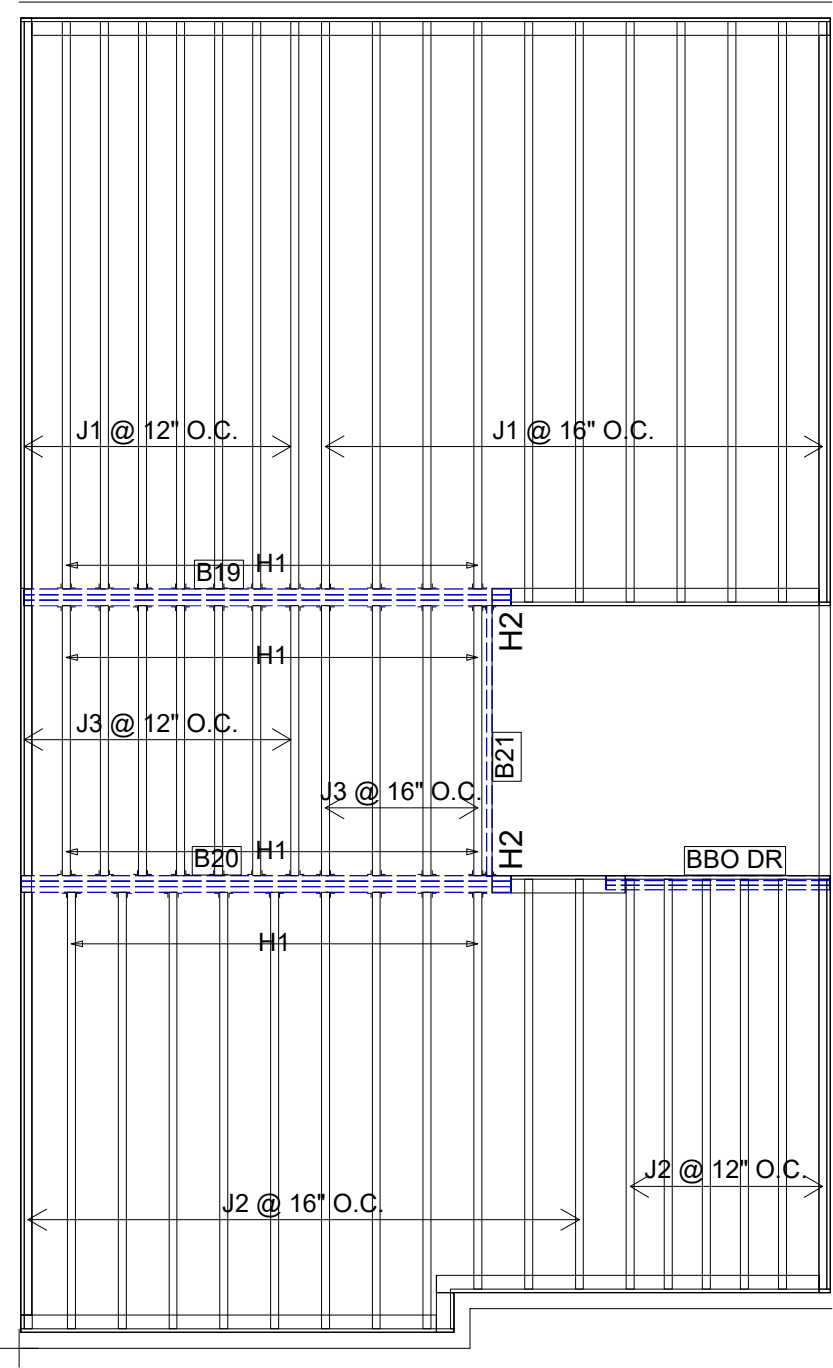
LOADING:
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: +5.0 lb/ft²

DATE: 2023-05-10

2nd FLOOR FRAMING

JOIST LL DEFLECTION LIMIT: L/480

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	19
J2	12-00-00	9 1/2" NI-40x	1	18
J3	8-00-00	9 1/2" NI-40x	1	12
B19	14-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	3	3
B20	14-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	3	3
B21	8-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	1	1

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



FROM PLAN DATED: JULY 2019
BUILDER: BAYVIEW WELLINGTON
SITE: ALCONA SHORES
MODEL: RL-3
ELEVATION: B2
LOT:
CITY: INNISFIL
SALESMAN: WILL GARCIA
DESIGNER: AJ
REVISION: lbv

REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 SPF #2 REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS.
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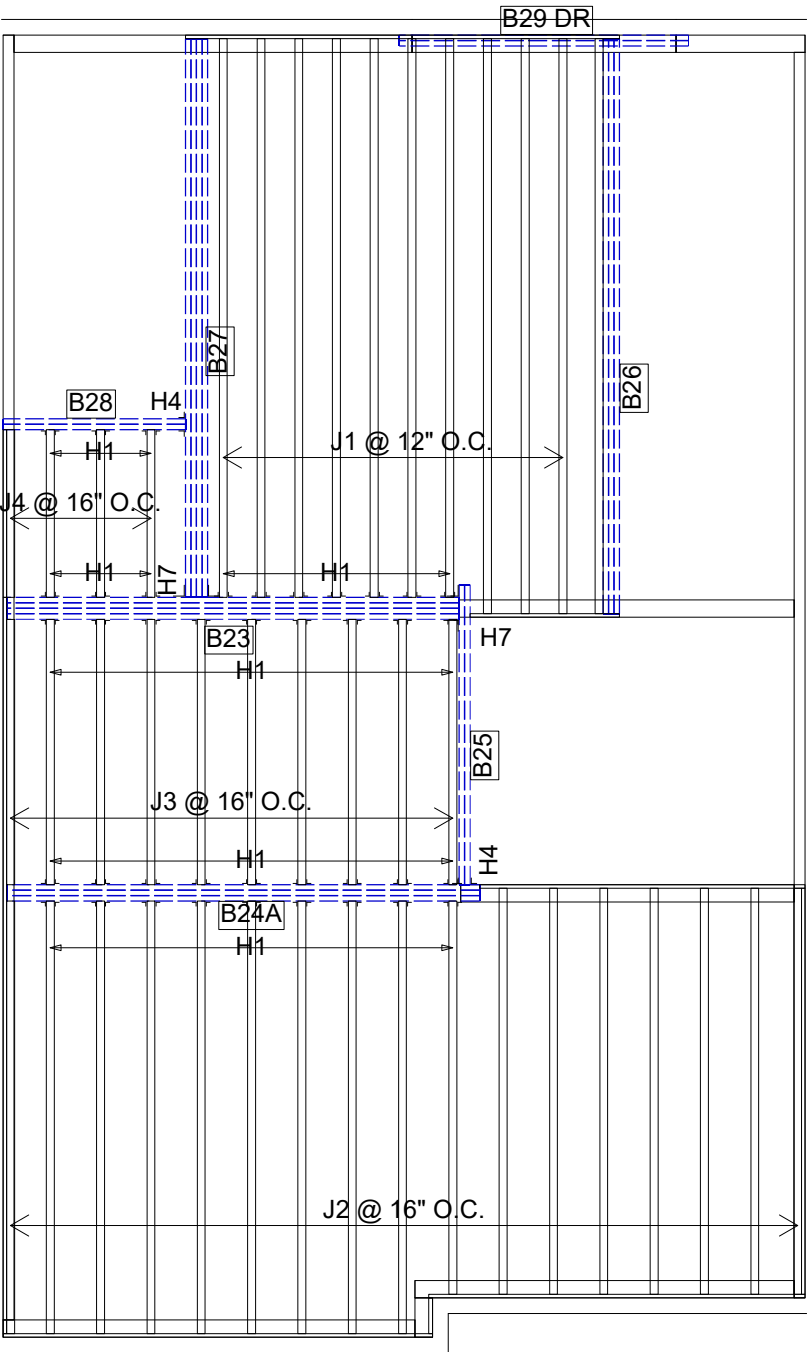
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DEAD LOAD: 15.0 lb/ft²
TILE LOAD: +5.0 lb/ft²

JOIST LL DEFLECTION LIMIT: L/480
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2023-05-10

2nd FLOOR FRAMING



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	11
J2	12-00-00	9 1/2" NI-40x	1	17
J3	8-00-00	9 1/2" NI-40x	1	10
J4	6-00-00	9 1/2" NI-40x	1	4
B26	16-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	3	3
B27	16-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	4	4
B24A	14-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	3	3
B23	12-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	4	4
B25	8-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2
B29 DR	8-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2
B28	6-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/9.5
18	H1	IUS2.56/9.5
19	H1	IUS2.56/9.5
1	H4	HGUS410
1	H4	HGUS410
1	H7	HGUS7.25/10
1	H7	HGUS7.25/10



FROM PLAN DATED: JULY 2019
BUILDER: BAYVIEW WELLINGTON
SITE: ALCONA SHORES
MODEL: RL-3
ELEVATION: B
LOT:
CITY: INNISFIL
SALESMAN: WILL GARCIA
DESIGNER: AJ
REVISION: lbv

REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 SPF #2 REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS.
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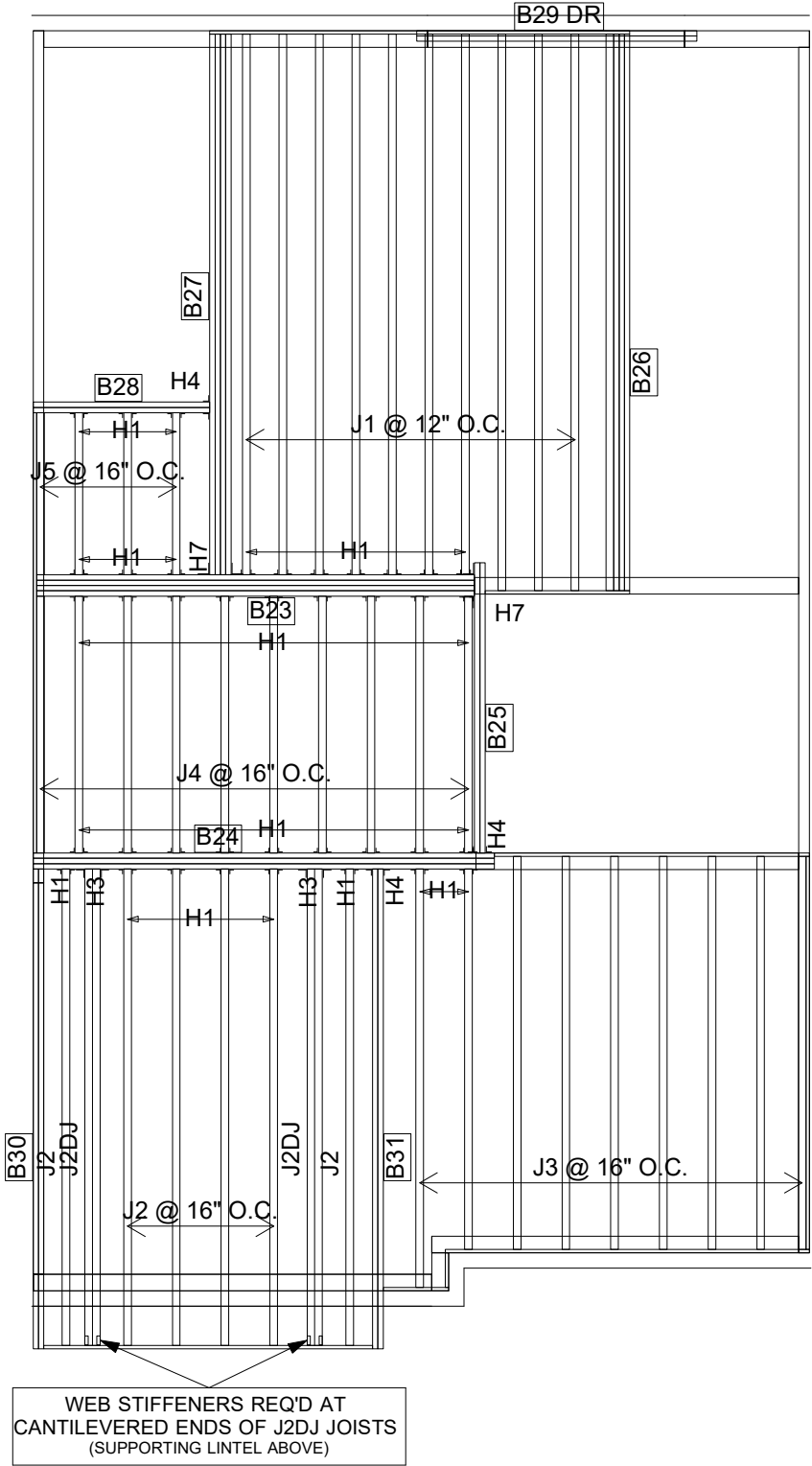
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LOADING:
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DEAD LOAD: 15.0 lb/ft²
TILE LOAD: +5.0 lb/ft²

JOIST LL DEFLECTION LIMIT: L/480
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2023-05-10

3rd FLOOR FRAMING



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	11
J2	14-00-00	9 1/2" NI-40x	1	6
J2DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	9
J4	8-00-00	9 1/2" NI-40x	1	10
J5	6-00-00	9 1/2" NI-40x	1	4
B26	16-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	3	3
B27	16-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	4	4
B30	14-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2
B31	14-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2
B24	14-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	3	3
B23	12-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	4	4
B25	8-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2
B29 DR	8-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2
B28	6-00-00	1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	2	2

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/9.5
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19	H1	IUS2.56/9.5
2	H3	HU310-2
2	H4	HGUS410
1	H4	HGUS410
1	H5	HGUS7.25/10
1	H7	HGUS7.25/10

DATE: 5/25/23

3rd FLOOR FRAMING



FROM PLAN DATED: JULY 2019
BUILDER: BAYVIEW WELLINGTON
SITE: ALCONA SHORES
MODEL: RL-3
ELEVATION: B2
LOT:
CITY: INNISFIL
SALESMAN: WILL GARCIA
DESIGNER: AJ
REVISION: lbv

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JOIST LL DEFLECTION LIMIT: L/480

SUBFLOOR: 5/8" GLUED AND NAILED

NORDIC

INSTALLATION GUIDE NORDIC JOIST

NS-G133  **ENGLISH**
VERSION
2020-10-01

Engineered Wood Products

BASIC INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



NORDIC
STRUCTURES

nordic.ca

INSTALLING NORDIC I-JOISTS

1. Installation of Nordic I-joists shall be as shown in details 1.
2. Except for cutting to length, I-joist flanges should never be cut, drilled or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. Concentrated loads should only be applied to the top surface of the top flange. Concentrated loads should not be suspended from the bottom flange with the exception of light loads, such as ceiling fans or light fixtures.
5. I-joists must be protected from the weather prior to installation.
6. I-joists must not be used in applications where they will be permanently exposed to weather, or will reach a moisture content of 15 percent or greater, such as in swimming pool or hot tub areas. They must not be installed where they will remain in direct contact with concrete or masonry.
7. End bearing length must be at least 1-3/4 inch. For multiple-span joists, intermediate bearing length must be at least 3-1/2 inches.
8. Ends of floor joists shall be restrained to prevent rollover. Use rim board or I-joist blocking panels.
9. I-joists installed beneath bearing walls perpendicular to the joists shall have full-depth blocking panels, rim board, or squash blocks (cripple blocks) to transfer gravity loads from above the floor system to the wall or foundation below.
10. For I-joists installed directly beneath bearing walls parallel to the joists or used as rim board or blocking panels, the maximum vertical load using a single I-joist is 3,300 plf, and 6,000 plf if double I-joists are used.
11. Continuous lateral support of the I-joist's compression flange is required to prevent rotation and buckling. In simple span uses, lateral support of the top flange is normally supplied by the floor sheathing. In multiple-span or cantilever applications, bracing of the I-joist's bottom flange is also required at interior supports of multiple-span joists, and at the end support next to the cantilever extension. The ends of all cantilever extensions must be laterally braced as shown in details 3, 4, or 5.
12. Nails installed in flange face or edge shall be spaced in accordance with the applicable building code requirements or approved building plans, but should not be closer than those specified on page 3.3 of the Nordic Joist Technical Guide (NS-GT3).
13. Details 1 show only I-joist-specific fastener requirements. For other fastener requirements, see the applicable building code.
14. For proper temporary bracing of wood I-joists and placement of temporary construction loads, see APA Technical Note: Temporary Construction Loads over I-Joist Roofs and Floors, Form J735.

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.

SAFETY AND CONSTRUCTION PRECAUTIONS

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

Avoid Accidents by Following these Important Guidelines:

1. Brace and nail each I-joist as it is installed, using 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.
 2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2-inch nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
 3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
 4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
 5. Never install a damaged I-joist.
- Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.



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



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

NORDIC I-JOIST SERIES

RESIDENTIAL SERIES

NI-20
2x3 S-P-F No. 2
3/8 in. web
Depths
9-1/2 and 11-7/8 in.
33 pieces per unit

NI-40x
2x3 1950F MSR
3/8 in. web
Depths
9-1/2, 11-7/8 and 14 in.
33 pieces per unit

NI-60
2x3 2100F MSR
3/8 in. web
Depths
9-1/2, 11-7/8, 14 and 16 in.
33 pieces per unit

NI-80
2x4 2100F MSR
3/8 in. web
Depths
9-1/2, 11-7/8, 14 and 16 in.
23 pieces per unit

NI-90
2x4 2400F MSR
3/8 in. web
Depths
11-7/8, 14 and 16 in.
23 pieces per unit

RIM BOARDS
Width Length
1-1/8 in. 16 ft
Depths
9-1/2 to 16 in.
APA Rim Board Plus

WEB STIFFENERS

2 **Concentrated Load (Load Stiffener)** **End Bearing (Bearing Stiffener)**

Tight joint, no gap

Gap

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

Approx. 2"

1/8"-1/4" Gap

Four 2-1/2" nails, 3" nails required for I-joists with 3-1/2" flange width

No gap

Stiffener Size Requirements

Flange width (in.)	Web stiffener size each side of web (in.)
2-1/2	1 x 2-5/16 Minimum width
3-1/2	1-1/2 x 2-5/16 Minimum width

NAIL SPACING

Nailing into flange face **Nailing into flange edge**

Nailed to Only One Flange Edge (Top View)

Nailed to Both Flange Edges (Top View)

Recommended Closest Nail Spacing for Fastening Sheathing to I-joist Flanges to Minimize Splitting

Fastener size (diameter x length)	Flange face nailing ^(a)			Flange edge nailing ^(a)		
	End distance (in.)	Nail spacing (in.)	End distance (in.)	Nail spacing (in.)	Nail spacing (in.)	
0.128" or smaller in diameter, and 3-1/4" or shorter in length	2	2	2	2	4	
					2	
Greater than 0.128" up to 0.148" in diameter, and 3-1/4" or shorter in length	2	2	2	3	6	
					2	

^(a) If more than one row is required, offset rows a minimum of 1/2 inch and stagger.

^(b) Closest nail spacing measured from one flange edge. Nails on opposite flange edge must be offset one-half the minimum spacing.

1a **1b** **1d** **1e** **1g** **1j** **1k** **1r-1**

Notes:

1. An occasional blocking panel (one per line of blocking) may be left out for the passage of plumbing or ventilation ducts. For other applications, contact Nordic Structures.
2. For other options, see details 1g-1 to 1g-5.

1h

Notes:

1. Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.
2. For nailing schedules for Nordic NI-60 or NI-80 or NI-90, see the manufacturer's recommendations.

1m

Notes:

1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8-inch to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. For flange width of 2-1/2 inches, nail joists together with two rows of 3-inch nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist (total of four nails per foot). For flange width of 3-1/2 inches, use two rows of 3-inch nails at 6 inches o.c. on each side of the double I-joist (total of eight nails per foot).
5. The maximum factored load that may be applied to one side of the double I-joist using this detail is 860 dfbft.

1n

Notes:

1. Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.
2. For hanger resistance, see manufacturer's recommendations.
3. Verify double I-joist resistance to support concentrated loads.
4. Backer blocks must be long enough to permit required nailing without splitting.

1p **1r** **1s-1**

Notes:

1. In some local codes, blocking panels are prescriptively required in the first joist space (or first and second joist spaces) next to the starter joist. Where required, see local code requirements for spacing of the blocking panels. As a minimum, it is recommended to use blocking panels spaced at 4 feet on centre.
2. Details shown are for minimum blocking attachment. Transfer of lateral loads may require additional fasteners. In such cases, nail size, spacing and specific design detailing shall be provided by the building designer.
3. Where blocking panels are required between adjacent joists, the blocking panels can be staggered by approximately 3 inches, and end-nailed as shown.
4. Nails attaching lumber piece to I-joist web should be driven from the web side and clinched on the lumbar side.

Filler Block Requirements for Double I-joist Construction

Flange width (in.)	Net depth (in.)	Filler block size (in.)	Example
2-1/2	9-1/2	2-1/8 to 2-1/4 x 6	2x8 + 5/8" or 3/4" sheathing
	11-7/8	2-1/8 to 2-1/4 x 8	2x8 + 5/8" or 3/4" sheathing
	14	2-1/8 to 2-1/4 x 10	2x10 + 5/8" or 3/4" sheathing
3-1/2	9-1/2	3 x 6	2 x 2x6
	11-7/8	3 x 8	2 x 2x6
	14	3 x 10	2 x 2x10

Notes:

1. The height of the filler block may be different from that specified in the table, as long as it allows nailing and respects the required gap.

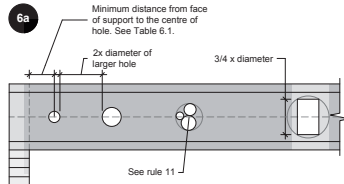
1t **1u** **1v** **1w** **1x** **1y** **1z** **1aa** **1ab** **1ac** **1ad** **1ae** **1af** **1ag** **1ah** **1ai** **1aj** **1ak** **1al** **1am** **1an** **1ao** **1ap** **1aq** **1ar** **1as** **1at** **1au** **1av** **1aw** **1ax** **1ay** **1az** **1ba** **1bb** **1bc** **1bd** **1be** **1bf** **1bg** **1bh** **1bi** **1bj** **1bk** **1bl** **1bm** **1bn** **1bo** **1bp** **1bq** **1br** **1bs** **1bt** **1bu** **1bv** **1bw** **1bx** **1by** **1bz** **1ca** **1cb** **1cc** **1cd** **1ce** **1cf** **1cg** **1ch** **1ci** **1cj** **1ck** **1cl** **1cm** **1cn** **1co** **1cp** **1cq** **1cr** **1cs** **1ct** **1cu** **1cv** **1cw** **1cx** **1cy** **1cz** **1da** **1db** **1dc** **1dd** **1de** **1df** **1dg** **1dh** **1di** **1dj** **1dk** **1dl** **1dm** **1dn** **1do** **1dp** **1dq** **1dr** **1ds** **1dt** **1du** **1dv** **1dw** **1dx** **1dy** **1dz** **1ea** **1eb** **1ec** **1ed** **1ee** **1ef** **1eg** **1eh** **1ei** **1ej** **1ek** **1el** **1em** **1en** **1eo** **1ep** **1eq** **1er** **1es** **1et** **1eu** **1ev** **1ew** **1ex** **1ey** **1ez** **1fa** **1fb** **1fc** **1fd** **1fe** **1ff** **1fg** **1fh** **1fi** **1fj** **1fk** **1fl** **1fm** **1fn** **1fo** **1fp** **1fq** **1fr** **1fs** **1ft** **1fu** **1fv** **1fw** **1fx** **1fy** **1fz** **1ga** **1gb** **1gc** **1gd** **1ge** **1gf** **1gg** **1gh** **1gi** **1gj** **1gk** **1gl** **1gm** **1gn** **1go** **1gp** **1gq** **1gr** **1gs** **1gt** **1gu** **1gv** **1gw** **1gx** **1gy** **1gz** **1ha** **1hb** **1hc** **1hd** **1he** **1hf** **1hg** **1hh** **1hi** **1hj** **1hk** **1hl** **1hm** **1hn** **1ho** **1hp** **1hq** **1hr** **1hs** **1ht** **1hu** **1hv** **1hw** **1hx** **1hy** **1hz** **1ia** **1ib** **1ic** **1id** **1ie** **1if** **1ig** **1ih** **1ii** **1ij** **1ik** **1il** **1im** **1in** **1io** **1ip** **1iq** **1ir** **1is** **1it** **1iu** **1iv** **1iw** **1ix** **1iy** **1iz** **1ja** **1jb** **1jc** **1jd** **1je** **1jf** **1jg** **1jh** **1ji** **1jj** 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WEB HOLES AND OPENINGS

WEB HOLES IN I-JOISTS

Rules for Cutting Holes in I-Joists

1. The distance between the inside edge of the support and the centreline of any hole shall be in compliance with the requirements of Table 6.1.
2. I-joist top and bottom flanges must never be cut, notched or otherwise modified.
3. Whenever possible, field-cut holes should be centred on the middle of the web.
4. The maximum size hole 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 opening and the adjacent I-joist flange.
5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole - or twice the length of the longest side of the longest rectangular hole - and each hole must be sized and located in compliance with the requirements of Table 6.1.
7. Holes measuring 1-1/2 inch 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 shall be cut in accordance with the restrictions listed above and as illustrated in detail 6a.
10. Limit three maximum-size holes per span.
11. A group of round holes at approximately the same location shall be permitted if it meets the requirements for a single round hole circumscribed around them.

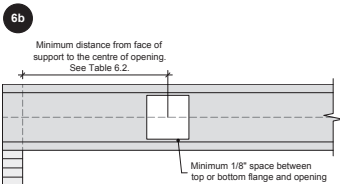


- Notes:**
1. Never drill, cut or notch the flange, or over-cut the web.
 2. Holes in web should be cut with a sharp saw.
 3. For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular 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.

DUCT CHASE OPENINGS

Rules for Cutting Duct Chase Openings in I-joists

1. The distance between the inside edge of the support and the centreline of a duct chase opening shall be in compliance with the requirements of Table 6.2.
2. I-joist top and bottom flanges must never be cut, notched or otherwise modified.
3. 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 opening and the adjacent I-joist flange.
4. All openings shall be cut in accordance with the restrictions listed above and as illustrated in detail 6b.
5. Limit one maximum-size duct chase opening per span.

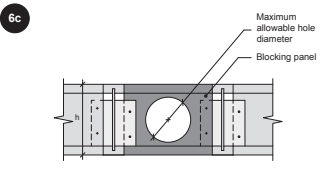


- Notes:**
1. Never drill, cut or notch the flange, or over-cut the web.
 2. Holes in web should be cut with a sharp saw.
 3. Avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 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.

HOLES IN BLOCKING PANELS

Maximum Allowable Hole Size in Lateral-restraint-only Blocking Panels

1. The maximum allowable hole size for a lateral-restraint-only blocking panel is 2/3 of the lesser dimension of the blocking's depth or length. Assuming the blocking panel is longer than its height (or depth), the table aside applies. For other applications, contact Nordic Structures.
2. Holes cut into the blocking panels are subject to the following limitations:
 - The top and bottom flanges of an I-joist blocking panel must never be cut, notched or otherwise modified.
 - Field-cut holes must be centred in the blocking horizontally.
 - While round holes are preferred, rectangle holes may be used provided the corners are not over cut. Slightly rounding corners or pre-drilling corners with a 1-inch-diameter bit is recommended.
3. All holes must be cut in a workman-like manner in accordance with the limitations listed above.

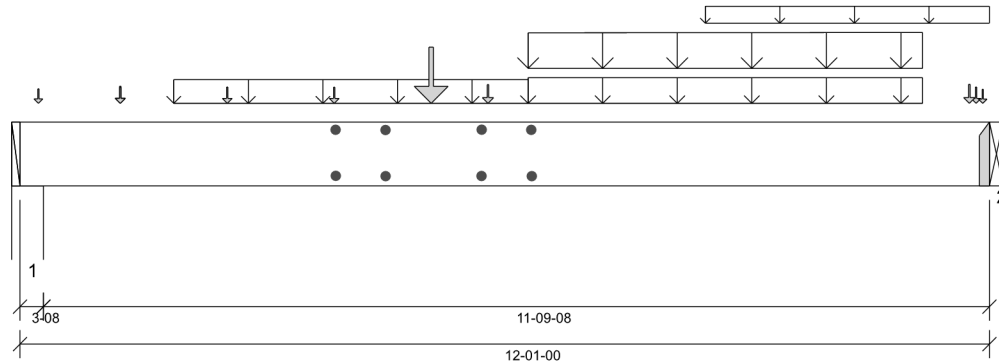


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Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
 8.5.3.233.Update5.15

Report Version: 2021.03.26 05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
 Design Methodology: LSD
 Service Condition: Dry
 LL Deflection Limit: L/360,
 TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:
 Top: 0' Bottom: 1'- 1 1/2"

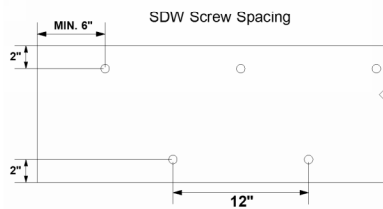
Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 2 1/2"
- 615 psi Beam @ 12'- 1"

PLY TO PLY CONNECTION: 2 STAGGERED ROWS OF SDW22634 SCREWS @ 12" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

(EXCEPT FOR AREAS COVERED BY CONCENTRATED LOAD FASTENING)



****SEE CONCENTRATED LOAD FASTENING ON PAGE 2****



STRUCTURAL COMPONENT ONLY
 DWG # TF23051618 PG 1/2

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'- 1 1/2"	1.25D + 1.5L + S	1.00	25768 lb ft	46599 lb ft	Passed - 55%
Factored Shear:	11'- 3 1/2"	1.25D + 1.5L + S	1.00	6518 lb	22105 lb	Passed - 29%
Live Load (LL) Pos. Defl.:	6'- 1 5/8"	L + 0.5S		0.243"	L/360	Passed - L/582
Total Load (TL) Pos. Defl.:	6'- 1 5/16"	D + L + 0.5S		0.434"	L/240	Passed - L/326
Permanent Deflection:	6'- 13/16"			-	L/360	Passed - L/764

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L + S	1.00	6412 lb		25480 lb	15073 lb	Passed - 43%
2	1-08	1.25D + 1.5L + S	1.00	7521 lb		10920 lb	-	Passed - 69%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories		
			Top	Face	Member			
2	HGUS7.25/10		-	-	-	Connector manually specified by the user.		

* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	12'- 1"	Self Weight	Top	19 lb/ft	-	-	-
Uniform	1'- 11"	6'- 4"	Smoothed Load	Front	69 lb/ft	138 lb/ft	-	-
Uniform	6'- 4"	11'- 3"	Smoothed Load	Front	83 lb/ft	165 lb/ft	-	-
Uniform	8'- 6 1/2"	12'- 1"	User Load	Top	60 lb/ft	-	-	-
Tapered	6'- 4"	11'- 3"	Smoothed Load	Back	153 To 155 lb/ft	306 To 310 lb/ft	-	-
Point	1'- 3"	1'- 3"	J3(i7345)	Front	91 lb	182 lb	-	-
Point	11'- 11"	11'- 11"	J3(i7296)	Front	67 lb	134 lb	-	-
Point	1'- 3"	1'- 3"	J4(i7314)	Back	60 lb	120 lb	-	-
Point	2'- 7"	2'- 7"	J4(i7282)	Back	67 lb	134 lb	-	-
Point	3'- 11"	3'- 11"	J4(i7284)	Back	64 lb	128 lb	-	-
Point	5'- 1 1/2"	5'- 1 1/2"	B27(i7093)	Back	1570 lb	362 lb	1865 lb	-
Point	5'- 10"	5'- 10"	J1(i7248)	Back	139 lb	277 lb	-	-
Point	11'- 10"	11'- 10"	J1(i7338)	Back	149 lb	298 lb	-	-
Point	0'- 2 3/4"	0'- 2 3/4"	6(i2376)	Top	47 lb	-	-	-
Point	12'	12'	FC7 Floor Decking (Plan View Fill)	Top	1 lb	2 lb	-	-

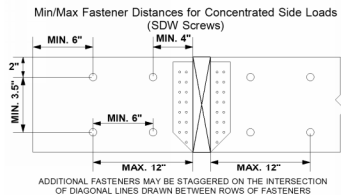
UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	E21(i1363)	1944 lb	1893 lb	1073 lb	-
2	12'- 1"	12'- 1"	B25(i7302)	2224 lb	2679 lb	792 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.

**FASTEN 8 SDW22634 SCREWS @
BEAM B27 AS PER SPACING
DIAGRAM BELOW
INSTALL FROM LOADED FACE**



DESIGN NOTES

- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

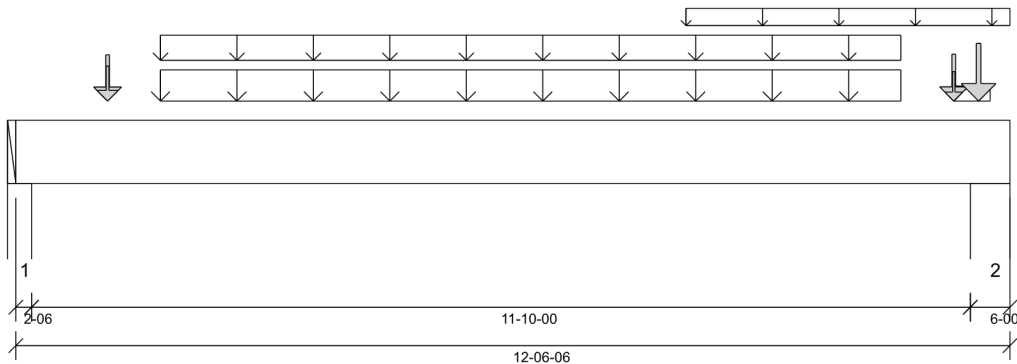
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 1'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 1 3/8"
- 615 psi Wall @ 12'- 1 3/8"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 8" O/C
NAIL FROM BOTH FACES (STAGGER 1/2 SPACE)

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 5 7/8"	1.25D + 1.5L	1.00	15142 lb ft	34949 lb ft	Passed - 43%
Factored Shear:	11'- 2 7/8"	1.25D + 1.5L	1.00	5222 lb	16578 lb	Passed - 31%
Live Load (LL) Pos. Defl.:	6'- 1 3/8"	L		0.242"	L/360	Passed - L/586
Total Load (TL) Pos. Defl.:	6'- 1 9/16"	D + L		0.381"	L/240	Passed - L/372

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-06	1.25D + 1.5L	1.00	4598 lb		12968 lb	7671 lb	Passed - 60%
2	6-00	1.25D + 1.5L	1.00	6140 lb		32760 lb	19379 lb	Passed - 32%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	12'- 6 3/8"	Self Weight	Top	14 lb/ft	-	-	-
Uniform	1'- 9 7/8"	11'- 1 7/8"	Smoothed Load	Front	116 lb/ft	232 lb/ft	-	-
Uniform	1'- 9 7/8"	11'- 1 7/8"	Smoothed Load	Back	75 lb/ft	149 lb/ft	-	-
Uniform	8'- 5 3/8"	12'- 6 3/8"	User Load	Top	60 lb/ft	-	-	-
Uniform	11'- 9 7/8"	12'- 3 3/8"	FC7 Floor Decking (Plan View Fill)	Top	4 lb/ft	9 lb/ft	-	-
Point	1'- 1 7/8"	1'- 1 7/8"	J2(i7272)	Front	138 lb	277 lb	-	-
Point	11'- 9 7/8"	11'- 9 7/8"	J2(i7337)	Front	141 lb	282 lb	-	-
Point	1'- 1 7/8"	1'- 1 7/8"	J3(i7345)	Back	89 lb	178 lb	-	-
Point	11'- 9 7/8"	11'- 9 7/8"	J3(i7296)	Back	66 lb	132 lb	-	-
Point	12'- 1 5/8"	12'- 1 5/8"	B25(i7302)	Back	210 lb	352 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/8"	E21(i1363)	1164 lb	2083 lb	-	-
2	12'- 3/8"	12'- 6 3/8"	5(i1365)	1690 lb	2698 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.

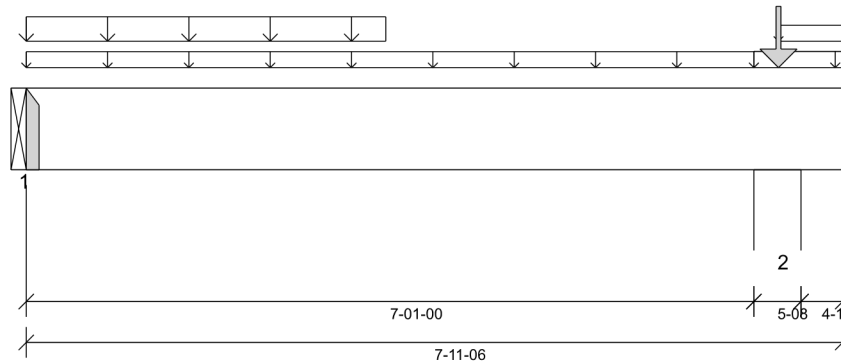


STRUCTURAL COMPONENT ONLY
DWG # TF23051619

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in Mitek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 7'- 3/8"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Wall @ 7'- 3 3/4"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN
NAILS (0.120"x3.25") @ 8" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.



STRUCTURAL COMPONENT ONLY
DWG # TF23051620 PG 1/2

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 8 13/16"	1.25D + 1.5L	1.00	1068 lb ft	23299 lb ft	Passed - 5%
Factored Shear:	0'- 9 1/2"	1.25D + 1.5L	1.00	698 lb	11052 lb	Passed - 6%
Total Load (TL) Pos. Defl.:	3'- 4 7/16"	D + L		0.014"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	1.00	782 lb		5460 lb	-	Passed - 14%
2	5-08	1.25D + 1.5L + S	1.00	7967 lb		20020 lb	11843 lb	Passed - 67%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories		
			Top	Face	Member			
1	HGUS410		-	-	-	Connector manually specified by the user.		

* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	7'- 11 3/8"	Self Weight	Top	9 lb/ft	-	-	-
Uniform	-0'	7'- 1"	FC7 Floor Decking (Plan View Fill)	Top	5 lb/ft	9 lb/ft	-	-
Uniform	-0'	3'- 6"	User Load	Front	60 lb/ft	120 lb/ft	-	-
Uniform	7'- 1"	7'- 11 3/8"	FC7 Floor Decking (Plan View Fill)	Top	6 lb/ft	12 lb/ft	-	-
Uniform	7'- 3 7/8"	7'- 11 3/8"	FC7 Floor Decking (Plan View Fill)	Top	4 lb/ft	8 lb/ft	-	-
Point	7'- 3 7/8"	7'- 3 7/8"	B23(i7143)	Back	2224 lb	2679 lb	792 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B24A(i7124)	210 lb	352 lb	-	-
2	7'- 1"	7'- 6 1/2"	4(i1364)	2339 lb	2828 lb	792 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- The deflection at the cantilever for either live and/or total loads is less than 1/4" and therefore has been excluded from the deflection ratio considerations.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- User loads assume a bearing length of 3.5" in determining member capacity for loads near supports.
- Bearing capacity of member at support 1, 2 was verified for the effect of concentrated load applied near the support. At support 2. Required Load Area: L=3.500", W=3.500". LDF=1.00, Pf=7591 lb, Qr=10920 lb, Result=69.51%.

PLY TO PLY CONNECTION



Town of Innisfil Certified Model

2023-08-01 2:07:12 PM openfold

Product: WESTFRASER LVL CONNECTION

Site: ALCONA SHORES

Model: RL-3

City: INNISFIL

Job Name: RL -3

Level: 3RD FLR FRAMING

Label: B25 - i7302

Type: Beam

2 Ply Member

1 3/4" x 9 1/2" (2.0E 3100)

WestFraser LVL

Status:

Design Passed

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.

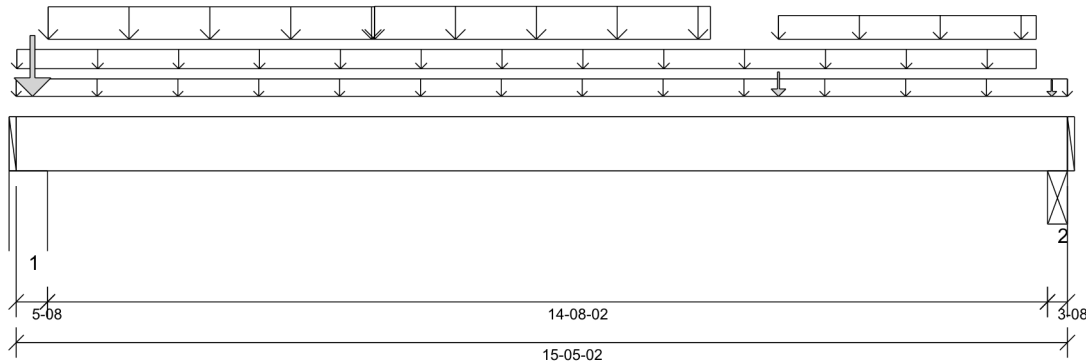


Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in Mitek® Structure Version
8.5.3.233.Update5.15

Report Version: 2021.03.26

05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 14'- 8 1/8"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 4 1/2"
- 1040 psi Beam @ 15'- 2 5/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	8'- 1 1/16"	1.25D + 1.5S + L	1.00	18742 lb ft	34949 lb ft	Passed - 54%
Factored Neg. Moment:	0'- 4 1/2"	1.25D + 1.5S + L	1.00	1032 lb ft	34949 lb ft	Passed - 3%
Factored Shear:	1'- 3"	1.25D + 1.5S + L	1.00	4527 lb	16578 lb	Passed - 27%
Live Load (LL) Pos. Defl.:	7'- 10 11/16"	S + 0.5L		0.428"	L/360	Passed - L/411
Total Load (TL) Pos. Defl.:	7'- 10 7/16"	D + S + 0.5L		0.718"	L/240	Passed - L/245
Permanent Deflection:	7'- 10 1/16"			-	L/360	Passed - L/626

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5S + L	1.00	12627 lb		30030 lb	17764 lb	Passed - 71%
2	3-08	1.25D + 1.5S + L	1.00	4884 lb		19110 lb	19110 lb	Passed - 26%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	15'- 5 1/8"	Self Weight	Top	14 lb/ft	-	-	-
Uniform	-0'	15'- 5 1/8"	FC7 Floor Decking (Plan View Fill)	Top	15 lb/ft	30 lb/ft	-	-
Uniform	0'- 1/8"	14'- 11 5/8"	E29(i2389)	Top	81 lb/ft	-	-	-
Uniform	0'- 5 5/8"	5'- 3 1/8"	E29(i2389)	Top	81 lb/ft	-	258 lb/ft	-
Uniform	5'- 3 1/8"	10'- 2 1/4"	E29(i2389)	Top	83 lb/ft	-	266 lb/ft	-
Uniform	11'- 2 1/4"	14'- 11 5/8"	E29(i2389)	Top	37 lb/ft	-	133 lb/ft	-
Point	0'- 2 7/8"	0'- 2 7/8"	E29(i2389)	Top	1304 lb	-	3920 lb	-
Point	11'- 2 1/4"	11'- 2 1/4"	E29(i2389)	Top	248 lb	-	799 lb	-
Point	15'- 2 3/8"	15'- 2 3/8"	E38(i6147)	Top	60 lb	-	89 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	4(i1364)	2809 lb	234 lb	5999 lb	-
2	15'- 1 5/8"	15'- 5 1/8"	B29 DR(i6975)	1400 lb	229 lb	1859 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- User loads assume a bearing length of 3.5" in determining member capacity for loads near supports.
- Bearing capacity of member at support 1, 2 was verified for the effect of concentrated load applied near the support. At support 1. Required Load Area: L=1.500", W=5.250". LDF=1.00, Pf=7510 lb, Qr=8190 lb, Result=91.70%.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



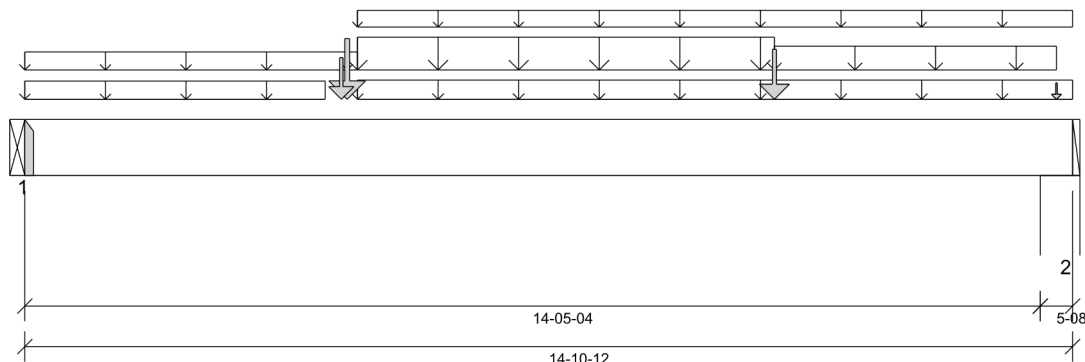
STRUCTURAL COMPONENT ONLY
DWG # TF23051621

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26

05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

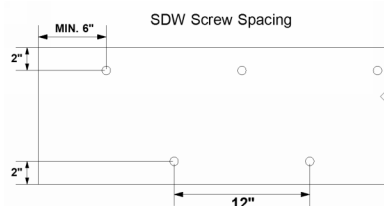
Top: 0' Bottom: 9'- 8 1/2"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Wall @ 14'- 6 1/4"

PLY TO PLY CONNECTION:
2 STAGGERED ROWS OF
SDW22634 SCREWS @ 12" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.



STRUCTURAL COMPONENT ONLY
DWG # TF23051622 PG 1/2

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 10 1/4"	1.25D + 1.5S + L	1.00	23283 lb ft	46599 lb ft	Passed - 50%
Factored Shear:	13'- 7 3/4"	1.25D + 1.5S + L	1.00	5223 lb	22105 lb	Passed - 24%
Live Load (LL) Pos. Defl.:	7'- 3 1/8"	S + 0.5L		0.387"	L/360	Passed - L/447
Total Load (TL) Pos. Defl.:	7'- 2 3/4"	D + S + 0.5L		0.643"	L/240	Passed - L/269
Permanent Deflection:	7'- 2 1/4"			-	L/360	Passed - L/698

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5S + L	1.00	5117 lb		10920 lb	-	Passed - 47%
2	5-08	1.25D + 1.5S + L	1.00	5770 lb		40040 lb	23685 lb	Passed - 24%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories		
			Top	Face	Member			
1	HGUS7.25/10		-	-	-	Connector manually specified by the user.		

* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	14'- 10 3/4"	Self Weight	Top	19 lb/ft	-	-	-
Uniform	0'	4'- 8 3/4"	FC7 Floor Decking (Plan View Fill)	Top	19 lb/ft	38 lb/ft	-	-
Uniform	0'	4'- 3 1/4"	User Load	Top	60 lb/ft	-	-	-
Uniform	4'- 8 3/4"	14'- 10 3/4"	E30(i2390)	Top	81 lb/ft	-	-	-
Uniform	4'- 8 3/4"	14'- 10 3/4"	FC7 Floor Decking (Plan View Fill)	Top	10 lb/ft	20 lb/ft	-	-
Uniform	4'- 8 3/4"	10'- 7 7/8"	E30(i2390)	Top	83 lb/ft	-	266 lb/ft	-
Uniform	10'- 7 7/8"	14'- 8"	E30(i2390)	Top	37 lb/ft	-	133 lb/ft	-
Point	4'- 7"	4'- 7"	B28(i7151)	Back	531 lb	198 lb	645 lb	-
Point	4'- 6"	4'- 6"	7(i2378)	Top	224 lb	-	574 lb	-
Point	10'- 7 7/8"	10'- 7 7/8"	E30(i2390)	Top	248 lb	-	799 lb	-
Point	14'- 8"	14'- 8"	E30(i2390)	Top	8 lb	-	30 lb	-
Point	14'- 8"	14'- 8"	E26(i2386)	Top	15 lb	-	17 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B23(i7143)	1570 lb	362 lb	1865 lb	-
2	14'- 5 1/4"	14'- 10 3/4"	E20(i1361)	1655 lb	231 lb	2310 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.



Town of Innisfil Certified Model

2023-08-01 2:07:13 PM ipenfold

Product: WESTFRASER LVL CONNECTION

Site: ALCONA SHORES

Model: RL-3

City: INNISFIL

Job Name: RL -3

Level: 3RD FLR FRAMING

Label: B27 - i7093

Type: Beam

4 Ply Member

1 3/4" x 9 1/2" (2.0E 3100)

WestFraser LVL

Status:

Design Passed

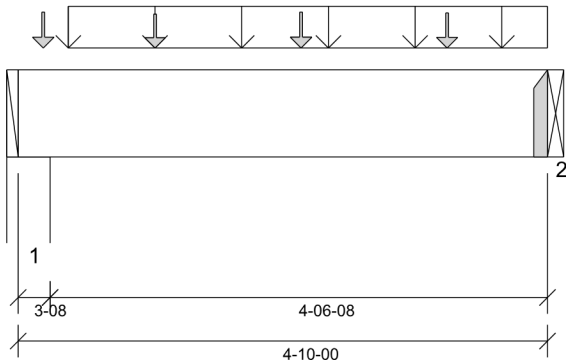
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



Illustration Not to Scale. Pitch: 0/12 Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 Report Version: 2021.03.26 05/25/2023 07:22



DESIGN INFORMATION	
Building Code:	NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology:	LSD
Service Condition:	Dry
LL Deflection Limit:	L/360,
TL Deflection Limit:	L/240,

Lateral Restraint Requirements:
Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:
Top: 0' Bottom: 1'- 1 1/2"

Factored Resistance of Support Material:
• 615 psi Wall @ 0'- 2 1/2"
• 615 psi Beam @ 4'- 10"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 6" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

STRUCTURAL COMPONENT ONLY
DWG # TF23051623

ANALYSIS RESULTS						
Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 7"	1.25D + 1.5S + L	1.00	2219 lb ft	23299 lb ft	Passed - 10%
Factored Shear:	4'- 1/2"	1.25D + 1.5S + L	1.00	1331 lb	11052 lb	Passed - 12%
Total Load (TL) Pos. Defl.:	2'- 6 5/16"	D + S + 0.5L		0.012"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION								
ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5S + L	1.00	1962 lb		12740 lb	7536 lb	Passed - 26%
2	1-08	1.25D + 1.5S + L	1.00	1858 lb		5460 lb	-	Passed - 34%

CONNECTOR INFORMATION						
ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
2	HGUS410		-	-	-	Connector manually specified by the user.
* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.						

SPECIFIED LOADS								
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 10"	Self Weight	Top	9 lb/ft	-	-	-
Uniform	0'- 5 1/2"	4'- 10"	7(i2378)	Top	181 lb/ft	-	285 lb/ft	-
Point	1'- 3"	1'- 3"	J4(i7314)	Front	60 lb	120 lb	-	-
Point	2'- 7"	2'- 7"	J4(i7282)	Front	67 lb	134 lb	-	-
Point	3'- 11"	3'- 11"	J4(i7284)	Front	64 lb	128 lb	-	-
Point	0'- 2 3/4"	0'- 2 3/4"	6(i2376)	Top	69 lb	-	131 lb	-

UNFACTORED REACTIONS							
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	E21(i1363)	566 lb	184 lb	733 lb	-
2	4'- 10"	4'- 10"	B27(i7093)	531 lb	198 lb	645 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

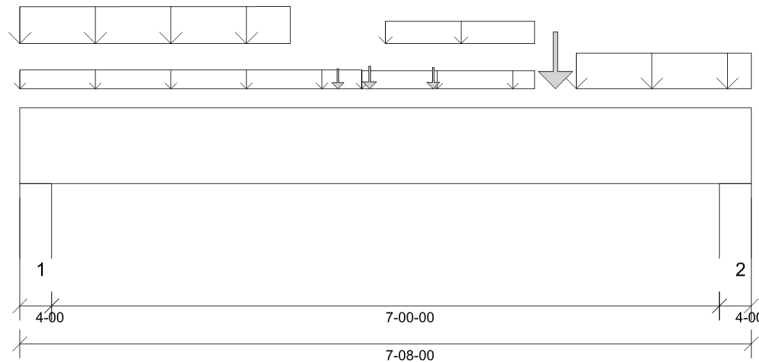
PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.5.3.233.Update5.15

Report Version: 2021.03.26 05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 1'- 10" Bottom: 7'- 8"

Factored Resistance of Support Material:

- 1334 psi Wall @ 0'- 3"
- 1334 psi Wall @ 7'- 5"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	4'- 4"	1.25D + 1.5S + L	1.00	10474 lb ft	23299 lb ft	Passed - 45%
Factored Shear:	6'- 6 1/2"	1.25D + 1.5S + L	1.00	5653 lb	11052 lb	Passed - 51%
Live Load (LL) Pos. Defl.:	4'- 1/2"	S + 0.5L		0.075"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	4'- 1/8"	D + S + 0.5L		0.134"	L/240	Passed - L/624

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4'-00"	1.25D + 1.5L + S	1.00	4403 lb		14560 lb	18681 lb	Passed - 30%
2	4'-00"	1.25D + 1.5S + L	1.00	6400 lb		14560 lb	18682 lb	Passed - 44%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	7'- 8"	Self Weight	Top	9 lb/ft	-	-	-
Uniform	-0'	3'- 7"	R1(i7329)	Top	100 lb/ft	-	-	-
Uniform	3'- 7"	5'- 4 3/4"	R1(i7329)	Top	81 lb/ft	-	-	-
Uniform	3'- 10"	5'- 4 3/4"	R1(i7329)	Top	37 lb/ft	-	133 lb/ft	-
Uniform	5'- 10"	7'- 8"	User Load	Top	110 lb/ft	-	343 lb/ft	-
Tapered	0'	2'- 10"	Smoothed Load	Top	159 To 162 lb/ft	319 To 323 lb/ft	-	-
Point	3'- 4"	3'- 4"	J1(i7240)	Top	153 lb	305 lb	-	-
Point	3'- 8"	3'- 8"	R1(i7329)	Top	195 lb	-	498 lb	-
Point	4'- 4"	4'- 4"	J1(i7239)	Top	191 lb	381 lb	-	-
Point	5'- 7 3/8"	5'- 7 3/8"	B26(i7080)	Top	1400 lb	229 lb	1859 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4"	E20(i1361)	1466 lb	1177 lb	911 lb	-
2	7'- 4"	7'- 8"	E33(i5038)	1765 lb	647 lb	2282 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
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- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



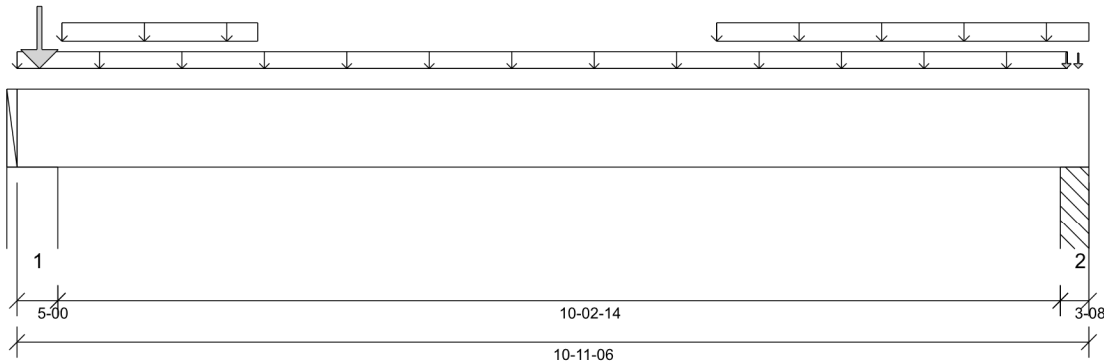
STRUCTURAL COMPONENT ONLY
DWG # TF23051624

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26

05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
 Design Methodology: LSD
 Service Condition: Dry
 LL Deflection Limit: L/360,
 TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 10'- 1 1/8"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 4"
- 615 psi Column @ 10'- 8 7/8"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 8" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.



STRUCTURAL COMPONENT ONLY
 DWG # TF23051625

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 9 5/8"	1.25D + 1.5L	0.79	863 lb ft	18364 lb ft	Passed - 5%
Factored Neg. Moment:	0'- 4"	1.25D + 1.5L	0.79	331 lb ft	17285 lb ft	Passed - 2%
Factored Shear:	1'- 2 1/2"	1.25D + 1.5L	0.79	368 lb	8711 lb	Passed - 4%
Total Load (TL) Pos. Defl.:	5'- 9 15/16"	D + L		0.025"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5'-00	1.25D + 1.5L	0.79	3635 lb		14345 lb	8486 lb	Passed - 43%
2	3'-08	1.4D	0.65	432 lb		8281 lb	4897 lb	Passed - 9%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	10'- 11 3/8"	Self Weight	Top	9 lb/ft	-	-	-
Uniform	0'	10'- 8 3/4"	FC5 Floor Decking (Plan View Fill)	Top	9 lb/ft	18 lb/ft	-	-
Uniform	0'- 5 1/2"	2'- 5 1/2"	User Load	Top	60 lb/ft	-	-	-
Uniform	7'- 1 3/4"	10'- 11 3/8"	User Load	Top	60 lb/ft	-	-	-
Point	0'- 2 3/4"	0'- 2 3/4"	E3(i360)	Top	1715 lb	672 lb	-	-
Point	10'- 8 5/8"	10'- 8 5/8"	3(i587)	Top	24 lb	-	-	-
Point	10'- 10 1/16"	10'- 10 1/16"	FC5 Floor Decking (Plan View Fill)	Top	1 lb	2 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5"	W9(i19)	2016 lb	790 lb	-	-
2	10'- 7 7/8"	10'- 11 3/8"	PBO8(i3856)	270 lb	71 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing capacity of member at support 1, 2 was verified for the effect of concentrated load applied near the support. At support 1. Required Load Area: L=1.500", W=3.500". LDF=0.79, Pf=3999 lb, Q'r=4644 lb, Result=86.11%.

PLY TO PLY CONNECTION

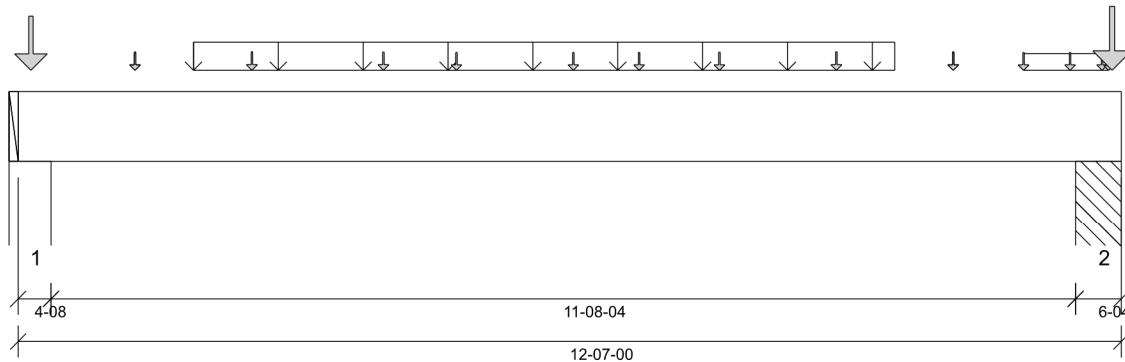
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26

05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
 Design Methodology: LSD
 Service Condition: Dry
 LL Deflection Limit: L/360,
 TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:
 Top: 0' Bottom: 1'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 3 1/2"
- 615 psi Column @ 12'- 1 3/4"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN
NAILS (0.120"x3.25") @ 8" O/C
 NAIL FROM BOTH FACES (STAGGER 1/2 SPACE)

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 4"	1.25D + 1.5L	1.00	11817 lb ft	34949 lb ft	Passed - 34%
Factored Neg. Moment:	12'- 1 3/4"	1.25D + 1.5L	1.00	4324 lb ft	34949 lb ft	Passed - 12%
Factored Shear:	11'- 3 1/4"	1.25D + 1.5L	1.00	5427 lb	16578 lb	Passed - 33%
Live Load (LL) Pos. Defl.:	6'- 1 7/16"	L		0.184"	L/360	Passed - L/764
Total Load (TL) Pos. Defl.:	6'- 1 5/16"	D + L		0.276"	L/240	Passed - L/508

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-08	1.25D + 1.5L	1.00	14429 lb		24570 lb	14529 lb	Passed - 99%
2	6-04	1.25D + 1.5L	1.00	18608 lb		34125 lb	20180 lb	Passed - 92%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	12'- 7"	Self Weight	Top	14 lb/ft	-	-	-
Uniform	2'	10'	Smoothed Load	Back	76 lb/ft	152 lb/ft	-	-
Uniform	11'- 5 5/8"	12'- 5 1/4"	FC5 Floor Decking (Plan View Fill)	Top	4 lb/ft	9 lb/ft	-	-
Point	1'- 4"	1'- 4"	J2(i7379)	Front	144 lb	288 lb	-	-
Point	2'- 8"	2'- 8"	J2(i7373)	Front	165 lb	330 lb	-	-
Point	4'- 2"	4'- 2"	J2DJ(i7405)	Front	148 lb	296 lb	-	-
Point	5'	5'	J2(i7351)	Front	114 lb	229 lb	-	-
Point	6'- 4"	6'- 4"	J2(i7184)	Front	110 lb	220 lb	-	-
Point	7'- 1"	7'- 1"	J2DJ(i7440)	Front	110 lb	220 lb	-	-
Point	8'	8'	J2(i7399)	Front	131 lb	262 lb	-	-
Point	9'- 4"	9'- 4"	J2(i7419)	Front	155 lb	311 lb	-	-
Point	10'- 8"	10'- 8"	J2(i7380)	Front	155 lb	310 lb	-	-
Point	12'	12'	J2(i7439)	Front	117 lb	234 lb	-	-
Point	1'- 4"	1'- 4"	J4(i7172)	Back	94 lb	188 lb	-	-
Point	10'- 8"	10'- 8"	J4(i7179)	Back	88 lb	177 lb	-	-
Point	11'- 5 5/8"	11'- 5 5/8"	B3(i7541)	Back	126 lb	218 lb	-	-
Point	12'- 4 3/8"	12'- 4 3/8"	B4(i7543)	Back	119 lb	223 lb	-	-
Point	0'- 1 3/4"	0'- 1 3/4"	E7(i363)	Top	2852 lb	4341 lb	-	-
Point	12'- 5 1/4"	12'- 5 1/4"	FC5 Floor Decking (Plan View Fill)	Top	1 lb	2 lb	-	-
Point	12'- 5 3/4"	12'- 5 3/4"	3(i587)	Top	3597 lb	5437 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 1/2"	-	3929 lb	6353 lb	-	-
++>	0'- 1 3/4"	0'- 1 3/4"	W7(i14)	3056 lb	4941 lb	-	-
++>	0'- 4"	0'- 4"	PBO9(i5597)	873 lb	1412 lb	-	-
2	12'- 3/4"	12'- 7"	PBO6(i44)	5086 lb	8160 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.





Town of Innisfil Certified Model

2023-08-01 2:07:14 PM ipenfold

PROJECT: BAYVIEW LUNATION

SITE: ALCONA SHORES

MODEL: RL-3

CITY: INNISFIL

Job Name: RL -3	3 Ply Member	Status:
Level: 1ST FLR FRAMING	1 3/4" x 9 1/2" (2.0E 3100)	Design
Label: B2 - i7542	WestFraser LVL	Passed
Type: Beam		

DESIGN NOTES

- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing capacity of member at support 1, 2 was verified for the effect of concentrated load applied near the support.
At support 1. Required Load Area: L=1.846", W=5.250". LDF=1.00, Pf=10077 lb, Q'r=10077 lb, Result=100.00%.
At support 2. Required Load Area: L=2.317", W=5.250". LDF=1.00, Pf=12652 lb, Q'r=12652 lb, Result=100.00%.

PLY TO PLY CONNECTION

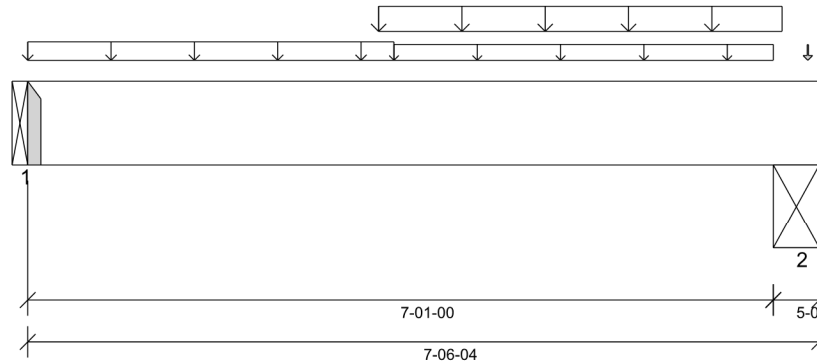
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Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
 Design Methodology: LSD
 Service Condition: Dry
 LL Deflection Limit: L/360,
 TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 7'- 1"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Beam @ 7'- 2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	4'- 1 1/4"	1.25D + 1.5L	1.00	1251 lb ft	11650 lb ft	Passed - 11%
Factored Shear:	6'- 3 1/2"	1.25D + 1.5L	1.00	584 lb	5526 lb	Passed - 11%
Live Load (LL) Pos. Defl.:	3'- 8 3/4"	L		0.021"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	3'- 8 11/16"	D + L		0.032"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	1.00	494 lb		2730 lb	-	Passed - 18%
2	5-04	1.25D + 1.5L	1.00	822 lb		9555 lb	5650 lb	Passed - 15%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Top	Face	Member	Other Information or Requirement for Reinforcement Accessories
1	HUS1.81/10		-	-	-	Connector manually specified by the user.

* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	7'- 6 1/4"	Self Weight	Top	5 lb/ft	-	-	-
Uniform	-0'	3'- 5 3/4"	FC5 Floor Decking (Plan View Fill)	Top	18 lb/ft	35 lb/ft	-	-
Uniform	3'- 4"	7'- 2"	User Load	Top	60 lb/ft	120 lb/ft	-	-
Uniform	3'- 5 3/4"	7'- 1"	FC5 Floor Decking (Plan View Fill)	Top	2 lb/ft	3 lb/ft	-	-
Point	7'- 4 15/16"	7'- 4 15/16"	FC5 Floor Decking (Plan View Fill)	Top	1 lb	1 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B2(i7542)	126 lb	218 lb	-	-
2	7'- 1"	7'- 6 1/4"	STL BM(i15)	209 lb	380 lb	-	-

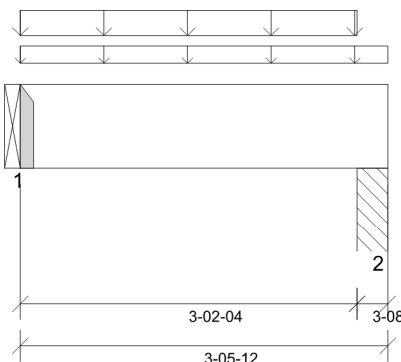
DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
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- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



STRUCTURAL COMPONENT ONLY
 DWG # TF23051627

Report Version: 2021.03.26 05/25/2023 07:22



ANALYSIS RESULTS

- 615 psi Beam @ 0'
- 615 psi Column @ 3'- 3 1/4"

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 7 5/8"	1.25D + 1.5L	1.00	403 lb ft	11650 lb ft	Passed - 3%
Factored Shear:	0'- 9 1/2"	1.25D + 1.5L	1.00	254 lb	5526 lb	Passed - 5%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	1.00	493 lb		2730 lb	-	Passed - 18%
2	3-08	1.25D + 1.5L	1.00	483 lb		6370 lb	3767 lb	Passed - 13%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	HUS1.81/10		-	-	-	Connector manually specified by the user.
* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.						

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'- 5 3/4"	Self Weight	Top	5 lb/ft	-	-	-
Uniform	-0'	3'- 5 3/4"	FC5 Floor Decking (Plan View Fill)	Top	10 lb/ft	19 lb/ft	-	-
Uniform	-0'	3'- 2 1/4"	User Load	Top	60 lb/ft	120 lb/ft	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B2(i7542)	119 lb	223 lb	-	-
2	3'- 2 1/4"	3'- 5 3/4"	PB05(i42)	122 lb	227 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



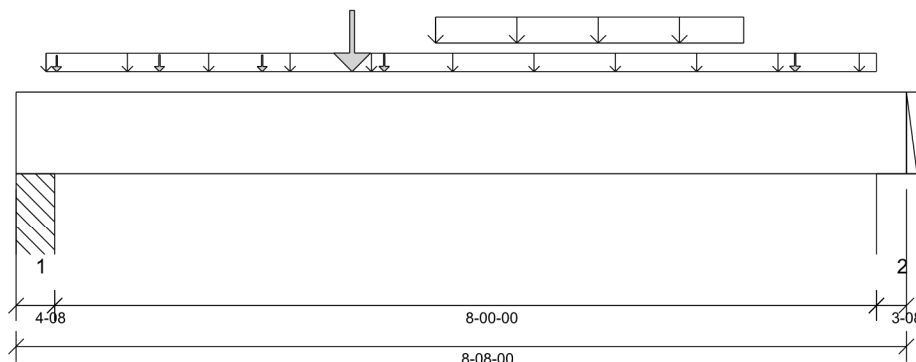
STRUCTURAL COMPONENT ONLY
DWG # TF23051628

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26

05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:
 Top: 0'- 3 1/2" Bottom: 0'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Column @ 0'- 3 1/2"
- 615 psi Wall @ 8'- 5 1/2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 3 1/4"	1.25D + 1.5L	1.00	10342 lb ft	11650 lb ft	Passed - 89%
Factored Shear:	1'- 2"	1.25D + 1.5L	1.00	3741 lb	5526 lb	Passed - 68%
Live Load (LL) Pos. Defl.:	4'- 2 1/16"	L		0.173"	L/360	Passed - L/554
Total Load (TL) Pos. Defl.:	4'- 2 1/8"	D + L		0.317"	L/240	Passed - L/302
Permanent Deflection:	4'- 2 3/16"			-	L/360	Passed - L/687

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-08	1.25D + 1.5L	1.00	3813 lb		8190 lb	4843 lb	Passed - 79%
2	3-08	1.25D + 1.5L	1.00	2842 lb		6370 lb	3768 lb	Passed - 75%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	8'- 8"	Self Weight	Top	5 lb/ft	-	-	-
Uniform	0'- 3 1/2"	8'- 4 1/2"	User Load	Top	60 lb/ft	-	-	-
Uniform	4'- 1"	7'- 1"	Smoothed Load	Back	70 lb/ft	140 lb/ft	-	-
Point	0'- 4 3/4"	0'- 4 3/4"	J5(i7552)	Back	19 lb	39 lb	-	-
Point	1'- 4 3/4"	1'- 4 3/4"	J5(i7537)	Back	37 lb	74 lb	-	-
Point	2'- 4 3/4"	2'- 4 3/4"	J5(i7389)	Back	33 lb	66 lb	-	-
Point	3'- 3 1/4"	3'- 3 1/4"	B9L-5R(i7550)	Back	1297 lb	1749 lb	-	-
Point	3'- 7"	3'- 7"	J4(i7102)	Back	47 lb	94 lb	-	-
Point	7'- 7"	7'- 7"	J4(i7297)	Back	66 lb	132 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 1/2"	PBO4(i39)	1274 lb	1481 lb	-	-
2	8'- 4 1/2"	8'- 8"	W19(i37)	961 lb	1093 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



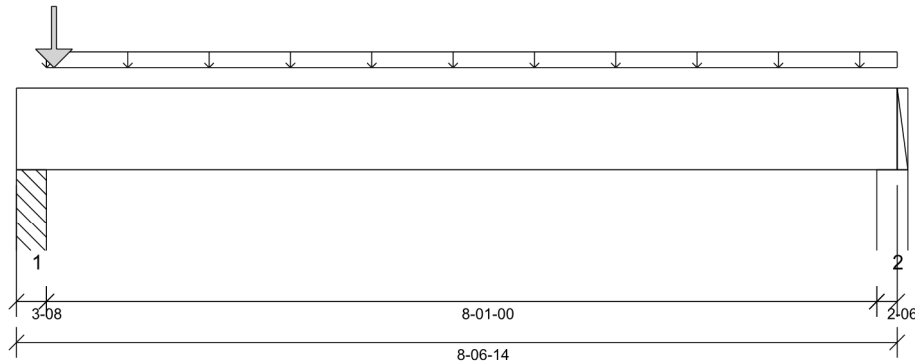
STRUCTURAL COMPONENT ONLY
 DWG # TF23051629

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.5.3.233.Update5.15

Report Version: 2021.03.26

05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018,
ABC 2019, OBC 2012 (2019
Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports
must be laterally restrained. Top and bottom edges
of the member must be fully restrained or have the
following maximum unbraced length:

Top: 0'- 3 1/2" Bottom: 7'- 11 1/4"

Factored Resistance of Support Material:

- 615 psi Column @ 0'- 2 1/2"
- 615 psi Wall @ 8'- 5 1/2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 3/4"	1.25D + 1.5L	1.00	266 lb ft	11650 lb ft	Passed - 2%
Factored Shear:	1'- 1"	1.25D + 1.5L	1.00	1264 lb	5526 lb	Passed - 23%
Total Load (TL) Pos. Defl.:	4'- 15/16"	D + L		0.010"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L	1.00	1281 lb		6370 lb	3767 lb	Passed - 34%
2	2-06	1.25D + 1.5L	1.00	102 lb		4322 lb	2557 lb	Passed - 4%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	8'- 6 7/8"	Self Weight	Top	5 lb/ft	-	-	-
Uniform	0'- 3 1/2"	8'- 6 7/8"	FC1 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Point	0'- 4 3/8"	0'- 4 3/8"	B11L(i7315)	Front	301 lb	568 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	PBO3(i38)	333 lb	592 lb	-	-
2	8'- 4 1/2"	8'- 6 7/8"	W18(i36)	33 lb	25 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

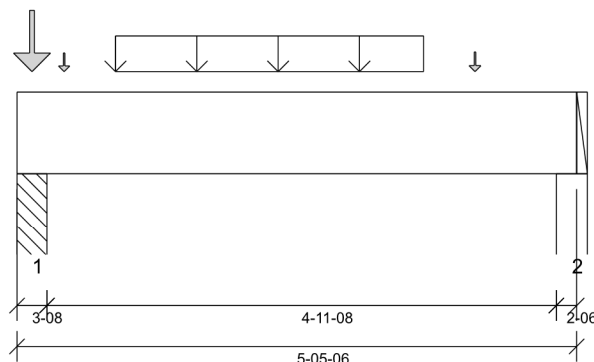


STRUCTURAL COMPONENT ONLY
DWG # TF23051630

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
 Design Methodology: LSD
 Service Condition: Dry
 LL Deflection Limit: L/360,
 TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 0'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Column @ 0'- 2 1/2"
- 615 psi Wall @ 5'- 4"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 5 1/2"	1.25D + 1.5L	1.00	1681 lb ft	23299 lb ft	Passed - 7%
Factored Neg. Moment:	0'- 2 1/2"	1.25D + 1.5L	1.00	345 lb ft	23299 lb ft	Passed - 1%
Factored Shear:	1'- 1"	1.25D + 1.5L	1.00	1516 lb	11052 lb	Passed - 14%
Total Load (TL) Pos. Defl.:	2'- 9 3/4"	D + L		0.011"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L	1.00	7049 lb		12740 lb	7534 lb	Passed - 94%
2	2-06	1.25D + 1.5L	1.00	1169 lb		8645 lb	5114 lb	Passed - 23%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	5'- 5 3/8"	Self Weight	Top	9 lb/ft	-	-	-
Uniform	0'- 11 1/2"	3'- 11 1/2"	Smoothed Load	Front	133 lb/ft	266 lb/ft	-	-
Point	0'- 1 3/4"	0'- 1 3/4"	B9L-5R(i7550)	Front	1625 lb	2326 lb	-	-
Point	0'- 5 1/2"	0'- 5 1/2"	J4(i7102)	Front	96 lb	191 lb	-	-
Point	4'- 5 1/2"	4'- 5 1/2"	J4(i7297)	Front	125 lb	250 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	PBO1(i32)	2058 lb	3102 lb	-	-
2	5'- 3"	5'- 5 3/8"	W19(i37)	238 lb	463 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing capacity of member at support 1, 2 was verified for the effect of concentrated load applied near the support. At support 1. Required Load Area: L=3.500", W=3.500". LDF=1.00, Pf=5520 lb, Q'r=8493 lb, Result=65.00%.

PLY TO PLY CONNECTION

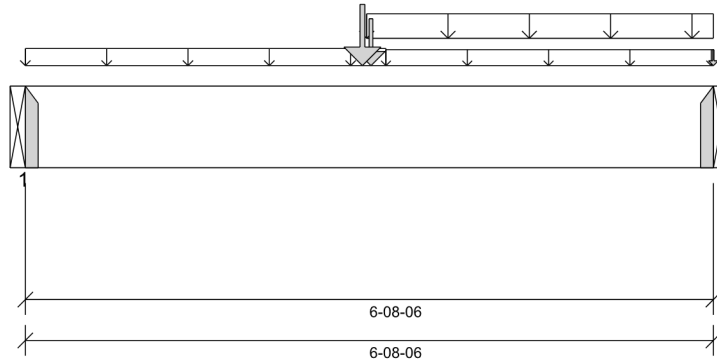
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



STRUCTURAL COMPONENT ONLY
 DWG # TF23051631

Job Name: RL -3	2 Ply Member	Status:
Level: 1ST FLR FRAMING	1 3/4" x 9 1/2" (2.0E 3100)	Design
Label: B9L-5R - i7554	WestFraser LVL	Passed
Type: Beam		

Illustration Not to Scale. Pitch: 0/12 Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 Report Version: 2021.03.26 05/25/2023 14:11



DESIGN INFORMATION		ANALYSIS RESULTS						
Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)		Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Design Methodology: LSD		Factored Pos. Moment:	3'- 3 3/8"	1.25D + 1.5L	1.00	13667 lb ft	23299 lb ft	Passed - 59%
Service Condition: Dry		Factored Shear:	5'- 10 7/8"	1.25D + 1.5L	1.00	4339 lb	11052 lb	Passed - 39%
LL Deflection Limit: L/360,		Live Load (LL) Pos. Defl.:	3'- 4 1/4"	L		0.077"	L/360	Passed - L/999
TL Deflection Limit: L/240,		Total Load (TL) Pos. Defl.:	3'- 4 3/16"	D + L		0.134"	L/240	Passed - L/598
Lateral Restraint Requirements:		SUPPORT AND REACTION INFORMATION						
Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:		ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member
Top: 0' Bottom: 3'- 2 5/8"		1	1-08	1.25D + 1.5L	1.00	4275 lb		5460 lb
		2	1-08	1.25D + 1.5L	1.00	4629 lb		5460 lb
Factored Resistance of Support Material:		CONNECTOR INFORMATION						
• 615 psi Beam @ 0'		ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
• 615 psi Beam @ 6'- 8 3/8"		1	HGUS410		Top	Face	Member	Connector manually specified by the user.
		2	HUC410 (MAX)		-	-	-	Connector manually specified by the user.
		* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.						
PLY TO PLY CONNECTION:		SPECIFIED LOADS						
3 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 6" O/C		Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)
		Self Weight	0'	6'- 8 3/8"	Self Weight	Top	9 lb/ft	-
		Uniform	0'	3'- 6 1/8"	FC2 Floor Decking (Plan View Fill)	Top	12 lb/ft	24 lb/ft
		Uniform	3'- 3 7/8"	6'- 8 3/8"	User Load	Top	60 lb/ft	120 lb/ft
		Uniform	3'- 6 1/8"	6'- 8 3/8"	FC2 Floor Decking (Plan View Fill)	Top	5 lb/ft	9 lb/ft
		Point	3'- 4 3/8"	3'- 4 3/8"	B10L-5R(i7549)	Back	974 lb	1267 lb
		Point	3'- 3 3/8"	3'- 3 3/8"	13(i4001)	Top	1406 lb	1852 lb
		Point	6'- 8 3/8"	6'- 8 3/8"	FC2 Floor Decking (Plan View Fill)	Top	14 lb	28 lb
PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.		UNFACTORED REACTIONS						
		ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)
		1	0'	0'	B6L-5R(i7555)	1248 lb	1653 lb	-
		2	6'- 8 3/8"	6'- 8 3/8"	B8L-5R(i7556)	1470 lb	2018 lb	-
STRUCTURAL COMPONENT ONLY		DESIGN NOTES						
		<ul style="list-style-type: none"> The dead loads used in the design of this member were applied to the structure as sloped dead loads. Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.) Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting. Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table. Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices. This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct. Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction. When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam. 						
DWG # TF23051632 PG 1/2		PLY TO PLY CONNECTION						





Town of Innisfil Certified Model

2023-08-01 2:07:15 PM ipenfold

Product: WESTFRASER LVL CONNECTION

Site: ALCONA SHORES

Model: RL-3

City: INNISFIL

Job Name: RL -3

Level: 1ST FLR FRAMING

Label: B9L-5R - i7554

Type: Beam

2 Ply Member

1 3/4" x 9 1/2" (2.0E 3100)

WestFraser LVL

Status:

Design Passed

PLY TO PLY CONNECTION

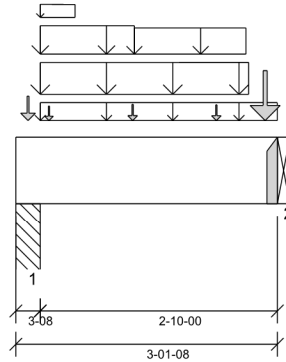
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0'- 3 1/2" Bottom: 0'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Column @ 0'- 2 1/2"
- 615 psi Beam @ 3'- 1 1/2"

PLY TO PLY CONNECTION:
 3 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 4" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 8 3/16"	1.25D + 1.5L	1.00	1622 lb ft	23299 lb ft	Passed - 7%
Factored Shear:	1'- 1"	1.25D + 1.5L	1.00	957 lb	11052 lb	Passed - 9%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L	1.00	2624 lb		12740 lb	7534 lb	Passed - 35%
2	1-08	1.25D + 1.5L	1.00	3305 lb		5460 lb	-	Passed - 61%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
2	HGUS410	-	-	-	-	Connector manually specified by the user.

* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'- 1 1/2"	Self Weight	Top	9 lb/ft	-	-	-
Uniform	0'- 3 1/2"	3'- 1 1/2"	13(i4001)	Top	131 lb/ft	-	-	-
Uniform	0'- 3 1/2"	1'- 5"	13(i4001)	Top	127 lb/ft	254 lb/ft	-	-
Uniform	0'- 3 1/2"	0'- 8 1/2"	13(i4001)	Top	5 lb/ft	10 lb/ft	-	-
Uniform	1'- 5"	2'- 9"	13(i4001)	Top	110 lb/ft	219 lb/ft	-	-
Tapered	0'- 3 1/2"	2'- 9 3/8"	13(i4001)	Top	249 To 250 lb/ft	216 To 218 lb/ft	-	-
Point	0'- 4 3/4"	0'- 4 3/4"	J5(i7552)	Front	21 lb	42 lb	-	-
Point	1'- 4 3/4"	1'- 4 3/4"	J5(i7537)	Front	40 lb	80 lb	-	-
Point	2'- 4 3/4"	2'- 4 3/4"	J5(i7389)	Front	36 lb	71 lb	-	-
Point	0'- 1 3/4"	0'- 1 3/4"	PBO8(i3856)	Top	312 lb	71 lb	-	-
Point	2'- 11 3/4"	2'- 11 3/4"	User Load	Top	400 lb	800 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	PBO2(i33)	1147 lb	918 lb	-	-
2	3'- 1 1/2"	3'- 1 1/2"	B9L-5R(i7550)	974 lb	1267 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
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- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.

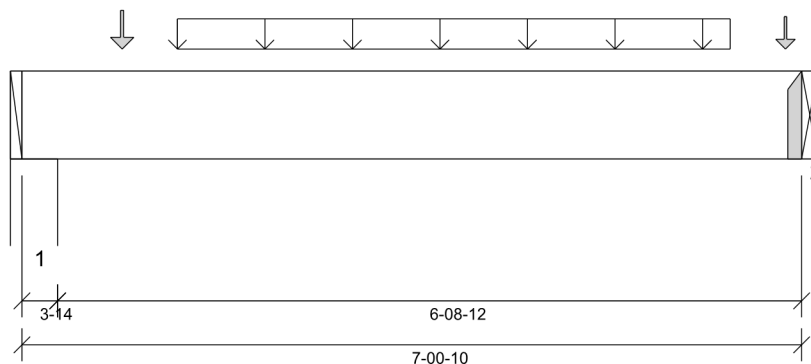


STRUCTURAL COMPONENT ONLY
 DWG # TF23051633

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
 Design Methodology: LSD
 Service Condition: Dry
 LL Deflection Limit: L/360,
 TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 0'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 2 7/8"
- 615 psi Beam @ 7'- 5/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 10 7/8"	1.25D + 1.5L	1.00	2078 lb ft	11650 lb ft	Passed - 18%
Factored Shear:	6'- 3 1/8"	1.25D + 1.5L	1.00	991 lb	5526 lb	Passed - 18%
Live Load (LL) Pos. Defl.:	3'- 7 3/4"	L		0.033"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	3'- 7 3/4"	D + L		0.050"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-14	1.25D + 1.5L	1.00	1128 lb		7052 lb	4172 lb	Passed - 27%
2	1-08	1.25D + 1.5L	1.00	1224 lb		2730 lb	-	Passed - 45%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Top	Face	Member	Other Information or Requirement for Reinforcement Accessories
2	HUS1.81/10		-	-	-	Connector manually specified by the user.

* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	7'- 5/8"	Self Weight	Top	5 lb/ft	-	-	-
Uniform	1'- 4 7/8"	6'- 4 7/8"	Smoothed Load	Front	83 lb/ft	166 lb/ft	-	-
Point	0'- 10 7/8"	0'- 10 7/8"	J3(i7347)	Front	75 lb	150 lb	-	-
Point	6'- 10 7/8"	6'- 10 7/8"	J3(i7221)	Front	54 lb	107 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 7/8"	W20(i46)	277 lb	519 lb	-	-
2	7'- 5/8"	7'- 5/8"	B7L(i7229)	301 lb	568 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

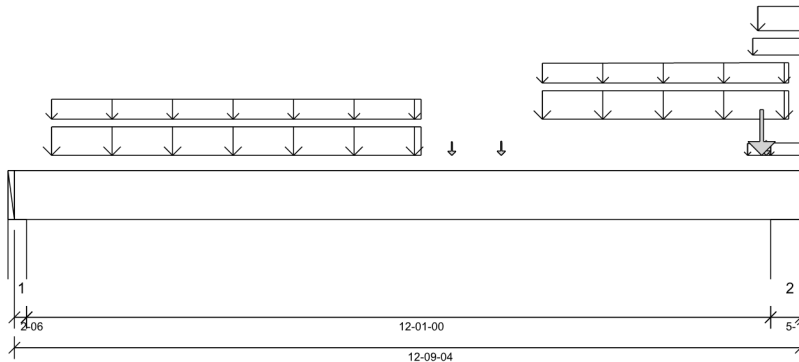


STRUCTURAL COMPONENT ONLY
 DWG # TF23051634

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
 Design Methodology: LSD
 Service Condition: Dry
 LL Deflection Limit: L/360,
 TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:
 Top: 0' Bottom: 1'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 1 3/8"
- 615 psi Wall @ 12'- 4 3/8"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN
NAILS (0.120"x3.25") @ 8" O/C
 NAIL FROM BOTH FACES (STAGGER 1/2 SPACE)

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 1 1/4"	1.25D + 1.5L + S	1.00	19347 lb ft	34949 lb ft	Passed - 55%
Factored Shear:	11'- 5 7/8"	1.25D + 1.5L + S	1.00	8283 lb	16578 lb	Passed - 50%
Live Load (LL) Pos. Defl.:	6'- 3 7/16"	L + 0.5S		0.332"	L/360	Passed - L/437
Total Load (TL) Pos. Defl.:	6'- 3 1/2"	D + L + 0.5S		0.511"	L/240	Passed - L/283
Permanent Deflection:	6'- 3 5/8"			-	L/360	Passed - L/833

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-06	1.25D + 1.5L + S	1.00	5684 lb		12968 lb	7671 lb	Passed - 74%
2	5-14	1.25D + 1.5L + S	1.00	15301 lb		32078 lb	18975 lb	Passed - 81%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	12'- 9 1/4"	Self Weight	Top	14 lb/ft	-	-	-
Uniform	0'- 7 1/4"	6'- 7 1/4"	Smoothed Load	Back	150 lb/ft	301 lb/ft	-	-
Uniform	0'- 7 1/4"	6'- 7 1/4"	Smoothed Load	Front	75 lb/ft	150 lb/ft	-	-
Uniform	8'- 6 7/8"	12'- 6 7/8"	Smoothed Load	Back	151 lb/ft	301 lb/ft	-	-
Uniform	11'- 10 7/8"	12'- 3 3/8"	FC6 Floor Decking (Plan View Fill)	Top	4 lb/ft	9 lb/ft	-	-
Uniform	11'- 11 7/8"	12'- 9 1/4"	4(i1364)	Top	141 lb/ft	-	-	-
Uniform	12'- 7/8"	12'- 9 1/4"	4(i1364)	Top	115 lb/ft	229 lb/ft	-	-
Uniform	12'- 3 3/8"	12'- 9 1/4"	FC6 Floor Decking (Plan View Fill)	Top	9 lb/ft	17 lb/ft	-	-
Tapered	8'- 6 7/8"	12'- 6 7/8"	Smoothed Load	Front	73 To 79 lb/ft	148 To 158 lb/ft	-	-
Point	7'- 1 1/4"	7'- 1 1/4"	J3(i7526)	Front	68 lb	136 lb	-	-
Point	7'- 10 7/8"	7'- 10 7/8"	J3(i7472)	Front	80 lb	161 lb	-	-
Point	12'- 2 1/2"	12'- 2 1/2"	B21(i7436)	Front	201 lb	369 lb	-	-
Point	7'- 1 1/4"	7'- 1 1/4"	J1(i7515)	Back	136 lb	271 lb	-	-
Point	7'- 10 7/8"	7'- 10 7/8"	J1(i7473)	Back	161 lb	321 lb	-	-
Point	12'- 1 5/8"	12'- 1 5/8"	4(i1364)	Top	2339 lb	2828 lb	792 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/8"	E7(i363)	1437 lb	2643 lb	24 lb	-
2	12'- 3 3/8"	12'- 9 1/4"	1(i365)	4183 lb	6135 lb	768 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing capacity of member at support 1, 2 was verified for the effect of concentrated load applied near the support. At support 2. Required Load Area: L=1.500", W=5.250". LDF=1.00, Pf=7958 lb, Q'r=8190 lb, Result=97.16%.





Town of Innisfil Certified Model

2023-08-01 2:07:16 PM ipenfold

Product: WESTFRASER LVL CONNECTION

Site: ALCONA SHORES

Model: RL-3

City: INNISFIL

Job Name: RL -3

Level: 2ND FLR FRAMING

Label: B19 - i7400

Type: Beam

3 Ply Member

1 3/4" x 9 1/2" (2.0E 3100)

WestFraser LVL

Status:

Design Passed

PLY TO PLY CONNECTION

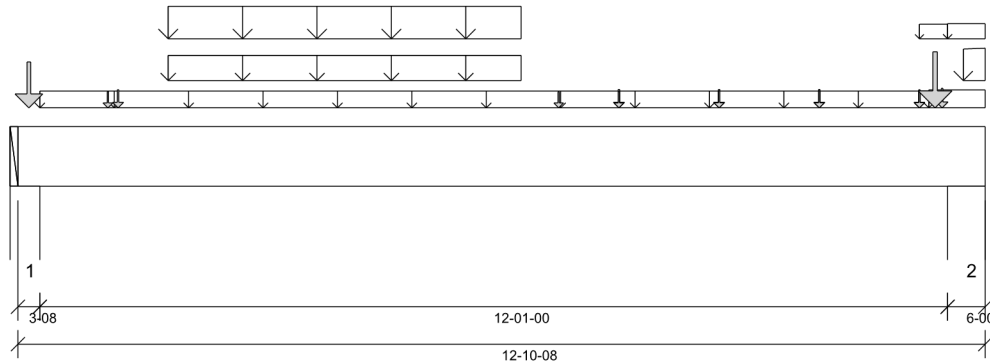
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in Mitek® Structure Version
8.5.3.233.Update5.15

Report Version: 2021.03.26 05/25/2023 07:22



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 1'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 2 1/2"
- 615 psi Wall @ 12'- 5 1/2"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN
NAILS (0.120"x3.25") @ 8" O/C
NAIL FROM BOTH FACES (STAGGER 1/2 SPACE)

PLY TO PLY CONNECTION ASSUMES ANY
SUPPORTED BEAM HANGERS ARE FASTENED
TO THIS BEAM WITH MIN. 3.5" FASTENERS.

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 8"	1.25D + 1.5L	1.00	17677 lb ft	34949 lb ft	Passed - 51%
Factored Neg. Moment:	0'- 2 1/2"	1.25D + 1.5L	1.00	292 lb ft	34949 lb ft	Passed - 1%
Factored Shear:	11'- 7"	1.25D + 1.5L	1.00	7529 lb	16578 lb	Passed - 45%
Live Load (LL) Pos. Defl.:	6'- 4 3/4"	L		0.278"	L/360	Passed - L/521
Total Load (TL) Pos. Defl.:	6'- 4 11/16"	D + L		0.471"	L/240	Passed - L/308
Permanent Deflection:	6'- 4 5/8"			-	L/360	Passed - L/777

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L	1.00	9949 lb		19110 lb	11304 lb	Passed - 88%
2	6-00	1.25D + 1.5L	1.00	12716 lb		32760 lb	19379 lb	Passed - 66%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	12'- 10 1/2"	Self Weight	Top	14 lb/ft	-	-	-
Uniform	0'- 3 1/2"	12'- 1 1/2"	User Load	Top	60 lb/ft	-	-	-
Uniform	2'	6'- 8 3/8"	Smoothed Load	Front	132 lb/ft	263 lb/ft	-	-
Uniform	2'	6'- 8 3/8"	Smoothed Load	Back	80 lb/ft	160 lb/ft	-	-
Uniform	12'	12'- 4 1/2"	FC6 Floor Decking (Plan View Fill)	Top	4 lb/ft	9 lb/ft	-	-
Uniform	12'- 1 1/2"	12'- 10 1/2"	5(i1365)	Top	82 lb/ft	2 lb/ft	-	-
Uniform	12'- 4 1/2"	12'- 10 1/2"	FC6 Floor Decking (Plan View Fill)	Top	8 lb/ft	17 lb/ft	-	-
Tapered	12'- 7"	12'- 10 1/2"	5(i1365)	Top	155 To 171 lb/ft	222 To 224 lb/ft	-	-
Point	1'- 4"	1'- 4"	J2(i7466)	Front	143 lb	286 lb	-	-
Point	8'	8'	J2(i7538)	Front	155 lb	309 lb	-	-
Point	9'- 4"	9'- 4"	J2(i7474)	Front	155 lb	309 lb	-	-
Point	10'- 8"	10'- 8"	J2(i7477)	Front	155 lb	309 lb	-	-
Point	12'	12'	J2(i7527)	Front	141 lb	282 lb	-	-
Point	1'- 2 3/8"	1'- 2 3/8"	J3(i7503)	Back	75 lb	150 lb	-	-
Point	7'- 2 3/8"	7'- 2 3/8"	J3(i7526)	Back	68 lb	136 lb	-	-
Point	8'	8'	J3(i7472)	Back	80 lb	161 lb	-	-
Point	9'- 4"	9'- 4"	J3(i7475)	Back	100 lb	201 lb	-	-
Point	10'- 8"	10'- 8"	J3(i7478)	Back	100 lb	201 lb	-	-
Point	12'	12'	J3(i7481)	Back	105 lb	210 lb	-	-
Point	12'- 3 5/8"	12'- 3 5/8"	B21(i7436)	Back	201 lb	369 lb	-	-
Point	0'- 1 3/4"	0'- 1 3/4"	E21(i1363)	Top	1232 lb	2090 lb	-	-
Point	12'- 2 1/2"	12'- 2 1/2"	5(i1365)	Top	1690 lb	2698 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	E7(i363)	2822 lb	4337 lb	-	-
2	12'- 4 1/2"	12'- 10 1/2"	3(i587)	3580 lb	5437 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.





Town of Innisfil Certified Model

2023-08-01 2:07:17 PM ipenfold

PROJECT: BAYVIEW LUNATION

SITE: ALCONA SHORES

MODEL: RL-3

CITY: INNISFIL

Job Name: RL -3	3 Ply Member	Status:
Level: 2ND FLR FRAMING	1 3/4" x 9 1/2" (2.0E 3100)	Design
Label: B20 - i7410	WestFraser LVL	Passed
Type: Beam		

DESIGN NOTES

- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing capacity of member at support 1, 2 was verified for the effect of concentrated load applied near the support.
At support 1. Required Load Area: L=1.500", W=5.250". LDF=1.00, Pf=4675 lb, Q'r=8190 lb, Result=57.08%.
At support 2. Required Load Area: L=1.500", W=5.250". LDF=1.00, Pf=6160 lb, Q'r=8190 lb, Result=75.21%.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.

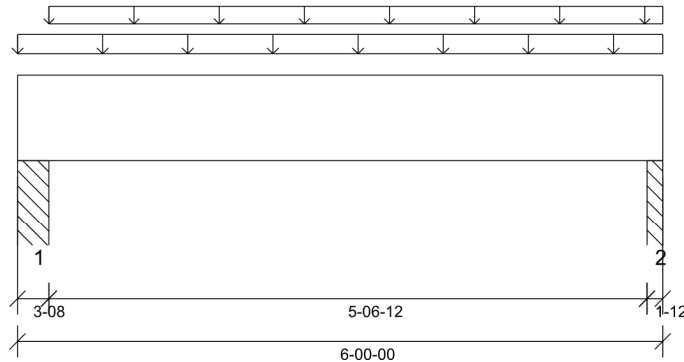


STRUCTURAL COMPONENT ONLY
DWG # TF23051637

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 05/25/2023 07:29



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 5'- 8 1/2"

Factored Resistance of Support Material:

- 615 psi Column @ 0'- 2 1/2"
- 615 psi Column @ 5'- 11 1/4"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 7/8"	1.25D + 1.5L	0.69	496 lb ft	8087 lb ft	Passed - 6%
Factored Shear:	1'- 1"	1.25D + 1.5L	0.69	241 lb	3836 lb	Passed - 6%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L	0.69	361 lb		4422 lb	2615 lb	Passed - 14%
2	1-12	1.25D + 1.5L	0.69	354 lb		2211 lb	1308 lb	Passed - 27%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	6'	Self Weight	Top	5 lb/ft	-	-	-
Uniform	0'	6'	User Load	Top	60 lb/ft	-	-	-
Uniform	0'- 3 1/2"	6'	FC5 Floor Decking (Plan View Fill)	Top	10 lb/ft	19 lb/ft	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	PBO7(i85)	226 lb	54 lb	-	-
2	5'- 10 1/4"	6'	PBO11(i126)	217 lb	55 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
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- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

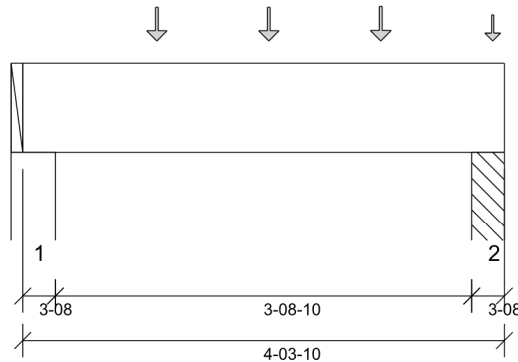


STRUCTURAL COMPONENT ONLY
DWG # TF23051638

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 05/25/2023 07:29



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 0'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 2 1/2"
- 615 psi Column @ 4'- 1 1/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 2 3/8"	1.25D + 1.5L	1.00	473 lb ft	11650 lb ft	Passed - 4%
Factored Shear:	3'- 2 5/8"	1.25D + 1.5L	1.00	392 lb	5526 lb	Passed - 7%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L	1.00	367 lb		6370 lb	3768 lb	Passed - 10%
2	3-08	1.25D + 1.5L	1.00	533 lb		6370 lb	3767 lb	Passed - 14%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 3 5/8"	Self Weight	Top	5 lb/ft	-	-	-
Point	1'- 2 3/8"	1'- 2 3/8"	J5(i3997)	Back	57 lb	114 lb	-	-
Point	2'- 2 3/8"	2'- 2 3/8"	J5(i4241)	Back	57 lb	114 lb	-	-
Point	3'- 2 3/8"	3'- 2 3/8"	J5(i4057)	Back	60 lb	120 lb	-	-
Point	4'- 2 3/8"	4'- 2 3/8"	J5(i4037)	Back	32 lb	63 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	W23(i93)	94 lb	168 lb	-	-
2	4'- 1/8"	4'- 3 5/8"	PBO10(i95)	132 lb	243 lb	-	-

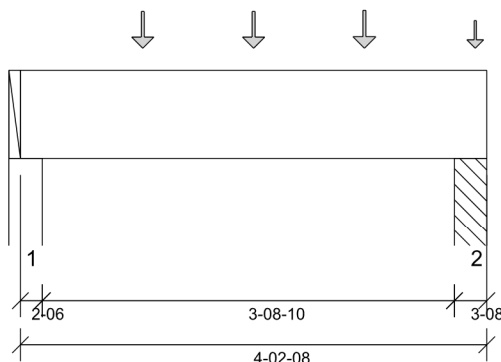
DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



STRUCTURAL COMPONENT ONLY
 DWG # TF23051639

05/25/2023 07:29



ANALYSIS RESULTS

- 615 psi Wall @ 0'- 1 3/8"
- 615 psi Column @ 4'

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 1 1/4"	1.25D + 1.5L	1.00	565 lb ft	11650 lb ft	Passed - 5%
Factored Shear:	3'- 1 1/2"	1.25D + 1.5L	1.00	469 lb	5526 lb	Passed - 8%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-06	1.25D + 1.5L	1.00	437 lb		4323 lb	2557 lb	Passed - 17%
2	3-08	1.25D + 1.5L	1.00	635 lb		6370 lb	3767 lb	Passed - 17%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 2 1/2"	Self Weight	Top	5 lb/ft	-	-	-
Point	1'- 1 1/4"	1'- 1 1/4"	J4(i4240)	Back	68 lb	137 lb	-	-
Point	2'- 1 1/4"	2'- 1 1/4"	J4(i4214)	Back	68 lb	137 lb	-	-
Point	3'- 1 1/4"	3'- 1 1/4"	J4(i4169)	Back	72 lb	144 lb	-	-
Point	4'- 1 1/4"	4'- 1 1/4"	J4(i3991)	Back	38 lb	75 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/8"	W21(j91)	110 lb	202 lb	-	-
2	3'- 11"	4'- 2 1/2"	PB08(i89)	156 lb	291 lb	-	-

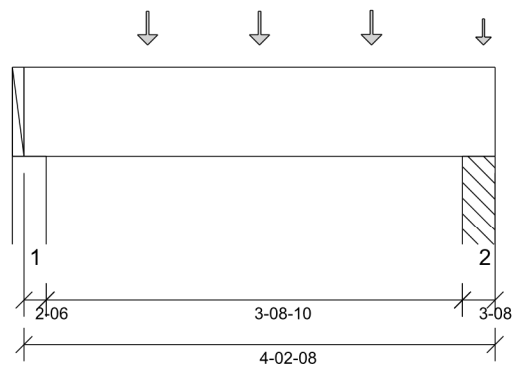
DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



STRUCTURAL COMPONENT ONLY
DWG # TF23051640

Illustration Not to Scale. Pitch: 0/12 Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 Report Version: 2021.03.26 05/25/2023 07:29



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
 Design Methodology: LSD
 Service Condition: Dry
 LL Deflection Limit: L/360,
 TL Deflection Limit: L/240,

Lateral Restraint Requirements:
 Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:
 Top: 0' Bottom: 0'- 9 1/2"

Factored Resistance of Support Material:
 • 615 psi Wall @ 0'- 1 3/8"
 • 615 psi Column @ 4'

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 1 1/4"	1.25D + 1.5L	1.00	473 lb ft	11650 lb ft	Passed - 4%
Factored Shear:	3'- 1 1/2"	1.25D + 1.5L	1.00	392 lb	5526 lb	Passed - 7%

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-06	1.25D + 1.5L	1.00	366 lb		4323 lb	2557 lb	Passed - 14%
2	3-08	1.25D + 1.5L	1.00	533 lb		6370 lb	3767 lb	Passed - 14%

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 2 1/2"	Self Weight	Top	5 lb/ft	-	-	-
Point	1'- 1 1/4"	1'- 1 1/4"	J5(i3997)	Front	57 lb	114 lb	-	-
Point	2'- 1 1/4"	2'- 1 1/4"	J5(i4241)	Front	57 lb	114 lb	-	-
Point	3'- 1 1/4"	3'- 1 1/4"	J5(i4057)	Front	60 lb	120 lb	-	-
Point	4'- 1 1/4"	4'- 1 1/4"	J5(i4037)	Front	32 lb	63 lb	-	-

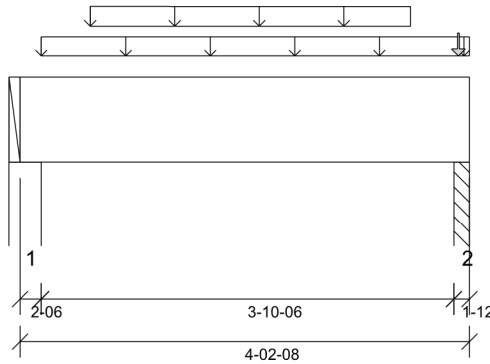
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/8"	W23(i93)	94 lb	168 lb	-	-
2	3'- 11"	4'- 2 1/2"	PBO9(i90)	132 lb	243 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
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- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



05/25/2023 07:29



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018,
ABC 2019, OBC 2012 (2019
Amendment)

Design Methodology:	LSD
Service Condition:	Dry
LL Deflection Limit:	L/360,
TL Deflection Limit:	L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 0'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 1 3/8"
- 615 psi Column @ 4'- 1 3/4"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 1 7/8"	1.25D + 1.5L	0.87	377 lb ft	10102 lb ft	Passed - 4%
Factored Shear:	3'- 3 1/4"	1.25D + 1.5L	0.87	248 lb	4792 lb	Passed - 5%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-06	1.25D + 1.5L	0.87	313 lb		3748 lb	2217 lb	Passed - 14%
2	1-12	1.25D + 1.5L	0.87	429 lb		2762 lb	1633 lb	Passed - 26%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 2 1/2"	Self Weight	Top	5 lb/ft	-	-	-
Uniform	0'- 2 3/8"	4'- 2 1/2"	User Load	Top	60 lb/ft	-	-	-
Tapered	0'- 7 7/8"	3'- 7 7/8"	Smoothed Load	Front	25 To 24 lb/ft	49 To 48 lb/ft	-	-
Point	4'- 1 1/4"	4'- 1 1/4"	J6(i4228)	Front	25 lb	49 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/8"	W7(i14)	162 lb	72 lb	-	-
2	4'- 3/4"	4'- 2 1/2"	PBO7(i85)	197 lb	123 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



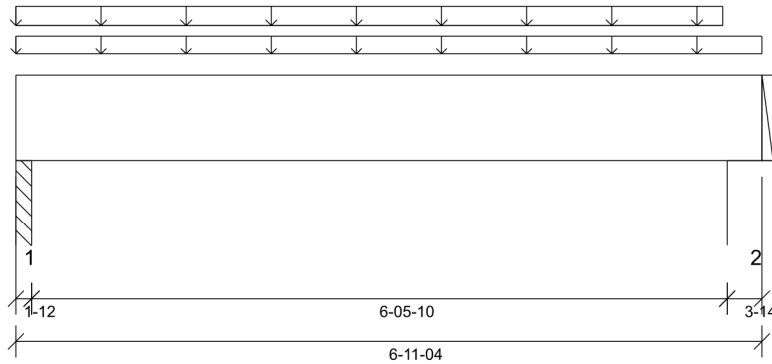
STRUCTURAL COMPONENT ONLY
DWG # TF23051642

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26

05/25/2023 07:29



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 6'- 7 3/8"

Factored Resistance of Support Material:

- 615 psi Column @ 0'- 3/4"
- 615 psi Wall @ 6'- 8 3/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 4 1/2"	1.25D + 1.5L	0.72	665 lb ft	8337 lb ft	Passed - 8%
Factored Shear:	5'- 9 7/8"	1.25D + 1.5L	0.72	296 lb	3955 lb	Passed - 7%
Total Load (TL) Pos. Defl.:	3'- 4 9/16"	D + L		0.017"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-12	1.25D + 1.5L	0.72	409 lb		2279 lb	1348 lb	Passed - 30%
2	3-14	1.25D + 1.5L	0.72	408 lb		5047 lb	2985 lb	Passed - 14%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	6'- 11 1/4"	Self Weight	Top	5 lb/ft	-	-	-
Uniform	0'	6'- 11 1/4"	FC5 Floor Decking (Plan View Fill)	Top	10 lb/ft	19 lb/ft	-	-
Uniform	0'	6'- 6 7/8"	User Load	Top	60 lb/ft	-	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 1 3/4"	PBO11(i126)	247 lb	64 lb	-	-
2	6'- 7 3/8"	6'- 11 1/4"	W22(i92)	247 lb	69 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
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- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



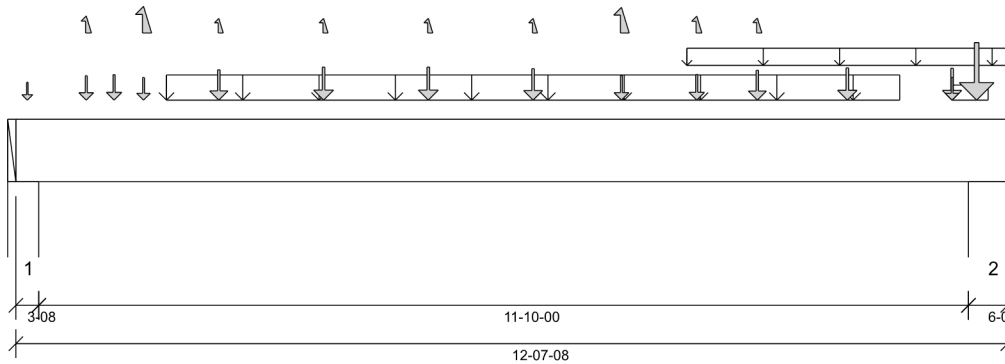
STRUCTURAL COMPONENT ONLY
DWG # TF23051643

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26

05/25/2023 07:38



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
 Design Methodology: LSD
 Service Condition: Dry
 LL Deflection Limit: L/360,
 TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 1'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 2 1/2"
- 615 psi Wall @ 12'- 2 1/2"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN
NAILS (0.120"x3.25") @ 8" O/C
 NAIL FROM BOTH FACES (STAGGER 1/2 SPACE)

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 7"	1.25D + 1.5L	1.00	14507 lb ft	34949 lb ft	Passed - 42%
Factored Shear:	11'- 4"	1.25D + 1.5L	1.00	5091 lb	16578 lb	Passed - 31%
Live Load (LL) Pos. Defl.:	6'- 2 1/2"	L		0.245"	L/360	Passed - L/579
Total Load (TL) Pos. Defl.:	6'- 2 3/4"	D + L		0.363"	L/240	Passed - L/391

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L	1.00	4498 lb		19110 lb	11304 lb	Passed - 40%
2	6-00	1.25D + 1.5L	1.00	6688 lb		32760 lb	19379 lb	Passed - 35%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	12'- 7 1/2"	Self Weight	Top	14 lb/ft	-	-	-
Uniform	1'- 11"	11'- 3"	Smoothed Load	Back	75 lb/ft	149 lb/ft	-	-
Uniform	8'- 6 1/2"	12'- 7 1/2"	User Load	Top	60 lb/ft	-	-	-
Uniform	11'- 11"	12'- 4 1/2"	FC7 Floor Decking (Plan View Fill)	Top	4 lb/ft	9 lb/ft	-	-
Point	0'- 10 3/4"	0'- 10 3/4"	J2(i5537)	Front	51 lb	191/-5 lb	-61 lb	-
Point	1'- 7 1/2"	1'- 7 1/2"	J2DJ(i5510)	Front	-39 lb	198/-5 lb	-254 lb	-
Point	2'- 7"	2'- 7"	J2(i5605)	Front	114 lb	270/-7 lb	-	-
Point	3'- 11"	3'- 11"	J2(i5604)	Front	137 lb	314/-8 lb	-	-
Point	5'- 3"	5'- 3"	J2(i5604)	Front	137 lb	314/-8 lb	-	-
Point	6'- 7"	6'- 7"	J2(i5602)	Front	122 lb	289/-7 lb	-	-
Point	7'- 8 1/2"	7'- 8 1/2"	J2DJ(i5600)	Front	-9 lb	245/-6 lb	-259 lb	-
Point	8'- 8"	8'- 8"	J2(i5500)	Front	67 lb	203/-5 lb	-56 lb	-
Point	9'- 5 1/4"	9'- 5 1/4"	B31(i5564)	Front	146 lb	227/-2 lb	-13 lb	-
Point	10'- 7"	10'- 7"	J3(i5608)	Front	144 lb	287 lb	-	-
Point	11'- 11"	11'- 11"	J3(i5579)	Front	141 lb	282 lb	-	-
Point	1'- 3"	1'- 3"	J4(i5442)	Back	89 lb	178 lb	-	-
Point	11'- 11"	11'- 11"	J4(i5393)	Back	66 lb	132 lb	-	-
Point	12'- 2 3/4"	12'- 2 3/4"	B25(i5475)	Back	370 lb	671 lb	-	-
Point	0'- 1 3/4"	0'- 1 3/4"	E45(i5466)	Top	49 lb	-	35 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	E44(i5464)	986 lb	2159/-32 lb	-359 lb	-
2	12'- 1 1/2"	12'- 7 1/2"	5(i1365)	1725 lb	3039/-21 lb	-249 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
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- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.





Town of Innisfil Certified Model

2023-08-01 2:07:19 PM ipenfold

Product: WESTFRASER LVL CONNECTION

Site: ALCONA SHORES

Model: RL-3

City: INNISFIL

Job Name: RL -3

Level: 3RD FLR FRAMING

Label: B24 - i5609

Type: Beam

3 Ply Member

1 3/4" x 9 1/2" (2.0E 3100)

WestFraser LVL

Status:

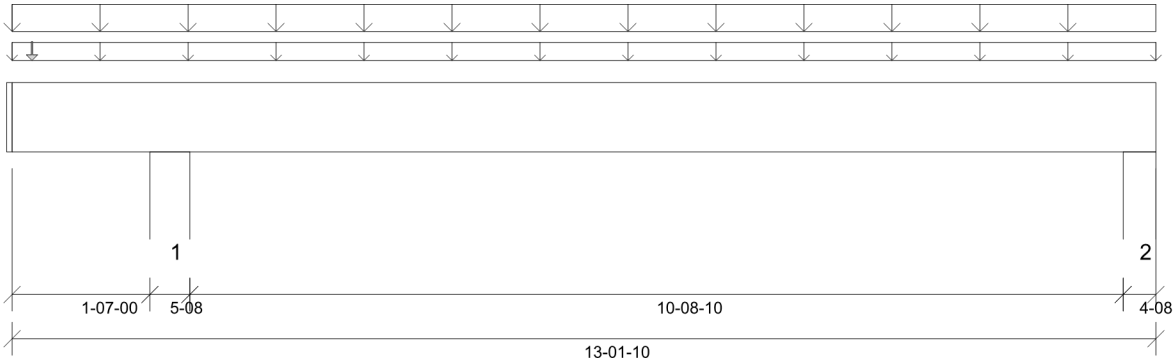
Design Passed

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



Illustration Not to Scale. Pitch: 0/12
Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15
Report Version: 2021.03.26
05/25/2023 07:38



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/180,

TL Deflection Limit: L/120,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 11'- 1 1/8"

Factored Resistance of Support Material:

- 615 psi Wall @ 1'- 9 3/4"
- 615 psi Wall @ 12'- 10 1/8"

PLY TO PLY CONNECTION:

3 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 8" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

STRUCTURAL COMPONENT ONLY

DWG # TF23051645

ANALYSIS RESULTS							
Design Criteria	Location	Load Combination	LDF	Design	Limit	Result	
Factored Pos. Moment:	7'- 5 11/16"	1.25D + 1.5L + S	0.81	3860 lb ft	18971 lb ft	Passed - 20%	
Factored Neg. Moment:	1'- 9 3/4"	1.25D + 1.5L + S	0.76	485 lb ft	16449 lb ft	Passed - 3%	
Factored Shear:	2'- 10"	1.25D + 1.5L + S	0.81	1246 lb	8999 lb	Passed - 14%	
Live Load (LL) Pos. Defl.:	7'- 4 1/2"	S + 0.5L		0.057"	L/360	Passed - L/999	
Live Load (LL) Neg. Defl.:	0'	S + 0.5L		0.029"	L/180	Passed - L/665	
Total Load (TL) Pos. Defl.:	7'- 4 9/16"	D + S + 0.5L		0.139"	L/240	Passed - L/923	
Total Load (TL) Neg. Defl.:	0'	D + S + 0.5L		0.069"	L/120	Passed - L/277	
Permanent Deflection:	0'			-	L/360	Passed - L/490	

SUPPORT AND REACTION INFORMATION							
ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support
1	5-08	1.25D + 1.5L + S	0.76	1890 lb		15119 lb	8943 lb
2	4-08	1.25D + 1.5L + S	0.81	1529 lb		13337 lb	7889 lb

SPECIFIED LOADS								
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	13'- 1 5/8"	Self Weight	Top	9 lb/ft	-	-	-
Uniform	-0'	13'- 1 5/8"	E45(i5466)	Top	111 lb/ft	-	80 lb/ft	-
Uniform	-0'	13'- 1 5/8"	FC7 Floor Decking (Plan View Fill)	Top	9 lb/ft	18 lb/ft	-	-
Point	0'- 2 3/4"	0'- 2 3/4"	E45(i5466)	Top	22 lb	-	-	-

UNFACTORED REACTIONS							
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	1'- 7"	2'- 1/2"	E37(i3754)	992 lb	134 lb	598 lb	-
2	12'- 9 1/8"	13'- 1 5/8"	E44(i5464)	730 lb	108/-3 lb	453 lb	-

- ### DESIGN NOTES

 - The dead loads used in the design of this member were applied to the structure as sloped dead loads.
 - Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
 - Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
 - Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
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 - When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- ### PLY TO PLY CONNECTION

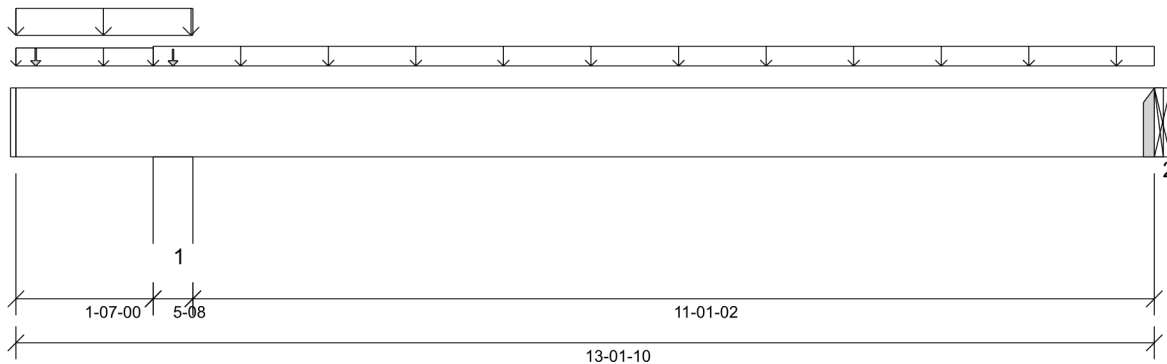
 - Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26

05/25/2023 07:38



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/180,

TL Deflection Limit: L/120,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 11'- 1 1/8"

Factored Resistance of Support Material:

- 615 psi Wall @ 1'- 9 3/4"
- 615 psi Beam @ 13'- 1 5/8"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN
NAILS (0.120"x3.25") @ 8" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	7'- 8 7/8"	1.25D + 1.5L	0.93	1359 lb ft	21743 lb ft	Passed - 6%
Factored Neg. Moment:	1'- 9 3/4"	1.25D + 1.5L + S	0.65	459 lb ft	14414 lb ft	Passed - 3%
Factored Shear:	2'- 10"	1.25D + 1.5L	0.93	457 lb	10314 lb	Passed - 4%
Live Load (LL) Pos. Defl.:	7'- 5 11/16"	L		0.029"	L/360	Passed - L/999
Live Load (LL) Neg. Defl.:	0'	L		0.015"	L/180	Passed - L/999
Total Load (TL) Pos. Defl.:	7'- 7"	D + L		0.045"	L/240	Passed - L/999
Total Load (TL) Neg. Defl.:	0'	D + L		0.020"	L/120	Passed - L/948

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5L + S	0.65	805 lb		13013 lb	7698 lb	Passed - 10%
2	1-08	1.25D + 1.5L	0.93	521 lb		5095 lb	-	Passed - 10%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Top	Face	Member	Nailing Requirements	Other Information or Requirement for Reinforcement Accessories
2	HGUS410		-	-	-		Connector manually specified by the user.
* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.							

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	13'- 1 5/8"	Self Weight	Top	9 lb/ft	-	-	-
Uniform	-0'	2'- 1/2"	E33(i3745)	Top	111 lb/ft	-	80 lb/ft	-
Uniform	-0'	1'- 7"	FC7 Floor Decking (Plan View Fill)	Top	9 lb/ft	18 lb/ft	-	-
Uniform	1'- 7"	13'- 1 5/8"	FC7 Floor Decking (Plan View Fill)	Top	19 lb/ft	38 lb/ft	-	-
Point	0'- 2 3/4"	0'- 2 3/4"	E33(i3745)	Top	8 lb	-	-	-
Point	1'- 9 3/4"	1'- 9 3/4"	E31(i3746)	Top	3 lb	-	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	1'- 7"	2'- 1/2"	E37(i3754)	455 lb	253 lb	176 lb	-
2	13'- 1 5/8"	13'- 1 5/8"	B24(i5609)	146 lb	227/-2 lb	-13 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION





Town of Innisfil Certified Model

2023-08-01 2:07:19 PM openfold

PROJECT: WESTFRASER LVL CONNECTION

SITE: ALCONA SHORES

MODEL: RL-3

CITY: INNISFIL

Job Name:

RL -3

Level:

3RD FLR FRAMING

Label:

B31 - i5564

Type:

Beam

2 Ply Member

1 3/4" x 9 1/2" (2.0E 3100)

WestFraser LVL

Status:

Design Passed

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



NORDIC STRUCTURES

Maximum Floor Spans – S2.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 15 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	5/8 in. nailed-glued oriented strand board (OSB) sheathing

Maximum Floor Spans

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

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

Notes:

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

NORDIC STRUCTURES

Maximum Floor Spans – S4.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 15 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued oriented strand board (OSB) sheathing

Maximum Floor Spans

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

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

Notes:

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

NORDIC STRUCTURES

Maximum Floor Spans – S6.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 15 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	5/8 in. nailed-glued Canadian softwood plywood

Maximum Floor Spans

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

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

Notes:

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

Maximum Floor Spans – S7.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 15 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued Canadian softwood plywood

Maximum Floor Spans

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

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

Notes:

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

NORDIC STRUCTURES

Maximum Floor Spans – M2.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	5/8 in. nailed-glued oriented strand board (OSB) sheathing

Maximum Floor Spans

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

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

Notes:

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

NORDIC STRUCTURES

Maximum Floor Spans – M4.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued oriented strand board (OSB) sheathing

Maximum Floor Spans

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

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

Notes:

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

NORDIC STRUCTURES

Maximum Floor Spans – M6.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	5/8 in. nailed-glued Canadian softwood plywood

Maximum Floor Spans

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

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

Notes:

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

NORDIC STRUCTURES

Maximum Floor Spans – M7.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued Canadian softwood plywood

Maximum Floor Spans

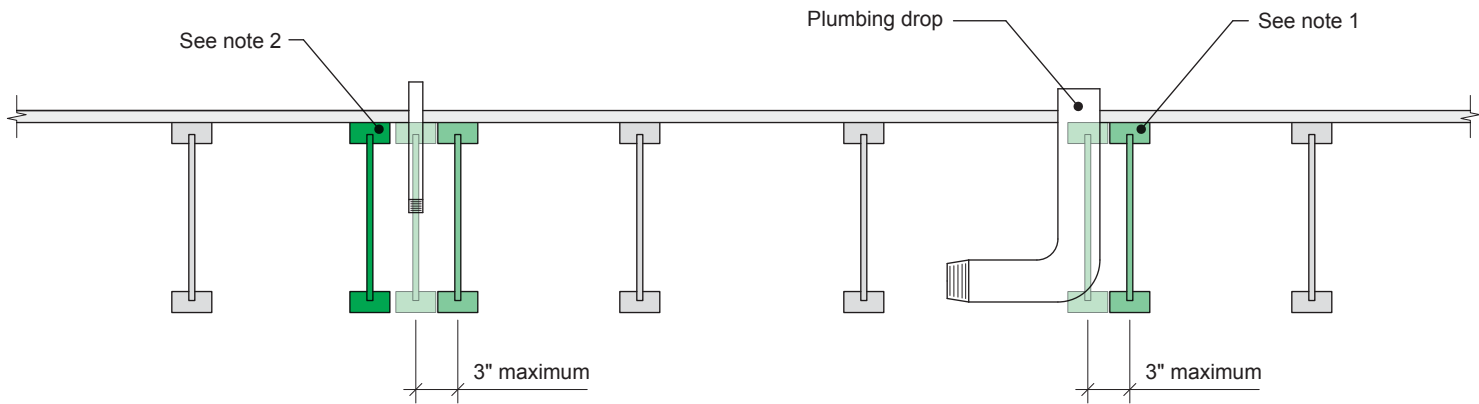
Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	16'-11"	15'-11"	15'-4"	14'-9"	17'-4"	16'-4"	15'-9"	14'-11"
	NI-60	17'-1"	16'-1"	15'-6"	14'-10"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

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

Notes:

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

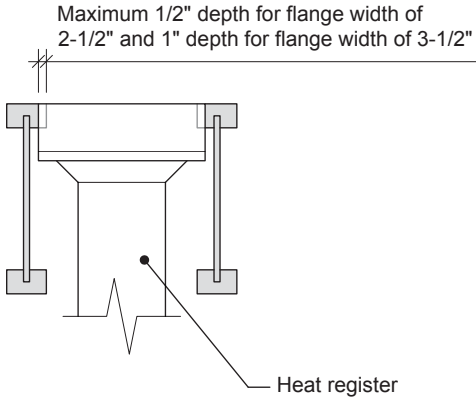
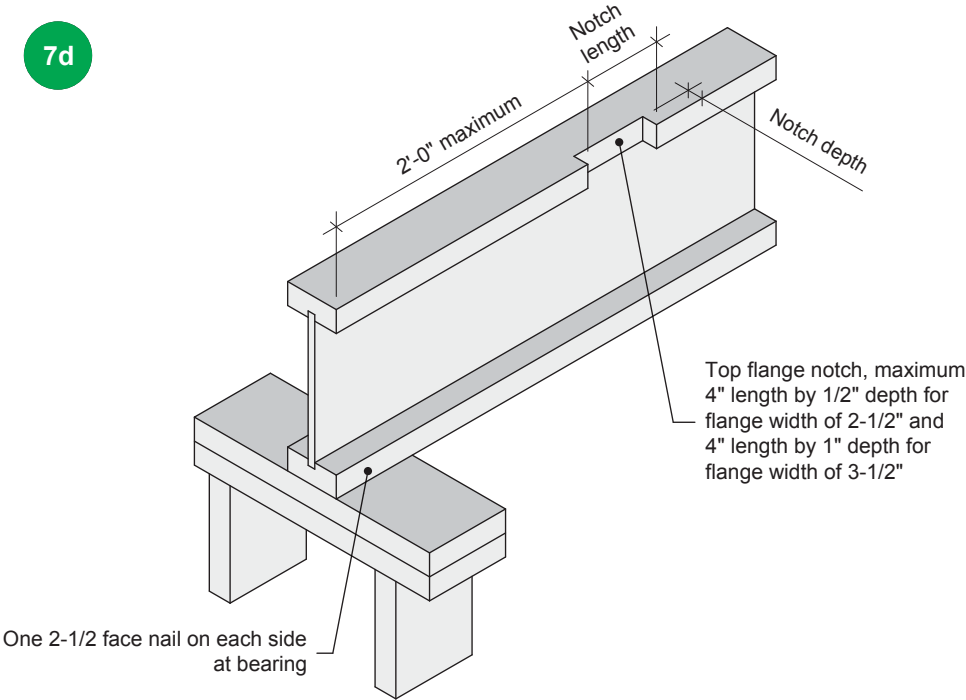
7c



- Notes:
- 1. To prevent interference with plumbing, a joist may be shifted up to 3 inches if the edge of the floor panel is supported and the span rating is not exceeded.
 - 2. In all other cases, an additional joist is required.

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.

7d



- 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 length by 1/2-inch depth for flange width of 2-1/2 inches, and 4-inch length 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.

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.